EAST COBOURG PHASE 1

LANDSCAPE ANALYSIS AND ARBORIST REPORT

THE PLANNING PARTNERSHIP

Arborist Survey & Report

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EAST COBOURG PHASE 1
Landscape Analysis and Arborist Report

Section Contents

Appendix

To:	Town of Cobourg, Parks Department
From:	Michael Ormston-Holloway – The Planning Partnership
Survey Dates:	December 13-14 & 18-19, 2018
Report Date:	December 21, 2018
Subject:	East Cobourg-Rondeau Tree Inventory Towards Pending Phase 1 Development

EAST COBOURG-RONDEAU PHASE 1 DEVELOPMENT

LANDSCAPE ANALYSIS, ARBORIST SURVEY AND REPORT

This report was updated 2019.07.03 to reflect the lot grading plan, dated Feb. 2019, from D.G. Biddle & Associates. The number of removals of significant tree specimens has been increased from 21 to 41. This is reflected in the Tree Inventory Spreadsheet.

The following landscape analysis and arborist report has been prepared in keeping with the expectations of the International Society of Arboriculture (ISA), as well as the tenets of established best practices within the fields of forestry and urban forestry, in terms of tree removal and tree preservation. As a document, it looks to inform tree management and removal for the pending Phase 1 of the Rondeau development along Elgin Street East, East Cobourg. It is also an opportunity to identify existing trees which could be preserved, and add value to the proposed development. As such, this is a detailed report of all the trees deemed significant specimens growing within the proposed Phase 1 development as shown in the Preliminary D Plan (October 30, 2018), that is, the fields east of the existing Denton Drive subdivision, within Part Lot 12 and Part Lot 13, bounded by Elgin Street East on the south side, and Part Lot 13, Concession 1 on the north side.

In consultation with Town of Cobourg Parks Department Arborist Rory Quigley, significant specimens were deemed to be all trees with diameters at breast height (DBH) over 30cm, with the exception of those belonging to the species *Fraxinus spp.* and *Pinus sylvestris*. For these two species, significant specimens were considered to be those over 50 cm DBH. This due to the status of *Pinus sylvestris* as an invasive species, and the likelihood that most *Fraxinus spp.* are infected by the Emerald Ash Borer (EAB), and in decline. Significant specimens were identified, measured, and recorded within a minimum of 6m of the subject site.

Significant site documentation of wood understorey shrubs and saplings was also undertaken and included within this report. This to create a more comprehensive understanding of the growth patterns of the specimens in question, the current state of the landscape, as well as the character of the adjacent landscapes prior to moving forward with development. Numerous invasive buckthorn shrubs (*Rhamnus cathartica*) were identified, and are recommended for removal.

In the context of this development, it is understood that a large number of trees will be removed, and that areas of land within the development have been set aside to protect environmentally significant areas and ecological connectivity, as recommended in the Environmental Impact Study (Niblett Environmental Associates Inc., 18 May 2016). However, it is also the opinion of the arborists that a number of trees identified within the hedgerows and wooded edges of the site may also be preserved. Preserving these trees would help to mediate between the new development and the rural character of the surrounding lands, as well as provide interest to the new residents, and habitat to existing fauna.

In total, 57 trees were identified as significant species. Many of these trees are located either towards side or rear lot lines of the proposed subdivision, and could potentially be preserved during construction with minimal impacts on the design. This report will be updated to include recommendations for preservation or removal of specific significant trees after discussion of the draft plan, so the possible impacts to targets

(fences, paths, yards, road, people, homes, etc.) can be assessed. Large ash trees in proximity to targets should not be retained.

It is important to note that no survey identifying tree location was provided for the completion of this report and therefore tree locations in the attached map are based on the arborist's best judgement of the conditions found on site, and their relationship to satellite images and existing property boundaries. This in turn means that when the time comes for construction, it is entirely possible that some healthy trees labelled for removal may be preserved and conversely, some trees labelled for preservation may be removed. It is the opinion of this arborist that strong efforts should be made to preserve as many healthy native trees as possible, as there is evidence that this property provides important habitat for numerous birds, insects, and mammals. Further to this, no work should take place during migratory bird nesting periods, which can be found in the Ontario Breeding Bird Atlas.

Any trees retained within the property boundary will also require strategic canopy cleaning via pruning. Limbs that may prove to be hazardous in the future (codominance, weak branching, etc.,) should be individually assessed and addressed accordingly. As with all development, sound construction practice is recommended to minimize impact and protect the healthier specimens.

Ultimately, the goal of this report is to provide a physical inventory of the trees within the study area. This report also ranks the trees in terms of their health; their present impediments to growth; and will identify action to be taken in terms of preservation or removal. If you have any questions regarding tree surveying or any other information contained within this report, please contact Michael Ormston-Holloway of TPP.

Regards,

Michael Ormston-Holloway

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Section 2 Arborist Survey Methods

The trees included in this report were inventoried during four days in December of 2018, by ISA Certified Arborists Michael Ormston-Holloway and Katie Strang.

Date	Max Temp.	Conditions	Precip. (mm)
December 13, 2018	1°C	Overcast	0.0
December 14, 2018	3°C	Overcast, with scatter showers and flurries	3.0
December 18, 2018	-4°C	Sunny	0.0
December 19, 2018	5°C	Sunny, with some clouds	0.0

All trees considered significant specimens within a 6m offset of the site boundaries were part of this survey. In consultation with Town of Cobourg Parks Department Arborist Rory Quigley, significant specimens were deemed to be all trees with diameters at breast height (DBH) over 30cm, with the except of those belonging to the species *Fraxinus spp.* and *Pinus sylvestris*. For these two species, significant specimens were deemed to be those over 50 cm DBH. This due to the status of *Pinus sylvestris* as an invasive species, and the likelihood that most *Fraxinus spp.* are infected by the Emerald Ash Borer (EAB), and in decline.

Each of the aforementioned trees was given a number, and specimens were individually inspected for character, and health. In addition, the unique growing conditions within which they developed was documented.

The following inventory data was collected for each tree:

- Tree Number
- Species
- DBH – Diameter at approximately 1.4m above ground level
- T.P.Z. – Value is determined by International Society of Arboriculture standard of 1' offset per 1" diameter or 30cm of offset per 2.54cm of diameter (Figure 1 below)
- Condition – Summarized as follows:

    1) Good
    2) Fair-Good
    3) Fair
    4) Poor-Fair
    5) Poor
    6) Dead

- Comments – Included in physical inventory.
- Action – Denotes whether a tree is to be removed or preserved.

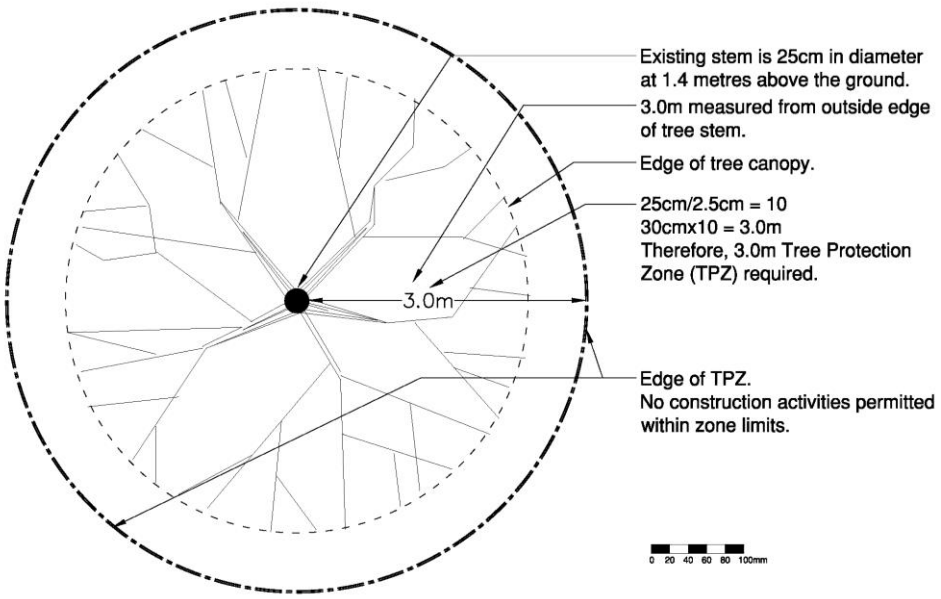


Figure 1 – Tree Protection Zone Calculation

Section 3 General Results

Site Location and Size

The Phase 1 site is in Cobourg, Ontario, and is approximately 20 hectares. The development area consists of the fields east of the existing Denton Drive subdivision, within Part Lot 12 and Part Lot 13, bounded by Elgin Street East on the south side, and Part Lot 13, Concession 1 on the north side. The northwest corner of the site contains a 3.13 ha woodlot which will not be developed, and was not surveyed for this report. The study area is graphically defined within Section 8 – Maps: Tree Inventory, Preservation + Removals Plan, packaged with this report.

Site Character and Significance

The study area is a combination of fallow and recently planted agricultural fields, as well as regenerated woodland and a small wetland adjacent to a tributary to Brook Creek. It is bound by a combination of roads, woodlots, hedge rows, and residential backyards giving it a variety of edge conditions. A trail exists around the eastern perimeter of the woodlot in the northwest corner of the site, and it is frequently used by dog owners taking their pets for walks.

The western portion of the site is that of a successional meadow hemmed in by scrubby woodland edges, while the eastern section is an active agricultural field, flanked by hedgerows. Most of these edges and hedgerows are dominated by pioneer species, and invasive buckthorn shrubs, and do not reflect a high level of diversity. However, the hedgerows do include mature native species, some of which have impressive size and form. These trees are primarily *Acer saccharum* (Sugar Maple) and *Fraxinus spp.* (Ash). Since the spread of EAB into Ontario forests in the early 2000s, it is unusual to find large *Fraxinus spp.* which appear to be in relatively good health. This finding would have to be confirmed in spring, as canopy dieback cannot be fully assessed after leaf drop.

The site also includes an area of densely planted invasive *Pinus sylvestris* (Scots Pine) within the agricultural field, which shows signs of human use, and may have been used as a hunting blind. This copse of trees has a very low species diversity, and does not contribution significantly to the local ecology.

Key Findings and Recommendations

- Trees within the designed Environmental Protection Areas (EPA) are to be protected, and an edge management strategy should be developed for the transitional zone from these areas to the subdivision. Significant specimens near, but not within EPA, should be considered for protection, particular the large maple tree tagged #554 (adjacent to the regulatory floodline).

- 57 trees are identified as significant specimens. These are to be individually assessed for preservation potential or for compensation to the Town of Cobourg when more detailed grading plans are released. Based on the lot grading received from D.G. Biddle & Associates, 41 of these trees require removal, and will require permits or compensation as indicated by the Town of Cobourg.

- Invasive trees or *Fraxinus spp.* with DBH under 50 cm and trees in poor health are to be removed. Invasive trees (excluding *Rhamnus cathartica)*, and *Fraxinus spp.* in good health with DBH over 50cm should be preserved if possible due to their high biomass and large contribution to the canopy cover and local ecology. As the site plan develops, *Fraxinus spp.* in good health should be assessed for proximity to targets, and should not be retained if their failure would put people or property at risk.

- *Rhamnus cathartica* should not be retained, regardless of size. It is identified as a noxious weed by Ontario's Weed Control Act, and should be removed. Detailed instructions on controlling invasive buckthorn growth is provided by the Ontario Invasive Plant Council.

- The large trees found within the north-south hedgerows are primarily *Fraxinus spp.*, with an understorey dominated by invasive buckthorn, with some hawthorn and poplar tree growth. Most of the *Fraxinus spp.* are likely infected by EAB, so these clusters of trees have low preservation potential.

- The east-west hedgerow along the north boundary of Lot 12 has 13 *Acer spp.* and 3 *Fraxinus spp.*, with DBH 60 cm or more. Many of these trees have diameters near a meter, and should be recognized as valuable due to their age, size, resilience, and habitat contribution. As large old trees, many of them contain deadwood and cavities, and would require a special management strategy or risk assessment to retain. Although this area contains most of the significant tree specimens on the site, it will be impacted by the grading of the site, and all trees in this hedgerow will require removal, with the exception of trees 535, 542, 543, and 544, which are outside of the boundary of grading for this phase.

- There are three large old trees in decline that been called out in the Tree Inventory Spreadsheet as having potential for preservation as habitat stumps. Hazardous branches would have to be removed, and detailed individual tree assessments would have to be performed.

- No work should take place during migratory bird nesting periods, which can be found in the Ontario Breeding Bird Atlas.

- A patch of what appears to be hybridized *Juglans nigra* (Black Walnut) and *Juglans cinerea* (Butternut) was found in the southwest corner of the site. Confirmation of this hybridization would require genetic testing. These trees all have DBH under 30cm, and would not be considered significant if found to be *Juglans nigra* or hybrids.

Ultimately, the goal of this report is to provide a physical inventory of the trees within the study area. This report also ranks the trees in terms of their health; their present impediments to growth; and, identifies the existing trees that will be removed.

It is strongly recommended that all the trees that are preserved on site be pruned by an ISA Certified Arborist in order to remove dead wood, twisting branches, and other areas of concern that may be treated.

Any pruning must be done according to the CODIT principle and follow ANSI best practices to ensure the healing of wounds.

For ease of navigating the following Tree Inventory Spreadsheet, please refer the following acronym charts.

SURVEYED SPECIES

KEY	Botanical Name	Common Name
AN	*Acer negundo*	Manitoba Maple
AP	*Acer platanoides*	Norway Maple
AR	*Acer rubrum*	Red Maple
AS	*Acer saccharum*	Sugar Maple
ASI	*Acer saccharinum*	Silver Maple
BP	*Betula papyrifera*	Paper Birch
FS	*Fraxinus spp.*	Ash Species

JN	*Juglans nigra*	Black Walnut
MS	*Malus sp.*	Crab Apple
OV	*Ostrya virginiana*	Ironwood
PA	*Picea abies*	Norway Spruce
PD	*Populus deltoides*	Cottonwood
PSY	*Pinus sylvestris*	Scots Pine
PRS	*Prunus serotina*	Black Cherry
PT	*Populus tremuloides*	Trembling Aspen
PB	*Populus balsamifera*	Balsam Poplar
QR	*Quercus rubra*	Red Oak
SB	*Salix babylonica*	Weeping Willow
TA	*Tilia americana*	Basswood
TC	*Tilia cordata*	Little Leaf Linden
TO	*Thuja occidentalis*	White Cedar

TREE HEALTH COMMENTS

KEY	CONDITION
AD	Apical Dieback
ANTS	Carpenter Ants
B	Borer
BW	Basal Wound
CD	Codominant
CW	Cambium Wound
D	Decay
DEAD	Dead
DW	Dead Wood
EAB	Emerald Ash Borer
F	Grown in Fence
FC	Frost Crack
FU	Fungus
GD	General Dieback
GR	Girdling Roots
HT	Hazard Tree
HW	Healing Wound
IB	Included Bark
ID	Insect Defoliator
L	Leaning
M	Mites
PS	Pruning Stub
SU	Suckering
SB	Sloughing Bark
SS	Sap Sucker
T	Topped
TB	Twisting Branching
UC	Unbalanced Canopy
WB	Weak Branching
WR	Wood Rot
WW	Wet Wood

Section 4 Tree Inventory Spreadsheet

ACTION LEGEND

KEY	DETAIL
REMOVE/HS	Remove/Habitat Stump: Tree is large (>60 dbh), and good habitat, but in poor condition. We recommend removing hazardous limbs, and creating habitat stump.
REMOVE	Remove: Tree is in conflict with future roads or buildings, or in poor health.
PRESERVE	Preserve: Tree is significant specimen in EPA, woodland edge, or back of lot. Review required when detailed grading plan is received.
PRESERVE/H	Preserve/Heritage Tree: Tree is large (>60), with habitat/heritage value, and located in EPA, woodland edge, or back of lot. Review required when detailed grading plan is received.

EAST COBOURG PHASE 1							21-Dec-18
Tree Tag #	Species	D.B.H. (cm)	Condition	T.P.Z. (m)*	Action	Patch ID	Comments
501**	PSy	30.0	Good	3.5	Remove	K1	BB, Not Significant Specimen
502	FS	50.0	Good	5.9	Remove	P1	BB, BC, Unusual open branch structure, Unconfirmed EAB
503**	FS	35.0	Fair-Good	4.1	Remove	P1	BB, IB, Unconfirmed EAB, Not Significant Specimen
504**	FS	30.0	Good	3.5	Preserve	P1	BB, Unconfirmed EAB, Not Significant Specimen
505	FS	75.0	Poor	8.9	Remove/ HS	P2	BB, D, GD, Unconfirmed EAB, Likely hollow
506**	FS	30.0	Good	3.5	Preserve	P2	BB, Unconfirmed EAB, Not Significant Specimen
507	PrS	30.0	Poor	3.5	Remove	P2	BB, D, GD
508	PSy	50.0	Fair-Good	5.9	Remove	L	CD (two 30cm dbh trunks, 50 cm below split)
509	TO	45.0	Fair-Good	5.3	Preserve	Q1	CD (three trunks, 45cm, 45cm and 30 cm dbh)
510	PrS	45.0	Poor-Fair	5.3	Remove/ HS	P2	T, BB, UC
511	FS	60.0	Poor-Fair	7.1	Preserve	Q1	CD, GD, BB, IB
512	TO	30.0	Good	3.5	Preserve	Q2	CD (three trunks, 30cm, 30cm and 15 cm dbh), CW,

							IB, SS
513	PT	35.0	Fair	4.1	Preserve	Q2	CW, S, SS
514	PrS	35.0	Poor-Fair	4.1	Remove	Q2	L, DW, BB, UC
515	PT	35.0	Good	3.5	Remove	R	BC
516	AS	30.0	Fair	3.5	Remove	R	IB, UC, V
517	AR	30.0	Fair-Good	3.5	Remove	S1	DW, IB, BB
518	AS	50.0	Good	5.9	Remove	S1	DW, BC
519	AS	90.0	Fair	10.6	Remove /H	S1	IB, HW, GR, BC
520	FS	60.0	Poor	7.1	Remove	S1	FC (large – possibly structural), DW, BB, Canker
521	AS	70.0	Fair	8.3	Remove /H	S1	DW, BW, IB, UC, Likely hollow
522	FS	90.0	Fair-Good	10.6	Remove /H	S1	BB, BC
523	AS	90.0	Poor-Fair	10.6	Remove /H	S1	D, IB, Mostly hollow
524	AS	35.0	Good	4.1	Remove	S1	BC
525	AS	40.0	Good	4.7	Remove	S1	DW, BB
526	FS	90.0	Poor	10.6	Remove	S1	DW, CD, IB. BB, CW, GD
528	PrS	35.0	Fair	4.1	Remove	S2	DW, UC
529	AS	90.0	Good	10.6	Remove /H	S2	UC,DW
530	AN	35.0	Fair	4.1	Remove	S2	UC, DW, Could be FS
531	AN	35.0	Good	4.1	Remove	S2	BC, Could be FS
532	AS	100.0	Fair-Good	11.8	Remove /H	S2	DW, IB, BC, Tree growing in branch crotch
533	AS	90.0	Poor-Fair	10.6	Remove	S2	DW, F, D, IB
534	AS	90.0	Poor-Fair	10.6	Remove	S2	DW, IB
535	AN	30.0	Fair	3.5	Preserve	S2	DW, D, SB
536	AS	90.0	Fair	10.6	Remove /H	S2	DW, IB

537	AS	80.0	Fair	9.4	Remove /H	S3	DW, IB
538	AS	70.0	Good	8.3	Remove /H	S3	DW, IB, BB
539	AS	60.0	Good	7.1	Remove /H	S3	BC
540	AS	80.0	Poor-Fair	9.4	Remove /H	S3	IB, DW, WW, CD
541	AS	50.0	Poor	5.9	Remove	S3	CW, DW, GD, D
542	AS	45.0	Good	5.3	Preserve	S3	Minor IB, DW
543	PrS	35.0	Fair	4.1	Preserve	S3	UC, DW
544	AS	75.0	Good	8.9	Preserve/H	S3	Minor DW, BC, Most significant specimen on site
545	AS	30.0	Good	3.5	Remove	U	BC, S
546**	FS	45.0	Good	5.3	Remove	U	CD (Three trunks, 45 cm each), Not a significant specimen
547	FS	60.0	Good	7.1	Remove	V1	PS, DW, CD
548	FS	50.0	Fair-Good	5.9	Remove	V2	DW, IB
549	AS	60.0	Fair-Good	7.1	Remove	V3	CD, Minor DW
550	AS	35.0	Good	4.1	Remove	V3	Minor DW
551	PrS	30.0	Fair	3.5	Remove	V3	UC, DW, CD (Two trunks, 30cm & 25cm dbh)
552	PrS	30.0	Fair	3.5	Remove	V4	DW, IB
554	AS	90.0	Fair-Good	10.6	Preserve/H	F	DW, CD, IB, BC, Very significant specimen
555	FS	50.0	Good	5.9	Remove	K3	BC, Minor DW, Minor Bark Blonding (EAB)
556	FS	50.0	Fair-Good	5.9	Remove	K4	BC, Minor DW, Minor Bark Blonding (EAB)
557	FS	60.0	Fair-Good	7.1	Remove	K5	BC, Minor DW, Minor Bark Blonding (EAB)
558	PS	45.0	Good	5.3	Preserve	O	BC, DW, BB
559	PA	45.0	Good	5.3	Preserve	X	BC, East side of backyard fence
560	PA	45.0	Good	5.3	Preserve	X	BC, East side of backyard fence

561	AN	40.0	Poor-Fair	4.7	Preserve	B	UB, L, DW,
562	SB	180.0	Fair-Good	21.3	Preserve/H	C	CD
563	FS	50.0	Good	5.9	Preserve	D	BC, No visible signs of EAB
564	AS	50.0	Good	5.9	Preserve	H	BC, On private property (no tag attached)

* Minimum Tree Protection Zone guideline from the International Society of Arboriculture standard: 1' offset per 1" diameter or 30cm of offset per 2.54cm of diameter

** Tree identified with metal tag that is not a considered a significant specimen due to its species. Not included in overall significant specimen totals.

Section 5 Woodlot/Hedgerow Survey

In addition to the significant trees surveyed within 6 meters of the site boundary, a less formal survey was conducted of the character of the woody vegetation to be disturbed during the indicated subdivision construction. The location of this area can be more accurately seen in Section 8: Map – Draft Tree Preservation and Removals Plan. This survey broke the hedgerows and woodlot down into 40 approximate zones and then visually calculated number of woody plants of different size ranges in each zone. A list of the observed species in each zone was made.

Zone A

Tree Size	Quantity	Tree Species
1 – 4 cm DBH	<50	*Populus balsamifera*
1 – 10 cm DBH	80+	*Ostrya virginiana*
1 – 25 cm DBH	250+	*Rhamnus cathartica*
1 – 4 cm DBH	<20	*Rhamnus frangula*
1 – 25 cm DBH	200+	*Ulmus americana*
1-15 cm DBH	250+	*Thuja occidentalis*
1-20 cm DBH	10	*Pinus strobus*
1-15 cm DBH	<20	*Salix babylonica, Salix fragilis, Salix × fragilis*

Zone B

Tree Size	Quantity	Tree Species
1 – 25 cm DBH	50+	*Acer negundo*
30+ cm DBH	1	*Acer negundo*
1 – 8 cm DBH	60+	*Ostrya virginiana*
1 – 20 cm DBH	200+	*Rhamnus cathartica*
1 – 6 cm DBH	<20	*Rhamnus frangula*
1 – 20 cm DBH	80+	*Ulmus americana*
1-15 cm DBH	60+	*Fraxinus americana*
1 – 8 cm DBH	20	*Fraxinus pennsylvanica*
1 – 2 cm DBH	20+	*Ulmus thomasii*
1 – 6 cm DBH	<50	*Salix bebbiana*
1 – 6 cm DBH	<50	*Salix discolor*
1-6 cm DBH	<20	*Salix babylonica, Salix fragilis, Salix × fragilis*

Zone C

Tree Size	Quantity	Tree Species
1 – 35 cm DBH	<10	*Populus tremuloides*
1 – 8 cm DBH	15	*Populus balsamifera*
1 – 12 cm DBH	300+	*Rhamnus cathartica*
1 – 15 cm DBH	200+	*Ulmus americana*
1-10 cm DBH	250+	*Thuja occidentalis*
1-6 cm DBH	50+	*Fraxinus americana*
30+ cm DBH	1	*Salix babylonica*

1-15 cm DBH	<50	*Salix babylonica, Salix fragilis, Salix × fragilis*
1 – 6 cm DBH	<100	*Salix bebbiana*
1 – 6 cm DBH	<100	*Salix discolor*

Zone D

Tree Size	Quantity	Tree Species
1 – 25 cm DBH	<10	*Populus tremuloides*
1 – 25 cm DBH	<10	*Populus balsamifera*
1 – 12 cm DBH	<50	*Betula papyrifera*
1 – 8 cm DBH	60+	*Ostrya virginiana*
1 – 12 cm DBH	200+	*Rhamnus cathartica*
1 – 15 cm DBH	50+	*Ulmus americana*
1-10 cm DBH	50+	*Thuja occidentalis*
1-10 cm DBH	50+	*Fraxinus americana*
10-45 cm DBH	<10	*Fraxinus americana*
50+ cm DBH	1	*Fraxinus americana*
1-15 cm DBH	<50	*Salix babylonica, Salix fragilis, Salix × fragilis*
1 – 6 cm DBH	<100	*Salix bebbiana*
1 – 6 cm DBH	<100	*Salix discolor*
1 – 25 cm DBH	<100	*Acer negundo*

Zone E

Tree Size	Quantity	Tree Species
1 – 25 cm DBH	<10	*Populus tremuloides*
1-30 cm DBH	<100	*Fraxinus americana*
1-15 cm DBH	<100	*Fraxinus pennsylvanica*
1 – 12 cm DBH	250+	*Rhamnus cathartica*
1 – 8 cm DBH	15+	*Rhamnus frangula*
1-20 cm DBH	20	*Pinus strobus*
1-25 cm DBH	20	*Pinus nigra*
1-20 cm DBH	20	*Juniperus virginiana*

Zone F

Tree Size	Quantity	Tree Species
1 – 10 cm DBH	<50	*Acer saccharum*
30+ cm DBH	1	*Acer saccharum*
1 – 25 cm DBH	<50	*Acer negundo*
1 – 10 cm DBH	<20	*Quercus rubra*
1 – 15 cm DBH	<20	*Populus tremuloides*
1 – 5 cm DBH	<20	*Populus balsamifera*
1-15 cm DBH	<100	*Fraxinus americana*
1-15 cm DBH	<100	*Fraxinus pennsylvanica*
1 – 12 cm DBH	100+	*Rhamnus cathartica*
1 – 8 cm DBH	100+	*Rhamnus frangula*

1 – 8 cm DBH	100+	*Rhus typhina*
1-10 cm DBH	<20	*Prunus serotina*
1-10 cm DBH	<20	*Prunus pensylvanica*
1 – 20 cm DBH	100+	*Crataegus spp.*
1 – 6 cm DBH	<50	*Salix bebbiana*
1 – 6 cm DBH	<50	*Salix discolor*
1 – 12 cm DBH	<50	*Betula papyrifera*
1 – 20 cm DBH	20-40	*Sorbus americana*

Zone G

Tree Size	Quantity	Tree Species
1 – 10 cm DBH	50+	*Populus tremuloides*
1-30 cm DBH	60	*Fraxinus americana*
1-15 cm DBH	<20	*Fraxinus pennsylvanica*
1 – 12 cm DBH	250+	*Rhamnus cathartica*
1 – 8 cm DBH	80+	*Rhamnus frangula*
1-25 cm DBH	<50	*Pinus strobus*
1-25 cm DBH	40	*Pinus nigra*
1-35 cm DBH	100+	*Pinus sylvestris*
1-20 cm DBH	40	*Juniperus virginiana*
1-20 cm DBH	250+	*Thuja occidentalis*

Zone H

Tree Size	Quantity	Tree Species
1 – 10 cm DBH	50+	*Populus tremuloides*
1-20 cm DBH	40+	*Fraxinus americana*
1-15 cm DBH	6	*Fraxinus pennsylvanica*
1 – 4 cm DBH	60+	*Rhamnus cathartica*
1 – 6 cm DBH	40+	*Rhus typhina*
1-10 cm DBH	15	*Juglans nigra*
1-25 cm DBH	<10	*Juglans x cinerea*
1 – 20 cm DBH	11	*Acer saccharum*
30+ cm DBH	1	*Acer saccharum*

Zone I

Tree Size	Quantity	Tree Species
1 – 10 cm DBH	25+	*Populus tremuloides*
1-20 cm DBH	40+	*Fraxinus americana*
1-15 cm DBH	6	*Fraxinus pennsylvanica*
1 – 18 cm DBH	100+	*Rhamnus cathartica*
1 – 6 cm DBH	40+	*Rhus typhina*
1-10 cm DBH	<10	*Prunus pensylvanica*
1-25 cm DBH	50+	*Crataegus spp.*
1 – 15 cm DBH	50+	*Acer negundo*

Zone J1

Tree Size	Quantity	Tree Species
1 – 15 cm DBH	50+	*Populus tremuloides*
1-10 cm DBH	50+	*Fraxinus americana*
1-10 cm DBH	10+	*Fraxinus pennsylvanica*
1 – 18 cm DBH	100+	*Rhamnus cathartica*
1 – 6 cm DBH	40+	*Rhus typhina*
1-25 cm DBH	25+	*Crataegus spp.*

Zone J2

Tree Size	Quantity	Tree Species
1 – 10 cm DBH	25+	*Populus tremuloides*
1-15 cm DBH	100+	*Fraxinus americana*
1-10 cm DBH	20+	*Fraxinus pennsylvanica*
1 – 18 cm DBH	100+	*Rhamnus cathartica*
1 – 10 cm DBH	25+	*Rhus typhina*
1-25 cm DBH	25+	*Crataegus spp.*

Zone J3

Tree Size	Quantity	Tree Species
1 – 10 cm DBH	25+	*Populus tremuloides*
1-25 cm DBH	100+	*Fraxinus americana*
1-10 cm DBH	20+	*Fraxinus pennsylvanica*
1 – 15 cm DBH	100+	*Rhamnus cathartica*
1 – 25 cm DBH	<10	*Malus spp.*
1 – 10 cm DBH	25+	*Rhus typhina*
1-25 cm DBH	50+	*Crataegus spp.*

Zone J4

Tree Size	Quantity	Tree Species
1 – 10 cm DBH	25+	*Populus tremuloides*
1-25 cm DBH	50+	*Fraxinus americana*
1-10 cm DBH	20+	*Fraxinus pennsylvanica*
1 – 15 cm DBH	200+	*Rhamnus cathartica*
1 – 15 cm DBH	50+	*Rhus typhina*
1-25 cm DBH	100+	*Crataegus spp.*
1 – 6 cm DBH	<25	*Salix bebbiana*
1 – 6 cm DBH	<25	*Salix discolor*
1 – 8 cm DBH	<25	*Betula papyrifera*

Zone K1

Tree Size	Quantity	Tree Species
1 – 10 cm DBH	25+	*Populus tremuloides*
1-15 cm DBH	25+	*Fraxinus americana*
1-10 cm DBH	25+	*Fraxinus pennsylvanica*
1 – 15 cm DBH	150+	*Rhamnus cathartica*
1 – 15 cm DBH	150+	*Rhus typhina*
1-15 cm DBH	50+	*Crataegus spp.*
1 – 25 cm DBH	<50	*Pinus sylvestris*
30+ cm DBH	1	*Pinus sylvestris*
1 – 15 cm DBH	<20	*Pinus strobus*
1 – 10 cm DBH	<10	*Juniperus virginiana*
1 – 15 cm DBH	<50	*Thuja occidentalis*
1 – 10 cm DBH	<25	*Betula papyrifera*

Zone K2

Tree Size	Quantity	Tree Species
1 – 10 cm DBH	25+	*Populus tremuloides*
1-10 cm DBH	25+	*Fraxinus americana*
1-10 cm DBH	25+	*Fraxinus pennsylvanica*
1 – 15 cm DBH	200+	*Rhamnus cathartica*
1 – 15 cm DBH	200+	*Rhus typhina*
1-15 cm DBH	100+	*Crataegus spp.*
1 – 10 cm DBH	<20	*Pinus sylvestris*
1 – 5 cm DBH	<25	*Betula papyrifera*

Zone K3

Tree Size	Quantity	Tree Species
1 – 10 cm DBH	25+	*Populus tremuloides*
1-45 cm DBH	50+	*Fraxinus americana*
50+ cm DBH	1	*Fraxinus americana*
1-10 cm DBH	25+	*Fraxinus pennsylvanica*
1 – 15 cm DBH	200+	*Rhamnus cathartica*
1 – 15 cm DBH	100+	*Rhus typhina*
1-25 cm DBH	100+	*Crataegus spp.*
1 – 10 cm DBH	<10	*Pinus sylvestris*
1 – 15 cm DBH	<25	*Thuja occidentalis*
1 – 5 cm DBH	<25	*Betula papyrifera*

Zone K4

Tree Size	Quantity	Tree Species
1 – 10 cm DBH	25+	*Populus tremuloides*
1-45 cm DBH	50+	*Fraxinus americana*

50+ cm DBH	1	*Fraxinus americana*
1-10 cm DBH	25+	*Fraxinus pennsylvanica*
1 – 15 cm DBH	200+	*Rhamnus cathartica*
1 – 15 cm DBH	100+	*Rhus typhina*
1-25 cm DBH	100+	*Crataegus spp.*
1 – 10 cm DBH	<20	*Juniperus virginiana*
1 – 15 cm DBH	<25	*Thuja occidentalis*
1 – 5 cm DBH	<25	*Betula papyrifera*

Zone K5

Tree Size	Quantity	Tree Species
1 – 15 cm DBH	25+	*Populus tremuloides*
1-45 cm DBH	50+	*Fraxinus americana*
50+ cm DBH	1	*Fraxinus americana*
1 – 15 cm DBH	50+	*Acer negundo*
1 – 15 cm DBH	150+	*Rhamnus cathartica*
1 – 25 cm DBH	50+	*Quercus rubra*
1 – 15 cm DBH	100+	*Rhus typhina*
1-25 cm DBH	150+	*Crataegus spp.*
1 – 10 cm DBH	<20	*Juniperus virginiana*
1 – 15 cm DBH	<25	*Thuja occidentalis*
1 – 5 cm DBH	<25	*Betula papyrifera*
1 – 10 cm DBH	<20	*Tilia americana*

Zone L

Tree Size	Quantity	Tree Species
1 – 25 cm DBH	50+	*Pinus sylvestris*
30+ cm DBH	2	*Pinus sylvestris*
1 – 15 cm DBH	25+	*Rhus typhina*
1 – 15 cm DBH	40	*Thuja occidentalis*

Zone M1

Tree Size	Quantity	Tree Species
1 – 20 cm DBH	<50	*Acer negundo*
1 – 10 cm DBH	<10	*Betula papyrifera*
1 – 10 cm DBH	25+	*Rhamnus cathartica*
1 – 10 cm DBH	<10	*Thuja occidentalis*

Zone M2

Tree Size	Quantity	Tree Species
1 – 20 cm DBH	<75	*Acer negundo*
1 – 5 cm DBH	<15	*Betula papyrifera*
1 – 10 cm DBH	25+	*Rhamnus cathartica*

1 – 10 cm DBH	<10	*Thuja occidentalis*

Zone M3

Tree Size	Quantity	Tree Species
1 – 15 cm DBH	<50	*Acer negundo*
1 – 15 cm DBH	25+	*Populus tremuloides*
1 – 5 cm DBH	25+	*Rhamnus cathartica*

Zone N

Tree Size	Quantity	Tree Species
1 – 20 cm DBH	<75	*Acer negundo*
1 – 10 cm DBH	25+	*Rhamnus cathartica*

Zone O

Tree Size	Quantity	Tree Species
1 – 10 cm DBH	25+	*Populus tremuloides*
1-15 cm DBH	25+	*Fraxinus americana*
1-10 cm DBH	25+	*Fraxinus pennsylvanica*
1 – 15 cm DBH	100+	*Rhamnus cathartica*
1-15 cm DBH	50+	*Crataegus spp.*
1 – 30 cm DBH	50+	*Pinus sylvestris*
1 – 15 cm DBH	50+	*Pinus strobus*
30+ cm DBH	1	*Pinus strobus*
1 – 10 cm DBH	25+	*Acer negundo*
1 – 15 cm DBH	750+	*Thuja occidentalis*
1 – 10 cm DBH	<25	*Betula papyrifera*

Zone P1

Tree Size	Quantity	Tree Species
1 – 10 cm DBH	50+	*Populus tremuloides*
1-25 cm DBH	300+	*Fraxinus americana*
30-45 cm DBH	<5	*Fraxinus americana*
50+ cm DBH	1	*Fraxinus americana*
1-10 cm DBH	50+	*Fraxinus pennsylvanica*
1 – 15 cm DBH	300+	*Rhamnus cathartica*
1-25 cm DBH	100+	*Crataegus spp.*
1 – 10 cm DBH	100+	*Rhus typhina*
1 – 10 cm DBH	<10	*Pinus strobus*
1 – 10 cm DBH	25+	*Acer negundo*
1 – 10 cm DBH	<15	*Thuja occidentalis*
1 – 20 cm DBH	<15	*Betula papyrifera*
1 – 15 cm DBH	<15	*Betula lenta*

Zone P2

Tree Size	Quantity	Tree Species
1 – 10 cm DBH	50+	*Populus tremuloides*
1-25 cm DBH	100+	*Fraxinus americana*
30-45 cm DBH	<10	*Fraxinus americana*
50+ cm DBH	1	*Fraxinus americana*
1-10 cm DBH	50+	*Fraxinus pennsylvanica*
1 – 15 cm DBH	200+	*Rhamnus cathartica*
1-25 cm DBH	50+	*Crataegus spp.*
1 – 15 cm DBH	50+	*Rhus typhina*
1 – 10 cm DBH	25+	*Acer negundo*
1 – 10 cm DBH	<15	*Thuja occidentalis*
1 – 10 cm DBH	<15	*Betula papyrifera*
1-15 cm DBH	<25	*Prunus serotina*
30+ cm DBH	2	*Prunus serotina*

Zone Q1

Tree Size	Quantity	Tree Species
1 – 10 cm DBH	25+	*Populus tremuloides*
1-20 cm DBH	50+	*Fraxinus americana*
50+ cm DBH	1+	*Fraxinus americana*
1-10 cm DBH	25+	*Fraxinus pennsylvanica*
1 – 15 cm DBH	25+	*Rhamnus cathartica*
1-25 cm DBH	25+	*Crataegus spp.*
1 – 10 cm DBH	100+	*Rhus typhina*
1 – 10 cm DBH	<10	*Pinus strobus*
1 – 10 cm DBH	<30	*Thuja occidentalis*
30+ cm DBH	1	*Thuja occidentalis*
1 – 15 cm DBH	<10	*Betula lenta*
1-20 cm DBH	<5	*Malus spp.*
1-10 cm DBH	<25	*Prunus serotina*
30+ cm DBH	1	*Prunus serotina*

Zone Q2

Tree Size	Quantity	Tree Species
1 – 10 cm DBH	<25	*Populus tremuloides*
30+ cm DBH	1	*Populus tremuloides*
1-20 cm DBH	<25	*Fraxinus americana*
1-10 cm DBH	<25	*Fraxinus pennsylvanica*
1 – 15 cm DBH	25+	*Rhamnus cathartica*
1-25 cm DBH	<15	*Crataegus spp.*
1 – 15 cm DBH	<10	*Thuja occidentalis*
30+ cm DBH	1	*Thuja occidentalis*
1 – 15 cm DBH	<5	*Betula lenta*

1-10 cm DBH	<5	*Prunus serotina*
30+ cm DBH	1	*Prunus serotina*

Zone R

Tree Size	Quantity	Tree Species
1 – 25 cm DBH	50+	*Populus tremuloides*
30+ cm DBH	1	*Populus tremuloides*
1-20 cm DBH	50+	*Fraxinus americana*
1-10 cm DBH	<25	*Fraxinus pennsylvanica*
1 – 15 cm DBH	25+	*Rhamnus cathartica*
1-25 cm DBH	25+	*Crataegus spp.*
1 – 25 cm DBH	50+	*Acer negundo*
1-10 cm DBH	50+	*Ulmus americana*
1 – 10 cm DBH	<25	*Betula papyrifera*

Zone S1

Tree Size	Quantity	Tree Species
1 – 25 cm DBH	100+	*Acer saccharum*
30+ cm DBH	7	*Acer saccharum*
1 – 20 cm DBH	<50	*Acer rubrum*
30+ cm DBH	1	*Acer rubrum*
1 – 10 cm DBH	50+	*Populus tremuloides*
30+ cm DBH	1	*Populus tremuloides*
1-25 cm DBH	150+	*Fraxinus americana*
35+ cm DBH	2	*Fraxinus americana*
1-10 cm DBH	<50	*Fraxinus pennsylvanica*
1 – 15 cm DBH	200+	*Rhamnus cathartica*
1-25 cm DBH	100+	*Crataegus spp.*
1 – 25 cm DBH	50+	*Acer negundo*
1 – 30 cm DBH	<50	*Pinus sylvestris*
1 – 25 cm DBH	<50	*Betula papyrifera*

Zone S2

Tree Size	Quantity	Tree Species
1 – 25 cm DBH	100+	*Acer saccharum*
30+ cm DBH	5	*Acer saccharum*
1 – 10 cm DBH	50+	*Populus tremuloides*
1-25 cm DBH	150+	*Fraxinus americana*
1-10 cm DBH	<50	*Fraxinus pennsylvanica*
1 – 15 cm DBH	200+	*Rhamnus cathartica*
1-25 cm DBH	100+	*Crataegus spp.*
1 – 25 cm DBH	50+	*Acer negundo*
30+ cm DBH	3	*Acer negundo*
1 – 15 cm DBH	<25	*Quercus rubra*

30+ cm DBH	1	*Prunus serotina*

Zone S3

Tree Size	Quantity	Tree Species
1 – 25 cm DBH	100+	*Acer saccharum*
30+ cm DBH	7	*Acer saccharum*
1 – 15 cm DBH	50+	*Populus tremuloides*
1-15 cm DBH	150+	*Fraxinus americana*
1-10 cm DBH	<50	*Fraxinus pennsylvanica*
1 – 15 cm DBH	100+	*Rhamnus cathartica*
1-25 cm DBH	50+	*Crataegus spp.*
1 – 25 cm DBH	50+	*Acer negundo*
1 – 15 cm DBH	<25	*Quercus rubra*
30+ cm DBH	1	*Prunus serotina*

Zone T

Tree Size	Quantity	Tree Species
25 – 45 cm DBH	<10	*Fraxinus americana*
1-25 cm DBH	150+	*Fraxinus americana*
1-10 cm DBH	<50	*Fraxinus pennsylvanica*
1 – 15 cm DBH	200+	*Rhamnus cathartica*
1-25 cm DBH	25+	*Crataegus spp.*
1 – 10 cm DBH	<25	*Betula papyrifera*

Zone U

Tree Size	Quantity	Tree Species
25 – 45 cm DBH	<8	*Fraxinus americana*
1-25 cm DBH	100+	*Fraxinus americana*
1-10 cm DBH	<50	*Fraxinus pennsylvanica*
1 – 25 cm DBH	<25	*Acer saccharum*
30+ cm DBH	1	*Acer saccharum*
1 – 15 cm DBH	150+	*Rhamnus cathartica*
1-25 cm DBH	25+	*Crataegus spp.*
1 – 10 cm DBH	<25	*Betula papyrifera*

Zone V1

Tree Size	Quantity	Tree Species
50+ cm DBH	1	*Fraxinus americana*
1-25 cm DBH	100+	*Fraxinus americana*
1-10 cm DBH	<50	*Fraxinus pennsylvanica*
1 – 25 cm DBH	<20	*Acer saccharum*
1 – 15 cm DBH	150+	*Rhamnus cathartica*
1-25 cm DBH	25+	*Crataegus spp.*

1 – 10 cm DBH	<25	*Betula papyrifera*

Zone V2

Tree Size	Quantity	Tree Species
50+ cm DBH	1	*Fraxinus americana*
1-45 cm DBH	100+	*Fraxinus americana*
1-10 cm DBH	<50	*Fraxinus pennsylvanica*
1 – 15 cm DBH	100+	*Rhamnus cathartica*
1-25 cm DBH	20+	*Crataegus spp.*

Zone V3

Tree Size	Quantity	Tree Species
30+ cm DBH	2	*Acer saccharum*
1 – 25 cm DBH	<40	*Acer saccharum*
30+ cm DBH	1	*Prunus serotina*
1 – 25 cm DBH	<25	*Prunus serotina*
1-15 cm DBH	100+	*Fraxinus americana*
1-10 cm DBH	<50	*Fraxinus pennsylvanica*
1 – 15 cm DBH	150+	*Rhamnus cathartica*
1-25 cm DBH	25+	*Crataegus spp.*

Zone V4

Tree Size	Quantity	Tree Species
1 – 25 cm DBH	<50	*Acer saccharum*
30+ cm DBH	1	*Prunus serotina*
1 – 25 cm DBH	<25	*Prunus serotina*
1-30 cm DBH	100+	*Fraxinus americana*
1-10 cm DBH	<50	*Fraxinus pennsylvanica*
1 – 15 cm DBH	200+	*Rhamnus cathartica*
1-25 cm DBH	50+	*Crataegus spp.*
1 – 15 cm DBH	50+	*Acer negundo*

Zone W

Tree Size	Quantity	Tree Species
1-20 cm DBH	50+	*Fraxinus americana*
1-10 cm DBH	<20	*Fraxinus pennsylvanica*
1 – 15 cm DBH	<50	*Rhamnus cathartica*
1-10 cm DBH	<25	*Crataegus spp.*
1 – 10 cm DBH	<25	*Acer negundo*

Zone X

Tree Size	Quantity	Tree Species
30+ cm DBH	2	*Picea abies*

It must be noted that quantities and species listed in the above Woodlot/Hedgerow Survey charts are not intended to be read as precise, but rather as a more general framework for the expected plant palette to be found within the area. This is helpful in that it tells us broadly what has historically been found in this area as well as what the future of this woodlot might be expected to contain. All *Rhamnus cathartica* identified in this section is considered invasive, and identified as a noxious weed by Ontario's Weed Control Act. It should be removed as part of site development.

Section 6 General Recommendations & Best Practices

In addition to the management approaches proposed in Section 3, the arborists propose the development of a comprehensive replanting strategy for the subdivision that includes at least two trees per lot. These trees should be chosen from a palette that includes native species already found on site, and adds other resilient native species to increase biodiversity. Some appropriate species to include would be *Acer saccharum* (Sugar Maple), *Acer rubrum* (Red Maple), *Thuja occidentalis* (Eastern White Cedar), *Tilia americana* (American Basswood), *Quercus rubra* (Northern Red Oak), *Pinus strobus* (Eastern White Pine), *Ostrya virginiana* (Ironwood), *Juglans nigra* (Black Walnut), and Dutch-elm disease resistant *Ulmus americana* (American Elm).

It is understood that due to the nature of the pending development, there will be tree removals and injuries necessary both before and during the construction. However, to ensure good practice, as many of the following recommended Best Management Practices should be employed as is possible, to protect the health and future development of the trees that are either left onsite or are adjacent to the development (see Appendix A – City of Toronto: Tree Protection Policy and Specifications for Construction Near Trees of Toronto for further clarification):

1) Tree Protection Zones (TPZ): These zones establish limits for the erection of Tree Protection Hoarding; this hoarding serves to prevent the operation of equipment, the storage of equipment, or manipulation of the soil within the specified protection zone. In the event that the municipality or region does not set minimum Tree Protection Zones it is recommended the value be determined by International Society of Arboriculture standard of 1' offset per 1" diameter or 30cm of offset per 2.54cm of diameter as this considered best practice.

2) Tree Protection Hoarding: Tree protection hoarding should serve to prevent the operation of equipment, the storage of equipment, or manipulation of the soil within the specified protection zone.

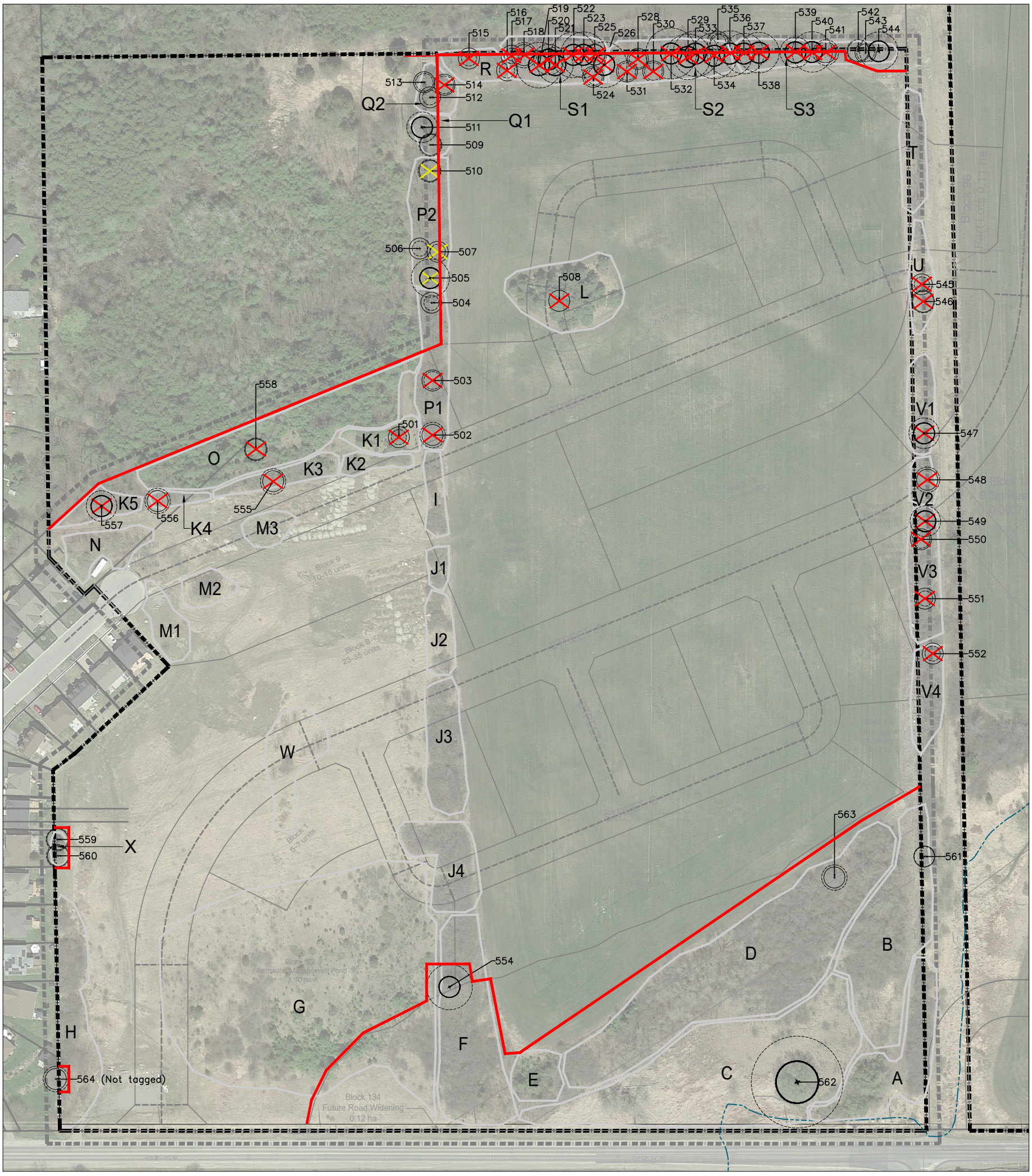
3) Grading: Grade changes within the TPZ should be avoided so as to prevent the damage or destruction of roots. Approximately 90% of tree roots are found within the top 30-45cm of soil. With this in mind, reducing the grade will remove a significant percentage of tree roots. On the other hand, the addition of as little as 5cm of soil to the ground above the roots can severely limit the ability of roots to obtain necessary oxygen for respiration and can cause root death. In the event that the root zone is compacted within the TPZ, the soil within the root zone may need to be vertically mulched or experience radial trenching so as to reintroduce oxygen into the root zone.

4) Pruning: The existing trees that are to be preserved should be pruned by an arborist certified by the ISA. Pruning should focus on crown cleaning, defined as the removal of dead wood, broken branches, and crossing and interfering limbs.

5) Root Pruning: In the event that construction does breach the boundary of any tree protection zone, pruning to the roots or canopy may need to occur prior to construction proceeding in order to decrease the likelihood of a pest or pathogen outbreak.

6) Fertilization: This intervention may also assist trees in the recovery from construction impacts should construction activities breach the TPZs.

In all cases, the aforementioned treatments should be conducted by an arborist certified by the International Society of Arboriculture.



LEGEND

- Existing Tree
- Existing Tree, Diameter Over 60 cm
- Tree ID Number (555)
- N — Patch Area No.
- Patch Area Boundary
- Property Lines
- Tree Inventory Boundary (6 m Offset From Property Lines, Block 126 not included)
- Tree Protection Zone
- Proposed Tree Protection Fencing
- Watercourse
- Tree to be Removed
- Tree to be Removed, Candidate for Habitat Stump

project north

project title

RONDEAU DEVELOPMENT PHASE 1 (COBOURG)

project no. 1613

sheet title

DRAFT TREE INVENTORY, PRESERVATION AND REMOVALS PLAN

The Planning Partnership
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scale 1:500

date 2019.07.03

drawn KS checked MOH

issued for: ARBORIST REPORT

IMAGE GALLERY

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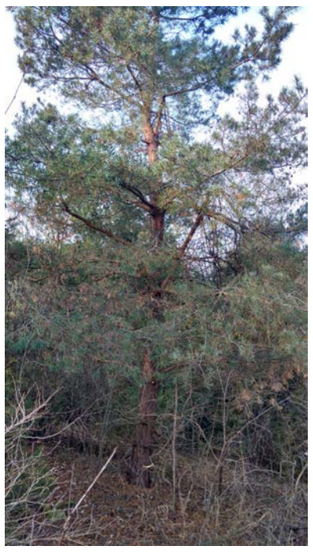

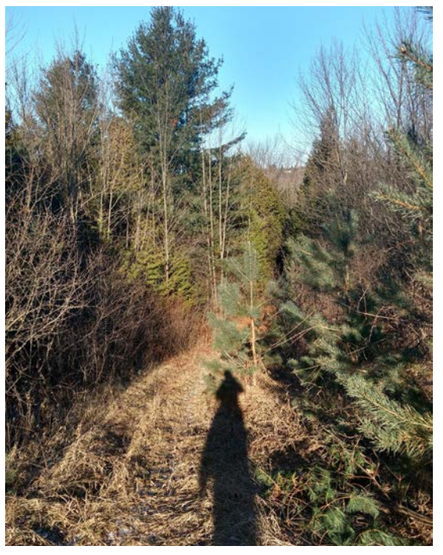

IMAGES 1-6 – BLOCK K: MIXED CONIFEROUS/DECIDOUS FOREST EDGE AND REGENERATING MEADOW

For Location Refer to Tree Plan, For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 7 – TREE 555 VIEW

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGE 8 – TREE 556 VIEW

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 9 – BLOCK K, LOOKING NORTHWEST

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGE 10 – BLOCK K, LOOKING NORTHWEST
(LARGE OAK, OUTSIDE BOUNDARY)

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGES 11/12 – BLOCK N

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGES 13/14 – BLOCK M

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGE 15 – BLOCKS I/J1 LOOKING EAST

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGE 16 – BLOCK G LOOKING SOUTHEAST

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 17 – BLOCK J4 LOOKING EAST

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 18 – BLOCK J3, LOOKING NORTH
For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 19 – BLOCK J4, LOOKING SOUTH
For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGE 20 – BLOCK J4, LOOKING WEST
For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 21 – BLOCK G LOOKING SOUTHEAST (TREE 554)
For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGE 22 – BLOCK F LOOKING SOUTHEAST (TREE 554)
For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 23 – BLOCK F/J LOOKING WEST (TREE 554)

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGE 24 – BLOCK C LOOKING SOUTH
For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGE 25 – BLOCK H LOOKING SOUTH
(TREE 264 IN BACKGROUND)
For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 26 – BLOCK H LOOKING NORTH

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGE 27 – BLOCK P1 LOOKING WEST(TREE 502)

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 28 – BLOCK P1 LOOKING WEST (TREE 503)

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGE 29 – BLOCK P1 LOOKING NORTH

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 30 – BLOCK P2 LOOKING WEST
(TREE 505)

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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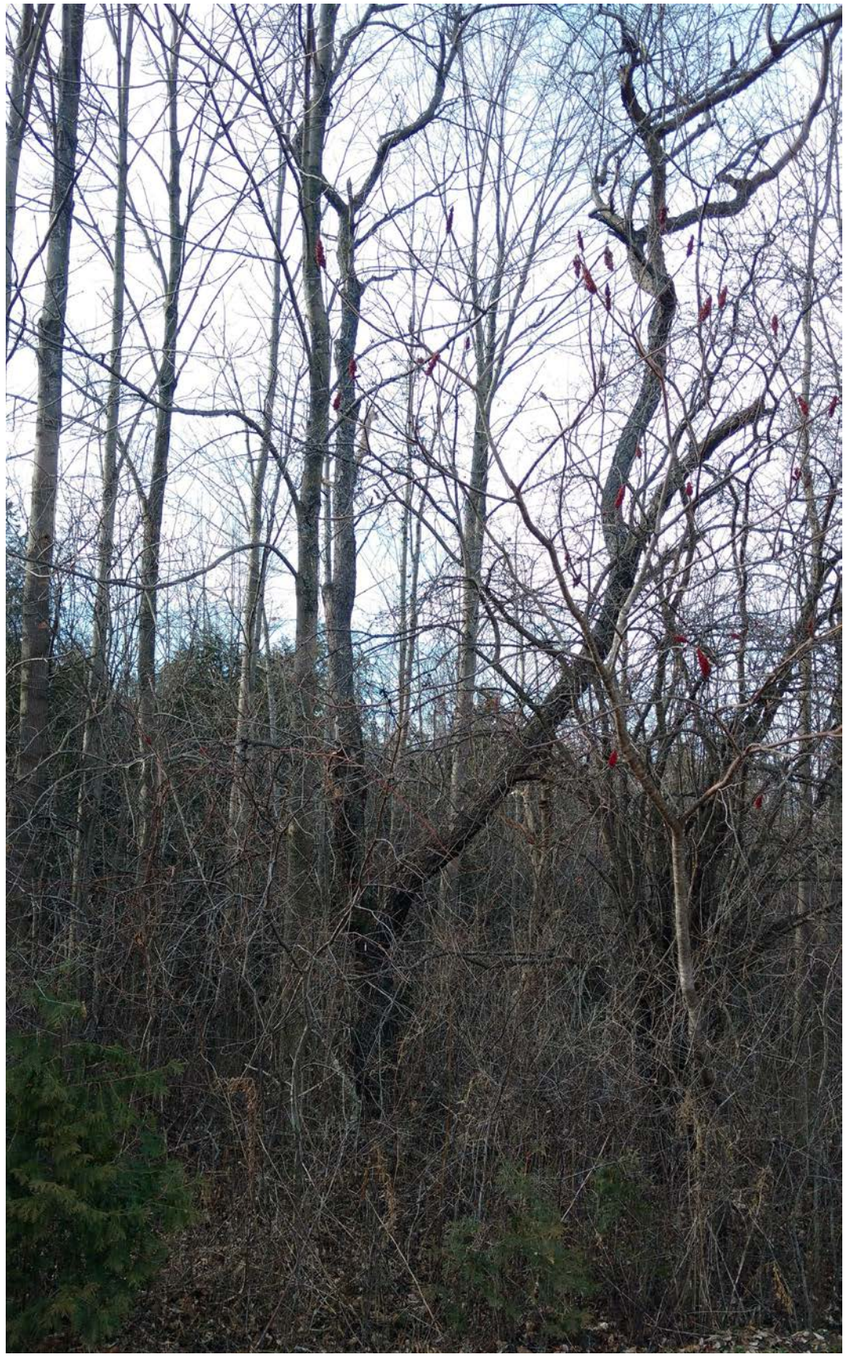

IMAGE 31 – BLOCK P2 LOOKING WEST
(TREE 507)

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 32 – BLOCK P2 LOOKING WEST
(TREE 507)

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGE 33 – BLOCK O1 LOOKING WEST
(TREE 509)

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 34 – BLOCK P2 LOOKING WEST
(TREE 513)

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGE 35 – BLOCK O2 LOOKING WEST
(TREE 512)

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 36 – BLOCK O2 LOOKING WEST

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 37 – BLOCK R LOOKING NORTH

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGE 38 – BLOCK R LOOKING NORTH
(TREE 516)

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 39 – BLOCK S1 LOOKING NORTH
(TREES 518, 519, 520)

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGE 40 – TREE 519

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 41 – TREE 520
For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGE 42 – BLOCK S1 LOOKING NORTH (TREES 521 & 522)
For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 43 – TREE 521 (520 IIN BACKGROUND)
For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGE 44 – TREE 522
For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 45 – BLOCK S1 LOOKING NORTH (TREE 523 & 524)
For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGE 46 – TREE 523
For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 47 – BLOCK S1 LOOKING NORTH (TREE 525 & 526)

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGE 48 & 49 – TREE 526

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 50 – BLOCK S2 LOOKING NORTH (TREES 528-531)
For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGE 51 – BLOCK S2 LOOKING NORTH
For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 52 – BLOCK S2 LOOKING NORTH (TREE 532)
For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGE 53 – BLOCK S2 LOOKING NORTH (TREE 529, 533)
For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 54 – BLOCK S2 LOOKING NORTH (TREE 529)
For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGE 55 – BLOCK S2 LOOKING NORTH (TREE 533)
For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

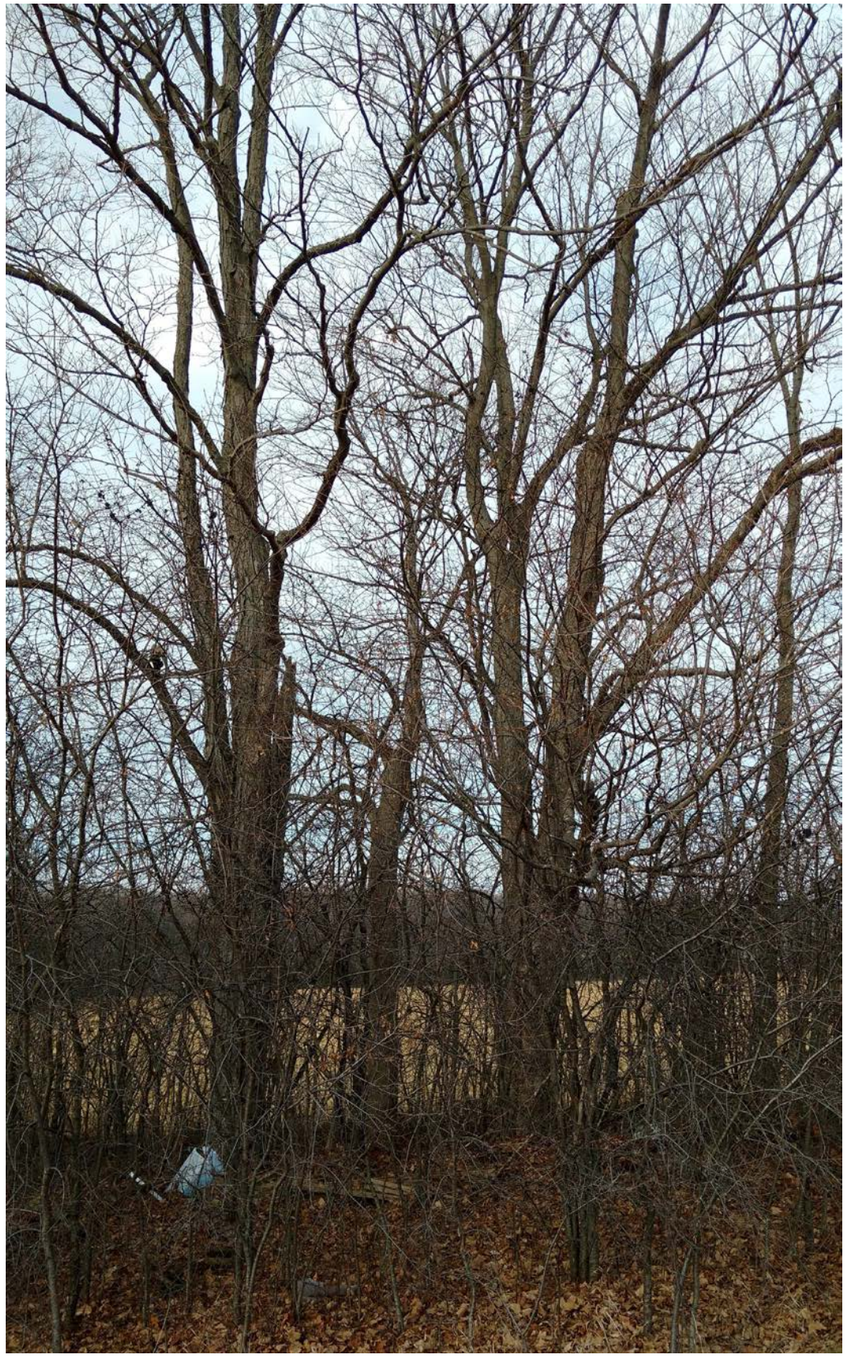

IMAGE 56 – BLOCK S2 LOOKING NORTH
(TREES 534, 535, 536)

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGE 57 – BLOCK S3 LOOKING NORTH (TREE 537)

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 58 – BLOCK S3 LOOKING NORTH (TREE 538)
For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGE 59 – BLOCK S3 LOOKING NORTH (TREE 539)
For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 60 – BLOCK S3 LOOKING NORTH (TREE 540)
For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGE 61 – BLOCK S3 LOOKING NORTH (TREE 541)
For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 62 – BLOCK S3 LOOKING NORTH (TREE 542)
For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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IMAGE 63 – BLOCK S3 LOOKING NORTH (TREES 543 & 544)
For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

IMAGE 64 – BLOCK T LOOKING EAST

For Location Refer to Tree Plan
For Species and Comments Refer to Tree Inventory & Analysis

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