

**Tree Inventory and Preservation Plan Report
Orangeville Highlands Phase 2
Part of the East Half of Lot 3, Concession 2
Orangeville, Ontario**

prepared for

**Orangeville Highlands
c/o Country Green Homes
410 Industrial Drive
Milton, ON L9T 5A6**

prepared by



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Introduction

Kuntz Forestry Consulting Inc. was retained by Orangeville Highlands c/o Country Green Homes to complete a Tree Inventory and Preservation Plan Report for a development application for a property situated on the northeast corner of Hansen Boulevard and Amelia Street in Orangeville, Ontario.

The work plan for this study included the following:

- Prepare field mapping (overlay site plan on topographic survey);
- Prepare inventory of all tree resources 10 cm in diameter and larger situated on subject property, within the road allowance and on neighbouring property within 6 m of the subject property;
- Evaluate potential tree saving opportunities based on proposed site plans; and,
- Document the findings in a Tree Inventory and Preservation Plan report.

Field assessments were conducted 17 March 2011. All tree resources included in the inventory were visually assessed for condition utilizing the following parameters:

Tree # - Number assigned to each tree which corresponds to Table 1 and Figure 1.

Species - common and botanical names provided in the inventory table (Table 1).

DBH - diameter (centimeters) at breast height, measured at 1.4 m above the ground.

Condition - condition of tree considering trunk integrity, crown structure and crown vigor. Condition ratings include poor (P), fair (F) and good (G).

Crown Dieback – the percentage of dead branches located in the crown.

mTPZ – Minimum Tree Preservation Zone as measured from the base of the tree.

Comments - additional relevant detail.

Trees included in the inventory were numbered 957 to 971 and 1 to 5. A topographic survey completed by Ontario Land Surveyor was utilized to determine the tree locations. Trees which appeared to reside on neighbouring property are identified with the letter “N” prefix prior to the tree number (i.e. N1).

Existing Site Conditions

The existing site is dominated by partially disturbed meadow lands with a Cedar woodland situated in the northern portion of the property. Towards the west existing residential development backs onto subject property. Adjacent to the neighboring residential developments a remnant hedgerow is situated on subject property. Trees within the hedgerow are not continuous and the feature represents a fencerow of individual trees and clusters of trees. Refer to Figure 1 for the tree locations.

The tree inventory documented a total of 20 Trees. Tree resources included in the inventory are comprised of Blue Spruce (*Picea pungens*), Hybrid Butternut (*Juglans x.*), White Spruce (*Picea glauca*), Black Walnut (*Juglans nigra*), White Elm (*Ulmus americana*), Cherry species (*Prunus sp.*), Sugar Maple (*Acer saccharum*), Manitoba Maple (*Acer negundo*), Sumac species (*Rhus sp.*), Eastern White Cedar (*Thuja occidentalis*) and Butternut (*Juglans cinerea*).

Refer to Table 1 for the complete tree inventory.

Proposed Development

The proposed development is comprised of a townhome/apartment building complex including a storm water management pond block and two park blocks. Access to the complex will be provided by extending Amelia Street northwards.

Discussion

The following sections provide a discussion and analysis of development impacts, tree removal and tree preservation relative to the proposed development.

Development Impacts

A preservation planning analysis was completed on each tree individually considering the impacts from the proposed development and many other factors including, but not limited to, tree condition, species, DBH and the existing site conditions.

A distance known as the minimum Tree Preservation Zone (mTPZ) distance was utilized in the preservation planning analysis to determine the impacts to each tree. The mTPZ represents the minimum distance at which development may occur without adversely damaging the tree. Where encroachment within the mTPZ is required to accommodate the proposed development tree removal will likely be required. The mTPZ distance is measured from the base of the tree trunk in meters. Tree protection fence must be installed at the mTPZ distance or further from the base of the tree unless outlined otherwise below.

Refer to Table 2 for the mTPZ distances (based on trunk diameter).

Table 2 - Minimum tree preservation zone (mTPZ) distances.

DBH (cm)	Min. Protect Distance (m)
	Radius
< 10	1.8
10 – 30	2.4
31 – 50	3.0
51 – 60	3.6
61 – 70	4.2
71 – 80	4.8
81 – 90	5.4
91 – 100	6.0

Tree Removal

The removal of Trees 957-964, 967-970, N1, 2 and 4 will be required to accommodate the proposed development.

Many of the trees residing along the western property boundary are comprised of Manitoba Maple with unions at the ground and leaning stems. Manitoba Maple exhibiting lean and poor unions are prone to stem failure and given the proximity to the proposed park land these leaning trees have been identified for removal.

Tree N1 appears to reside on neighbouring property. Permission from the respective property owner will be required prior to the removal of these trees.

Trees 957, 958, 959 and 2 reside on a small section of Town owned land adjacent to the southwest corner of the subject property. It is understood that this portion of land was obtained by the Town for the purposes of extending Amelia Street northwards. Permission from the Town will be required prior to the removal of Trees 957, 958, 959 and 2.

Tree Preservation

The preservation of Trees 965, 966, N3, N5 and 971 will be possible with appropriate tree protection measures. Tree protection measures will have to be implemented prior to the commencement of the earthworks stage to ensure the trees identified for preservation are not impacted by the proposed development.

Tree protection fence must be installed at the mTPZ distance or as outlined on Figure 1. Refer to Figure 1 for the locations of prescribed tree protection fence, the tree protection fence detail and additional tree protection plan notes.

Species at Risk

One Butternut (*Juglans cinerea*) tree, Tree 971, was identified on subject property within 50 m of the proposed development. It is understood that Azimuth Environmental Consulting Inc. has corresponded with the Ministry regarding the impacts to the Tree. Refer to Azimuth Consulting's Addendum to EIS (Moran, 2019) for further information.

Summary and Recommendations

Kuntz Forestry Consulting Inc. was retained by Orangeville Highlands c/o Country Green Homes to complete a Tree Inventory and Preservation Plan Report for a development application for a property situated on the northeast corner of Hansen Boulevard and Amelia Street in Orangeville, Ontario. A tree inventory was conducted and reviewed in the context of the proposed site plan.

The findings of the study indicate a total of 20 trees situated on subject property, on neighbouring property and within the road allowance. The removal of 15 trees will be required to accommodate the proposed development.

The following recommendations are suggested to minimize impacts to trees identified for preservation. Refer to Figure 1 for the location of tree preservation fence, further Tree Protection Plan Notes and the tree preservation fence detail.

- Tree protection barriers and fencing should be installed at locations as prescribed above and on Figure 1. All tree protection measures should follow the guidelines as set out in the tree preservation plan notes and the tree preservation fencing detail on Figure 1.
- Tree protection measures are to be implemented prior to the earthworks stage to ensure the trees identified for preservation are not impacted by the development.
- Branches and roots that extend beyond prescribed tree protection zones that require pruning must be pruned by a qualified Arborist or other tree professional as approved by the City of Mississauga. All pruning of tree roots and branches must be in accordance with good arboricultural standards.
- Site visits, pre, during and post construction is recommended by either a certified consulting arborist (I.S.A.) or registered professional forester (R.P.F.) to ensure proper utilization of tree protection barriers. Trees should also be inspected for damage incurred during construction to ensure appropriate pruning or other measures are implemented.

Respectfully Submitted,
Kuntz Forestry Consulting Inc.

Jeremy Jackson

Jeremy Jackson H.B.Sc.
Associate
ISA Certified Arborist #ON-1089A
GIS Analyst

References

Moran, Lisa. *Addendum to EIS and MP Orangeville Highlands Phase 2*. AEC11-237.
Azimuth Environmental Consultants Inc., 15 April 2019, pp. 1-5

Table 1. Tree Inventory Table.

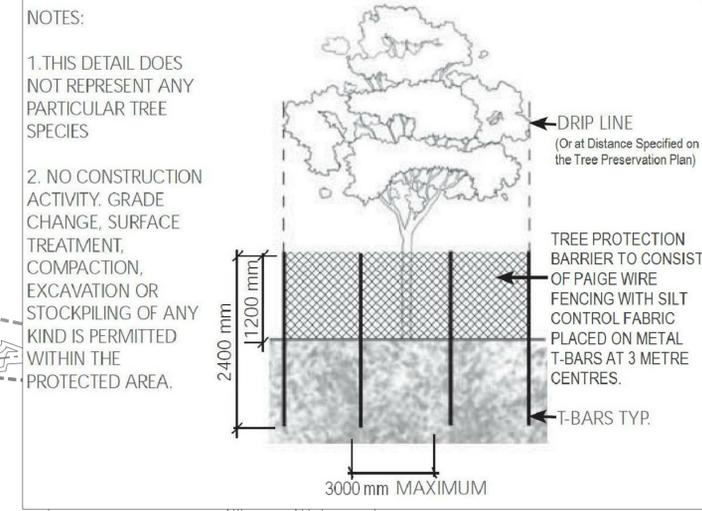
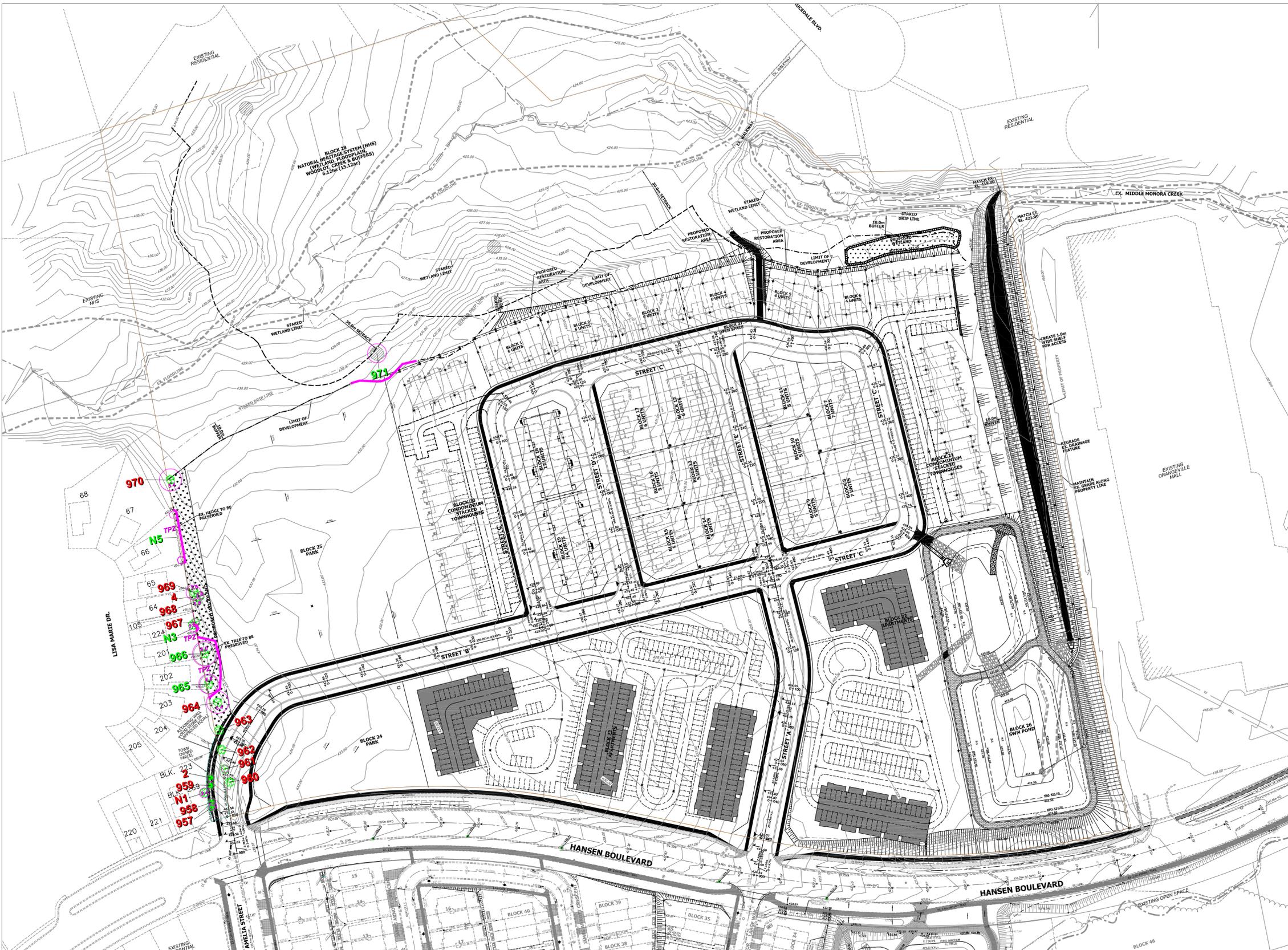
Location: Orangeville Highlands

Date: 17 March 2011

Surveyors: JJ and CB

Tree#	Common Name	Scientific Name	DBH	TI	CS	CV	CDB	mTPZ	Comments
957	Blue Spruce	<i>Picea pungens</i>	22	G	G	G	-	2.4	
958	Blue Spruce	<i>Picea pungens</i>	~20	G	G	G	-	2.4	
N1	Hybrid Butternut	<i>Juglans x.</i>	~20, 30	F	F	F	-	2.4	Epicormic branching (L), stem wounds (M), union at 0.3m
959	White Spruce	<i>Picea glauca</i>	17	G	G	G	-	2.4	
2	Black Walnut	<i>Juglans nigra</i>	~20	G	F	FG	-	2.4	
960	White Elm	<i>Ulmus americana</i>	31	F	F	PF	30	3	Some peeling bark
961	Cherry species	<i>Prunus sp.</i>	14, 16	F	F	F	-	2.4	Union at 0.4m
962	Sugar Maple	<i>Thuja occidentalis</i>	22, 32, 29.5	PF	F	F	-	2.4	Union at base with included bark (M), stem wound with rot and fruit bodies (M)
963	Manitoba Maple	<i>Acer negundo</i>	78, 46	F	F	PF	40	4.8	Tire lodged in union, union at base and 2m, seams (L), central leader dead in crown
964	Sugar Maple	<i>Acer saccharum</i>	86	F	F	F	-	5.4	Union at 1.2m with included bark (H), seam (M), vertical stems with included bark throughout crown
965	Sugar Maple	<i>Acer saccharum</i>	71	FG	F	F	-	4.8	Ribbing (L), lean (L)
966	Sugar Maple	<i>Acer saccharum</i>	95.5	F	F	FG	-	6	Union at 1m with included bark (H), fruiting bodies at union
N3	Sumac species	<i>Rhus sp.</i>	~15	F	F	F	-	2.4	
967	Manitoba Maple	<i>Acer negundo</i>	16	FG	FG	G	-	2.4	Lean (L), grapevine competition (L)
968	Manitoba Maple	<i>Acer negundo</i>	7-15 avg 11	PF	F	F	-	2.4	7 stems, lean (M), poor union at ground with rot, epicormic branching (M)
969	Manitoba Maple	<i>Acer negundo</i>	~11-42 avg. 30	F	F	F	-	3	6 stems, lean (M)
4	Manitoba Maple	<i>Acer negundo</i>	15.5	F	F	G	-	2.4	Lean (M)
N5	Eastern White Cedar Hedgerow	<i>Thuja occidentalis</i>	~10	F	F	FG	-	2.4	~50 trees
970	Manitoba Maple	<i>Acer negundo</i>	89	F	F	F	-	5.4	Lean (L)
971	Butternut	<i>Juglans cinerea</i>	26.5	G	G	G	-	2.4	Possible girdling root

Codes		
DBH	Diameter at Breast Height	(cm)
TI	Trunk Integrity	(G, F, P)
CS	Crown Structure	(G, F, P)
CV	Crown Vigor	(G, F, P)
mTPZ	minimum Tree Preservation Zone	(m)
~ = Estimate, (L) = low, (M) = moderate, (H) = heavy, G= Good, F= Fair, P=Poor		



TREE PROTECTION PLAN NOTES

Prior to site disturbance the owner must confirm that no migratory birds are making use of the site for nesting. The owner must ensure that the works are in conformance with the Migratory Bird Convention Act and that no migratory bird nests will be impacted by the proposed work. It is the applicant's responsibility to discuss potential tree injury of trees on shared property lines with their neighbours. Should such trees be injured to the point of instability or death the applicant may be held responsible for removal and such issues would be dealt with in civil court or through negotiation. The applicant would be required to replace such trees to the satisfaction of the Town of Orangeville.

TREE PROTECTION ZONE: No construction activity including grade changes, surface treatments or excavations of any kind is permitted within the area identified on the Tree Protection Plan or Site Plan as a Tree Protection Zone (TPZ). No root cutting is permitted. No storage of materials or fill is permitted within the TPZ. No movement or storage of vehicles or equipment is permitted within the TPZ. Grade changes are not permitted within established TPZ. The area(s) identified as a TPZ must remain undisturbed at all times.

TREE PROTECTION BARRIERS:

For Town-owned Trees:
Tree protection barriers for trees situated on the Town road allowance where visibility must be maintained, can be 1.2m (4ft.) high and consist of chain link, or orange plastic web snow fencing on a 2" x 4" wood frame. All supports and bracing used to secure the barrier should be located outside the TPZ. All supports and bracing should minimize damage to roots outside the TPZ. Where some fill or excavate has to be temporarily located near a tree protection barrier, plywood must be used to ensure no material enters the TPZ.

For trees on private property situated on or adjacent to construction sites:
Tree protection barriers must be installed around trees to be protected using plywood clad hoarding or an equivalent approved by the Town of Orangeville. All supports and bracing to safely secure the barrier should be outside the TPZ. All such supports and bracing should minimize damage to roots outside the TPZ.

General Note:
Prior to the commencement of any site activity the tree protection barriers specified on this plan must be installed and written notice provided to the Town of Orangeville. Established tree protection zones must not be used as construction access, storage or staging areas. The tree protection barriers must remain in effective condition until all site activities including landscaping are complete. Written notice must be provided to the Town of Orangeville prior to the removal of the tree protection barriers.

ARBORICULTURAL WORK:
Any roots or branches which extend beyond the TPZ indicated on this plan which require pruning, must be pruned by a qualified arborist or other tree professional as approved by the Town of Orangeville. All pruning of tree roots and branches must be in accordance with good arboricultural standards. Roots located outside the TPZ that have received approval from the Town of Orangeville to be pruned must first be exposed by hand digging or by using a low pressure hydro vac method. This will allow a proper pruning cut and minimize tearing of the roots. The arborist/tree professional retained to carry out crown or root pruning must contact the Town of Orangeville no less than 48 hours prior to conducting any specified work.

- LEGEND**
- 10 Tree Identified for Preservation (GREEN)
 - 11 Tree Identified for Removal (RED)
 - TPZ Tree Preservation Zone Symbol
 - Tree Preservation Fence Location
 - Property Boundary
 - Town Owned Parcel
 - Minimum Tree Preservation Zone (mTPZ) - for planning purposes only

Tree Inventory
Refer to Table 1 of report dated the 15th of April 2019 for the complete tree inventory. All trees 10 cm in diameter and larger situated on subject property, on neighbouring property within vicinity of the proposed development and trees within the road allowance were included in the tree inventory.

Tree Preservation
The preservation of Trees 965, 966, N3, N5 and 971 will be possible with appropriate tree protection measures. Tree protection measures will have to be implemented prior to the commencement of the earthworks stage to ensure the trees identified for preservation are not impacted by the proposed development.

Tree Removal
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Tree N1 appears to reside on neighbouring property. Permission from the respective property owner will be required prior to the removal of these trees.

Issue/Revisions	Date	By
1 Report Submission	15 April 2019	JJJ

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Property:
Northeast Corner Amelia St. & Hansen Blvd.
Orangeville, ON

Tree Inventory & Preservation Plan

Project	P442	Figure	1
Date	15 April 2019		
Scale	1:1,000		