32 Chesterfield Avenue, London

Tree Protection Plan

Prepared for:

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NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

32 Chesterfield Avenue, London

Tree Protection Plan

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1.0 Introduction

Natural Resource Solutions Inc. (NRSI) was retained by Pearl Investments to complete a tree inventory and Tree Protection Plan (TPP) for a proposed residential development on an existing residential property located at 32 Chesterfield Avenue in London, Ontario (Map 1). This TPP is being completed in consideration of the City of London's Tree-Protection By-law (no. C.P.-1555-252) (2021b). The property is generally bound by Chesterfield Avenue and natural treed areas to the west, natural treed areas and the Thames River to the north, residential backyards fronting onto Gladstone Avenue to the east, and Veronica Avenue to the south (Map 1). For the purposes of this report, this property proposed for development, 32 Chesterfield Avenue, will be referred to as the "subject property".

This TPP was completed in consideration of The London Plan (City of London 2021a), the City of London Tree Protection By-law (no. C.P.-1555-252) (2021b) and Section 12 of the Design Specifications & Requirements Manual, Tree Planting and Protection Guidelines (City of London 2019), herein referred to as "the Design Specifications". However, the inventoried trees are not protected by the by-law, as outlined in criteria subsection (d), which provides exemption to trees to be removed:

"*As a condition to the approval of a site plan, a plan of subdivision or a consent under section 41, 51 or 53, respectively, of the Planning Act, or as a requirement of a site plan agreement or subdivision agreement entered into under those sections.*"

Despite this, a TPP was identified as a requirement for a complete application in the pre-consultation record. The London Plan, Tree Protection By-law and the Design Specifications were each considered and followed as applicable.

This report provides the findings of the tree inventory, analysis of proposed development against the trees' overall health and structural integrity, protection measures for trees to be retained, and recommended mitigation and compensation measures. Tree inventory data and mapping has been compared to the layout of the proposed Preliminary Concept Plan that is current at the time of writing of this report, and prepared by MHBC Planning (dated September 2023), as shown on Map 2.

2.0 Tree Inventory and Methodology

A comprehensive inventory and assessment of all trees with the potential to be impacted by the proposed development was completed by NRSI Certified Arborists on September 2nd and September 30th, 2020.

Individual trees ≥10cm Diameter at Breast Height (DBH) were surveyed using an SXBlue II GNSS GPS unit and are shown on Map 2. Where a tree had multiple stems, the DBH of each stem ≥10cm DBH was recorded. Trees labelled with a number on Map 2 were tagged, while trees labelled with a letter were not. A complete list of trees that were assessed and their overall health and potential for structural failure is included in Appendix I.

The following information was recorded for each tree:

- Tag number or alpha-identifier, where applicable,
- Species,
- DBH (centimetres),
- Approximate crown radius (metres),
- General health (excellent, good, fair, poor, very poor, dead),
- Potential for structural failure (improbable, possible, probable, imminent),
- Tree location (on-site/off-site/boundary), and
- General comments (i.e. disease, aesthetic quality, development constraints, sensitivity to development).

The overall health and potential for structural failure of each tree was assessed based on the criteria outlined in Appendix II (Dunster 2009; Dunster et al. 2013). NRSI has exercised a reasonable standard of care, skill and diligence as would be customarily and normally provided in carrying out these assessments. The assessments have been made using accepted arboricultural techniques. These include a visual examination of each tree for structural defects, scars, external indications of decay such as fungal fruiting bodies, evidence of insect attack, the condition of any visible root structures, the direction of stem lean (if any), the general condition of the trees and the surrounding site, and the current or planned proximity of property and people. None of the trees examined on the property were dissected, cored, probed, or climbed and detailed root crown examinations involving excavation were not undertaken. The conditions for this assessment, including restrictions, professional responsibility, and third-party liability can be found in Appendix III.

3.0 Summary of Tree Inventory Findings

In total, 113 trees were inventoried, comprising 21 species which are located throughout the proposed development and concentrated along the eastern and western boundaries along the north half of the property. Of the trees inventoried and assessed, 94 (83.2%) are native species and 19 (16.8%) are non-native.

A complete list of inventoried trees is provided in Appendix I and tree locations are shown on Map 2. Appendix IV includes both a list of tree species inventoried, their health, and whether they are native or non-native, as well as a summary of the overall health of the trees inventoried and their potential for structural failure.

None of the tree species inventoried are regionally significant or protected under the *Species at Risk Act* (2002) or *Endangered Species Act* (2007). There was one Species at Risk (SAR) tree observed within the subject property, a single Kentucky Coffee-tree (*Gymnocladus dioicus*), but it was not inventoried as it was ≤10cm DBH. Kentucky Coffee-tree is listed as threatened in its native range in Ontario under both the *Species at Risk Act* (2002) and *Endangered Species Act* (2007). The implications of this SAR are discussed within *32 Chesterfield Avenue, London: Subject Lands Status Report and Environmental Impact Study* (NRSI 2023).

4.0 Tree Removal and Retention Analysis

The existing overall health and/or potential for structural failure was compared to the proposed development layout to determine whether existing trees would be impacted by the proposed undertaking. Avoidance, mitigation, and protection measures for trees were examined to determine which trees would be impacted and which could be retained. The retention analysis presented below is based on the proposed Preliminary Concept Plan prepared by MHBC Planning (dated September 2023, Map 2).

Of the 113 inventoried trees, 28 are considered to be boundary trees due to their proximity to the property line. As per the *Forestry Act*, a boundary tree is considered any tree "whose trunk is growing on the boundary between adjoining lands" and is therefore the "common property of the owners of the adjoining lands" (1998, c. 18, Sched. I, s. 21). The removal or impact of boundary, off-site, or municipal trees requires the submission of written permission of all owners involved, as per the City of London Tree Protection By-Law (C.P.-1555-252). If the main stem of any tree is located on multiple properties, all owners of those properties must be consulted before any tree removal or impact occurs.

The results of this retention analysis (as seen on Map 2 and Appendix I) indicate that 74 inventoried trees have been proposed for retention. Following the boundary measurement standards set by the City of London's Tree Protection Zone (TPZ) requirements (2019), most of the trees to be retained are anticipated not to be impacted by the proposed development. Several off-property trees to be retained may be impacted, including Tree A, N, and O as their TPZ extends into the proposed development area. As Tree A, N, and O are off the subject property, permission to impact is required by the applicable landowners to approve this plan. This will be provided during the following design stage.

39 of the 113 inventoried trees are anticipated to require removal based on the extent of the proposed development, and/or due to their health and potential for structural failure. The majority of the trees proposed for removal are in fair health with an improbable or possible potential for structural failure, and range in size from 10.2cm to 84.6cm DBH. Two of the trees anticipated to be removed were identified as dead during the tree inventory; one Eastern Red Cedar (*Juniperus virginiana*) and one American Elm (*Ulmus americana).*

5.0 Compensation

It is understood that the London Plan subsection 399.4.b (2021a) is currently under review and therefore trees to be removed shall not be replaced through a replacement ratio method or cash-in-lieu for this application. Instead, tree compensation and replacement will be determined as part of the consent stage and will be a condition of consent, as per direction from the City of London.

6.0 Tree Protection Measures and Recommended Mitigation

6.1 Prior to Construction and Site Alteration

Temporary tree protection fencing (TPF) will be situated where trees are adjacent to proposed development as shown on Map 2. A combined sediment and erosion control fence (i.e., silt fence) and TPF is recommended where trees are situated adjacent to the limit of disturbance. This TPF is to take the form of plastic mesh fencing (such as snow fencing), t-bar stakes, heavy duty silt fencing, and topped with 2x4 beams, as outlined in the Design Specifications (City of London 2019). Detailed requirements and a corresponding fencing diagram from the Design Specifications can be found on Map 2.

The TPF will be installed and maintained by the Developer prior to any construction activities (rough grading, vegetation and tree removal). Prior to works commencing on-site, fence installation and location is to be inspected by a Certified Arborist or Registered Professional Forester. Keying in TPF around Tree N and E should be avoided in the areas shown on Map 2, to avoid additional root disturbance to nearby trees. Signage indicating the purpose of protection fencing will be attached to the TPF every 100-150m. Recommended signage, as outlined in the Design Specifications (City of London 2019), and suitable locations, are shown on Map 2.

Section 12.3 of the Design Specifications (City of London 2019) stipulates the minimum size of any TPZ based on the DBH of the protected trees. The TPZ for trees designated for retention are shown on Map 2, applying the protection distances specified for trees within Open Spaces and Woodlands as per the Design Specifications (City of London 2019). For some of the trees designated to be retained, the TPZ will not be possible to maintain to its full extent due to the proposed development plan.

As outlined in the Design Specifications (City of London 2019) any maintenance required on any tree that is designated for retention should be completed prior to construction. This can include, but is not limited to, crown pruning, deep root fertilization, tree watering, and/or soil replacement.

6.1.1 Tree Removal Timing Windows

Migratory Birds

The removal of trees and vegetation has the potential to disrupt nesting birds. The schedule of on-site work must consider the *Migratory Birds Convention Act* (MBCA) (Government of Canada

2019) construction window. All tree and vegetation removal should occur outside of the core nesting period for migratory birds as established by the Canadian Wildlife Service (CWS) (2012). This period extends from approximately April 1 – August 31. For any tree or vegetation removal which occurs during the core nesting period, nest surveys may be conducted by a qualified biologist within small, simple habitat areas (i.e., individual isolated trees and hedgerow trees as found on the subject property) just prior to the removal activity (less than 48hrs prior to) to ensure that nesting birds are not present. If active nests are present, nests and an appropriate buffer are to be flagged and protected until the young have fledged and left the nest.

Raptors

The eggs and nests of all species of wild birds are also protected under the *Fish and Wildlife Conservation Act* (Government of Ontario 1997). This includes species identified as raptors (eg., hawks and owls), which are not protected under the *Migratory Birds Convention Act*. It should be noted that some species of raptors breed and nest during the winter months in Ontario. Although the subject property does not contain suitable habitat for winter raptor nesting, care and consideration of the possible presence of winter nesting species should be executed should tree removal occur in the winter.

Species at Risk Bats

SAR bats and their habitats are protected by the *Endangered Species Act* (Government of Ontario 2007). In order to avoid impact to bats and their habitat, trees must be removed outside of the bat active roosting period, which extends from approximately April 1 – September 30. Prior to any tree removal during the active roosting period for bats, a bat habitat assessment will need to be undertaken during the leaf-off period to determine whether potential roosting habitat for SAR bats is present, and correspondence with the Ministry of Environment, Conservation and Parks (MECP) may be required.

All developers/consultants/contractors, etc. are legally obligated to carry out due diligence to protect wildlife species, as described above, from harm during all phases of construction projects. Timing windows represent recommendations to avoid contravention of the above-mentioned Acts, but it should be noted that the species, as mentioned above, are afforded protection regardless of the time of year.

6.2 During Construction

Temporary TPF is to be maintained by the Developer during the entire construction period to ensure that any trees being retained (including their root systems) are protected. Any minimal damage (i.e., damage to limbs or roots) to trees to be retained during construction must be pruned using proper arboricultural techniques. Should any of the trees intended to be retained be seriously damaged or die as a result of construction activities, consultation with the City will be required.

6.3 Post-Construction

It is recommended that the TPF be removed upon completion of construction activities and adjacent areas are stabilized with a suitable vegetative cover to the satisfaction of the Environmental Inspector or qualified biologist. Removal of TPF and revegetation will permit increased root development for the remaining trees. A Certified Arborist or Registered Professional Forester must inspect all retained trees and their rooting area, and recommend remediation work if needed, as outlined in Section 12.1.6 of the Design Specifications (City of London 2019). A post-construction remediation plan may be required if damage to retained trees is noted. Following remediation activities, if needed, a final assessment should be done to ensure all protocols were met, ensuring final project approval.

7.0 Conclusion

NRSI was retained by Pearl Investments to complete a tree inventory and Tree Protection Plan (TPP) for the property located at 32 Chesterfield Avenue in London, Ontario.

A comprehensive inventory and assessment of all trees with the potential to be impacted by the proposed development was completed by NRSI Certified Arborists on September 2nd and September 30th, 2020. A total of 113 trees belonging to 21 common native and non-native species were inventoried and assessed for removal within the subject property and boundaries. Of the 113 trees inventoried, 39 are designated for removal.

It is recommended that all proposed tree removals occur with consideration to the protection and general timing windows for migratory birds, raptors, and species at risk bats. It is required that written permission from impacted adjacent landowners be sought out and granted in advance of any boundary tree removals. TPF is to be installed prior to any on-site work, in order to provide adequate protection for retained trees and their root systems. All TPF is to conform to the specifications of Section 12.1.4 of the Design Specifications (City of London 2019).

Tree compensation and replacement information is not expected to be required; however, tree compensation and replacement will be determined as part of the consent stage and will be a condition of consent.

8.0 References

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Appendix I
Tree Inventory Data

32 Chesterfield Avenue, London - Tree Protection Plan
Tree Inventory Data

Tree Number	Common Name	Scientific Name	Native/ Non-native	Stem Count	DBH (cm)	Crown Radius (m)	Potential for Structural Failure Rating	Overall Condition	Location	Proposed Action	Tree Protection Zone[1] (m)	Comments
748	White Mulberry	*Morus alba*	Non-native	4	13.4+13.2+12	3.0	Improbable	Fair	Boundary	Remove	-	Leaning southwest; light pruning dieback; codominant leaders with included bark; damage at base.
749	Norway Maple	*Acer platanoides*	Non-native	1	45	5.0	Improbable	Good	On Property	Remove	-	Asymmetrical crown southwest; minor dieback; minor fruiting bodies; tar spots.
750	Norway Maple	*Acer platanoides*	Non-native	1	32	5.0	Improbable	Fair	On Property	Remove	-	Asymmetrical crown southwest; damage at base; small dead branches; tar spots.
751	Norway Maple	*Acer platanoides*	Non-native	1	46	6.0	Improbable	Fair	Boundary	Remove	-	Asymmetrical crown south; minor dead branches; large vertical seam with good reaction wood; tar spots.
752	Norway Maple	*Acer platanoides*	Non-native	2	34.4+21.5	6.0	Probable	Fair	On Property	Remove	-	Asymmetrical crown southeast; large dead branch; galleries; tar spots.
753	Norway Maple	*Acer platanoides*	Non-native	1	25	5.0	Possible	Fair	On Property	Remove	-	Asymmetrical crown northeast; open wounds; tar spots.
754	Norway Maple	*Acer platanoides*	Non-native	1	49	6.0	Possible	Fair	On Property	Remove	-	Codominant leaders with included bark; small dead branches; large vertical seam with good compartmentalization; tar spots.
755	Norway Maple	*Acer platanoides*	Non-native	1	47	5.0	Improbable	Fair	Boundary	Remove	-	Codominant leaders with included bark; small dead branches; early senescence; tar spots.
756	White Ash	*Fraxinus americana*	Native	1	54	5.0	Probable	Very Poor	On Property	Remove	-	Codominant leaders with included bark; 50% dieback; major dead branches; galleries; poor compartmentalization.
757	Eastern White Pine	*Pinus strobus*	Native	1	14	3.0	Improbable	Excellent	On Property	Remove	-	No apparent problems.
758	Eastern White Pine	*Pinus strobus*	Native	1	14	3.0	Improbable	Good	On Property	Remove	-	Codominant leaders.
759	Manitoba Maple	*Acer negundo*	Native	1	12	5.0	Possible	Good	On Property	Remove	-	Leaning west; minor light pruning.
760	White Mulberry	*Morus alba*	Non-native	1	14	5.0	Possible	Fair	On Property	Remove	-	Leaning west; suppressed; minor light pruning.
761	White Oak	*Quercus alba*	Native	1	70	7.0	Possible	Fair	On Property	Remove	-	Large vertical seam with good compartmentalization; large dead branches; vines.
762	Bur Oak	*Quercus macrocarpa*	Native	1	67	6.0	Improbable	Fair	On Property	Remove	-	Minor dieback; small dead branches.
763	Bur Oak	*Quercus macrocarpa*	Native	1	62	6.0	Improbable	Fair	On Property	Remove	-	Minor dieback; epicormic growth; small dead branches.
764	Manitoba Maple	*Acer negundo*	Native	1	49	10.0	Possible	Fair	On Property	Remove	-	Damage at base; major lean east; water sprouts.
765	Bur Oak	*Quercus macrocarpa*	Native	1	49	6.0	Improbable	Fair	On Property	Remove	-	Small dead branches; slightly asymmetrical crown.
766	Eastern Red Cedar	*Juniperus virginiana*	Native	1	15	2.0	Possible	Poor	On Property	Remove	-	Suppressed; included bark; dieback.
767	Eastern Red Cedar	*Juniperus virginiana*	Native	1	13	2.0	Possible	Poor	On Property	Remove	-	Suppressed; included bark; dieback.
768	Eastern Red Cedar	*Juniperus virginiana*	Native	1	12	2.5	Improbable	Fair	On Property	Remove	-	Suppressed; dieback.
769	Eastern Red Cedar	*Juniperus virginiana*	Native	1	15	2.0	Possible	Very Poor	On Property	Remove	-	Suppressed; major dieback.
770	White Mulberry	*Morus alba*	Non-native	3	16.1+14.5+16	5.0	Possible	Poor	On Property	Remove	-	Major damage at base; major dieback; codominant stems.
771	Black Walnut	*Juglans nigra*	Native	1	26	5.0	Improbable	Good	On Property	Remove	-	Minor dieback.
772	Bur Oak	*Quercus macrocarpa*	Native	1	31	4.0	Possible	Fair	On Property	Remove	-	Small dead branches; small crown.
773	Bur Oak	*Quercus macrocarpa*	Native	1	28	4.0	Possible	Fair	On Property	Remove	-	Small dead branches; small crown; vines.
774	Common Hackberry	*Celtis occidentalis*	Native	2	14+13.5	4.0	Improbable	Fair	On Property	Remove	-	Codominant leaders with included bark; damage near base; epicormic growth; slight lean east.
775	Norway Maple	*Acer platanoides*	Non-native	1	58	5.0	Improbable	Good	Off property	Remove	-	Minor dieback; potential girdling roots; chain around stem.
776	Bur Oak	*Quercus macrocarpa*	Native	1	64	7.0	Improbable	Good	On Property	Remove	-	Good form; minor dieback; small dead branches.
777	Norway Maple	*Acer platanoides*	Non-native	1	39	7.0	Improbable	Fair	On Property	Remove	-	Girdling roots; small dead branches; minor damage at base; minor dieback.
778	Eastern Red Cedar	*Juniperus virginiana*	Native	2	10.5+12.5	2.0	Possible	Very Poor	On Property	Remove	-	Suppressed; 90% dieback.
779	Eastern Red Cedar	*Juniperus virginiana*	Native	1	15	2.0	Possible	Very Poor	On Property	Remove	-	Suppressed; 90% dieback.
780	Eastern Red Cedar	*Juniperus virginiana*	Native	1	10	2.0	Probable	Dead	On Property	Remove	-	Recently dead.
781	American Elm	*Ulmus americana*	Native	1	38	4.0	Imminent	Dead	On Property	Remove	-	Large snag; leaning broken branch.
782	Thornless Honey Locust	*Gleditsia triacanthos var. inermis*	Non-native	1	55	6.0	Possible	Fair	On Property	Remove	-	Large dead branch; small dead branches; asymmetrical north; minor dieback.
783	Bur Oak	*Quercus macrocarpa*	Native	1	50	9.0	Improbable	Good	On Property	Retain	6	Overextended branches; asymmetrical crown west; minor dieback.
784	Sugar Maple	*Acer saccharum*	Native	1	85	8.0	Improbable	Good	Boundary	Retain	10.8	Exit holes; minor dieback; vigorous.
785	Norway Maple	*Acer platanoides*	Non-native	1	56	6.0	Improbable	Fair	On Property	Remove	-	Exposed roots; minor dieback; dead branches.
786	Bur Oak	*Quercus macrocarpa*	Native	1	70	6.0	Possible	Fair	On Property	Retain	9.6	Dead branches; dieback.
787	Norway Maple	*Acer platanoides*	Non-native	1	50	6.0	Improbable	Fair	On Property	Retain	7.2	Girdled roots; broken branches; tar spots.
788	Winged Euonymus	*Euonymus alatus*	Non-native	2	10.2+12.3	3.0	Possible	Poor	On Property	Retain	3.6	Codominant stems; bound stems; major dieback.
789	Black Walnut	*Juglans nigra*	Native	1	15	3.0	Improbable	Good	On Property	Retain	3.6	Minor dieback.
790	Black Walnut	*Juglans nigra*	Native	2	15.5+ 12.5	3.5	Improbable	Good	On Property	Retain	3.6	Codominant leaders with included bark; minor dieback; cankers.
791	Black Walnut	*Juglans nigra*	Native	2	19.4+ 24.6	4.5	Improbable	Fair	On Property	Retain	6	Codominant leaders with included bark; minor dieback; cankers.
792	Black Walnut	*Juglans nigra*	Native	2	22	4.5	Improbable	Good	On Property	Retain	3.6	Minor dieback.

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793	Black Walnut	*Juglans nigra*	Native	1	14	2.5	Improbable	Good	On Property	Retain	3.6	Minor dieback; minor vines.
794	Black Walnut	*Juglans nigra*	Native	1	14	4.0	Improbable	Fair	On Property	Retain	3.6	Growing on slope; dead branches; vines.
795	Norway Maple	*Acer platanoides*	Non-native	2	28+ 29.3	6.0	Improbable	Fair	On Property	Retain	7.2	Codominant leaders with included bark; small dead branches; minor dieback.
796	Northern Red Oak	*Quercus rubra*	Native	1	14	5.0	Improbable	Fair	On Property	Retain	3.6	Suppressed; fence through stem; asymmetrical crown south.
797	Northern Red Oak	*Quercus rubra*	Native	1	27	5.0	Improbable	Good	On Property	Retain	3.6	Minor epicormic growth.
798	Northern Red Oak	*Quercus rubra*	Native	1	17	3.5	Improbable	Good	Boundary	Retain	3.6	Asymmetrical crown south; minor dieback.
799	Northern Red Oak	*Quercus rubra*	Native	1	81	7.0	Improbable	Good	Boundary	Retain	10.8	Minor dieback; dead branch; top of slope.
800	Sugar Maple	*Acer saccharum*	Native	1	50	5.0	Improbable	Fair	Boundary	Retain	6	Debris and erosion at base; healthy crown.
801	Sugar Maple	*Acer saccharum*	Native	1	20	5.5	Improbable	Fair	On Property	Retain	3.6	Suppressed; large crown; minor dieback.
802	Common Hackberry	*Celtis occidentalis*	Native	1	39	6.0	Improbable	Fair	On Property	Retain	4.8	Growing into Red Oak; exposed roots; erosion.
803	Northern Red Oak	*Quercus rubra*	Native	1	72	5.0	Improbable	Fair	On Property	Retain	9.6	Barbed wire wrapping through stem; growing into Common Hackberry; very tall crown.
804	Northern Red Oak	*Quercus rubra*	Native	1	33	5.5	Improbable	Fair	On Property	Retain	4.8	Tall crown; interlaced crowns; top of slope.
805	Northern Red Oak	*Quercus rubra*	Native	1	61	7.0	Improbable	Good	On Property	Retain	8.4	Very tall crown; exposed roots; top of bank.
806	Sugar Maple	*Acer saccharum*	Native	1	19	6.0	Improbable	Fair	On Property	Retain	3.6	Slightly suppressed; minor pistol butt; near bottom of slope.
807	Sugar Maple	*Acer saccharum*	Native	1	29.9+27.4	5.0	Improbable	Good	On Property	Retain	7.2	Intertwined stem; bottom of slope.
808	American Basswood	*Tilia americana*	Native	1	26	8.0	Possible	Fair	On Property	Retain	3.6	Leaning into property; erosion at base.
809	Shagbark Hickory	*Carya ovata*	Native	1	31	5.0	Improbable	Fair	On Property	Retain	4.8	Top of slope; slightly exposed roots.
810	Northern Red Oak	*Quercus rubra*	Native	1	32	5.0	Improbable	Fair	On Property	Retain	4.8	Minor lean into property; top of bank.
811	Northern Red Oak	*Quercus rubra*	Native	1	30	4.5	Improbable	Fair	On Property	Retain	4.8	Assymetrical crown off property.
812	Bur Oak	*Quercus macrocarpa*	Native	1	12	3.0	Improbable	Fair	On Property	Retain	3.6	Suppressed; dieback; small crown.
813	Manitoba Maple	*Acer negundo*	Native	1	11	3.0	Possible	Poor	Boundary	Retain	3.6	Top of bank; leaning into slope; minor dieback.
814	White Mulberry	*Morus alba*	Non-native	1	29.3+12.3	5.0	Improbable	Fair	Boundary	Retain	6	Leaning off property; dieback.
815	Bur Oak	*Quercus macrocarpa*	Native	1	43	6.0	Improbable	Fair	On Property	Retain	6	Epicormic growth; dieback.
816	Black Cherry	*Prunus serotina*	Native	1	29	6.0	Possible	Poor	On Property	Retain	3.6	Open wound at base with some compartmentalization; leaning into property.
817	American Beech	*Fagus grandifolia*	Native	1	27	5.0	Improbable	Fair	On Property	Retain	3.6	Near bottom of slope; minor dieback.
818	American Beech	*Fagus grandifolia*	Native	1	18	5.0	Improbable	Fair	On Property	Retain	3.6	Leaning into property; bottom of slope.
819	American Beech	*Fagus grandifolia*	Native	1	18	3.0	Improbable	Fair	Boundary	Retain	3.6	Assymetrical crown off property; minor pistol butt; bottom of slope.
820	American Beech	*Fagus grandifolia*	Native	1	11	3.0	Improbable	Fair	Boundary	Retain	3.6	Wire wrapped around stem likely to girdle.
821	American Beech	*Fagus grandifolia*	Native	2	12.8+10.6	5.0	Improbable	Fair	Boundary	Retain	3.6	Included bark at base.
822	Northern Red Oak	*Quercus rubra*	Native	1	52	7.0	Improbable	Good	On Property	Retain	7.2	Assymetrical crown into property; dead lower branches; healthy crown.
823	Northern Red Oak	*Quercus rubra*	Native	1	57	5.0	Improbable	Good	On Property	Retain	7.2	Dead branches; history of failure, but since corrected.
824	Bur Oak	*Quercus macrocarpa*	Native	1	16	2.0	Improbable	Fair	On Property	Retain	3.6	Small crown; minor dieback.
825	Bur Oak	*Quercus macrocarpa*	Native	1	48	8.0	Improbable	Good	Boundary	Retain	6	Assymetrical crown off property.
826	Northern Red Oak	*Quercus rubra*	Native	2	43.3+40.5	8.0	Improbable	Good	Boundary	Retain	10.8	Codominant leaders with included bark; minor dieback.
827	Black Cherry	*Prunus serotina*	Native	1	29	8.0	Possible	Fair	Boundary	Retain	4.8	Leaning into property; minor dieback.
828	Bur Oak	*Quercus macrocarpa*	Native	1	20	6.0	Improbable	Fair	On Property	Retain	3.6	Dieback of epicormic growth; assymetrical crown into property.
829	Northern Red Oak	*Quercus rubra*	Native	1	83	9.0	Improbable	Fair	Boundary	Retain	10.8	Codominant leaders with included bark; large crown.
830	Northern Red Oak	*Quercus rubra*	Native	1	48	6.0	Improbable	Fair	Boundary	Retain	6	Debris at base; healthy crown.
831	American Beech	*Fagus grandifolia*	Native	1	23	5.0	Improbable	Good	Boundary	Retain	3.6	Bottom of slope.
832	American Basswood	*Tilia americana*	Native	3	27.6+28.5+21.6	3.0	Probable	Dead	Boundary	Retain	9.6	Three broken snags.
833	Bur Oak	*Quercus macrocarpa*	Native	1	15	5.0	Improbable	Fair	Boundary	Retain	3.6	Assymetrical crown into property.
834	Bur Oak	*Quercus macrocarpa*	Native	1	23	2.0	Improbable	Good	Boundary	Retain	3.6	Small crown; epicormic growth.
835	Bur Oak	*Quercus macrocarpa*	Native	1	29	3.0	Improbable	Fair	Off Property	Retain	3.6	Very small, tall crown; debris at base.
A	White Oak	*Quercus alba*	Native	1	45	5.0	Improbable	Good	Off Property	Retain	6	Minor dieback and epicormic growth.
B	White Oak	*Quercus alba*	Native	1	55	7.0	Improbable	Good	Off Property	Remove	-	Minor dieback.
C	Manitoba Maple	*Acer negundo*	Native	3	45	8.0	Probable	Fair	Off Property	Remove	-	Large branch leaning southwest; major damage at base; minor dieback; vines.
D	Freeman's Maple	*Acer x freemanii*	Native	1	13	3.0	Improbable	Good	Off Property	Remove	-	Minor dieback.
E	Freeman's Maple	*Acer x freemanii*	Native	1	18	3.0	Improbable	Good	Off Property	Retain	3.6	Vertical wound with some compartmentalization.
F	Norway Spruce	*Picea abies*	Non-native	1	30	4.0	Improbable	Good	Off Property	Retain	4.8	Crown stops at dripline; multiple stems above.
G	Bur Oak	*Quercus macrocarpa*	Native	1	55	8.0	Improbable	Fair	Off Property	Retain	7.2	Immediately behind fence; assymetrical crown off property.
H	Bur Oak	*Quercus macrocarpa*	Native	1	55	8.0	Improbable	Fair	Off Property	Retain	7.2	Immediately behind fence; assymetrical crown off property.
I	Black Walnut	*Juglans nigra*	Native	1	15	2.0	Improbable	Fair	Off Property	Retain	3.6	1m out from fence.

32 Chesterfield Avenue, London - Tree Protection Plan
Tree Inventory Data

Tree Number	Common Name	Scientific Name	Native/ Non-native	Stem Count	DBH (cm)	Crown Radius (m)	Potential for Structural Failure Rating	Overall Condition	Location	Proposed Action	Tree Protection Zone[1] (m)	Comments
J	Black Cherry	*Prunus serotina*	Native	1	25	7.0	Improbable	Fair	Boundary	Retain	3.6	Leaning into property.
K	Northern Red Oak	*Quercus rubra*	Native	1	65	8.0	Improbable	Good	Off Property	Retain	8.4	Large open crown.
L	American Basswood	*Tilia americana*	Native	1	14	4.0	Improbable	Fair	Off Property	Retain	3.6	1m behind fence.
M	White Oak	*Quercus alba*	Native	1	45	6.0	Improbable	Fair	Off Property	Retain	6	Minor dieback; open crown.
N	Bur Oak	*Quercus macrocarpa*	Native	2	55+40	10.0	Improbable	Fair	Off Property	Retain	12	Large open crown.
O	Northern Red Oak	*Quercus rubra*	Native	3	60+48+50	8.0	Improbable	Good	Off Property	Retain	18.96	Dead branches; otherwise healthy.
P	Northern Red Oak	*Quercus rubra*	Native	1	25	7.0	Improbable	Fair	Off Property	Retain	3.6	Minor lean north; slightly suppressed.
Q	Black Cherry	*Prunus serotina*	Native	2	45+47	4.0	Possible	Fair	Off Property	Retain	12	Dieback; dead branches.
R	Northern Red Oak	*Quercus rubra*	Native	1	60	4.0	Improbable	Good	Off Property	Retain	7.2	Assymetrical crown off property.
S	Northern Red Oak	*Quercus rubra*	Native	1	45	6.0	Improbable	Good	Boundary	Retain	6	Minor dead branches.
T	Black Cherry	*Prunus serotina*	Native	2	30+18	7.0	Improbable	Fair	Boundary	Retain	6	Assymetrical crown into property; minor dieback.
U	Sugar Maple	*Acer saccharum*	Native	1	15	6.0	Improbable	Good	Boundary	Retain	3.6	Slightly suppressed.
V	Northern Red Oak	*Quercus rubra*	Native	1	50	8.0	Improbable	Fair	Boundary	Retain	6	Slightly assymetrical crown into property; healthy crown.
W	Northern Red Oak	*Quercus rubra*	Native	1	25	5.0	Improbable	Fair	Off Property	Retain	3.6	Small crown.
X	Black Cherry	*Prunus serotina*	Native	1	20	6.0	Improbable	Fair	Boundary	Retain	3.6	Minor dieback; minor lean into property.
Y	Northern Red Oak	*Quercus rubra*	Native	1	45	6.0	Improbable	Fair	Boundary	Retain	6	Tall healthy crown.

[1]Shown for trees proposed for retention only; as per London's Design Specifications (2019) for areas designated Open Space or Woodlands

Appendix II
Tree Health and Potential for Structural Failure Assessment Criteria

Tree Health Assessment Criteria

Assessment Criteria	Definition[1]
Excellent	Represents a tree in near perfect form, health, and vigour. This tree would exhibit no deadwood, no decline, and no visible defects.
Good	Represents a tree ranging from a generally healthy tree to a near perfect tree in terms of health, vigour and structure. This tree exhibits a complete, balanced crown structure with little to no deadwood and minimal defects as well as a properly formed root flare.
Fair	Represents a tree with minor health, balance or structural issues with minimal to moderate deadwood. Branching structure shows signs of included bark or minor rot within the branch connections or trunk wood. The root flare shows minimal signs of mechanical injury, decay, poor callusing, or girdling roots. Trees in the category require minor remedial actions to improve the vigour and structure of the tree.
Poor	Represents a tree that exhibits a poor vigour, reduced crown size (<30% of crown typical of species caused by overcrowding or decline), extreme crown imbalance, or extensive rot in the branching and trunk wood. Fungus could be seen from these rotting areas, suggesting further decay. These trees have extensive crown die back with a large amount of deadwood, and possibly dead sections. These weakened areas can lead to a potential failure of tree sections. Rooting zones show signs of extensive root decay or damage (fruiting bodies or mechanical damage) or girdling roots. Trees in this category require more extensive actions to prevent failure. A tree identified as poor would be a candidate for removal in the near future.
Very Poor	Represents a tree that exhibits major health and structural defects. Quite often the defects or diseases affecting this tree will be fatal. Large quantities of fungus, large dead sections with possible cavities and bark falling off all are signs that a tree is in a major state of decline and would be identified as very poor. These trees have a probable or imminent potential for structural failure. These trees should be identified for removal.
Dead	Represents a tree that exhibits no sign of new growth, including buds, foliage, or shoot growth. These trees have a probable or imminent potential for structural failure. These trees should be identified for removal.

[1] (Dunster 2009)

Potential for Structural Failure Assessment Criteria

Assessment Criteria*	Definition[1]
Improbable	The tree or branch is not likely to fail during normal weather conditions and may not fail in many severe weather conditions within the specified time frame.
Possible	Failure could occur, but it is unlikely during normal weather conditions within the specified time frame.
Probable	Failure may be expected under normal weather conditions within the specified time frame.
Imminent	Failure has started or is most likely to occur in the near future, even if there is no significant wind or increased load. This is a rare occurrence for an assessor to encounter, and it may require immediate action to protect people from harm.
*A specified time frame of 1 year will be used when assessing potential for structural failure.	

[1] (Dunster et al. 2013)

Appendix III
Conditions of Assessment

Conditions of Tree Assessment

Limitations

This tree inventory and assessment is based on the circumstances and observations by Natural Resource Solutions Inc. (NRSI) as they existed at the time of the site inspection(s) of the St. Elizabeth Village property located at 393 Rymal Road West in the City of Hamilton (the “Property”) and the trees situated thereon, and upon information provided by the Client to NRSI. The opinions in this assessment are based on observations made and using professional judgment, however, because trees are living organisms and subject to change, damage and disease, the analysis and recommendations as set out in this assessment are valid only at the date any such observations and assessment took place. As a result, the Client shall not rely upon this assessment, save and except for representing the circumstances and observations at the date of site inspection(s), and the analysis and recommendations made in relation to the proposed undertaking. It is recommended that the inventoried trees discussed in this assessment should be re-assessed periodically, where required.

Further Services

Neither NRSI, nor any assessor employed or retained by NRSI (the "Assessor") for the purpose of preparing or assisting in the preparation of this assessment shall be required to provide any further consultation or services to the Client including, without limitation, acting as an expert witness or witness in any court in any jurisdiction unless the Client has first made specific arrangements with respect to such further services, including providing payment of the Assessor’s regular hourly billing fees.

NRSI accepts no responsibility for the implementation of all or any part of this report, unless specifically requested to examine the implementation of such activities recommended herein. Any request for the inspection or supervision of all or part of the implementation shall be made in writing and the details agreed to in writing by both parties.

Assumptions

The Client is hereby notified that where any of the information set out and referenced in this assessment are based on assumptions, facts or information provided to NRSI, NRSI

will in no way be responsible for the veracity or accuracy of any such information. Further, the Client acknowledges and agrees that NRSI has, for the purposes of preparing their assessment, assumed that the Property is in full compliance with all applicable federal, provincial, municipal and local statutes, regulations, by-laws, guidelines and other related laws. NRSI explicitly denies any legal liability for any and all issues with respect to non-compliance with any of the above-referenced statutes, regulations, by-laws, guidelines and laws as it may pertain to or affect the Property.

Restriction of Assessment

The assessment carried out was restricted to the Property as described in this report. No assessment of any other trees has been undertaken by NRSI. NRSI is not legally liable for any other trees except those expressly discussed herein. The conclusions of this assessment do not apply to any areas, trees, or any other property not covered or referenced in this assessment.

Professional Responsibility

In carrying out this assessment, NRSI and any Assessor appointed for and on behalf of NRSI to perform and carry out the assessment has exercised a reasonable standard of care, skill and diligence. The assessment has been made using accepted arboricultural techniques. These include a visual examination of each tree for structural defects, scars, external indications of decay such as fungal fruiting bodies, evidence of insect attack, discolored foliage (during the leaf-on period), the condition of any visible root structures, the degree and direction of lean (if any), the general condition of the tree(s) and the surrounding site, and the current or planned proximity of property and people. Except where specifically noted in the assessment, none of the trees examined on the property were dissected, cored, probed, or climbed, and detailed root crown examinations involving excavation were not undertaken.

No guarantees are offered, or implied, that trees recommended for retention, or all parts of them, will remain standing. It is professionally impossible to predict with absolute certainty the behaviour of any single tree or group of trees, or all their component parts, in all given circumstances. Inevitably, a standing tree will always pose some risk. Most trees have the potential to fall, lean, or otherwise pose a danger to property and persons

in the event of extreme weather conditions, and this risk can only be eliminated if the tree is removed.

Without limiting the foregoing, no liability is assumed by NRSI or its directors, officers, employers, contractors, agents or Assessors for:

a) any legal description provided with respect to the Property;
b) issues of title and/or ownership with respect to the Property;
c) the accuracy of the Property line locations or boundaries with respect to the Property; and
d) the accuracy of any other information provided to NRSI by the Client or third parties;
e) any consequential loss, injury or damages suffered by the Client or any third parties, including but not limited to replacement costs, loss of use, earnings and business interruption; and
f) the unauthorized distribution of the assessment.

Third Party Liability

This assessment was prepared by NRSI for the Client. The data collected reflect NRSI's best assessment of the inventoried trees situated on the Property with the information available at the time of observation. Data analysis and the assessment of potential impacts to inventoried trees is specific to the proposed undertaking as described in this report. NRSI accepts no responsibility for any damages or loss suffered by any third party or by the Client as a result of decisions made or actions based upon the use of this assessment for purposes unrelated to the proposed undertaking.

General

Any plans and/or illustrations in this assessment are included only to help the Client visualize the issues in this assessment and shall not be relied upon for any other purpose.

This report shall be considered as a whole, no sections are severable, and the assessment shall be considered incomplete if any pages are missing.

Appendix IV
Tree Data Summary Tables

Summary of Inventoried Trees

Common Name	Scientific Name	Excellent	Good	Fair	Poor	Very Poor	Dead	Total
Native Species								
Black Cherry	*Prunus serotina*			5	1			6
Sugar Maple	*Acer saccharum*		3	3				6
White Ash	*Fraxinus americana*					1		1
Eastern White Pine	*Pinus strobus*	1	1					2
White Oak	*Quercus alba*		2	2				4
Manitoba Maple	*Acer negundo*		1	2	1			4
Bur Oak	*Quercus macrocarpa*		4	15				19
Eastern Red Cedar	*Juniperus virginiana*			1	2	3	1	7
Black Walnut	*Juglans nigra*		5	3				8
Common Hackberry	*Celtis occidentalis*			2				2
Freeman's Maple	*Acer* x *freemanii*		2					2
American Elm	*Ulmus americana*						1	1
Northern Red Oak	*Quercus rubra*		11	11				22
American Basswood	*Tilia americana*			2			1	3
Shagbark Hickory	*Carya ovata*			1				1
American Beech	*Fagus grandifolia*		1	5				6
Total		**1**	**30**	**52**	**4**	**4**	**3**	**94**
Non-Native Species								
Norway Maple	*Acer platanoides*		2	10				12
White Mulberry	*Morus alba*			3	1			4
Thornless Honey Locust	*Gleditsia triacanthos* var. *inermis*			1				1
Winged Euonymus	*Euonymus alatus*				1			1
Norway Spruce	*Picea abies*		1					1
Total		**0**	**3**	**14**	**2**	**0**	**0**	**19**
Overall Total		**1**	**33**	**66**	**6**	**4**	**3**	**113**

Overall Health of Trees Inventoried

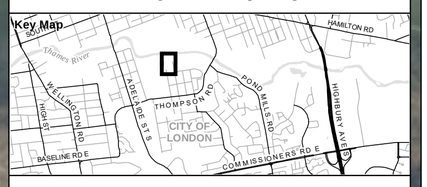
Potential for Structural Failure Rating	Overall Condition						Total
	Excellent	Good	Fair	Poor	Very Poor	Dead	
Improbable	1	32	52	0	0	0	85
Possible	0	1	12	6	3	0	22
Probable	0	0	2	0	1	2	5
Imminent	0	0	0	0	0	1	1
Total	**1**	**33**	**66**	**6**	**4**	**3**	**113**

Maps

Map 1

32 Chesterfield Avenue, London

Subject Property



Legend

- Subject Property
- Inventoried Tree (Crown to Scale)
- Proposed Lots
- Proposed Building Envelope
- Existing Building
- Dripline (NRSI surveyed 2020)

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project: 2363
Date: April 24, 2023

NAD83 - UTM Zone 17
Size: 24x36"
1:300

0 4 8 12 16 20 Meters

N

Figure 2.

Tree protection signage

TREE PROTECTION ZONE

No grade change, storage of materials or equipment is permitted within this TPZ. Tree protection barrier must not be moved or altered in any way without the written authorization from the City.
For information contact City of London at:
(519) 661-2500 ext ????

London CANADA

Map 2

32 Chesterfield Avenue, London

Tree Inventory and Protection Plan

Legend

- Subject Property
- Tree to be Removed (Crown to Scale)
- Tree to be Retained (Crown to Scale)
- Tree Protection Zone (City of London 2019)
- Tree Protection Fence Signage
- Tree Protection Fence (to be keyed in)
- Tree Protection Fence (not to be keyed in)
- Proposed Lot
- Proposed Building / Driveway
- Existing Building
- Existing Conditions
- Existing Utilities
- Contour
- Dripline (NRSI surveyed 2020)

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Project: 2363
Date: June 25, 2024

NAD83 - UTM Zone 17
Size: 24x36"
1:200

0 2 4 6 8 10 12 Meters

N