159 and 163 Sulphur Springs Arborist Report and Tree Preservation Plan

Ancaster, Hamilton

2691715 Ontario Inc. & 2568843 Ontario Inc.

133 Hazelton Avenue, Toronto, ON M5R 0A6

Prepared by:

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SLR Project No.: 244.024373.00001

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December 18, 2024

Revision: 0

Revision Record

Revision	Date	Prepared By	Checked By	Authorized By
0	December 18, 2024	Angela Zhou	Austin Adams	Austin Adams

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Acronyms and Abbreviations

DBH	Diameter at Breast Height
OP	Official Plan
SAR	Species at Risk
TPP	Tree Protection Plan
TPZ	Tree Protection Zone

1.0 Introduction

Palmer, now SLR, is pleased to provide this Arborist Report and Tree Protection Plan (TPP) for the proposed development at 159-163 Sulphur Springs Road, Ancaster, City of Hamilton, Ontario (the Subject Property – **Figure 1**). This report and TPP are specific to the proposed development application. The Subject Property currently contains two freehold houses and associated driveways, tennis court, and swimming pool. Natural heritage features within the Subject Property include woodlands, thicket, and two ponds.

This report includes a review of relevant policy, outlines the methods and results of the tree inventory completed within the Subject Property and adjacent lands, and the identification of trees to be retained and trees to be removed. Recommended tree protection measures for trees to be retained are detailed, as are City of Hamilton requirements for tree compensation, and construction methods as they pertain to trees.

2.0 Relevant Policy

2.1 Rural and Urban Hamilton Official Plan

The Subject Property is largely within Rural Hamilton jurisdiction, with the southern tip along Sulphur Springs Road within Urban lands. Chapter C, section 2.10.4 of the City of Hamilton Rural Official Plan (OP) and Chapter C, section 2.10 of the City of Hamilton Urban OP states that "*The City shall maintain and update as necessary a Woodland Conservation Bylaw and Street Tree Management policy. A Woodland Protection Strategy to protect tree cover on new development sites within Urban and Rural Settlement Areas and provides technical direction and practices to protect trees and other vegetation during construction will be prepared to minimize the impacts on trees and woodlands to be retained"* (City of Hamilton, 2013).

This Arborist Report and TPP plan has been prepared in accordance with applicable policies.

2.2 City of Hamilton Tree By-law (15-125)

The City of Hamilton By-law No. 15-125 *To Regulate Trees on or Affecting Public Property* does not apply to tree removals within the Subject Property, as all trees potentially impacted are situated on private property (City of Hamilton, 2015). The City of Hamilton currently does not have a private tree by-law, but does promote the building of the tree canopy in the City of Hamilton and the protection of mature, healthy trees on private lands through its *Tree Protection Guidelines – City Wide* (City of Hamilton, 2010).

2.3 The City of Hamilton's Tree Protection Guidelines – City Wide (2010)

The City of Hamilton (2010) *Tree Protection Guidelines – City Wide* provide direction on tree inventory, completion and preparation of Tree Protection Plans, and provide guidance for tree retention, protection, and replanting. The *Tree Protection Guidelines* apply to privately-owned lands subject to *Planning Act, 1990* or Niagara Escarpment Plan permits. The City's four-step process for tree protection for *Planning Act, 1990* applications includes:

A) General Vegetation Inventory for all portions of the Site.

B) Tree Protection Plan for areas with quality vegetation requiring further study (as identified by the City during the General Vegetation Inventory) – if a full Tree Protection Plan is submitted at the time of application, a General Vegetation Inventory is not required.

C) Implementation (installation and monitoring of tree protection measures during construction).

D) Landscape Plan (re-planting and transplanting).

The tree inventory must include any trees with a diameter at breast height (DBH) of 10 cm or greater as well as “rare, unusual, and heritage trees” (p. 9, City of Hamilton, 2010). Tree protection fencing must be installed around individual trees, tree clusters, and woodland edges to be retained, at least one metre from the woodland/tree dripline. The City requires compensation at a 1:1 ratio for any trees to be removed. If replanting within the Site is not feasible, the City accepts cash-in-lieu to fund off-site tree planting.

2.4 Niagara Escarpment Plan

The Niagara Escarpment Plan (NEP) Section 2.7.12 states that: *Development where permitted in woodlands should protect and where possible enhance the woodland and associated wildlife habitat. All development involving the cutting of trees requires approval from the implementing authority, subject to the following criteria:*

- *cutting of trees and removal of vegetation shall be limited to the minimum necessary to accommodate the permitted use;*
- *using tree-cutting methods designed to minimize negative impacts on the natural environment, including surface drainage and groundwater;*
- *minimizing disruption to wildlife habitat in the area;*
- *retaining the diversity of native species;*
- *aiming over the long term to protect and where possible enhance the quality and biodiversity of the woodland;*
- *protecting trees and vegetation to be retained by acceptable means during construction; and*
- *maintaining existing tree cover or other stabilizing vegetation, on steep slopes in excess of 25 per cent (1:4 slope).*

These criteria were considered and included in the development of this Arborist Report and TPP to the degree feasible.

2.5 Migratory Bird Convention Act

The *Migratory Birds Convention Act* (MBCA), 1994 and *Migratory Birds Regulations* (MBR), 2014 protect most species of migratory birds and their nests and eggs anywhere they are found in Canada (Government of Canada, 1994). General prohibitions under the MBCA and MBR protect migratory birds, their nests, and eggs, and prohibit the deposition of harmful substances in waters/areas frequented by them. The MBR includes an additional prohibition against incidental take, which is the inadvertent harming or destruction of birds, nests, or eggs.

2.6 Endangered Species Act

Species designated as *Endangered* or *Threatened* by the Committee on the Status of Species at Risk in Ontario (COSSARO) are listed as Species at Risk (SAR) in Ontario (Government of Ontario, 2007). These SAR and their habitats (e.g., areas essential for breeding, rearing, feeding, hibernation, and migration) are afforded legal protection under the *Endangered Species Act, 2007* (ESA). This *Act* is administered by the Ministry of Environment, Conservation and Parks (MECP). SAR protected by the ESA include tree species, such as Butternut (*Juglans cinerea*), Kentucky Coffee-tree (*Gymnocladus dioicus*), and American Chestnut (*Castanea dentata*).

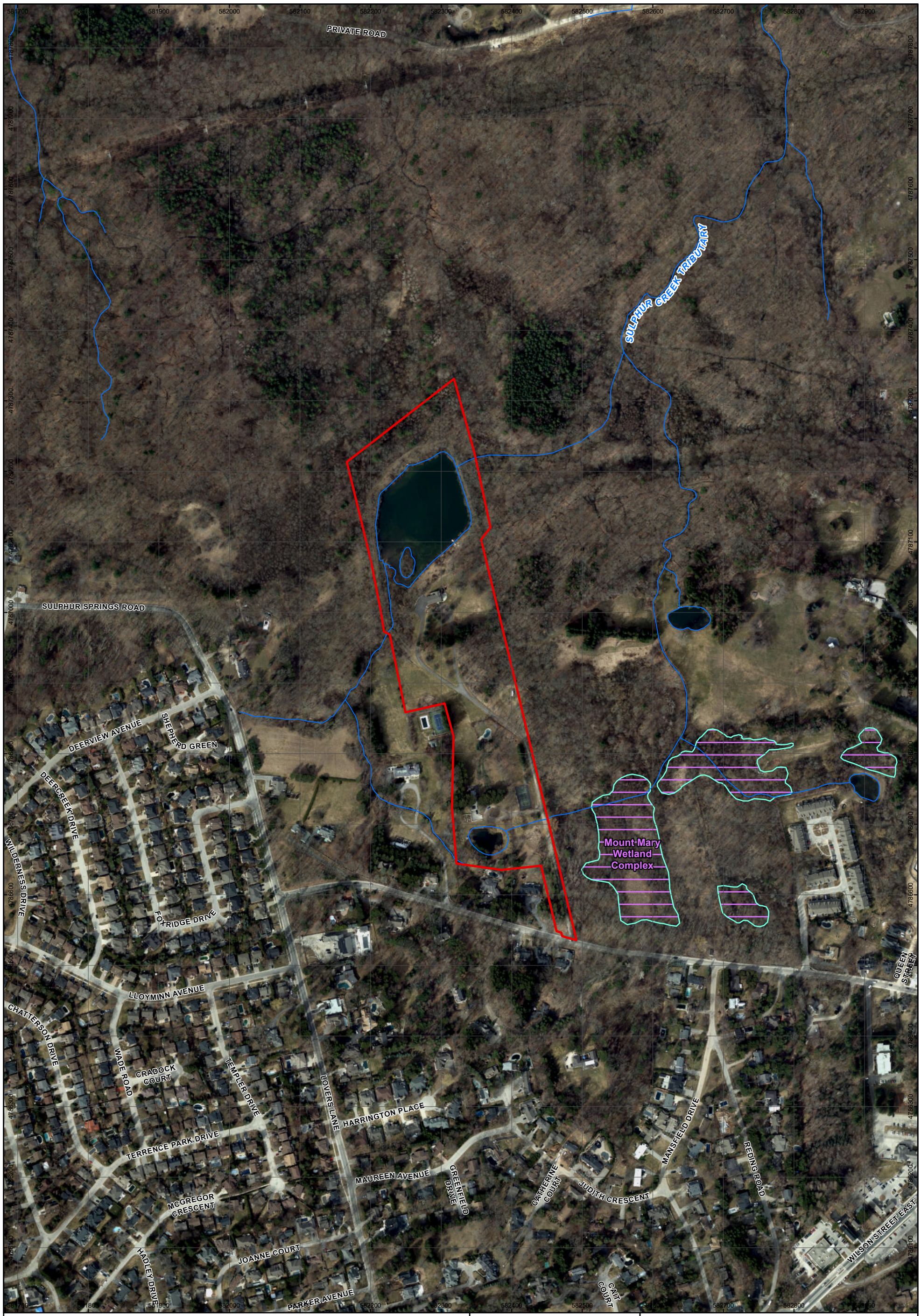
The protection provisions for species and their habitat within the ESA apply only to those species listed as *Endangered* or *Threatened* on the SARO list, being *Ontario Regulation 230/08* of the ESA. Species listed as *Special Concern* may be afforded protection through policy instruments respecting significant wildlife habitat (e.g., the Provincial Policy Statement) as defined by the Province or other relevant authority, or other protections contained in Official Plans.

3.0 Methods

This Arborist Report was completed by an International Society of Arboriculture (ISA) Certified Arborist. A tree inventory was completed on October 16, 18, and 22, 2024 for all ≥10 cm DBH trees within the Subject Property and a 6 metres (m) buffer adjacent to Project limits. For individual trees, information collected during the inventory included mapped geo-location, the identification of species, native vs. non-native status, size (DBH), canopy width, and a general assessment of health and condition. Tree locations were correlated with the general survey for the project, to provide accuracy in relation to construction elements. Tree groups were established within hedgerows and clusters of trees that had similar species composition; a total of 13 tree groups were recorded.

In woodlands where an individual tree inventory nor tree group counts were feasible, tree plots were utilized. A total of 4 plots (with a 12.6 m radius each, or 0.05 ha) were established throughout representative portions of the treed communities within or adjacent to the proposed development footprint. Survey plot locations are shown on **Figure 2**. Within each plot, the stand composition was calculated for each species and grouped by estimated diameter at breast height (DBH) class. The average density by plot was calculated and the estimated number of stems per hectare derived.

Additional information recorded within each plot also included an estimate of trees <10 cm DBH, average health, stand maturity, aesthetic significance, and other general notes (i.e., wildlife habitat). Stand composition calculations per plot are tabulated in **Appendix B**.



LEGEND

- Watercourse[1]
- Wetland - Evaluated Other[1]
- Study Area (10.0 ha)

1 - Land Information Ontario

Key Map

0 50 100 150 200
METRE SCALE

North American Datum 1983
Universal Transverse Mercator Projection Zone 17

Scale: 1:5,000
Page Size: Tabloid (11 x 17 inches)

Drawn: SM
Checked: AZ
Date: Dec 18, 2024

NORTH

Source Notes:
Imagery (2021) provided by City of Hamilton GIS REST service. Contains information licensed under the Open Government Licence – Ontario.

CLIENT
Mizrahi Developments

PROJECT
Sulpher Springs Rd

TITLE
Site Location

Palmer PART OF SLR

REF. NO. 244.024373.00001-1-1

Figure 1

Document Path: G:_Projects\244\244_024373_SulpherSprings\1_Workspace\1_Maps\(2024-10) Ecology and Arborist Report\(2024-10) Ecology and Arborist Report.aprx

4.0 Results

4.1 Tree Inventory

The tree inventory included 203 individually inventoried trees (**Table 1**), 13 tree groups (**Table 2**) and four tree plots (**Table 3**). The entire Subject Property was inventoried with exception to the northern pond area where no development is proposed. The 13 tree groups were captured throughout the anthropogenic portion of the Subject Property, and the tree plots were used to assess woodlands within the site.

Most of the inventoried trees were native trees in good to fair condition. The most common individually inventoried species was Black Walnut (*Juglans nigra*). Various non-native species such as Norway Maple (*Acer platanoides*) and Blue Spruce (*Picea pungens*) were found as landscape trees within the anthropogenic portions of the property. Most trees were in good to fair condition.

Two SAR tree species were observed – one Cucumber Tree (*Magnolia acuminata*), and approximately five, young Kentucky Coffee-tree (*Gymnocladus dioicus*) within Tree Group 7 (**Table 2**). These SAR trees are believed to have been planted based on their location and Google Earth historical imagery. As plantings, these individuals would have originated from cultivated stock, and Exemption 12 of the ESA would apply (Government of Ontario 2007). The full tree inventory is provided in **Appendix A**.

Table 1. Summary of Tree Inventory Results – Individual Trees

Scientific Name	Common Name	Number of Trees
*Acer negundo**	Manitoba Maple	1
Acer platanoides	Norway Maple	23
Acer pseudoplatanus	Sycamore Maple	8
*Acer rubrum**	Red Maple	5
*Acer saccharinum**	Silver Maple	5
*Acer saccharum**	Sugar Maple	11
Aesculus hippocastanum	Horse Chestnut	2
*Alnus incana**	Grey Alder	6
*Betula papyrifera**	White Birch	2
Cornus sp.	Dogwood	1
Fagus sylvatica	European Beech	4
*Fraxinus pennsylvanica**	Green Ash	6
Fraxinus sp.	Ash	1
Gleditsia triacanthos	Honey Locust (cultivar)	1
*Juglans nigra**	Black Walnut	49
*Larix laricina**	Tamarack	1
Magnolia sp.	Magnolia	1

Scientific Name	Common Name	Number of Trees
Metasequoia glyptostroboides	Dawn Redwood	1
*Morus alba**	White Mulberry	2
Picea abies	Norway Spruce	3
*Picea glauca**	White Spruce	11
Picea pungens	Blue Spruce	6
Picea sp.	Spruce	1
Pinus sp.	Pine	6
*Platanus occidentalis**	American Sycamore	1
*Prunus avium**	Sweet Cherry	3
Prunus domestica	Common Plum	4
*Prunus serotina**	Black Cherry	8
*Quercus alba**	White Oak	1
*Quercus rubra**	Red Oak	8
Salix babylonica	Weeping Willow	6
Salix sp.	Willow	8
*Tilia americana**	Basswood	3
*Tsuga canadensis**	Eastern Hemlock	1
*Ulmus americana**	White Elm	3
Total		**203**

*Native species

In general, most trees inventoried as part of tree groups were native species in good to fair condition within central, anthropogenic portions of the Subject Property. These included White Pine, White Spruce, and Silver Maple. Non-native species included Norway Spruce and Norway Maple (**Table 2**).

Table 2. Summary of Tree Inventory Results – Tree Groups

Tree Group	Species Composition (%)	Approximate Tree Count
TG1	Sycamore Maple (15%), White Spruce (75%), Eastern White Pine (*Pinus strobus*) (10%)	20
TG2	White Spruce (16%), Grey Alder (75%), Willow (9%)	12
TG3	Norway Spruce (88%), Red Oak (12%)	9
TG4	Willow (2%), Eastern White Cedar (7%), Eastern White Pine (17%), Black Walnut (12%), White Spruce (10%), White Birch (12%), Sweet Cherry (20%), Norway Maple (7%), Common Hackberry (*Celtis occidentalis*) (2%), While Elm (2%), Green Ash (2%), Speckled Alder (5%)	41
TG5	Norway Maple (26%), Eastern Hemlock (7%), Norway Spruce (64%), Green Ash (2%)	42

Tree Group	Species Composition (%)	Approximate Tree Count
TG6	Sugar Maple (5%), Eastern White Pine (14%), Silver Maple (5%), Norway Spruce (71%), Norway Maple (5%)	21
TG7	Tulip Tree (22%), Sugar Maple (4%), Black Locust (*Robinia pseudoacacia*) (15%), Kentucky Coffee-tree (22%), Shagbark Hickory (*Carya ovata*) (4%), Sweet Cherry (7%), Magnolia (22%), Cucumber Tree (4%)	27
TG8	Norway Spruce (93%), Honey Locust (7%)	14
TG9	Silver Maple (100%)	11
TG10	White Spruce (92%), Black Walnut (8%)	12
TG11	Willow (29%), Norway Maple (14%), Basswood (14%), Black Walnut (43%)	7
TG12	Norway Maple (18%), Red Pine (23%), Basswood (2%), Sweet Cherry (2%), Black Cherry, (11%), Bitternut Hickory (*Carya cordiformis*) (5%), Blue Spruce (16%), White Birch (7%), Norway Maple (5%), Little-leaf Linden (*Tilia cordata*) (5%), Scots Pine (*Pinus sylvestris*) (7%)	44
TG13	Common Apple (*Malus pumila*) (100%)	5
Approximate Total of Trees within Groups		**265**

Within the four tree plots that were sampled across different woodland communities, a total of 153 trees were counted (**Table 3**) The average health condition was fair to good, and the most common species recorded were Black Walnut and Basswood.

Where Tree Plots 1, 2, and 4 were recorded, portions of these areas are proposed to be removed to accommodate the proposed development. Supplementary plot information can be used for any future restoration purposes. The full list of species within each plot, as well as total average tree density calculations are available in **Appendix A**.

Table 3. Summary of Tree Inventory Results – Tree Plots

Plot Number	Associated Vegetation Community	Total Number of Trees	Area of Impact (ha)
1	Deciduous Forest	**18**	0.18
2	Deciduous Forest	**55**	0.18
3	Sugar Maple Deciduous Forest	**36**	0
4	Cultural Woodland	**44**	0.1
Total		**153**	**0.46**

4.2 Trees to be Retained

A total of 136 individually inventoried trees are proposed to be retained (**Table 4**, **Figure 2**). With proper tree protection fencing installation and adherence to tree protection methods (Section 5), no major impacts are anticipated for these trees. Most were in good to fair health (93%) with nine in poor condition (4%) and three already dead (3%). An additional 78 trees will be retained within Tree Groups 3, 4, 6, and 11, as these groups will not require clearing.

Table 4. Individual Trees Proposed to be Retained

Scientific Name	Common Name	Good to Fair Health	Poor Health	Dead	Total Count
*Acer negundo**	Manitoba Maple	1	-	-	1
Acer platanoides	Norway Maple	16	-	-	16
Acer pseudoplatanus	Sycamore Maple	8	-	-	8
*Acer rubrum**	Red Maple	5	-	-	5
*Acer saccharinum**	Silver Maple	3	-	-	3
*Acer saccharum**	Sugar Maple	8	-	1	8
Aesculus hippocastanum	Horse Chestnut	1	-	-	1
*Alnus incana**	Grey Alder	5	-	-	5
*Betula papyrifera**	White Birch	2	-	-	2
Fagus sylvatica	European Beech	2	-	-	2
*Fraxinus pennsylvanica**	Green Ash	1	3	-	4
Fraxinus sp.	Ash	1	-	1	2
Gleditsia triacanthos	Honey Locust	1	-	-	1
*Juglans nigra **	Black Walnut	32	1		33
Metasequoia glyptostroboides	Dawn Redwood	1	-	-	1
Picea abies	Norway Spruce	1	1		2
*Picea glauca**	White Spruce	4	-	-	4
Picea pungens	Blue Spruce	4	-	-	4
Pinus sp.	Pine	1	-	2	3
*Prunus avium**	Sweet Cherry	2	-	-	2
Prunus domestica	Common Plum	4	-	-	4
*Prunus serotina**	Black Cherry	6	-	-	6
*Quercus rubra**	Red Oak	7	-	-	7
Salix babylonica	Weeping Willow	-	1	-	1
Salix sp.	Willow	4	1	-	5
*Tilia americana**	Basswood	3	-	-	3
*Tsuga canadensis**	Eastern Hemlock	1	-	-	1
*Ulmus americana**	White Elm	2	-	-	2
Total to be Retained		**126**	**7**	**4**	**136**

*Native species

Table 5. Tree Groups to be Retained

Tree Group	Species Composition (%)	Approximate Tree Count
TG3	Norway Spruce (88%), Red Oak (12%)	9
TG4	Willow (2%), Eastern White Cedar (7%), White Pine (17%), Black Walnut (12%), White Spruce (10%), White Birch (12%), Sweet Cherry (20%), Norway Maple (7%), Common Hackberry (2%), While Elm (2%), Green Ash (2%), Speckled Alder (5%)	41
TG6	Sugar Maple (5%), White Pine (14%), Silver Maple (5%), Norway Spruce (71%), Norway Maple (5%)	21
TG11	Willow (29%), Norway Maple (14%), Basswood (14%), Black Walnut (43%)	7
Approximate Total of Trees within Groups to be Retained		**78**

TREE PRESERVATION SPECIFICATIONS

GENERAL NOTES

• THIS VEGETATION PROTECTION PLAN IS DESIGNED TO WORK IN CONCERT WITH THE ARBORIST REPORT FOR THE PROJECT.
• ALL TREE PROTECTION FENCING SHALL BE IN PLACE AND INSPECTED BY THE CITY OF HAMILTON PRIOR TO ANY DEMOLITION OR CONSTRUCTION ACTIVITY.
• TREE PROTECTION BARRIERS SHALL REMAIN IN PLACE AND IN GOOD CONDITION UNTIL ALL CONSTRUCTION IS COMPLETE AND APPROVED BY THE CITY OF HAMILTON.
• AN INTERNATIONAL SOCIETY OF ARBORICULTURE (ISA) CERTIFIED ARBORIST SHALL BE ON SITE FOR ANY WORK WHICH IMPACTS ANY TREE OR TREE PROTECTION ZONE.
• ALL ARBORICULTURE WORK SUCH AS PRUNING OF BRANCHES AND ROOTS, SHALL BE DONE BY A QUALIFIED TREE WORKER CERTIFIED WITH THE ISA.

TREE PROTECTION AND FENCING

• ALL EXISTING TREES WHICH ARE TO REMAIN SHALL BE FULLY PROTECTED WITH FENCING ERECTED AROUND THE TREE PROTECTION ZONE (TPZ) IN ACCORDANCE WITH **APPENDIX A** OF THIS REPORT.
• TREE PROTECTION FENCING MUST BE PAIGE WIRE FARM FENCING. IT IS RECOMMENDED THAT FENCING SHOULD BE SECURED TO METAL "T-BAR" SUPPORTS A MAXIMUM OF 2.0 M APART, BEING 1.2 M ABOVE GROUND AND 1.2 M BELOW GROUND (2.4 M).
• AREAS WITHIN THE PROTECTIVE FENCING SHALL REMAIN UNDISTURBED AND SHALL NOT BE USED FOR THE STORAGE OF BUILDING MATERIALS OR EQUIPMENT.
• NO RIGGING CABLES SHALL BE WRAPPED AROUND OR INSTALLED IN TREES; AND SURPLUS SOIL, EQUIPMENT, DEBRIS OR MATERIALS SHALL NOT BE PLACED OVER ROOT SYSTEMS OF THE TREES WITHIN THE PROTECTIVE FENCING. NO CONTAMINANTS WILL BE DUMPED OR FLUSHED WHERE FEEDER ROOTS OF TREES EXIST.
• WHERE ROOT SYSTEMS OF PROTECTED TREES ARE EXPOSED DIRECTLY ADJACENT TO OR DAMAGED BY CONSTRUCTION WORK, THEY SHALL BE TRIMMED NEATLY BY A QUALIFIED ARBORIST AND THE AREA BACK FILLED WITH APPROPRIATE MATERIAL TO PREVENT DISSICATION.
• TREE PROTECTION ZONES ARE TO INCLUDE SIGNAGE (AS PER BELOW) INSTALLED ON CONSTRUCTION-FACING SIDES OF THE PROTECTIVE BARRIER. SIGNS SHALL BE 40 CM X 60 CM AND INCLUDE THE CITY OF HAMILTON LOGO.

> TREE PROTECTION ZONE (TPZ)
> All construction related activities, including grade alteration, excavation, soil compaction, any materials or equipment storage, disposal of liquid and vehicular traffic are NOT permitted within this TPZ.
> This tree protection barrier must remain in good condition and must not be removed or altered without authorization of the City of Hamilton. Concerns or inquiries regarding this TPZ can be directed to askcity@hamilton.ca or 905-546-2489 x 2782

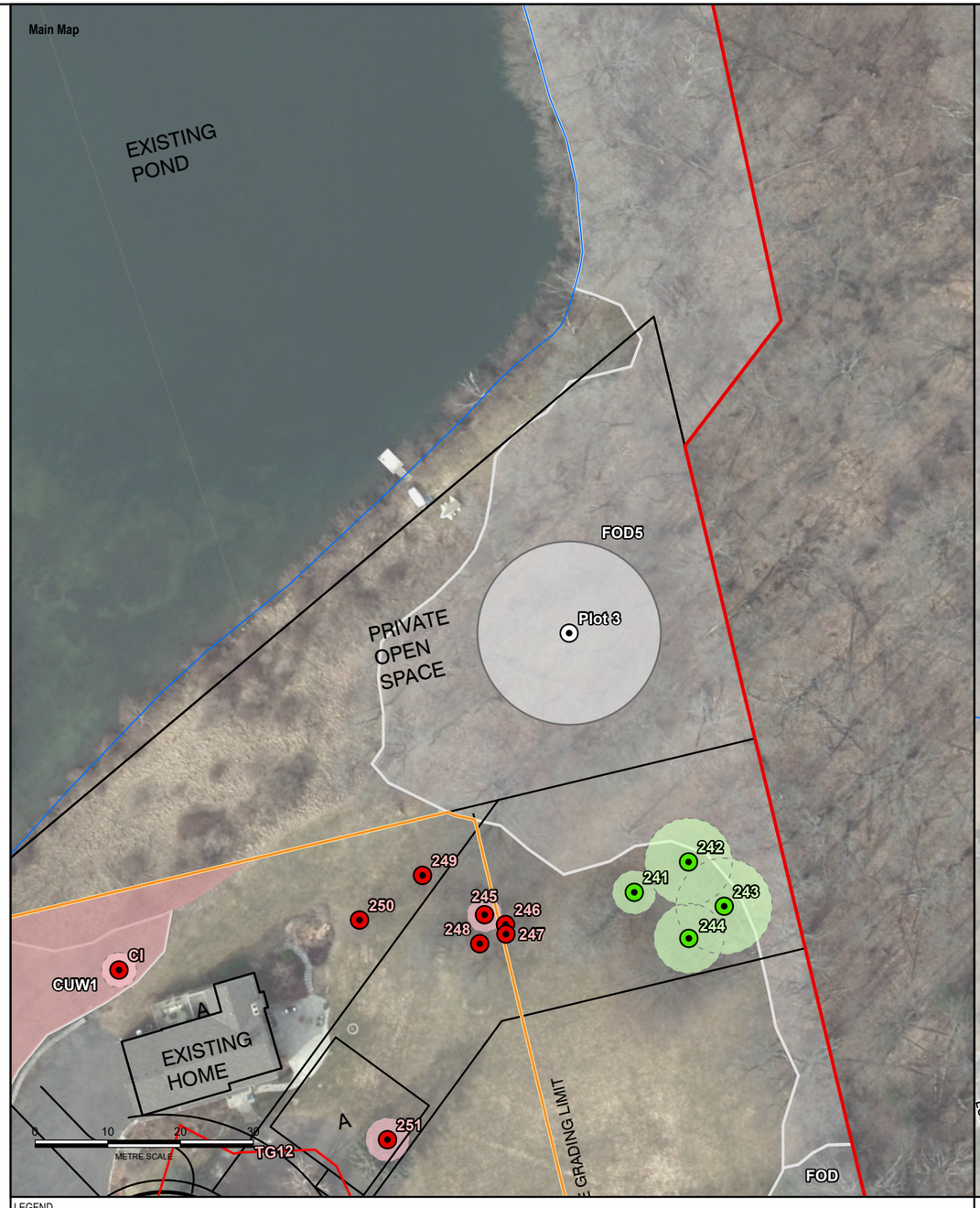
• IN THE EVENT THAT TREES TO BE PRESERVED ARE INADVERTENTLY DAMAGED BEYOND REPAIR, THEY SHALL BE SUBJECT TO SUITABLE COMPENSATION AS DETERMINED BY THE CITY OF HAMILTON AND REVIEW OF THE TREE INVENTORY AND ANALYSIS.

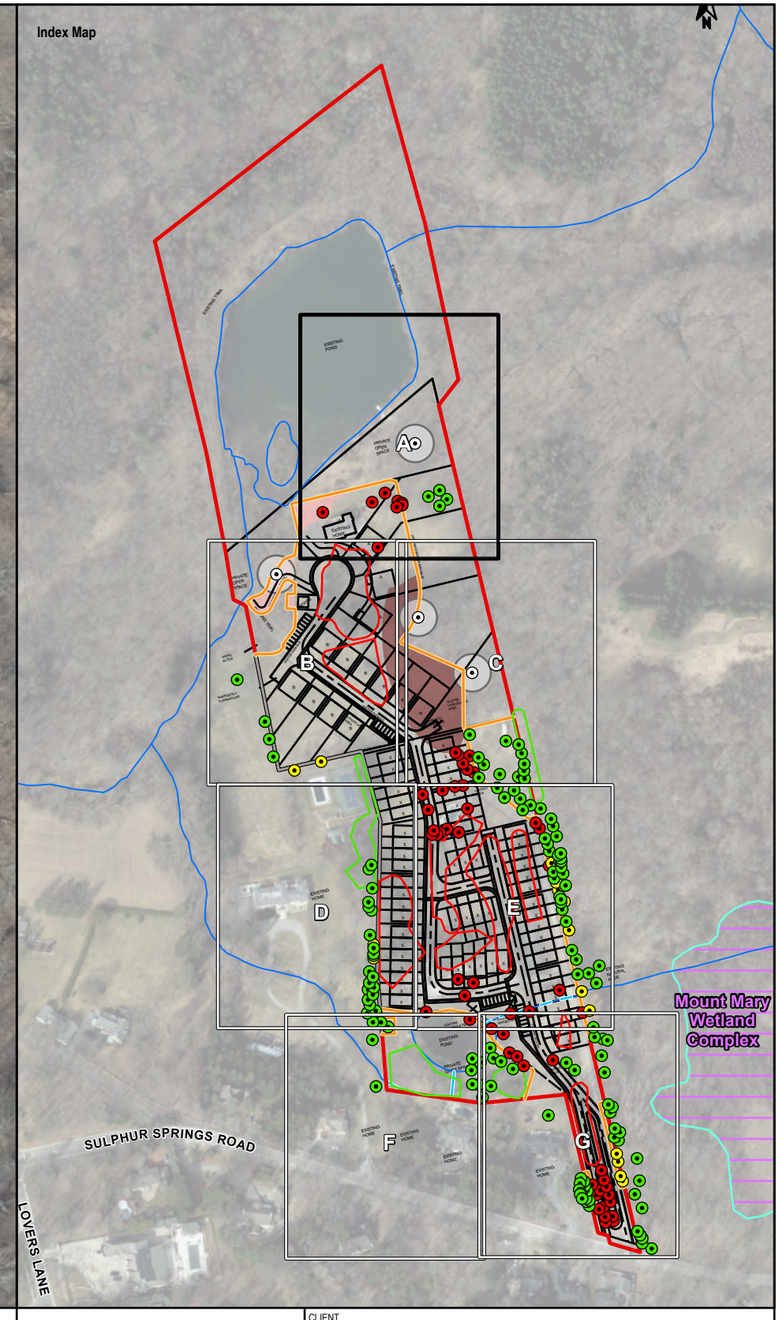
TREE PRUNING

• WHERE LIMBS OR PORTIONS OF TREES ARE REMOVED TO ACCOMMODATE CONSTRUCTION WORK, THEY WILL BE CAREFULLY REMOVED BY AN ISA CERTIFIED ARBORIST.
• IF ANY DAMAGE OCCURS TO TREES, INCLUDING BROKEN LIMBS, DAMAGE TO ROOTS, OR WOUNDS TO THE MAIN TRUNK, IT MUST BE REPORTED TO THE PROJECT CONSULTING ARBORIST IMMEDIATELY SO THAT MITIGATION MEASURES CAN BE PROMPTLY IMPLEMENTED.

TREE REMOVAL

• TREES ARE TO BE FELLED INTO THE CONSTRUCTION AREA TO REDUCE THE POTENTIAL FOR INJURY/DAMAGE TO ADJACENT TREES AND PROTECTED AREAS.
• TO AVOID INTERFERENCE WITH THE EGGS, NESTS OR YOUNG OF BIRDS PROTECTED UNDER THE FEDERAL MIGRATORY BIRDS CONVENTION ACT (GOVERNMENT OF CANADA, 1994), REMOVALS SHOULD NOT OCCUR FROM APRIL 1 TO AUGUST 31 OF ANY GIVEN YEAR. IDEALLY, REMOVAL SHOULD OCCUR FROM OCTOBER THROUGH DECEMBER TO AVOID INTERFERENCE WITH ALL NESTING BIRDS AND ROOSTING BATS. SHOULD REMOVAL BE REQUIRED WITHIN THE APRIL 1 TO SEPTEMBER 30 BREEDING PERIOD, A QUALIFIED AVIAN BIOLOGIST SHOULD CONDUCT A THOROUGH SURVEY IMMEDIATELY PRIOR TO THE DESIRED TREE REMOVAL DATE TO CONFIRM PRESENCE OR ABSENCE OF PROTECTED SPECIES. IF PROTECTED SPECIES ARE PRESENT, REMOVAL CANNOT OCCUR WITHOUT A PERMIT FROM THE CANADIAN WILDLIFE SERVICE.
• NO BRANCHES OR BRUSH FROM CLEARING IS TO BE STORED ON THE SITE. CUTTING, BRUSH AND CHIPPING CLEANUP ARE TO BE COMPLETED OUTSIDE OF THE MIGRATORY BIRD NESTING SEASON.





LEGEND

- Inventory Tree *with TPZ* - To Remove
- Inventory Tree *with TPZ* - To Retain
- Inventory Tree *with TPZ* - To Retain with Potential Injury
- Tree Plot (12.6 m Radius) - No Direction
- Existing Chain Link Fence
- Tree Protection Fence
- Watercourse[1]
- Headwater Drainage Feature (HDF)
- Subsurface HDF
- Wetland - Evaluated Other[1]
- Ecological Land Classification (ELC) - *Woodland*
- CUW1 Encroachment (0.10 ha)
- FOD Encroachment (0.36 ha)
- Study Area (10.0 ha)

1 - Land Information Ontario

0 50 100 150
METRE SCALE

North American Datum 1983
Universal Transverse Mercator Projection Zone 17

Scale: 1:750
Page Size: Tabloid (11 x 17 inches)

Drawn: SM
Checked: AZ
Date: Dec 18, 2024

NORTH

Source Notes:
Imagery (2021) provided by City of Hamilton GIS REST service. Contains information licensed under the Open Government Licence – Ontario.

CLIENT: Mizrahi Developments

PROJECT: Sulphur Springs Rd

TITLE: **Tree Preservation Plan**

Palmer | PART OF SLR

REF. NO. 244.024373.00001-2-4

Figure 2A

Document Path: G:_Projects\244\244_024373_SulpherSprings\1_Workspace\1_Maps\(2024-10) Ecology and Arborist Report\(2024-10) Ecology and Arborist Report.aprx

TREE PRESERVATION SPECIFICATIONS

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- TREE PROTECTION ZONES ARE TO INCLUDE SIGNAGE (AS PER BELOW) INSTALLED ON CONSTRUCTION-FACING SIDES OF THE PROTECTIVE BARRIER. SIGNS SHALL BE 40 CM X 60 CM AND INCLUDE THE CITY OF HAMILTON LOGO.

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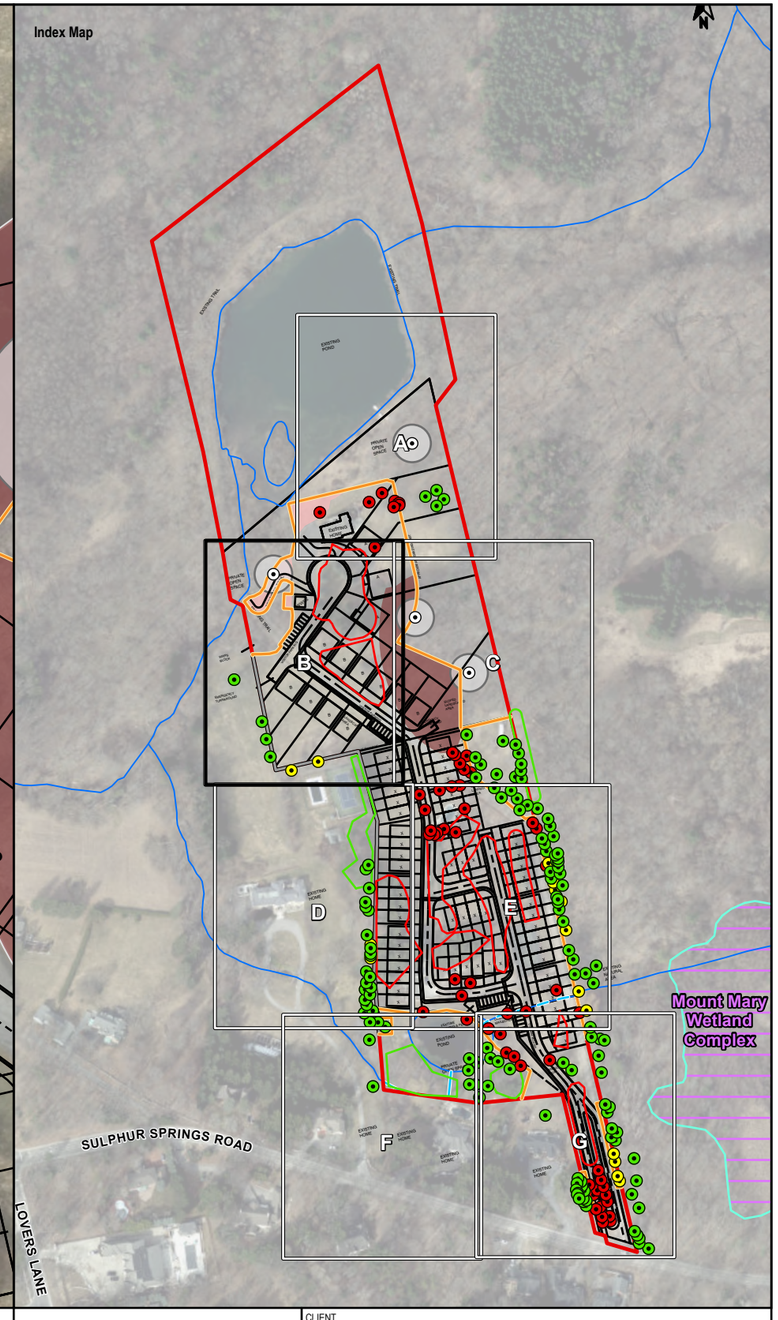
- NO BRANCHES OR BRUSH FROM CLEARING IS TO BE STORED ON THE SITE. CUTTING, BRUSH AND CHIPPING CLEANUP ARE TO BE COMPLETED OUTSIDE OF THE MIGRATORY BIRD NESTING SEASON.



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0 50 100 150
METRE SCALE

North American Datum 1983
Universal Transverse Mercator Projection Zone 17

Scale: 1:750
Page Size: Tabloid (11 x 17 inches)

Drawn: SM
Checked: AZ
Date: Dec 18, 2024

NORTH

Source Notes:
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CLIENT: Mizrahi Developments

PROJECT: Sulphur Springs Rd

TITLE: **Tree Preservation Plan**

Palmer | PART OF SLR

REF. NO. 244.024373.00001-2-4

Figure 2B

Document Path: G:_Projects\244\244_024373_SulpherSprings\1_Workspace\1_Maps\(2024-10) Ecology and Arborist Report\(2024-10) Ecology and Arborist Report.aprx

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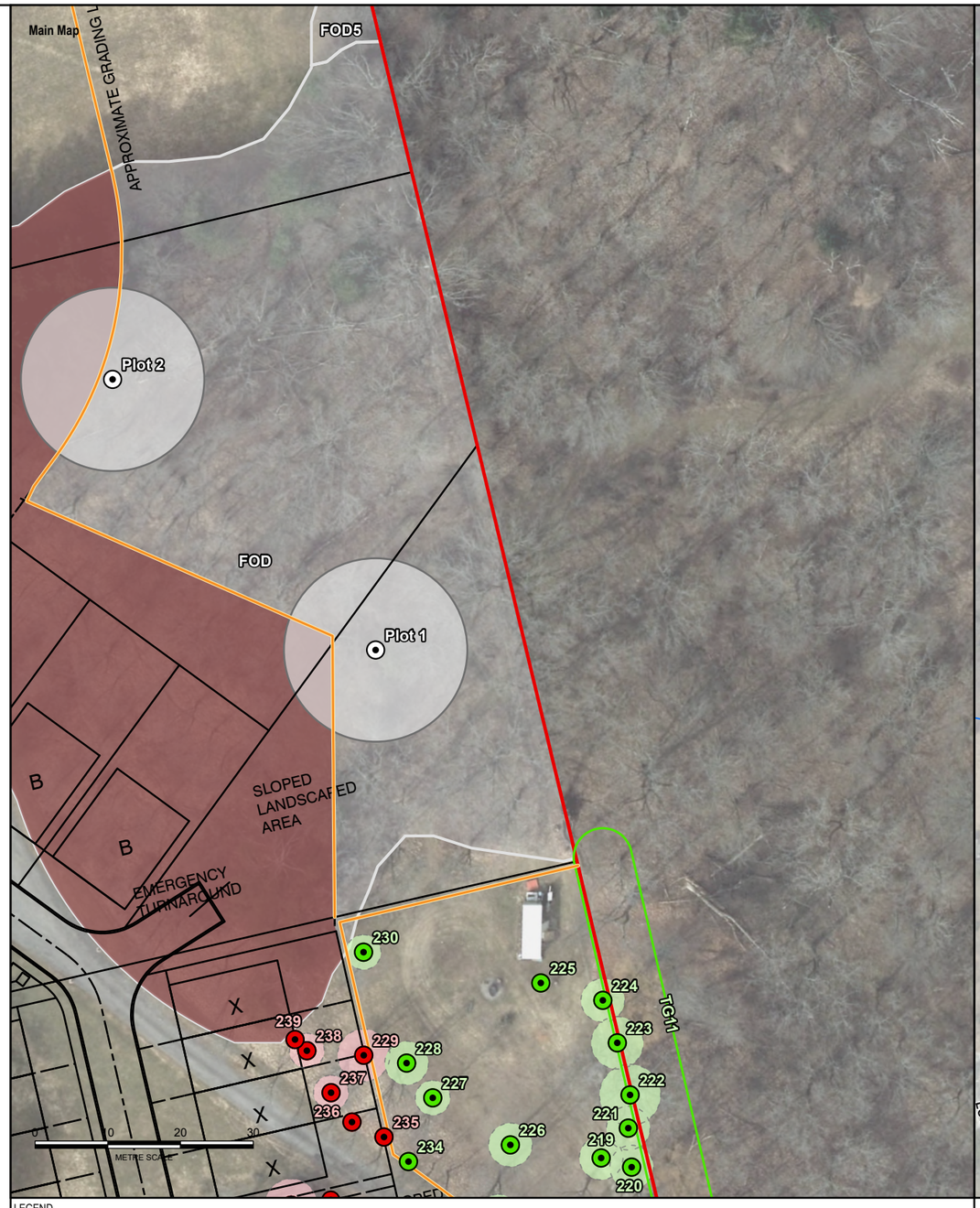

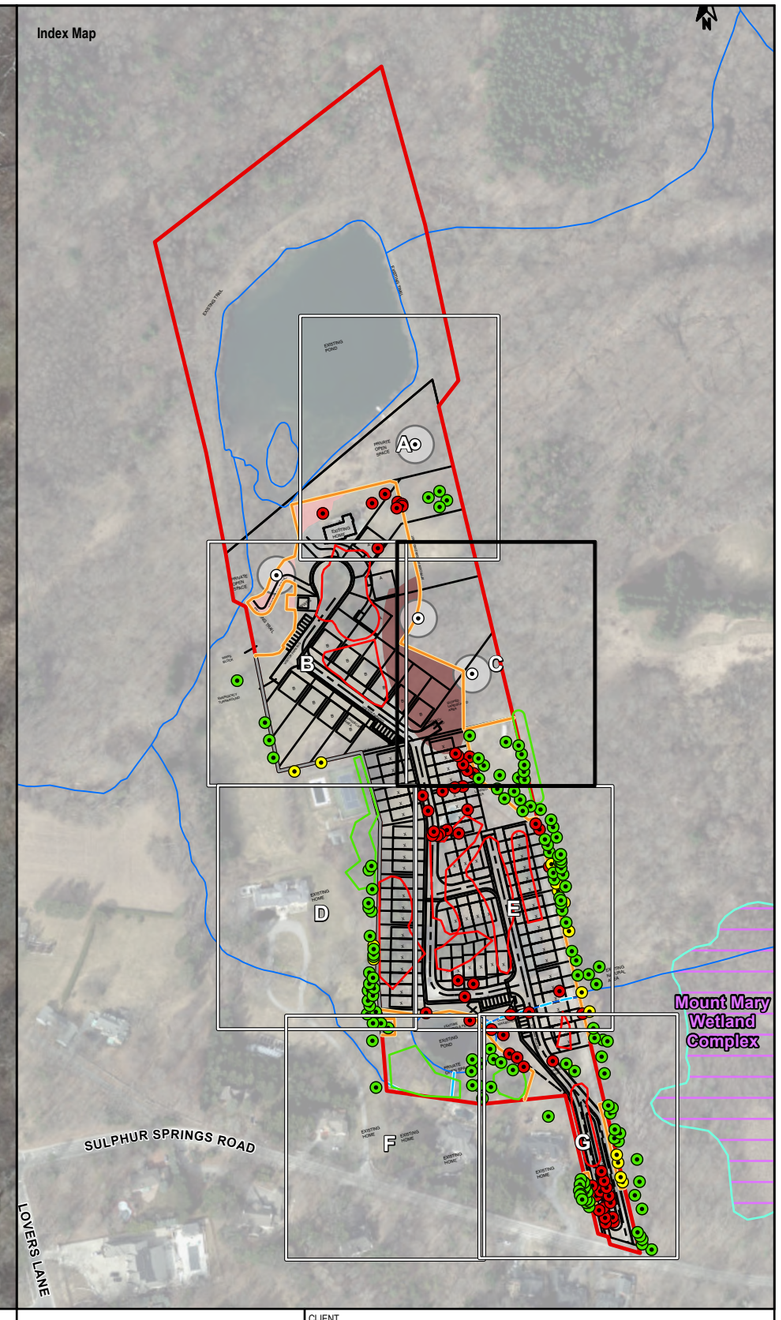

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0 50 100 150
METRE SCALE

North American Datum 1983
Universal Transverse Mercator Projection Zone 17

Scale: 1:750
Page Size: Tabloid (11 x 17 inches)

Drawn: SM
Checked: AZ
Date: Dec 18, 2024

NORTH

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CLIENT: Mizrahi Developments

PROJECT: Sulphur Springs Rd

TITLE: **Tree Preservation Plan**

Palmer | PART OF SLR

REF. NO. 244.024373.00001-2-4

Figure 2C

Document Path: G:_Projects\244\244_024373_SulpherSprings\1_Workspace\1_Maps\(2024-10) Ecology and Arborist Report\(2024-10) Ecology and Arborist Report.aprx

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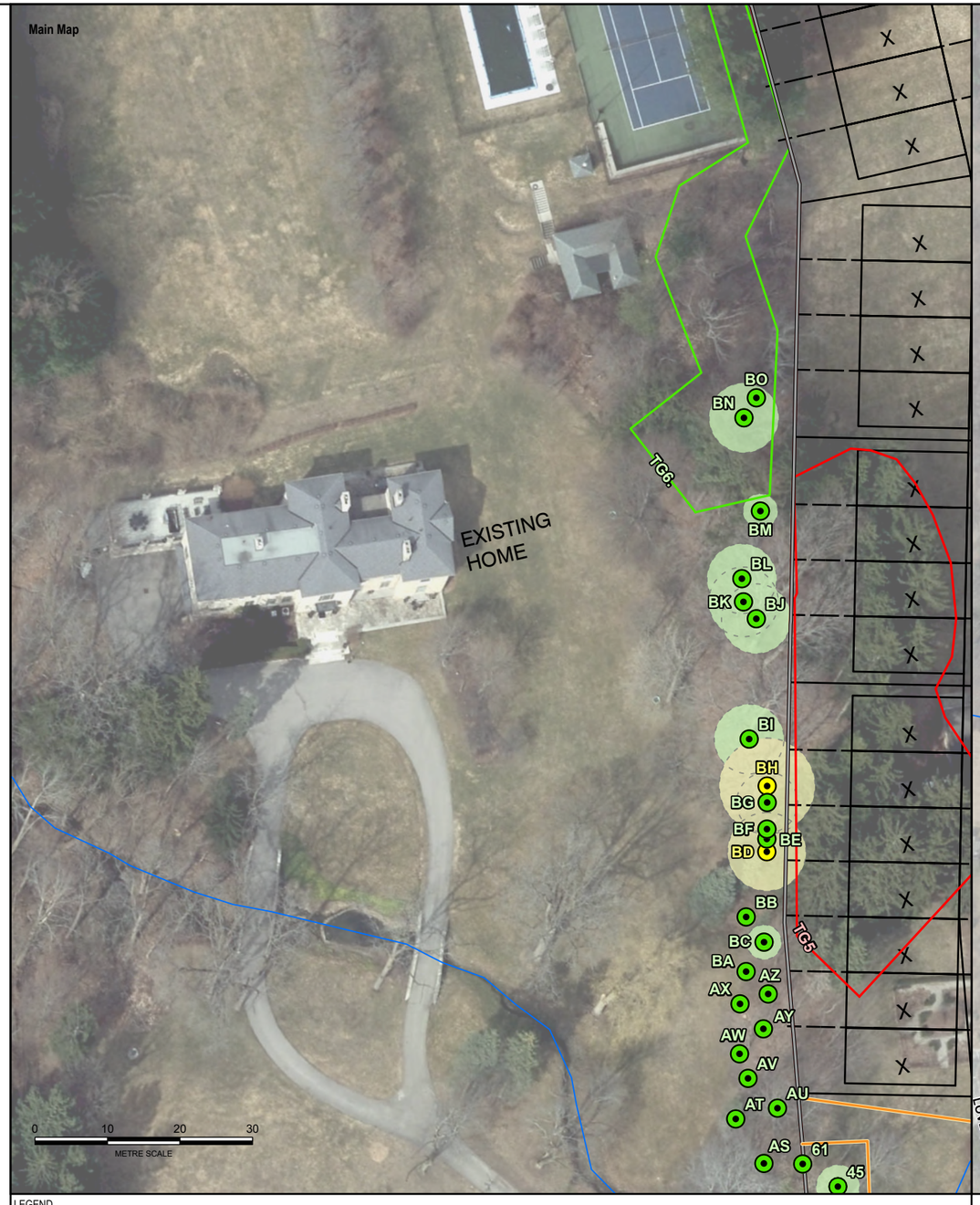
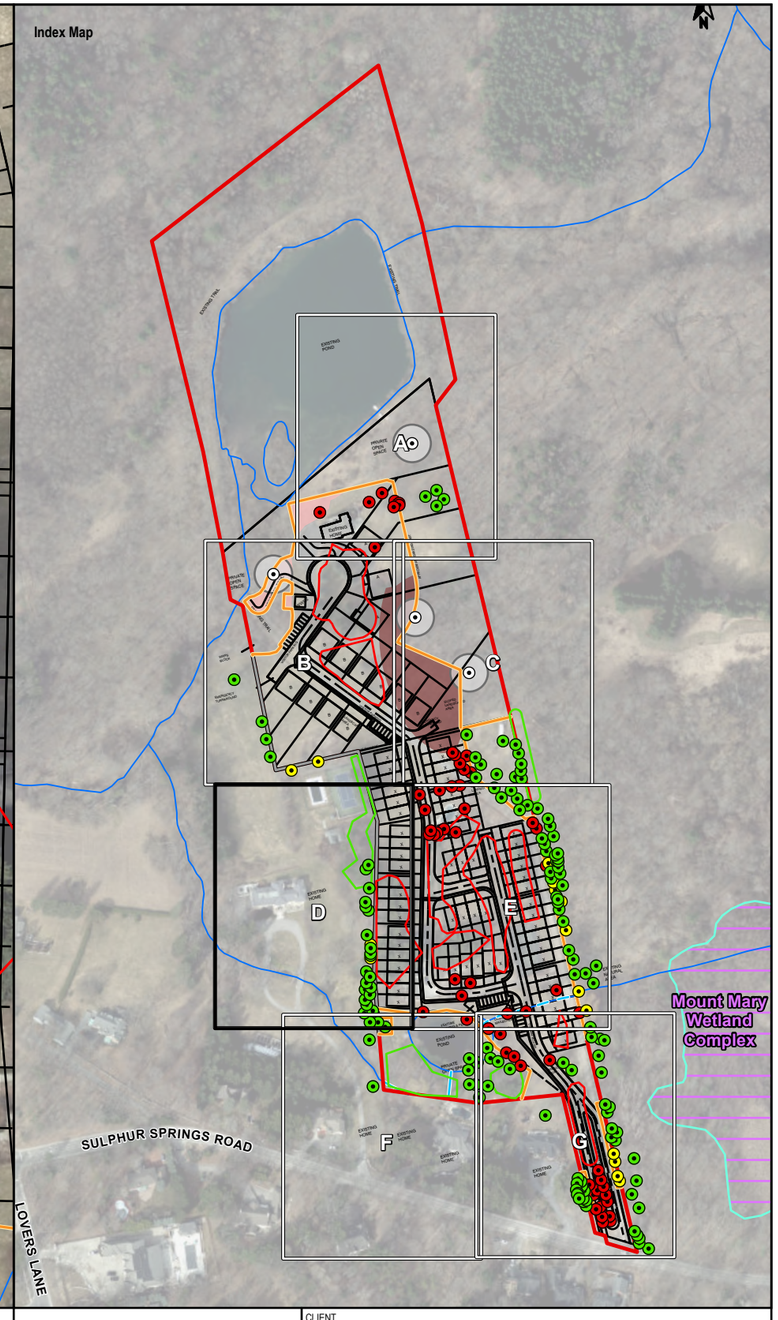
Main Map



Index Map



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0 50 100 150
METRE SCALE

North American Datum 1983
Universal Transverse Mercator Projection Zone 17

Scale: 1:750
Page Size: Tabloid (11 x 17 inches)

Drawn: SM
Checked: AZ
Date: Dec 18, 2024

NORTH

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CLIENT: Mizrahi Developments

PROJECT: Sulphur Springs Rd

TITLE: **Tree Preservation Plan**

Palmer | PART OF SLR

REF. NO. 244.024373.00001-2-4

Figure 2D

Document Path: G:_Projects\244\244_024373_SulpherSprings\1_Workspace\1_Maps\(2024-10) Ecology and Arborist Report\(2024-10) Ecology and Arborist Report.aprx

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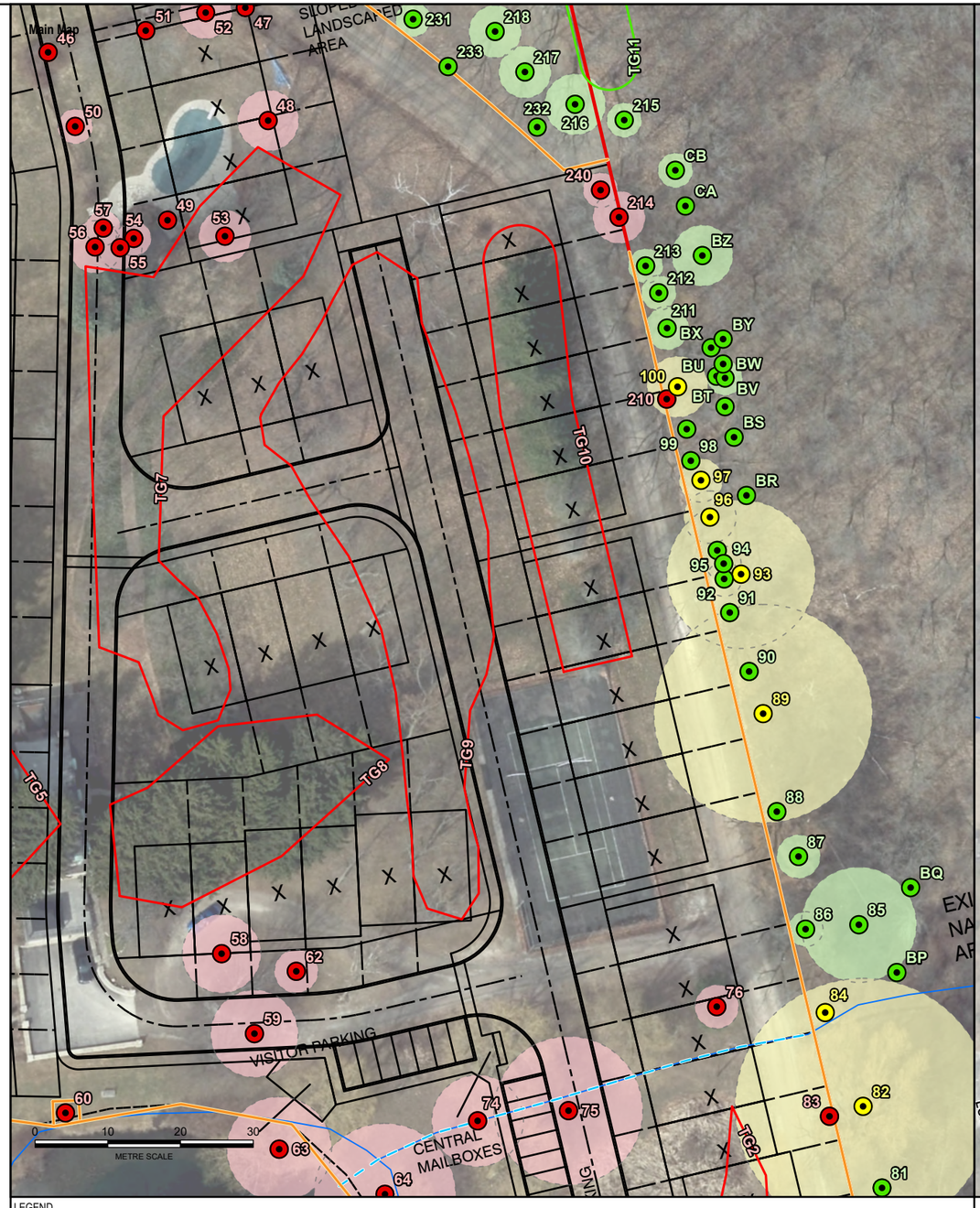

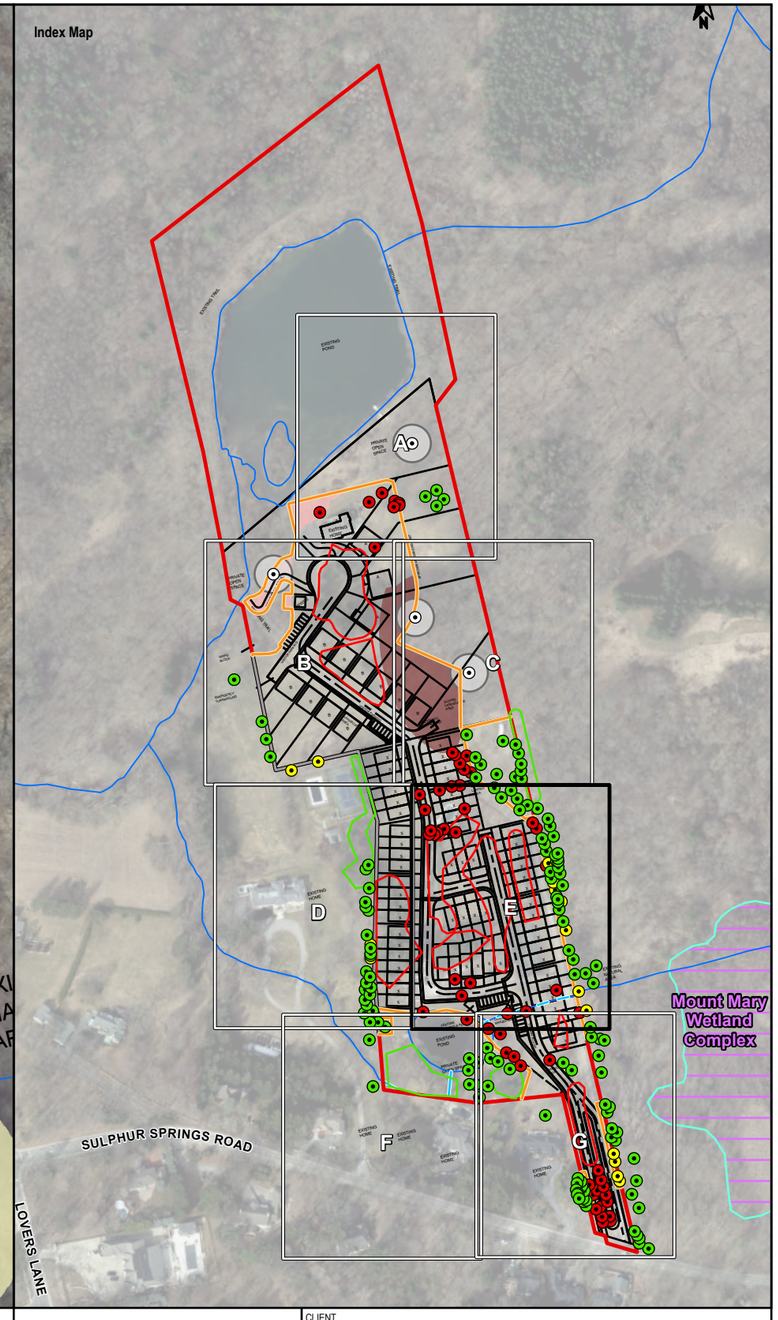

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0 50 100 150
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CLIENT: Mizrahi Developments

PROJECT: Sulphur Springs Rd

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Palmer | PART OF SLR

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Figure 2E

Document Path: G:_Projects\244\244_024373_SulpherSprings\1_Workspace\1_Maps\(2024-10) Ecology and Arborist Report\(2024-10) Ecology and Arborist Report.aprx

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- NO RIGGING CABLES SHALL BE WRAPPED AROUND OR INSTALLED IN TREES; AND SURPLUS SOIL, EQUIPMENT, DEBRIS OR MATERIALS SHALL NOT BE PLACED OVER ROOT SYSTEMS OF THE TREES WITHIN THE PROTECTIVE FENCING. NO CONTAMINANTS WILL BE DUMPED OR FLUSHED WHERE FEEDER ROOTS OF TREES EXIST.
- WHERE ROOT SYSTEMS OF PROTECTED TREES ARE EXPOSED DIRECTLY ADJACENT TO OR DAMAGED BY CONSTRUCTION WORK, THEY SHALL BE TRIMMED NEATLY BY A QUALIFIED ARBORIST AND THE AREA BACK FILLED WITH APPROPRIATE MATERIAL TO PREVENT DISSICATION.
- TREE PROTECTION ZONES ARE TO INCLUDE SIGNAGE (AS PER BELOW) INSTALLED ON CONSTRUCTION-FACING SIDES OF THE PROTECTIVE BARRIER. SIGNS SHALL BE 40 CM X 60 CM AND INCLUDE THE CITY OF HAMILTON LOGO.

> TREE PROTECTION ZONE (TPZ)
> All construction related activities, including grade alteration, excavation, soil compaction, any materials or equipment storage, disposal of liquid and vehicular traffic are NOT permitted within this TPZ.
> This tree protection barrier must remain in good condition and must not be removed or altered without authorization of the City of Hamilton. Concerns or inquiries regarding this TPZ can be directed to askcity@hamilton.ca or 905-546-2489 x 2782

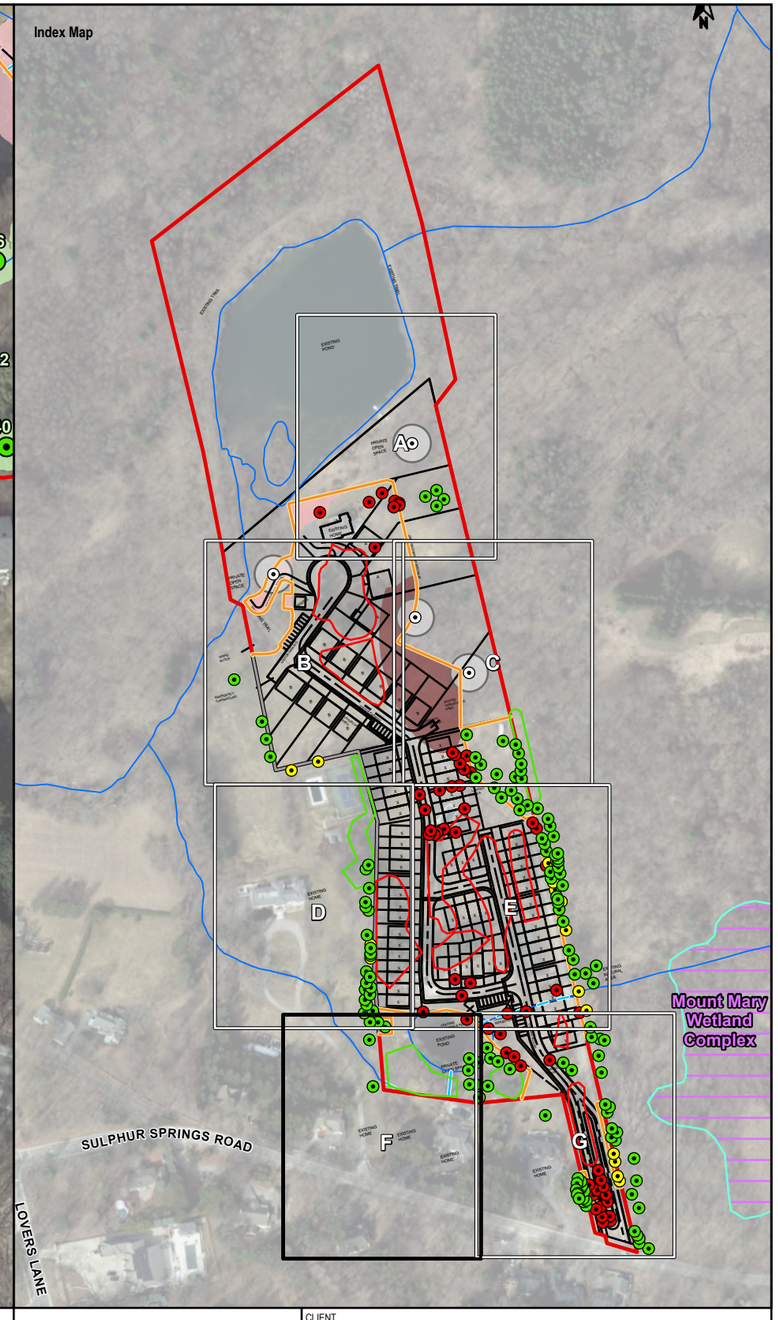
- IN THE EVENT THAT TREES TO BE PRESERVED ARE INADVERTENTLY DAMAGED BEYOND REPAIR, THEY SHALL BE SUBJECT TO SUITABLE COMPENSATION AS DETERMINED BY THE CITY OF HAMILTON AND REVIEW OF THE TREE INVENTORY AND ANALYSIS.

TREE PRUNING

- WHERE LIMBS OR PORTIONS OF TREES ARE REMOVED TO ACCOMMODATE CONSTRUCTION WORK, THEY WILL BE CAREFULLY REMOVED BY AN ISA CERTIFIED ARBORIST.
- IF ANY DAMAGE OCCURS TO TREES, INCLUDING BROKEN LIMBS, DAMAGE TO ROOTS, OR WOUNDS TO THE MAIN TRUNK, IT MUST BE REPORTED TO THE PROJECT CONSULTING ARBORIST IMMEDIATELY SO THAT MITIGATION MEASURES CAN BE PROMPTLY IMPLEMENTED.

TREE REMOVAL

- TREES ARE TO BE FELLED INTO THE CONSTRUCTION AREA TO REDUCE THE POTENTIAL FOR INJURY/DAMAGE TO ADJACENT TREES AND PROTECTED AREAS.
- TO AVOID INTERFERENCE WITH THE EGGS, NESTS OR YOUNG OF BIRDS PROTECTED UNDER THE FEDERAL MIGRATORY BIRDS CONVENTION ACT (GOVERNMENT OF CANADA, 1994), REMOVALS SHOULD NOT OCCUR FROM APRIL 1 TO AUGUST 31 OF ANY GIVEN YEAR. IDEALLY, REMOVAL SHOULD OCCUR FROM OCTOBER THROUGH DECEMBER TO AVOID INTERFERENCE WITH ALL NESTING BIRDS AND ROOSTING BATS. SHOULD REMOVAL BE REQUIRED WITHIN THE APRIL 1 TO SEPTEMBER 30 BREEDING PERIOD, A QUALIFIED AVIAN BIOLOGIST SHOULD CONDUCT A THOROUGH SURVEY IMMEDIATELY PRIOR TO THE DESIRED TREE REMOVAL DATE TO CONFIRM PRESENCE OR ABSENCE OF PROTECTED SPECIES. IF PROTECTED SPECIES ARE PRESENT, REMOVAL CANNOT OCCUR WITHOUT A PERMIT FROM THE CANADIAN WILDLIFE SERVICE.
- NO BRANCHES OR BRUSH FROM CLEARING IS TO BE STORED ON THE SITE. CUTTING, BRUSH AND CHIPPING CLEANUP ARE TO BE COMPLETED OUTSIDE OF THE MIGRATORY BIRD NESTING SEASON.



LEGEND

- Inventory Tree *with TPZ* - To Remove
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- Ecological Land Classification (ELC) - *Woodland*
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- FOD Encroachment (0.36 ha)
- Study Area (10.0 ha)

1 - Land Information Ontario

0 50 100 150
METRE SCALE

North American Datum 1983
Universal Transverse Mercator Projection Zone 17

Scale: 1:750
Page Size: Tabloid (11 x 17 inches)

Drawn: SM
Checked: AZ
Date: Dec 18, 2024

NORTH

Source Notes:
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CLIENT: Mizrahi Developments

PROJECT: Sulphur Springs Rd

TITLE: **Tree Preservation Plan**

Palmer | PART OF SLR

REF. NO. 244.024373.00001-2-4

Figure 2F

Document Path: G:_Projects\244\244_024373_SulpherSprings\1_Workspace\1_Maps\(2024-10) Ecology and Arborist Report\(2024-10) Ecology and Arborist Report.aprx

TREE PRESERVATION SPECIFICATIONS

GENERAL NOTES

- THIS VEGETATION PROTECTION PLAN IS DESIGNED TO WORK IN CONCERT WITH THE ARBORIST REPORT FOR THE PROJECT.
- ALL TREE PROTECTION FENCING SHALL BE IN PLACE AND INSPECTED BY THE CITY OF HAMILTON PRIOR TO ANY DEMOLITION OR CONSTRUCTION ACTIVITY.
- TREE PROTECTION BARRIERS SHALL REMAIN IN PLACE AND IN GOOD CONDITION UNTIL ALL CONSTRUCTION IS COMPLETE AND APPROVED BY THE CITY OF HAMILTON.
- AN INTERNATIONAL SOCIETY OF ARBORICULTURE (ISA) CERTIFIED ARBORIST SHALL BE ON SITE FOR ANY WORK WHICH IMPACTS ANY TREE OR TREE PROTECTION ZONE.
- ALL ARBORICULTURE WORK SUCH AS PRUNING OF BRANCHES AND ROOTS, SHALL BE DONE BY A QUALIFIED TREE WORKER CERTIFIED WITH THE ISA.

TREE PROTECTION AND FENCING

- ALL EXISTING TREES WHICH ARE TO REMAIN SHALL BE FULLY PROTECTED WITH FENCING ERECTED AROUND THE TREE PROTECTION ZONE (TPZ) IN ACCORDANCE WITH **APPENDIX A** OF THIS REPORT.
- TREE PROTECTION FENCING MUST BE PAIGE WIRE FARM FENCING. IT IS RECOMMENDED THAT FENCING SHOULD BE SECURED TO METAL "T-BAR" SUPPORTS A MAXIMUM OF 2.0 M APART, BEING 1.2 M ABOVE GROUND AND 1.2 M BELOW GROUND (2.4 M).
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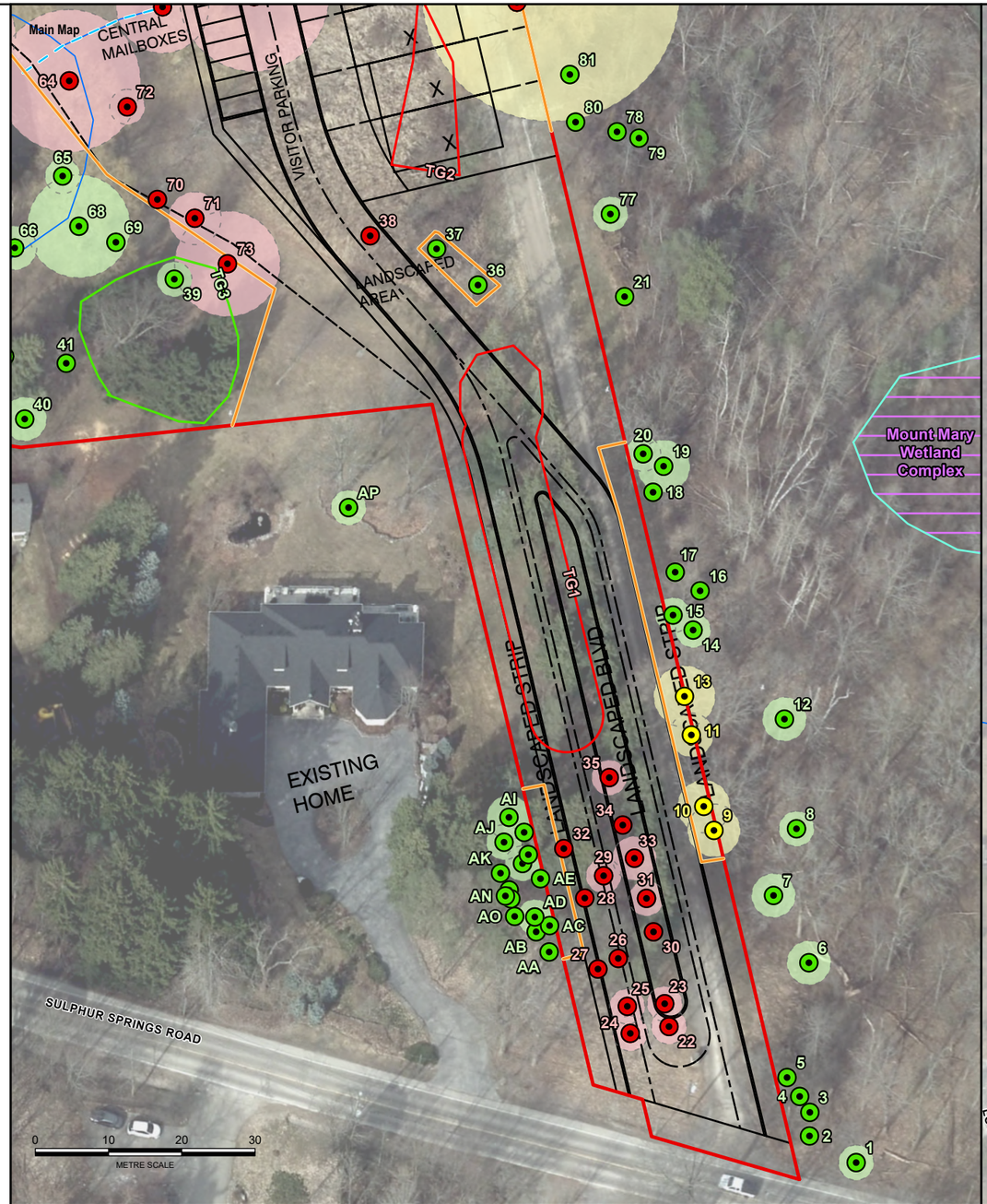

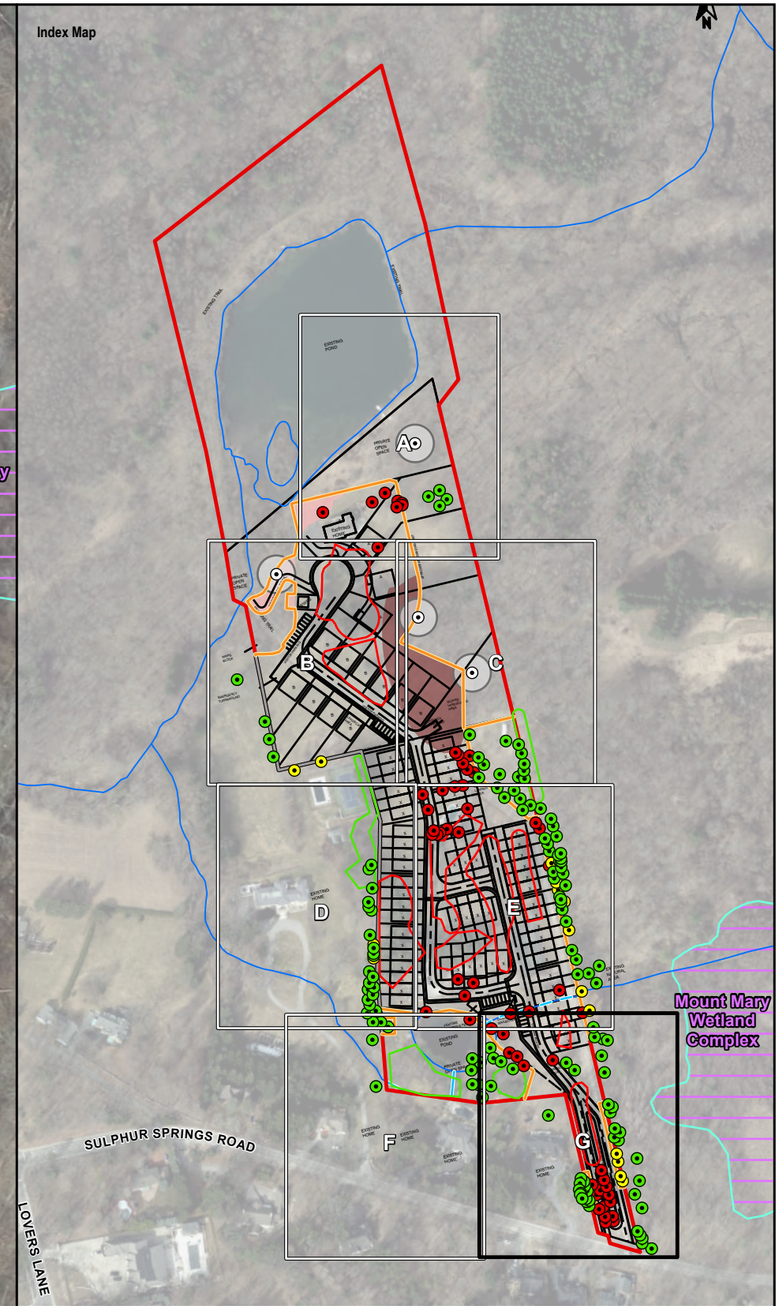

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Palmer | PART OF SLR

REF. NO. 244.024373.00001-2-4

Figure 2G

Document Path: G:_Projects\244\244_024373_SulpherSprings\1_Workspace\1_Maps\(2024-10) Ecology and Arborist Report\(2024-10) Ecology and Arborist Report.aprx

Figure 2g. Tree Protection Plan

4.3 Trees to be Retained with the Potential for Injury

A total of 15 trees may potentially be injured during the proposed works, which are all in good to fair condition (**Table 6**). Tree injury can occur where a TPZ will be reduced, and construction activity will impact roots and/or branches. In general, pruning of branches and roots up to 25-30% of a TPZ will result in tree injury, but may be retainable considering tree health and appropriate mitigation treatments.

These trees should be retained as part of the development, and documenting photographs taken prior to site clearing activities. Additional protection measures for pruning and root pruning (Sections 5.2.3 and 5.2.4) would be applied to these trees.

Table 6: Trees to be Retained with the Potential for Injury

Scientific Name	Common Name	Good to Fair Health	Poor Health	Dead	Total Count
*Acer saccharum**	Sugar Maple	3	-	-	3
*Juglans nigra**	Black Walnut	8	-	-	8
Picea abies	Norway Spruce	1	-	-	1
Salix sp.	Willow	3	-	-	3
Total		15	-	-	15

*Native species

4.4 Trees to be Removed

Approximately 500 trees will require removal to accommodate the proposed development, between individually counted trees, tree groups, and the portions of adjacent woodlands (tree plots) (**Figure 2**).

A total of 52 individual trees are proposed to be removed as they or their TPZs overlap with the proposed development limits (**Table 7**). Removal of Tree Groups 1, 2, 5, 7, 8, 9, 10, 12, and 13 (an additional 187 trees) will also be required to accommodate the proposed development (**Table 8**).

Additionally, approximately 0.46 ha of woodland is proposed to be removed, as shown by the extent of proposed grading on **Figure 2**. Based on the area calculations provided in **Appendix B**, this will result in the removal of approximately 261 trees.

Table 7. Trees Proposed to be Removed

Scientific Name	Common Name	Good to Fair Health	Poor Health	Dead	Total Count
Acer platanoides	Norway Maple	7	-	-	7
*Acer saccharinum**	Silver Maple	2	-	-	2
Aesculus hippocastanum	Horse Chestnut	-	1		1
*Alnus incana**	Grey Alder	1	-	-	1
Cornus sp.	Dogwood	1	-	-	1
Fagus sylvatica	European Beech	2	-	-	2
Fraxinus pennsylvanica *	Green Ash	1	-	-	1
*Juglans nigra**	Black Walnut	8	-	-	8
*Larix laricina**	Tamarack	1	-	-	1
Magnolia sp.	Magnolia	1	-	-	1
*Morus alba**	White Mulberry	2	-	-	2

Scientific Name	Common Name	Good to Fair Health	Poor Health	Dead	Total Count
*Picea glauca**	White Spruce	6	1	-	7
Picea pungens	Blue Spruce	1	-	1	2
Picea sp.	Spruce	1	-	-	1
Pinus sp.	Pine	-	-	3	3
*Platanus occidentalis**	American Sycamore	1	-	-	1
*Prunus avium**	Sweet Cherry	1	-	-	1
*Prunus serotina**	Black Cherry	2	-	-	2
*Quercus rubra**	Red Oak	2	-	-	2
Salix babylonica	Weeping Willow	4	1	-	5
*Ulmus americana**	White Elm	1	-	-	1
Total to be Removed		**45**	**3**	**4**	**52**

*Native species

Table 8. Tree Groups Proposed to be Removed

Tree Group	Species Composition (%)	Approximate Tree Count
TG1	Sycamore Maple (15%), White Spruce (75%), White Pine (10%)	20
TG2	White Spruce (16%), Speckled Alder (75%), Willow (9%)	12
TG5	Norway Maple (26%), Eastern Hemlock (7%), Norway Spruce (64%), Green Ash (2%)	42
TG7	Tulip Tree (22%), Sugar Maple (4%), Black Locust (15%), Kentucky Coffee-tree (22%), Shagbark Hickory (4%), Sweet Cherry (7%), Magnolia (22%), Cucumber Tree (4%)	27
TG8	Norway Spruce (93%), Honey Locust (7%)	14
TG9	Silver Maple (100%)	11
TG10	White Spruce (92%), Black Walnut (8%)	12
TG12	Norway Maple (18%), Red Pine (23%), Basswood (2%), Sweet Cherry (2%), Black Cherry, (11%), Bitternut Hickory (5%), Blue Spruce (16%), White Birch (7%), Norway Maple (5%), Little-leaf Linden (5%), Scots Pine (7%)	44
TG13	Common Apple (100%)	5
Approximate Total of Trees within Groups to be Removed		**187**

5.0 Tree Protection Plan

The specifications for tree protection are detailed on the Tree Protection Plan (**Figure 2**), including the locations of required tree protection fencing. The Tree Protection Plan is intended to act in concert with this Arborist Report; it is expected that the recommendations of both instruments be implemented for the Subject Property.

5.1 Tree Protection Zone

The trees proposed to be retained will be primarily protected by tree protection barriers/fencing, which is to be placed at minimum one metre beyond their dripline and/or Tree Protection Zone (TPZ) (City of Hamilton 2010). As a proxy to driplines, TPZ have been defined by radii that follow standard calculations developed by the ISA (Lilly, 2010) (**Table 9**). For multi-stemmed

trees, an Effective DBH has been determined using the sum of squares method, to determine an appropriate TPZ for the tree. The TPZ has been used as a conservative measure of the dripline requirements, per the City of Hamilton Specifications (City of Hamilton, 2010).

Table 9. Tree Minimum Tree Protection Zone Based on DBH

DBH*	Minimum TPZ Distance**
<10 cm	1.2 m
10-29 cm	1.8 m
30-40 cm	2.4 m
41-50 cm	3.0 m
51-60 cm	3.6 m
61-70 cm	4.2 m
71-80 cm	4.8 m
81-90 cm	5.4 m
91-100 cm	6.0 m
>100 cm	6 cm protection for each 1 cm diameter

*DBH measurement of tree is taken at 1.4 metres above the ground

**TPZ distances are to be measured from the outside edge of the tree base

Areas within the tree protection zone shall remain undisturbed for the duration of site construction and shall not be used for the storage of excavated fill, building/construction material, structures or equipment (**Figure 2**). No re-grading, including filling or excavation, is to take place within the protected area. All underbrush that is to be removed from within the protective barriers must be cleared by hand.

TPZ barriers shall extend a minimum of the TPZ distances for individual trees as detailed in **Appendix A** and shown on **Figure 2**. Where possible and beyond the TPZ, the driplines themselves should also be respected.

5.2 Tree Protection Fencing

Fencing provides protection from potential damage during construction activities. Tree protection fencing is to be installed as per The City of Hamilton Tree Protection Details (City of Hamilton, 2003) (**Appendix C).** Specifically, it is to consist of 1.2 m high paige wire farm fencing complete with iron “T” bars, 1.2 m high, with at least 1 m into the ground. Snow fencing will not be accepted. Prior to the start of any site work, the Contractor shall supply and install tree protection barriers around each tree or group of trees designated to be protected (**Figure 2**), or as directed by the Consulting Arborist or Landscape Architect, and the City (City of Hamilton, 2010). See **Figure 2** for additional standards and placement of tree fencing.

At the property limits, there is existing chainlink fencing that should be retained to define the development limits and minimize impacts to trees adjacent to construction (Section 4.3). Alternatively, site enclosure fencing (e.g., “Modu-loc”) may be used as a substitute for tree protection fencing. However, the determined TPZ for adjacent trees must still be respected, and/or mitigations implemented for trees to be retained with the potential for injury (Section 5.2.4).

The limit of tree protection hoarding shall be confirmed in the field by the consulting arborist, City staff and conservation authority (if applicable). The Owner/Applicant shall be responsible for ongoing maintenance and repairs to tree protection fencing to the satisfaction of the City, until final approval by the Consulting Arborist or Landscape Architect, and the City (City of Hamilton, 2010). The Owner/Applicant shall not remove and not cause or permit any tree preservation fencing to be removed without the approval of the Consulting Arborist or Landscape Architect, and the City.

A verification of tree protection letter will be prepared and submitted to the Director of Planning before any grading, servicing or construction (City of Hamilton, 2010).

5.2.1 Felling and Grinding

Stump removal is expected as part of site grading activities, especially central to the proposed development area. However, any trees designated for removal must consider adjacent trees that are being retained, especially in woodland areas. For these trees, removal will be cut flush to existing grades without stumping, as stump removal has the potential to adversely affect existing trees. Trees to be removed will be felled by an ISA certified arborist using good arboricultural practices to limit potential damage to the trees being retained. Trees should be felled in the direction of the development envelope to limit potential damage to adjacent trees to remain.

5.2.2 Woodland Edge Management

Clearing that creates a new woodland edge can expose formerly interior trees to stresses they may otherwise not experience. In locations where the edges of woodlands are to be cleared (**Figures 2B and 2C**), it is recommended that trees for removal be marked prior to clearing, to ensure that the clearing limit is established, and trees to remain are identified.

The following natural vegetation preservation measures are recommended to be implemented to minimize and/or mitigate potential direct and indirect adverse effects upon areas of woodland edge:

- The tree protection measures, including tree protection barriers, and canopy clearance pruning detailed above and on **Figure 2** shall be implemented as necessary to minimize and/or mitigate potential adverse impacts upon trees to be preserved.
- ESC fencing shall be erected as per **Figure 2** and the Project ESC Plan. Wherever possible, working easements, materials and equipment storage areas, or other areas of disturbance shall be located outside of areas of natural vegetation.
- Wherever feasible, stumps of trees removed within the area of natural vegetation shall be flush-cut to above ground level to promote suckering regeneration and promote growth within the new forest edge.
- Wherever feasible, stumps shall not be grubbed out or otherwise removed to allow for groundcover regeneration and regeneration from the soil seed bank.
- Unless visibly contaminated with foreign materials (e.g., oil, sluice, etc.) or known to be infected with a communicable plant disease or pathogen, woody material removed from the area of natural vegetation shall be finely chipped on-site and shall be spread into the retained area of natural vegetation. The depth of spread wood chip material shall not exceed 50 mm and shall not inhibit plant growth and regeneration. Some larger woody material (e.g., partial downed logs, high stumps) should also be retained, wherever feasible, to provide wildlife habitat features.

- Newly-created forest edges and otherwise impacted areas of natural vegetation should be monitored as outlined in a monitoring plan approved by the City or its designate. The survival and condition of planted material should be monitored, and supplemental watering or mulching should be implemented as required. Where necessary, vegetation control measures such as removal, mulching, or herbicide application may be required.

5.2.3 Pruning

Any tree limbs that extend over the tree protection fencing and have the potential to be injured by construction activities should be pruned prior to construction. In addition, all limbs damaged or broken during the course of construction will be pruned cleanly. Pruning should be completed using clean, scissor action (not anvil type) secateurs in accordance with approved arboricultural practices. All pruning cuts will be made to a growing point such as a bud, twig, or branch; no stubs should be left.

In general, poor cut location, poor cut angle and torn cuts are not acceptable. For pruning trees where heavy bleeding may occur, it should be postponed until full leaf-on conditions. Pruning should not damage lead branches or remove smaller twigs along main branches.

5.2.4 Root Pruning

For the trees identified that can be retained but have the potential for injury (Section 4.3), that injury is most likely to occur during the grading of the adjacent lots, where activities to level the lots are anticipated. While the trees will not require removal, their TPZ overlap with the anticipated grading, and root sensitive exploration/exposure and consequent pruning is recommended to help preserve the integrity of the trees post-construction.

5.2.4.1 Root Sensitive Exploration

As detailed above, where excavation or site grading is determined to be required within a TPZ of a “potentially injured” tree, root-sensitive excavation and root pruning shall be undertaken prior to conventional excavation. The purpose of root-sensitive excavation and root pruning is to enable tree roots to be cleanly severed and to prevent root damage in the un-excavated area through tearing, fracturing or breakage caused by conventional excavation equipment.

Root-sensitive excavation shall be undertaken utilizing pneumatic soil excavation (e.g., AirSpade or similar) or low-pressure hydro-vac excavation. Root-sensitive excavation shall be undertaken by excavating a trench approximately 200 mm wide and 1.0 m deep (or maximum depth of proposed excavation, whichever is greater) along the edge of the area to be excavated. The trench shall be set as far from the base of the tree as possible, and shall extend, at minimum, along the entire length of the proposed excavation within the minimum required TPZ.

5.2.4.2 Root Pruning

Roots of existing trees that are disturbed by excavation or any other construction activity will be cleanly pruned. If root cuts are necessary, they should be done quickly, making smooth, flush cuts supervised by a tree management professional. Then the roots should be backfilled and watered before they have a chance to dry out (City of Hamilton, 2010). Tools must be disinfected after pruning a tree and when pruning many members of the same genera, to prevent the spread of disease. Where root systems of protected areas are exposed directly, adjacent to or are damaged by construction work, they will be trimmed neatly, and the area backfilled with appropriate material to prevent desiccation.

In the event that it is essential for large (>7 cm diameter) roots to be cut, excavated or injured during construction, the roots will be cut flush under an ISA certified arborist's supervision and in accordance with approved arboricultural practices.

6.0 Compensation Plantings and Security Deposits

6.1 Compensation Plantings

In total, 500 trees, being 493 healthy, three poor, and four dead trees ≥10 cm DBH are proposed to be removed within the proposed development area, inclusive of individual trees, tree groups, and woodland trees (**Appendix A**). The City of Hamilton requires a 1:1 compensation ratio for any trees removed. A total of 500 replacement trees will be planted within various proposed enhancement areas across the Subject Property. These areas are further outlined in the Scoped Environmental Impact Study completed for this project, and include woodland edge along the east and other areas around the southern pond and property edges. Planting procedures will follow the General Principles for Planting outlined in the *City of Hamilton's Tree Protection Guidelines* (City of Hamilton, 2010). Native species similar to the woodlands on site are recommended for the replacement plantings. Under the *City of Hamilton's Tree Protection Guidelines*, a list of recommended native species is detailed in Appendix 4 of that document (City of Hamilton, 2010).

6.2 Security Deposits

Security deposits can be in the form of cash or acceptable letter of credit and are required for the TPP on lots or blocks that involve tree protection as part of an approved TPP. Consultation with City staff will need to be undertaken to determine the dollar value of trees to be retained through the TPP. Valuing trees will consider species, condition, and quantity of trees. Once determined, 75% of the deposit will be released once the TPP has been implemented, and 25% of the fee will be held for a two-year maintenance period. The amount after the maintenance period may be reduced depending on the survival of the trees. Any trees removed or irreparably damaged during construction must be replaced by the owner/developer to the satisfaction of the City, or the (or some portions of) deposit will not be refunded.

7.0 Construction Management and Monitoring

The following general management and monitoring actions are submitted to help ensure the protection of the trees to be retained on the Subject Property.

7.1 Pre-Construction Phase

The erection of tree protection fencing as per **Figure 2** is to be conducted under the supervision of an ISA certified arborist, prior to the commencement of site clearance, demolition or any other type of construction. Fencing must remain intact through the completion of construction.

Appropriate preparatory tree pruning would also be completed at this point. Any pruning or trimming of trees necessary to accommodate the fencing will be completed by an ISA certified arborist using good arboricultural practices (Section 5.2.3). All trees to be removed will be felled into the proposed development area as to avoid damage to the adjacent treed areas (Section 5.2.1).

7.1.1 Migratory Birds Convention Act

The Owner/Applicant is required to be informed about the Wildlife Act and Migratory Bird Convention Act, 1994. It is an offence to destroy active nests and/or eggs during bird nesting periods. Common nesting periods for the Hamilton area extend from April 1 to August 31 for most birds. Nesting can occur at other times as well. Should tree removal during bird nesting season be unavoidable, the developer is required to conduct a nesting survey. In addition, the developer is also required to provide on-site monitoring by a registered professional biologist to ensure nests will not be damaged.

7.1.2 Endangered Bat Tree Removal Window

Extending the above timing window, SLR recommends that tree removal be completed outside of the active period for three SAR bats (April 1 – September 30) to ensure that individuals of these species are not impacted. If tree removals are necessary within this window, further acoustic surveys could be completed, focusing on identified snag trees, to ensure that there are no active SAR bats. Adhering to this bat timing window would also ensure avoidance of breeding bird timing windows and contravention of the MBCA (Government of Canada, 1994).

7.2 Construction Phase

Contractors are responsible for all protection techniques, to the satisfaction of a certified arborist. The certified arborist will inspect, and the contractor will maintain protective fencing regularly in good repair (City of Hamilton, 2010). Protective fencing shall remain in place throughout the duration of construction and shall not allow traffic, vehicles, foot traffic or equipment to compact soil within the TPZ. Access routes should be established away from protected areas.

The certified arborist must be retained on site by the developer with a copy of the Arborist Report and Tree Protection Plan during critical stages of grading and construction to ensure strict adherence to its recommendations and to supervise those elements of the project that relate to the preservation of the trees.

The certified arborist is required to conduct and prepare inspection reports, such as a Post-Grading Tree Maintenance Report (identifying problems, progression, successes, etc.), for submission to the City of Hamilton Planning Department. General requirements include:

- tree removals;
- inadvertent damage to trees to remain;
- maintenance measures; and
- grading adjacent to protective areas.

7.2.1 Inadvertent Damage to Trees

Should the root system or above ground components of any tree designated to be retained sustain minor damage, as determined by an ISA certified arborist, remediation of the damage will be the responsibility of the contractor and at the advice of the arborist. If irreparable damage has occurred, the tree becomes unsafe or liability is questionable, the contractor will be required to remove the tree(s) and re-establish the tree(s) to the satisfaction of the ISA certified arborist and the City.

Where directed by the certified arborist, the contractor will replace all damaged or destroyed existing plant material affected during the course of construction with the following conditions

and to the satisfaction of the arborist and the City. Replacements will be of plant material of identical or similar species; of equal or greater size; and, in the same quantity.

7.3 Post-Construction Phase

The removal of tree protection barriers and any additional tree care/protection measures will only be initiated once all construction activities have been completed and landscaping has been initiated. After construction, all retained vegetation should be inspected for its state of health by an ISA Certified Arborist and the City of Hamilton.

Planting of compensation trees as per Section 6 will be initiated as part of landscaping and be completed by nursery professionals or a Certified Arborist. Planting will occur solely during the spring or fall planting seasons when establishment is most successful; being April 15 - July 1, and September 15 – November 15, respectively.

It is recommended that monitoring of tree establishment within Compensation Areas and natural area will be completed for a minimum of two growing seasons post-planting, following preliminary acceptance by the City. Monitoring should be designed to assess the growth and establishment of the planted trees, ensuring that the conditions any nursery guarantees are met.

8.0 Closure

A total of 468 individual trees and trees within tree groups were inventoried. Of these, it is recommended that a total of 239 trees be removed, 214 trees be retained, and 15 trees be retained but are at risk of injury. Approximately 261 additional trees from on-site woodlands are also proposed to be removed, based on tree plot data. The Tree Protection Plan is intended to act in concert with this Arborist Report; it is expected that the recommendations of both instruments be implemented for the project. The Tree Protection Plan, as detailed on **Figure 2** is to be implemented, including tree-specific recommendations outlined in this report. Recommendations for construction methods as they pertain to trees have been outlined in **Section 7**.

Regards,

SLR Consulting (Canada) Ltd.

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Appendix A Tree Inventory

159 and 163 Sulphur Springs Arborist Report and Tree Preservation Plan

Ancaster, Hamilton

2691715 Ontario Inc. & 2568843 Ontario Inc.

SLR Project No.: 244.024373.00001

December 18, 2024

Palmer™
PART OF SLR

Appendix A Tree Inventory

A.1 Individual Tree Inventory

Tag #/ Letter	Common Name	Scientific Name	DBH (cm)	Effective DBH (cm)	TPZ (m)	Condition Rating			Overall	Direction
						Dripline (m)	Structure	Vigour		
1	Sugar Maple	*Acer saccharum*	22,32	39	2.4	3	F	G	G	Retain
2	Norway Maple	*Acer platanoides*	11	11	1.8	2	G	G	G	Retain
3	Norway Maple	*Acer platanoides*	10	10	1.8	2	F	F	F	Retain
4	Norway Maple	*Acer platanoides*	29	29	1.8	3	G	G	G	Retain
5	Sycamore Maple	*Acer pseudoplatanus*	19	19	1.8	3	G	G	G	Retain
6	Black Walnut	*Juglans nigra*	50	50	3	3	G	F	F	Retain
7	Norway Maple	*Acer platanoides*	41	41	3	2	F	F	F	Retain
8	Black Walnut	*Juglans nigra*	30	30	2.4	2	G	F	G	Retain
9	Black Walnut	*Juglans nigra*	54	54	3.6	4	G	G	G	Injury
10	Black Walnut	*Juglans nigra*	52	52	3.6	4	F	F	F	Injury
11	Sugar Maple	*Acer saccharum*	45	45	3	3	G	G	G	Injury
12	Black Walnut	*Juglans nigra*	42	42	3	4	G	G	G	Retain
13	Sugar Maple	*Acer saccharum*	70	70	4.2	4	G	G	G	Injury
14	Black Walnut	*Juglans nigra*	38	38	2.4	5	P	G	P	Retain

Tag #/ Letter	Common Name	Scientific Name	DBH (cm)	Effective DBH (cm)	TPZ (m)	Condition Rating			Overall	Direction
						Dripline (m)	Structure	Vigour		
15	Sugar Maple	*Acer saccharum*	38	38	2.4	4	G	G	G	Retain
16	Green Ash	*Fraxinus pennsylvanica*	13	13	1.8	1	P	P	P	Retain
17	Green Ash	*Fraxinus pennsylvanica*	29	29	1.8	3	F	P	P	Retain
18	Green Ash	*Fraxinus pennsylvanica*	10	10	1.8	2	G	F	F	Retain
19	Black Walnut	*Juglans nigra*	52	52	3.6	4	G	G	G	Retain
20	Basswood	*Tilia americana*	38	38	2.4	3	G	G	G	Retain
21	Sugar Maple	*Acer saccharum*	18	18	1.8	0	D	D	D	Retain
22	Norway Maple	*Acer platanoides*	30	30	2.4	3	F	P	F	Remove
23	Norway Maple	*Acer platanoides*	34	34	2.4	4	G	G	G	Remove
24	Black Walnut	*Juglans nigra*	40	40	2.4	3	G	F	F	Remove
25	Pine	*Pinus* sp.	33	33	2.4	0	D	D	D	Remove
26	Black Cherry	*Prunus serotina*	22	22	1.8	2	G	F	F	Remove
27	Pine	*Pinus* sp.	26	26	1.8	0	D	D	D	Remove
28	Black Cherry	*Prunus serotina*	19	19	1.8	1	F	F	F	Remove
29	Pine	*Pinus* sp.	33	33	2.4	0	D	D	D	Remove
30	Blue Spruce	*Picea pungens*	22	22	1.8	0	D	D	D	Remove

Tag #/ Letter	Common Name	Scientific Name	DBH (cm)	Effective DBH (cm)	TPZ (m)	Condition Rating			Overall	Direction
						Dripline (m)	Structure	Vigour		
31	Blue Spruce	*Picea pungens*	37	37	2.4	3	F	F	F	Remove
32	Norway Maple	*Acer platanoides*	13	13	1.8	2	G	G	G	Remove
33	White Spruce	*Picea glauca*	43	43	3	2	G	F	F	Remove
34	White Spruce	*Picea glauca*	26	26	1.8	2	G	G	G	Remove
35	White Spruce	*Picea glauca*	40	40	2.4	3	F	F	F	Remove
36	Speckled Alder	*Alnus incana*	22	22	1.8	2	G	F	G	Retain
37	Speckled Alder	*Alnus incana*	12	12	1.8	2	G	G	G	Retain
38	Speckled Alder	*Alnus incana*	18	18	1.8	2	G	F	F	Remove
39	Red Oak	*Quercus rubra*	30	30	2.4	2	F	F	F	Retain
40	White Spruce	*Picea glauca*	46	46	3	2	F	F	F	Retain
41	Norway Maple	*Acer platanoides*	24	24	1.8	2	G	G	G	Retain
42	Manitoba Maple	*Acer negundo*	26	26	1.8	3	F	G	F	Retain
43	White Birch	*Betula papyrifera*	37	37	2.4	3	G	F	F	Retain
44	Dawn Redwood	*Metasequoia glyptostroboides*	74	74	4.8	5	G	G	G	Retain
45	Black Walnut	*Juglans nigra*	42	42	3	4	G	F	F	Retain
46	Sweet Cherry	*Prunus avium*	16	16	1.8	2	G	G	G	Remove

Tag #/ Letter	Common Name	Scientific Name	DBH (cm)	Effective DBH (cm)	TPZ (m)	Condition Rating			Overall	Direction
						Dripline (m)	Structure	Vigour		
47	Norway Maple	*Acer platanoides*	23	23	1.8	2	G	G	G	Remove
48	Red Oak	*Quercus rubra*	70	70	4.2	5	F	G	F	Remove
49	Tamarack	*Larix laricina*	20	20	1.8	2	G	G	G	Remove
50	White Mulberry	*Morus alba*	20,16,18	31	2.4	3	F	G	G	Remove
51	White Mulberry	*Morus alba*	24	24	1.8	3	F	F	F	Remove
52	Norway Maple	*Acer platanoides*	34,30,32	55	3.6	5	F	G	F	Remove
53	Silver Maple	*Acer saccharinum*	55	55	3.6	4	G	G	G	Remove
54	White Spruce	*Picea glauca*	40	40	2.4	1	G	P	P	Remove
55	White Spruce	*Picea glauca*	45	45	3	2	F	F	F	Remove
56	White Spruce	*Picea glauca*	60	60	3.6	3	F	F	F	Remove
57	Spruce	*Picea* sp.	37	37	2.4	2	F	F	F	Remove
58	European Beech	*Fagus sylvatica*	90	90	5.4	4	G	G	G	Remove
59	European Beech	*Fagus sylvatica*	95	95	6	4	G	G	G	Remove
60	Black Walnut	*Juglans nigra*	21	21	1.8	2	G	G	G	Remove
61	Silver Maple	*Acer saccharinum*	20	20	1.8	1	G	F	G	Retain
62	American Sycamore	*Platanus occidentalis*	42	42	3	5	G	G	G	Remove

Tag #/ Letter	Common Name	Scientific Name	DBH (cm)	Effective DBH (cm)	TPZ (m)	Condition Rating			Overall	Direction
						Dripline (m)	Structure	Vigour		
63	Weeping Willow	*Salix babylonica*	120	120	7.2	6	F	F	F	Remove
64	Weeping Willow	*Salix babylonica*	162	162	9.7	2	VP	F	P	Remove
65	Willow	*Salix* sp.	32	32	2.4	2	F	F	F	Retain
66	White Birch	*Betula papyrifera*	42	42	3	3	F	F	F	Retain
67	Willow	*Salix* sp.	33	33	2.4	2	F	F	F	Retain
68	Weeping Willow	*Salix babylonica*	117	117	7.0	5	P	F	P	Retain
69	Red Oak	*Quercus rubra*	24	24	1.8	3	G	F	G	Retain
70	Red Oak	*Quercus rubra*	28	28	1.8	4	G	G	G	Remove
71	Silver Maple	*Acer saccharinum*	51	51	3.6	5	G	G	G	Remove
72	Red Maple	*Acer rubrum*	32	32	2.4	4	G	G	G	Retain
73	Weeping Willow	*Salix babylonica*	120	120	7.2	6	F	G	F	Remove
74	Weeping Willow	*Salix babylonica*	105	105	6.3	6	F	F	F	Remove
75	Weeping Willow	*Salix babylonica*	170	170	10.2	6	F	F	F	Remove
76	White Spruce	*Picea glauca*	44	44	3	3	G	G	G	Remove
77	Willow	*Salix* sp.	40	40	2.4	3	P	F	P	Retain
78	Speckled Alder	*Alnus incana*	13	13	1.8	2	G	G	G	Retain

Tag #/ Letter	Common Name	Scientific Name	DBH (cm)	Effective DBH (cm)	TPZ (m)	Condition Rating			Overall	Direction
						Dripline (m)	Structure	Vigour		
79	Speckled Alder	*Alnus incana*	13	13	1.8	2	G	G	G	Retain
80	Speckled Alder	*Alnus incana*	22	22	1.8	2	F	F	F	Retain
81	Ash	*Fraxinus* sp.	15	15	1.8	2	F	F	F	Retain
82	Willow	*Salix* sp.	293	293	17.6	8	F	F	F	Injury
83	White Elm	*Ulmus americana*	22	22	1.8	4	F	F	F	Remove
84	Black Walnut	*Juglans nigra*	25	25	1.8	3	G	G	G	Retain
85	Willow	*Salix* sp.	96,90	132	7.9	6	F	F	F	Retain
86	Black Walnut	*Juglans nigra*	40	40	2.4	5	G	G	G	Retain
87	Black Walnut	*Juglans nigra*	46	46	3	4	G	G	G	Retain
88	Black Walnut	*Juglans nigra*	27	27	1.8	3	G	G	G	Retain
89	Willow	*Salix* sp.	250	250	15.0	6	F	F	F	Injury
90	Red Oak	*Quercus rubra*	14	14	1.8	2	G	G	G	Retain
91	White Oak	Quercus rubra	24	24	1.8	3	G	G	G	Retain
92	Black Walnut	*Juglans nigra*	30	30	2.4	3	G	G	G	Retain
93	Willow	*Salix* sp.	170	170	10.2	6	F	F	F	Injury
94	Black Walnut	*Juglans nigra*	33	33	2.4	5	G	G	G	Retain

Tag #/ Letter	Common Name	Scientific Name	DBH (cm)	Effective DBH (cm)	TPZ (m)	Condition Rating			Overall	Direction
						Dripline (m)	Structure	Vigour		
95	Green Ash	*Fraxinus pennsylvanica*	14	14	1.8	1	VP	VP	VP	Retain
96	Black Walnut	*Juglans nigra*	52	52	3.6	4	F	G	F	Injury
97	Black Walnut	*Juglans nigra*	46	46	3	4	G	G	G	Injury
98	Black Walnut	*Juglans nigra*	17	17	1.8	1	G	G	G	Retain
99	Black Walnut	*Juglans nigra*	22	22	1.8	3	G	G	G	Retain
100	Black Walnut	*Juglans nigra*	65	65	4.2	4	G	G	G	Injury
211	Black Walnut	*Juglans nigra*	46	46	3	7	F	G	F	Retain
212	Sugar Maple	*Acer saccharum*	34	34	2.4	3	G	G	G	Retain
213	Black Walnut	*Juglans nigra*	32	32	2.4	3	G	G	G	Injury
214	Black Walnut	*Juglans nigra*	55	55	3.6		G	F	F	Retain
215	Black Walnut	*Juglans nigra*	37	37	2.4	3	G	G	G	Remove
216	Basswood	*Tilia americana*	44,42,27	67	4.2	4	G	G	G	Retain
217	Red Oak	*Quercus rubra*	55	55	3.6	4	G	G	G	Retain
218	Red Oak	*Quercus rubra*	60	60	3.6	5	G	G	G	Retain
219	Red Oak	*Quercus rubra*	50	50	3	4	G	G	G	Retain
220	Black Walnut	*Juglans nigra*	24,34	42	3	2	F	F	F	Retain

Tag #/ Letter	Common Name	Scientific Name	DBH (cm)	Effective DBH (cm)	TPZ (m)	Condition Rating			Overall	Direction
						Dripline (m)	Structure	Vigour		
221	Black Walnut	*Juglans nigra*	46	46	3	4	F	G	F	Retain
222	Ash	*Fraxinus* sp.	65	65	4.2	0	D	D	D	Retain
223	Black Walnut	*Juglans nigra*	60	60	3.6	4	P	F	F	Retain
224	Black Walnut	*Juglans nigra*	50	50	3	5	F	G	F	Retain
225	Black Cherry	*Prunus serotina*	22	22	1.8	3	G	G	G	Retain
226	Red Maple	*Acer rubrum*	50	50	3	4	G	G	G	Retain
227	Red Maple	*Acer rubrum*	35	35	2.4	3	G	G	G	Retain
228	Red Maple	*Acer rubrum*	47	47	3	4	G	G	G	Retain
229	Red Maple	*Acer rubrum*	55	55	3.6	4	G	G	G	Retain
230	Norway Maple	*Acer platanoides*	35	35	2.4	3	G	G	G	Remove
231	Black Walnut	*Juglans nigra*	31	31	2.4	3	G	G	G	Retain
232	Black Walnut	*Juglans nigra*	24	24	1.8	2	G	G	G	Retain
233	Black Walnut	*Juglans nigra*	24	24	1.8	3	G	G	G	Retain
234	Sweet Cherry	*Prunus avium*	28	28	1.8	3	G	G	G	Retain
235	Sweet Cherry	*Prunus avium*	17	17	1.8	2	G	G	G	Retain
236	Norway Maple	*Acer platanoides*	26	26	1.8	3	G	G	G	Remove

Tag #/ Letter	Common Name	Scientific Name	DBH (cm)	Effective DBH (cm)	TPZ (m)	Condition Rating			Overall	Direction
						Dripline (m)	Structure	Vigour		
237	Black Walnut	*Juglans nigra*	31	31	2.4	3	F	F	F	Remove
238	Black Walnut	*Juglans nigra*	31	31	2.4	3	F	F	F	Remove
239	Black Walnut	*Juglans nigra*	26	26	1.8	2	F	F	F	Remove
240	Black Walnut	*Juglans nigra*	37	37	2.4	2	G	G	G	Remove
241	Horse Chestnut	*Aesculus hippocastanum*	41	41	3	2	F	P	P	Remove
242	European Beech	*Fagus sylvatica*	91	91	6	6	G	G	G	Retain
243	European Beech	*Fagus sylvatica*	110	110	6.6	5	G	F	F	Retain
244	Horse Chestnut	*Aesculus hippocastanum*	71	71	4.8	5	G	F	F	Retain
245	Common Plum	*Prunus domestica*	20,25,24	40	2.4	4	G	G	G	Retain
246	Common Plum	*Prunus domestica*	18	18	1.8	2	F	F	F	Retain
247	Common Plum	*Prunus domestica*	24	24	1.8	2	F	F	F	Retain
248	Common Plum	*Prunus domestica*	24	24	1.8	3	F	F	F	Retain
249	Magnolia	*Magnolia* sp.	8,8,7	13	1.8	2	G	G	G	Remove
250	Dogwood	*Cornus* sp.	12,8,12	19	1.8	2	G	G	G	Remove
251	Blue Spruce	*Picea pungens*	47	47	3	2	F	F	F	Retain
210	Black Walnut	*Juglans nigra*	24	24	1.8	2	G	G	G	Remove

Tag #/ Letter	Common Name	Scientific Name	DBH (cm)	Effective DBH (cm)	TPZ (m)	Condition Rating			Overall	Direction
						Dripline (m)	Structure	Vigour		
AA	Sycamore Maple	*Acer pseudoplatanus*	11	11	1.8	2	G	G	G	Retain
AB	Sycamore Maple	*Acer pseudoplatanus*	11	11	1.8	2	G	G	G	Retain
AC	Sycamore Maple	*Acer pseudoplatanus*	16	16	1.8	2	G	G	G	Retain
AD	Pine	*Pinus* sp.	32	32	2.4	0	D	D	D	Retain
AE	Sycamore Maple	*Acer pseudoplatanus*	16	16	1.8	2	G	G	G	Retain
AF	Pine	*Pinus* sp.	32	32	2.4	0	D	D	D	Retain
AG	Sycamore Maple	*Acer pseudoplatanus*	15	15	1.8	2	G	G	G	Retain
AH	Sycamore Maple	*Acer pseudoplatanus*	11	11	1.8	2	G	G	G	Retain
AI	White Spruce	*Picea glauca*	41	41	3	3	G	G	G	Retain
AJ	White Spruce	*Picea glauca*	30	30	2.4	3	F	P	F	Retain
AK	Black Cherry	*Prunus serotina*	14	14	1.8	2	F	F	F	Retain
AL	Black Cherry	*Prunus serotina*	18	18	1.8	2	G	G	G	Retain
AM	Pine	*Pinus* sp.	24	24	1.8	2	G	G	G	Retain
AN	Sycamore Maple	*Acer pseudoplatanus*	20	20	1.8	2	G	G	G	Retain
AO	Black Cherry	*Prunus serotina*	16	16	1.8	2	F	F	F	Retain
AP	White Spruce	*Picea glauca*	30	30	2.4	3	G	G	G	Retain

Tag #/ Letter	Common Name	Scientific Name	DBH (cm)	Effective DBH (cm)	TPZ (m)	Condition Rating			Overall	Direction
						Dripline (m)	Structure	Vigour		
AQ	Honey Locust	*Gleditsia triacanthos*	15	15	1.8	2	G	G	G	Retain
AR	Silver Maple	*Acer saccharinum*	30,15	34	2.4	2	F	G	F	Retain
AS	Norway Maple	*Acer platanoides*	15	15	1.8	2	G	G	G	Retain
AT	Norway Maple	*Acer platanoides*	25	25	1.8	3	G	G	G	Retain
AU	Norway Maple	*Acer platanoides*	20,8,15	26	1.8	3	G	G	G	Retain
AV	Norway Maple	*Acer platanoides*	15	15	1.8	2	G	G	G	Retain
AW	Norway Maple	*Acer platanoides*	15	15	1.8	2	G	G	G	Retain
AX	Norway Maple	*Acer platanoides*	25	25	1.8	3	G	G	G	Retain
AY	Norway Maple	*Acer platanoides*	20	20	1.8	2	G	G	G	Retain
AZ	Norway Maple	*Acer platanoides*	20	20	1.8	2	G	G	G	Retain
BA	Norway Maple	*Acer platanoides*	15	15	1.8	2	G	G	G	Retain
BB	Black Cherry	*Prunus serotina*	20	20	1.8	2	G	G	G	Retain
BC	Norway Maple	*Acer platanoides*	30	30	2.4	2	G	G	G	Retain
BD	Norway Spruce	*Picea abies*	85	85	5.4	3	G	G	G	Injury
BE	Black Cherry	*Prunus serotina*	25	25	1.8	2	G	G	G	Retain
BF	White Elm	*Ulmus americana*	25	25	1.8	2	G	G	G	Retain

Tag #/ Letter	Common Name	Scientific Name	DBH (cm)	Effective DBH (cm)	TPZ (m)	Condition Rating			Overall	Direction
						Dripline (m)	Structure	Vigour		
BG	Norway Spruce	*Picea abies*	70	70	4.2	3	G	G	G	Retain
BH	Sugar Maple	*Acer saccharum*	110	110	6.6	4	G	G	G	Injury
BI	Sugar Maple	*Acer saccharum*	75	75	4.8	5	G	G	G	Retain
BJ	Sugar Maple	*Acer saccharum*	75	75	4.8	4	G	G	G	Retain
BK	Sugar Maple	*Acer saccharum*	75	75	4.8	4	G	G	G	Retain
BL	Sugar Maple	*Acer saccharum*	75	75	4.8	4	G	G	G	Retain
BM	Eastern Hemlock	*Tsuga canadensis*	30	30	2.4	4	G	G	G	Retain
BN	Silver Maple	*Acer saccharinum*	75	75	4.8	5	F	G	F	Retain
BO	Norway Spruce	*Picea abies*	25	25	1.8	4	P	F	P	Retain
BP	White Elm	*Ulmus americana*	12	12	1.8	2	F	F	F	Retain
BQ	Black Walnut	*Juglans nigra*	18	18	1.8	2	F	F	F	Retain
BR	Black Walnut	*Juglans nigra*	20	20	1.8	1	G	P	G	Retain
BS	Black Walnut	*Juglans nigra*	15	15	1.8	2	G	G	G	Retain
BT	Black Walnut	*Juglans nigra*	25	25	1.8	3	G	G	G	Retain
BU	Black Walnut	*Juglans nigra*	12	12	1.8	2	G	G	G	Retain
BV	Black Walnut	*Juglans nigra*	35	35	2.4	3	G	G	G	Retain

Tag #/ Letter	Common Name	Scientific Name	DBH (cm)	Effective DBH (cm)	TPZ (m)	Condition Rating			Overall	Direction
						Dripline (m)	Structure	Vigour		
BW	Norway Maple	*Acer platanoides*	10	10	1.8	2	G	G	G	Retain
BX	Basswood	*Tilia americana*	25,10	27	1.8	3	G	G	G	Retain
BY	Black Walnut	*Juglans nigra*	12	12	1.8	2	G	G	G	Retain
BZ	Willow	*Salix* sp.	70	70	4.2	5	G	G	G	Retain
CA	Black Walnut	*Juglans nigra*	25	25	1.8	2	G	G	G	Retain
CB	Black Walnut	*Juglans nigra*	30	30	2.4	3	G	G	G	Retain
CC	Black Walnut	*Juglans nigra*	50	50	3	4	G	F	F	Injury
CD	Black Walnut	*Juglans nigra*	45	45	3	3	G	G	G	Injury
CE	Blue Spruce	*Picea pungens*	20	20	1.8	2	G	G	G	Retain
CF	Blue Spruce	*Picea pungens*	20	20	1.8	2	G	G	G	Retain
CG	Blue Spruce	*Picea pungens*	20	20	1.8	2	G	G	G	Retain
CH	Black Walnut	*Juglans nigra*	110	110	6.6	6	G	G	G	Retain
CI	Green Ash	*Fraxinus pennsylvanica*	35	35	2.4	3	G	G	G	Remove

A.2 Tree Group Inventory

Tree Group	Species Composition (%)	Approximate Tree Count
TG1	Sycamore Maple (15%), White Spruce (75%), Eastern White Pine (*Pinus strobus*) (10%)	20
TG2	White Spruce (16%), Grey Alder (75%), Willow (9%)	12
TG3	Norway Spruce (88%), Red Oak (12%)	9
TG4	Willow (2%), Eastern White Cedar (7%), Eastern White Pine (17%), Black Walnut (12%), White Spruce (10%), White Birch (12%), Sweet Cherry (20%), Norway Maple (7%), Common Hackberry (*Celtis occidentalis*) (2%), While Elm (2%), Green Ash (2%), Speckled Alder (5%)	41
TG5	Norway Maple (26%), Eastern Hemlock (7%), Norway Spruce (64%), Green Ash (2%)	42
TG6	Sugar Maple (5%), Eastern White Pine (14%), Silver Maple (5%), Norway Spruce (71%), Norway Maple (5%)	21
TG7	Tulip Tree (22%), Sugar Maple (4%), Black Locust (*Robinia pseudoacacia*) (15%), Kentucky Coffee-tree (22%), Shagbark Hickory (*Carya ovata*) (4%), Sweet Cherry (7%), Magnolia (22%), Cucumber Tree (4%)	27
TG8	Norway Spruce (93%), Honey Locust (7%)	14
TG9	Silver Maple (100%)	11
TG10	White Spruce (92%), Black Walnut (8%)	12
TG11	Willow (29%), Norway Maple (14%), Basswood (14%), Black Walnut (43%)	7
TG12	Norway Maple (18%), Red Pine (23%), Basswood (2%), Sweet Cherry (2%), Black Cherry, (11%), Bitternut Hickory (*Carya cordiformis*) (5%), Blue Spruce (16%), White Birch (7%), Norway Maple (5%), Little-leaf Linden (*Tilia cordata*) (5%), Scots Pine (*Pinus sylvestris*) (7%)	44
TG13	Common Apple (*Malus pumila*) (100%)	5
Approximate Total of Trees within Groups		**265**

A.3 Tree Plots

Plot Number	Associated ELC Community	Common Name	Scientific Name	Diameter at Breast Height (DBH) Class					Total Stems	Stand Health & Maturity	General Notes
				Size Category 1: <10 cm	Size Category 2: 10-29 cm	Size Category 3: 30-40 cm	Size Category 4: 41-50 cm	Site Category 5: >50 cm			
1	FOD	Black Walnut	*Juglans nigra*	-	6	2	1	2	11	Green Ash dead from EAB. Most other trees in good to fair condition.	Sparse tree cover in general along western edge of feature.
		Basswood	*Tilia americana*	-	-	1	-	-	1		
		Green Ash (dead)	*Fraxinus* pennsylvanica	4	-	1	-	-	5		
		Black Cherry	*Prunus serotina*	-	-	1	-	-	1		
		Total		**4**	**6**	**5**	**1**	**2**	**18**		
2	FOD	Scots Pine	*Pinus sylvestris*	-	--	1	-	-	1	Green Ash dead from EAB. Most other trees in good to fair condition.	Dense understory layer.
		Bitternut Hickory	*Carya cordiformis*	-	1	2	-	-	3		
		Red Pine	*Pinus resinosa*	-	-	1	3	-	4		
		Green Ash (dead)	*Fraxinus* pennsylvanica	2	3	2	-	-	7		
		Sweet Cherry	*Prunus avium*	-	5	-	-	-	5		
		Black Cherry	*Prunus serotina*	1	1	3	2	-	7		
		Scots Pine	*Pinus sylvestris*	-	-	1	-	-	1		
		Basswood	*Tilia americana*	1	-	-	-	-	1		
		Norway Spruce	*Picea abies*	-	-	1	1	-	2		
		Total		**17**	**17**	**21**	**6**	**-**	**55**		

Plot Number	Associated ELC Community	Common Name	Scientific Name	Diameter at Breast Height (DBH) Class					Total Stems	Stand Health & Maturity	General Notes
				Size Category 1: <10 cm	Size Category 2: 10-29 cm	Size Category 3: 30-40 cm	Size Category 4: 41-50 cm	Site Category 5: >50 cm			
3	FOD5	Sugar Maple	*Acer saccharum*	1	5	1		-	7	Most trees in good to fair condition.	Fairly sparse ground and understory cover.
		Norway Maple	*Acer platanoides*	1	3	3	1	-	8		
		Basswood	*Tilia americana*	-	2	1	-	-	3		
		Black Walnut	*Juglans nigra*	-	2	2	-	-	4		
		Black Cherry	*Prunus serotina*	-	2	2	1	-	5		
		Red Oak	*Quercus rubra*	-	-	2	-	-	2		
		White Elm	*Ulmus americana*	3	1		-	-	4		
		Bitternut Hickory	*Carya cordiformis*	1	1	1	-	-	3		
		Total		**6**	**16**	**12**	**2**	**0**	**36**		
4	CUW1	Green Ash	*Fraxinus* pennsylvanica	1	3	-	-	-	4	Young to mid-aged community. Most trees in good to fair condition.	Watercourse/ drainage and trail within plot.
		Black Walnut	*Juglans nigra*	-	9	6	1	-	16		
		Sugar Maple	*Acer saccharum*	2	7	-	-	-	9		
		Black Cherry	*Prunus serotina*	-	1	-	-	-	1		
		Basswood	*Tilia americana*	7	5	1	-	-	13		
		Willow	*Salix sp.*	-	1	-	-	-	1		
		Total		**10**	**26**	**7**	**1**	**0**	**44**		

Appendix B Tree Plot Calculations

159 and 163 Sulphur Springs Arborist Report and Tree Preservation Plan

Ancaster, Hamilton

2691715 Ontario Inc. & 2568843 Ontario Inc.

SLR Project No.: 244.024373.00001

December 18, 2024

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Appendix B Tree Plot Calculations

B.1 Tree Plot Calculations

Tree Plots	Species Composition	Tree Count	Area of Impact (ha)
Plot 1	Black Walnut	11	0.18 ha (averaged with Plot 2 in the same community)
	Basswood	1	
	Green Ash (dead)	5	
	Black Cherry	1	
Total		**18**	
Plot 2	Scots Pine	1	0.18 ha (averaged with Plot 1 in the same community)
	Bitternut Hickory	3	
	Red Pine	4	
	Green Ash (dead)	7	
	Sweet Cherry	5	
	Black Cherry	7	
	Basswood	1	
	Norway Spruce	2	
Total		**30**	
Plot 3	Sugar Maple	7	0 ha
	Norway Maple	8	
	Basswood	3	
	Black Walnut	4	
	Black Cherry	5	
	Red Oak	2	
	White Elm	4	
	Bitternut Hickory	3	
Total		**36**	
Plot 4	Green Ash	4	0.1 ha
	Black Walnut	16	
	Sugar Maple	9	
	Black Cherry	1	
	Basswood	13	
	Willow	1	
Total		**44**	

Each plot is 12.6 m^2 = 500 m^2. To arrive at stems/ha (10,000 m^2 = 1 ha), values are multiplied by 20.

Tree Plot 1

= 18 trees x 20 = 360 trees/ha

As the project removes/clears 0.18 ha, total tree loss is estimated at 65 trees.

Tree Plot 2

= 30 trees x 20 = 600 trees/ha

As the project removes 0.18 ha, total tree loss is estimated at 108 trees.

Tree Plot 3

No tree removals are proposed for the woodland where Tree Plot 3 is located.

Tree Plot 4

= 44 trees x 20 = 880 trees/ha

As the project removes 0.1 ha, total tree loss is estimated at 88 trees.

Summary

Thus, approximately 261 trees are proposed to be removed from the woodland areas.

Appendix C City of Hamilton Tree Protection Detail

159 and 163 Sulphur Springs Arborist Report and Tree Preservation Plan

Ancaster, Hamilton

2691715 Ontario Inc. & 2568843 Ontario Inc.

SLR Project No.: 244.024373.00001

December 18, 2024

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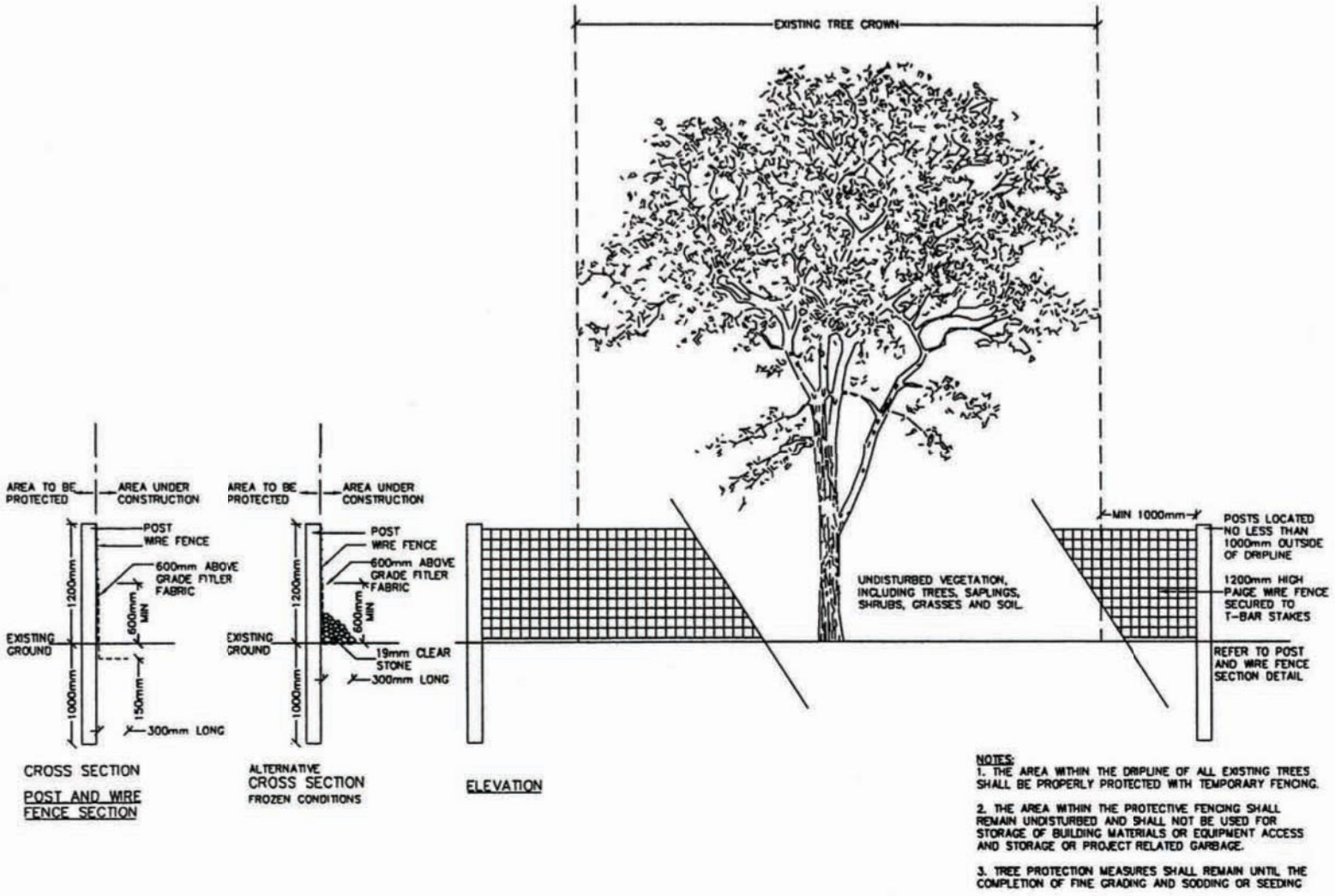

Hamilton

SITE PLAN
GUIDELINES

October 2003

TEMPORARY TREE PROTECTION FENCING

(POST SECTION AND ELEVATION, NTS)

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