NOTICE OF INTENT TO CUT, BURN, OR DESTROY TREES BY OTHER MEANS, PURSUANT TO THE REGION OF HAMILTON-WENTWORTH WOODLAND CONSERVATION BY-LAW NO. R00-054

The landowner and contractor must complete this form and deliver it to the Planning Department of the City of Hamilton. A completed form must be received at least **five (5) business days*** before any trees are to be cut, burned or destroyed by other means. The purpose of this application is to inform the municipality of the extent and nature of cutting, burning or destruction of trees by other means, **before** it occurs.

1. What is the reason for tree removal? Please circle the reason(s).

   silvicultural improvement commercial timber harvest

   firewood removal wildlife habitat

   other (please specify) Remove exotic plantation (0.19 ha) and Ash/Norway maple area, both with buckthorn understory, and compensate with planting 1.08 ha nearby area.

2. What is the expected start date for cutting, burning or destruction of trees by other means?

   ASAP

3. What is the expected finish date?

   Before March 20, 2017

4. What is the size of the woodland on your property where trees are to be cut, burned or destroyed by other means in acres (hectares)?

   0.28 ha Total on property about 3 ha

5. What is the size of the harvest area in that woodland?

   0.28 ha

6. **Landowner Information**:

Name: _____

Mailing Address: Valery (Chedoke Browlands) Developments Inc

Street Address: 2140 King St Easat, Hamilton L8K 1W6

Emergency # (911): 828 Sanitorium Dr

Lot(s): 57 Concession(s): 2

Township: Ancaster

City/Town: Hamilton Postal Code: _____

Telephone: Home: ( ) _____
Work: (905) 547 5056

Fax: (905) 547 5083

7. **Contractor Information**:

Contractor: Davey Tree Expert

Mailing Address: 182 Chatham St

Street Address: _____

City/Town: Hamilton Postal Code: L8P 2B6

Telephone: Home: (905) 526 7434
Work: ( ) _____

Fax: ( ) _____

Name of person in charge of tree destruction:

Chris Denthe

8. Who has marked the woodland for cutting?

Name: Peter Kuntz, RPF

Qualifications: Registered Professional Forester OPFA #14

Mailing Address: PO Box 1267 Lakeshore W. PO

Street Address: 14 Lakeshore Rd W

City/Town: Oakville Postal Code: L6K 0B3

Telephone: ( ) 289 837 1871

Fax: (866) 693 6390

9. Location of Woodland:

Lot: 57 Concession: 2

Former Township: Ancaster

Former Area Municipality (Example: Flamborough, Dundas, Ancaster, Hamilton, Glanbrook, Stoney Creek): Hamilton

10. Using the attached blank sketch map (last page), show the location of your property in relation to nearby roads, the location of the woodland on your property, and the area in the woodland where trees are to be cut, burned or destroyed by other means.
Attached Prescription (Williams & Kuntz)
Stand Assessment (Kuntz & Choi)

11. Describe the type of forest management treatment you are proposing.
Clear Stand 4, primarily under order from City of Hamilton 0.9 ha, buckthorn ground cover
Clear Stand 3, mostly unmanaged plantation dominated by exotics Norway spruce, Scotts pine (invasive), Austrian pine Ash (dying), Norway Maple (invasive), several desirable hardwoods - Cherry, basswood, red oak, sugar maple
Naturalize 1.03 ha of open area to the east at the brow or escarpment using restoration/replanting plan approved by City

12. What is the residual basal area? n/a

13. Complete the table below to describe the trees selected to be destroyed. Please refer to Schedule A in the by-law. If more space is needed, this list may be placed on the back of this form or attached to it.

Tree Species	Number of Trees	**Range of Circumference OR Diameter at DBH (1.37 m)		Condition of Trees
		Circum-ference (cm or inches)	Diameter (cm or inches)	
See attached report				Forest Assessment (Kuntz and Choi)

I agree that operations will be conducted in accordance with the provisions of the Woodland Conservation By-law No. R00-054 of the Regional Municipality of Hamilton-Wentworth.

DATED at Hamilton this 19 day of January,

year of 2017.

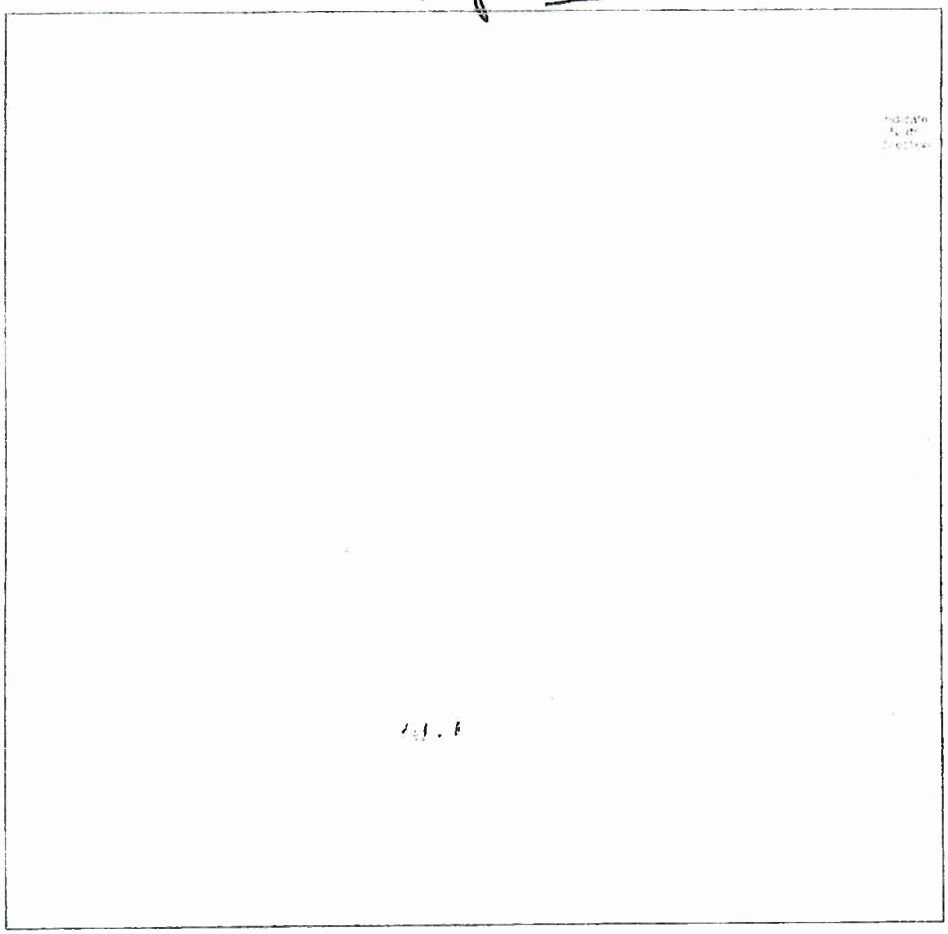
Signature of Landowner

Signature of Contractor

Map of Woodlot

Assessment number for the property where trees are to be destroyed:

see attached Report.



KUNTZ FORESTRY CONSULTING Inc.
PO Box 1267 Lakeshore W PO, Oakville, ON L6K 0B3
t: 289.837.1871 f: 1.866.693.6390
e: consult@kuntzforestry.ca

25 October 2016, revised 13 January 2017

Valery Homes
c/o GeoProcess Research Associates
133 King Street West
PO Box 65506 Dundas
Dundas, ON L9H 6Y6

Forest Assessment, Scenic Drive, Hamilton, Ontario

Introduction

Kuntz Forestry Consulting Inc. was retained by Valery Homes c/o GeoProcess Research Associates to provide a Forest Assessment and Constraints Analysis for a small conifer plantation (approximately 0.28 ha). The subject property is located northeast of Scenic Drive and Sanatorium Road, in Hamilton.

Methodology

Field assessments were conducted on 13 October 2016. Standard forest assessment protocol utilizing four basal area factor 2 (BAF2) prism sweeps was conducted to determine species composition and basal area within the woodlot (refer to Figure 1 for the approximate location of the plots). Trees tallied were divided into Acceptable Growing Stock (AGS) or Unacceptable Growing Stock (UGS) based on their health and condition. General observations on the ecological integrity of the subject woodlot were conducted. A Trimble GeoExplorer® 6000 series unit was used to map the boundary of the area of low ecological integrity and the location of mature, specimen trees (refer to Figure 1 for the location of these trees).

Results and Analysis

The subject wooded area appears to be an old, unmanaged conifer plantation that has been heavily thinned (non-prescribed or naturally) and allowed to regenerate naturally. Refer to Figure 1 for the boundary of the subject area. The species composition of the subject area is 23% Austrian Pine (*Pinus nigra*), 19% White Ash (*Fraxinus americana*), 17% Norway Maple (*Acer platanoides*), 17% Norway Spruce (*Picea abies*), 13% Scots Pine (*Pinus sylvestris*), and 12% other species, including Red Oak (*Quercus rubra*), Black Cherry (*Prunus serotina*), Sugar Maple (*Acer saccharum*), and Basswood (*Tilia americana*). Non-native species comprise 69% of the species composition. There is an area of dead Ash trees towards the northeast portion of the subject area, adjacent the house. A mature specimen Red Oak, Shagbark Hickory (*Carya ovata*) and White Oak (*Quercus alba*) were identified towards the western limit of the subject area (Refer to Figure 1 for the location of these trees).

The majority of the trees were found in the polewood (10-24 cm diameter) and small sawlog (26-36 cm diameter) size classes with a total basal area of 24 m^2/hectare. Minimal to no tree regeneration was observed and was predominantly Norway Maple and White Ash. The majority of the trees are greater than 15cm diameter and there is little to no native shrub or tree understorey.

Shrub species observed were limited to Common Buckthorn (*Rhamnus cathartica*) and non-native Honeysuckle species (*Lonicera* spp.), both non-native, invasive species. Due to seasonal constraints, herbaceous vegetation could not be identified; however, it was noted that the forest floor is highly disturbed, with the lack of leaf litter layer development. Exposed soil is noted in several areas. The presence of Common Buckthorn is heavy near the edges of the wooded area and comprised the dominant understorey vegetation within the subject wooded area. The majority of the Common Buckthorn individuals observed are small (less than 2m in height); however, the shrubs are widespread and densely established.

Refer to Appendix A for the stand analysis table and Appendix B for photos of the subject area.

Summary and Recommendations

Kuntz Forestry Consulting Inc. was retained by Valery Homes c/o GeoProcess Research Associates to provide a Forest Assessment and Constraints Analysis for a small conifer plantation (approximately 0.28 ha). The subject property is located northeast of Scenic Drive and Sanatorium Road, in Hamilton.

The subject area has poor ecological integrity with low native tree species diversity and a high population of non-native, invasive Common Buckthorn. The forest floor is disturbed with little to no native tree species regeneration. If left unmanaged, it is unlikely that this wooded feature would be able to self regenerate due to the lack of tree regeneration and dense Common Buckthorn cover. Based on these characteristics, the subject area represents a low constraint to development. It is recommended that the Shagbark Hickory and White Oak be protected at their dripline. Preservation of the Red Oak may be considered during the planning process via a Tree Inventory and Preservation Plan report.

Replacement of the conifer plantation through restoration of other lands on the subject property is recommended. The removal of trees within the conifer plantation may be compensated by planting trees along the escarpment brow, as recommended by GeoProcess Research Associates' Restoration Plan (12 January 2017) and shown in Figure 2 of this report. Currently, the area along the top of the escarpment brow is very narrow and consists of a few scattered trees. The intent of the replacement tree plantings is to expand the wooded area along the top of the escarpment brow through reforestation techniques. Plantings will be contiguous to the larger ecological feature, replacing Sanatorium Road with a forested area. All planted trees will be native and reflective of the local landscape (ecological land type). The area of conifer plantation proposed for removal is approximately 0.28 ha and the area of replacement plantings is approximately 1.03 ha. The recommended replacement plantings will serve to buffer and expand the larger ecological feature along the escarpment brow while increasing the ecological function and value of the area to be restored.

Respectfully Submitted,
Kuntz Forestry Consulting Inc.

Peter Kuntz

Peter Kuntz, H.B.Sc.F., R.P.F.
Principal, Registered Professional Forester

Amy Choi

Amy Choi, B.Sc(Env.), M.Sc.F.
Associate Forest Ecologist
ISA Certified Arborist #ON-1609A

Appendix A. Stand Analysis Table

Location: Scenic Drive, Hamilton
Date: 13 October 2016
Surveyor: AC
Compartment Number: Conifer Plantation
Stations Tallied: 4

Stand Analysis Tally (by Species, Size Class and Quality Class)

Tree Size Class >>>>	Polewood 10-24 cm		Sawtimber Sizes						Total All Sizes	
			Small 26-36 cm		Medium 38-48 cm		Large 50 cm +			
Species	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*
Norway Spruce (*Picea abies*)	2		5		1				8	0
White Ash (*Fraxinus americana*)		3		6					0	9
Norway Maple (*Acer platanoides*)	6	2							6	2
Red Oak (*Quercus rubra*)					1				1	0
Austrian Pine (*Pinus nigra*)	2	1	4	4					6	5
Black Cherry (*Prunus serotina*)	1								1	0
Scots Pine (*Pinus sylvestris*)	1	1		4					1	5
Sugar Maple (*Acer saccharum*)	2								2	0
Basswood (*Tilia americana*)		2							0	2
Total Number of Trees	14	9	9	14	2	0	0	0	25	23
BA (m^2/ha)	7	4.5	4.5	7	1	0	0	0	12.5	11.5
Total BA (m^2/ha)	11.5		11.5		1		0		24	

Additional Information
Topography: Flat
Soil Moisture: Dry-Fresh

Appendix B. Photos

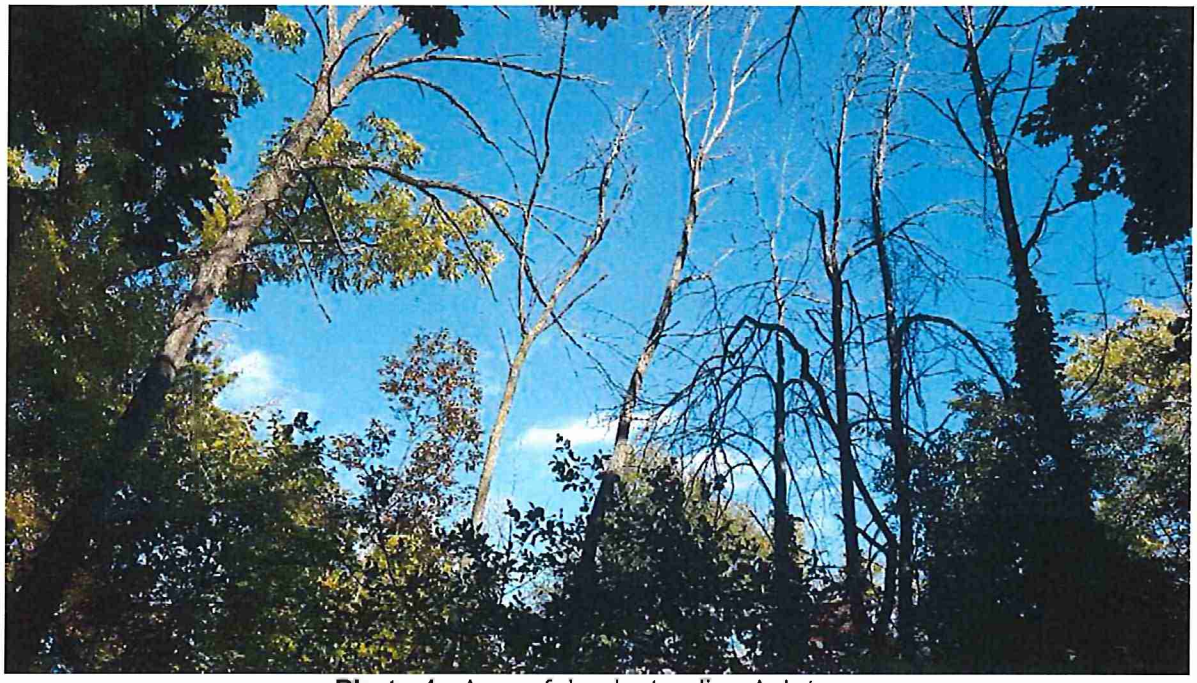


Photo 1. Area of dead, standing Ash trees

Photo 2. Failed trees and dense Common Buckthorn regeneration

Photo 3. Open, understorey with disturbed forest floor and limited to no tree regeneration

LEGEND

- Subject Area of low ecological integrity
- Approximate forest assessment plot locations
- Mature, specimen Tree locations

No	Issue/Revisions	Date
1	Report Submission	25 Oct 2016
2		
3		
4		

Base Data: A.J. Clarke and Associates Ltd. (topo), Hamilton Maps (base map)

KUNTZ FORESTRY CONSULTING Inc.

Client
Valery Homes c/o
GeoProcess Research Associates
133 King Street West, PO Box 65506 Dundas, Dundas, ON L9H 6Y6

Property
Scenic Drive (Brow Lands)
Hamilton, Ontario

Existing Conditions
Forest Assessment

Project	P1380
Date	25 October 2016
Scale	1:300
Figure	1

LEGEND

- Subject Area of low ecological integrity (0.28 ha)
- Approximate forest assessment plot locations
- Mature, specimen Tree locations
- Approximate Restoration Planting Zone (1.03 ha)*

*Derived from GeoProcess Research Associates Restoration Plan Drawing No. 1

No.	Issue/Revisions	Date
1	Report Submission	28 Oct 2016
2	Report Revision	13 Jan 2017
3		
4		

Base Data: A.J. Clarke and Associates Ltd. (topo), Hamilton Maps (base map)

KUNTZ FORESTRY CONSULTING Inc.

Client
Valery Homes c/o
GeoProcess Research Associates
133 King Street West, PO Box 65506 Dundas, Dundas, ON L9H 6Y

Property
Scenic Drive (Brow Lands)
Hamilton, Ontario

Existing Conditions
Proposed Restoration Area

Project	P1380
Date	25 October 2016
Scale	1:1500

Figure 2

GeoProcess
RESEARCH ASSOCIATES
Knowledge
Research
Consulting

January 13, 2017

Sergio Manchia
Urban Solutions
c / o Valery Homes
105 Main Street East, Suite 501
Hamilton, ON L8N 1G6

Re: Brow Lands
Tree Inventory and Preservation Plan

INTRODUCTION

GeoProcess Research Associates Inc. (GRA) was retained by Valery Homes to conduct a Tree Inventory and Preservation Plan (TIPP) for a property located in Hamilton, Ontario, formerly owned by Chedoke Hospital, known locally as the Chedoke Brow Lands. The property is Part of Lot 57, Concession 2 and is bounded by the brow of the Niagara Escarpment on the north side, scenic Drive to the south and is bisected by Sanatorium Road. Natural heritage features associated with the property include a portion of Hamilton Escarpment ESA #47 along the eastern portion of the property, including a large deciduous woodlot that extends north of the property along the escarpment brow and Chedoke Creek bisecting an isolated woodland along the western portion of the property.

The Tree Inventory and Preservation Plan addresses four (4) areas of the subject property – tableland trees, trees within the valley system, a portion of woodland that forms part of ESA #47 and hazard trees within the ESA adjacent 870 Scenic Drive. Hazard trees located adjacent 870 Scenic Drive were marked by the City of Hamilton and Valery Homes in the field on February 10, 2016 and included 33 dying Ash trees identified as a hazard to home east of the woodland adjacent the Scenic Drive homes. Refer to **Figure 1** for the Tree Inventory and Preservation Plan.

STUDY METHODOLOGY

Tableland and Hazard Trees

GRA conducted field studies in September and October 2016 to characterize the natural heritage features of the subject property and identify the existing tree recourses for the subject property. An assessment of individual

tree resources included a 100% tally of trees 10cm Diameter at Breast Height (DBH) for the subject property. Tree resources were assessed for condition utilizing the following parameters:

- **Tree #** - numbers assigned to tree that corresponds to their surveyed/mapped location.
- **Species** - common and botanical names provided in the inventory table.
- **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).
- **Comments** - additional relevant detail.

A topographical plan and aerial photograph were used to identify the location of trees, including additional trees not surveyed on the topographical plan within the vicinity of the proposed development.

Species nomenclature is based on the Ministry of Natural Resources "*Southern Ontario Vascular Plant Species List – 3rd Edition*" (Bradley 2013). Species ranking was determined provincially by the Ministry of Natural Resources *Natural Heritage Information Database* (Sranks) and regionally by the Distribution and status of the vascular plants of the Greater Toronto Area (2000).

Woodland Assessment

Kuntz Forestry Consulting Inc. conducted field assessments on October 13, 2016 (see Kuntz Forestry Consulting letter dated January 13, 2017). Stand forest assessment protocol utilizing four basal area factor 2 (BAF2) prism sweeps was conducted to determine species composition and basal area within the woodlot (refer to Figure1 for the approximate location of the plots). Trees tallied were divided in Acceptable Growing Stock (AGS) or Unacceptable Growing Stock (UGS) based on their health and condition. General observations on the ecological integrity of the subject woodlot were conducted. A Trimble GeoExplorer 6000 series unit was used to map the boundary of the area of low ecological integrity and the location of mature, specimen trees (refer to Kuntz Forestry Consulting letter Figure 1 for the location of these trees).

EXISTING CONDITIONS

The subject property is located within the Chedoke Creek Watershed along the Niagara Escarpment and includes a portion of the Hamilton Escarpment ESA #47 along the eastern portion of the property. The Hamilton Escarpment ESA consists of an 11 km long segment of narrow greenbelt along the Niagara Escarpment and forms a prominent north-facing slope separating the developed lower and upper mountain sections of the City (Hamilton NAI 2014).

The site was originally used as a Sanatorium for tuberculosis patients and was opened by the Hamilton Health Association on May 28, 1906 and was built upon 98 acres of property donated by Hamilton wool merchants

W.D. Long and G.H. Bisby. Following the discovery of an antibiotic in 1943 by Albert Schatz the sanatorium was no longer needed to treat tuberculosis patients and was thus utilized to house Inuit patients from Northern Canada. In 1961, the sanatorium was transformed into a chronic and convalescent general hospital called the Chedoke General Hospital which was taken over by Hamilton Health Services in 1979 and amalgamated with McMaster University Medical Centre and eventually became the Chedoke Hospital of Hamilton Health Sciences.

The Chedoke Hospital sold 24 acres of land to a developer and in 2014 the buildings associated with Chedoke Hospital were demolished. The historical Long Bisby Building still remains on-site. Currently, the site is vacant and is used heavily for recreational purposes.

TABLELAND TREES AND HAZARD TREE INVENTORY

TABLELAND TREES

A tree inventory was conducted for the subject property, excluding trees located within the forest feature and valley lands, which are designated within the dripline per Figure 1 and identified 210 trees for the tableland. Tree resources are composed primarily of mature specimens planted in conjunction with the recently demolished Chedoke Hospital buildings and the Long Bisby Building. Refer to **Appendix A** for a list of tree resources identified for the tableland and **Figure 1** for their location.

Native trees in good health with a DBH equal to or greater than 45 cm have been categorized as specimen trees and should be retained within the development envelope, where feasible. The tree inventory documented 24 specimen trees within the tableland, including mature Bur, Pin and Red Oak (*Quercus macrocarpa, palustris* and *rubra*, respectively), Sugar Maple (*Acer saccharum ssp. saccharum*) and Shagbark Hickory (*Carya ovata ssp. ovata*).

HAZARD TREES

Of the 210 tableland trees, 16 trees are identified as hazard trees recommended for removal. Hazard trees are defined as "*a tree that has been destabilized or structurally comprised, the supporting roots have failed or are cut, the main stem is cracked, the tree has a disease causing branch or stem decay sufficient to create significant risk of structural failure, or any other structural problems that result in an immediate danger of the tree or parts of the tree breaking and causing potential damage or injury to life or property*" (City of Barrie Tree By-law 2014).

Majority of the species identified as hazard trees are non-native and/or invasive tree species, including Norway Maple (*Acer platanoides*), Russian Olive (*Elaeagnus angustifolia*) and non-native Cherry (*Prunus sp.*), with the exception of one American Beech (*Fagus grandifolia*).

In addition to the hazard trees identified for the property, a number of standing snags or dead standing trees were identified for the property outside of the defined dripline. **Figure 1** identifies these trees with an 'X'.

VALLEY LAND TREES

The western portion of the property is bisected by a tributary of Chedoke Creek, which is a predominantly forested intermixed with patches of Reed-canary Grass mineral meadow marsh. Trees species along the defined channel included Bur Oak, Norway Maple, Sugar Maple and Silver Maple (*Acer saccharinum*) Crack Willow (*Salix fragilis*), White Elm (*Ulmus americana*) and a few Honey Locust (*Gleditsia triacanthos*) (most likely planted specimens). Chedoke Creek drains north to the escarpment brow where it forms Upper Sanatorium Falls.

Recreational use is high for this area, as it is for most of the site, with bisecting hiking trails, dumping of debris and the presence of non-native, invasive species contributing to low overall biodiversity and fragmented vegetation communities.

Specimen trees identified within the valley land including four (4) trees of native, mature origin in good health consisting of Silver and Sugar Maple, Shagbark Hickory and White Spruce (*Picea glauca*). Further refinement of the valley limits, may result in the identification of additional specimen trees. Refer to **Appendix A** for a list of valley land specimen trees and **Figure 1** for their location.

WOODLAND ASSESSMENT

The subject wooded area appears to be an old, unmanaged conifer plantation that has been heavily thinned and allowed to regenerate naturally (refer to Figure 1 for the boundary of the subject area). The species composition of the subject area is 23% Austrian Pine (*Pinus nigra*), 19% White Ash (*Fraxinus americana*), 17% Norway Maple, 17% Norway Spruce (*Picea abies*), 13% Scots Pine (*Pinus sylvestris*), and 12% other species, including Red Oak (*Quercus rubra*), Black Cherry (*Prunus serotina*), Sugar Maple, and Basswood (*Tilia americana*). Non-native species comprise 69% of the species composition. There is an area of dead Ash trees towards the northeast portion of the subject area, adjacent the house. A mature specimen Red Oak, Shagbark Hickory and White Oak (*Quercus alba*) were identified towards the western limit of the subject area.

The majority of the trees were found in the polewood (10-24 cm diameter) and small sawlog (26-36 cm diameter) size classes with a total basal area of 24 m_2/hectare. Minimal to no tree regeneration was observed and was predominantly Norway Maple and White Ash. The majority of the trees were greater than 15cm diameter and there was little to no native shrub or tree understory.

Shrub species observed were limited to Common Buckthorn (*Rhamnus cathartica*) and non-native Honeysuckle species (*Lonicera* spp.), both non-native, invasive species. Due to seasonal constraints, herbaceous vegetation could not be identified; however, it was noted that the forest floor was highly disturbed, with the lack of a leaf litter layer development. Exposed soil was noted in several areas. The presence of Common Buckthorn was heavy near the edges of the wooded area and comprised the dominant understory vegetation within the subject wooded area. The majority of the Common Buckthorn individuals observed were small (less than 2m in height); however, the shrubs are widespread and densely established.

870 SCENIC DRIVEHAZARD TREES

The City of Hamilton and Valery Homes identified 33 dying Ash trees along the eastern limit of the woodland that forms part of ESA #47 adjacent to 870 Scenic Drive. The trees were marked in the field by the City and Valery Homes on February 10, 2016. The trees were identified as a hazard to the neighbouring property and as a result the City requires their removal. These trees are located along the northern limit of the proposed woodland removal area adjacent 870 Scenic Drive. Currently, **Figure 1** does not show the location of the Ash trees as a more detailed assessment of the location of these trees is required.

PROPOSED DEVELOPMENT ENVELOPE

The proposed development envelope includes the tableland to the west of the valley lands along Scenic Drive, tableland to the south and west of Sanatorium Road and tableland including a portion of the southeast limit of a portion of the woodland that forms ESA #47 north of Scenic Drive and east of Sanatorium Road. Refer to **Figure 1** for the location of the proposed development envelope.

The valley lands associated with Chedoke Creek and the natural heritage features within the vicinity of the Long Bisby Building are not proposed for development.

IMPACT ASSESSMENT

The tree inventory conducted for this report characterized four (4) areas associated with the subject property; tableland and hazard trees, valley land trees, a portion of the woodland forming part of ESA #47 and hazard trees associated with 870 Scenic Drive. The proposed development envelope will result in the removal of the majority of trees along the western tableland and a portion of the woodland associated with ESA #47. Trees located within the valley land and within the vicinity of the Long Bisby Building are currently identified for retention; refinement of the valley limits will require further assessment of trees to be removed and retained. Hazard trees identified within the vicinity of 870 Scenic Drive are required to be removed as they pose a risk to the neighbouring property. Refer to **Table 1** for the results of the impact assessment.

Table 1: Brow Lands Tree Impact Table

Location	Description	Dev. Removal	Hazard Trees	Preserve	Specimen Trees	Preservation Measures
Tableland & Hazard Trees	Total of 210 trees identified for the tableland, including mature native and non-native species. Trees include #'s 1-42, 57, 58, 62-77, 79-228	147	16	47	24	Tree protection measures will have to be implemented prior to the commencement of construction to ensure trees identified for preservation are not impacted. Tree protection fencing should be comprised of paige wire fencing supported on metal T-bars at 3 m centres. Fences should be erected at the dripline of trees identified for preservation. All tree protection measures should follow the guidelines as set out by the City of Hamilton.
Valley land Trees	Currently, 18 individual trees identified for the valley. Once the valley limits have been refined, a more detailed tally of trees will be completed. Trees include #'s 43-56, 59-61, 78	-	-	18	4	Tree protection fencing along the valley land dripline in conjunction Sediment and Erosion control fencing installed along the limits of construction to minimize siltation and encroachment during construction. Further refinement of the valley limits may alter preservation measures for this feature.
Woodland ESA #47	The portion of the woodland identified for removal includes a small unmanaged conifer plantation.	0.31 ha	-	-	-	Tree Protection Fencing is required along the new forest edge. Removal of 0.31 ha of the woodland will result in the creation of a new forest edge. Established forest edge communities are an integral component of forest health providing buffering qualities to interior forest habitat. Removal of a forest edge can result in impacts to the remaining forest community through exposure to loss of flora and fauna habitat, changes in light penetration, changes in microclimate, trees along new edge susceptible to wind throw and loss of canopy cover. Further assessment of hazard trees along the new forest edge is recommended.
Scenic Dr. Hazard Trees	Dead and dying Ash trees were surveyed by the City and Valery Homes adjacent to the rear yard of Scenic Drive Homes.	-	33	-	-	Trees to be removed should be felled away from the existing development. Trees should be bucked and removed from site to prevent the potential spread of Emerald Ash Borer, if present within the identified trees.

DEVELOPMENT TREE PRESEVATION MEASURES

The following section identifies tree preservation measures to be utilized to avoid and minimize effects of the proposed development on the tree identified for the property.

- Clearing of vegetation within the subject site as part of site preparation should be conducted in late fall or winter months (September – March) so as not to coincide with breeding bird season. If clearing should occur during the nesting season, a nest survey should be conducted prior to any works by a qualified biologist;
- A construction work plan should designate specific locations for stockpiling of soils and other material.
- Tree protection measures will have to be implemented prior to the commencement of construction (earthworks) to ensure trees identified for preservation are not impacted by the proposed development.
- Tree protection fencing should be comprised of paige wire fencing supported on metal T-bars at 3 m centres. Fences should be erected at the dripline of trees identified for preservation.
- All tree protection measures should follow the guidelines as set out by the City of Hamilton. Tree protection barriers need to be inspected on a regular basis to ensure they meet the design requirements detailed by the City of Hamilton.
- Inspection by a qualified person(s) to conduct regular monitoring to ensure all mitigation measures are implemented as intended.

CLOSING

A review of tree resources and natural heritage features were reviewed on-site by GRA and assessed based on collected on-site data, available secondary sources, including the Hamilton Natural Areas Inventory (2014). The tree inventory conducted for the property determined that the majority of tableland trees, including 16 hazard trees, to the east and west of the valley land associated with Chedoke Creek adjacent Scenic Drive and Sanatorium Road will be required to be removed to accommodate development. A 0.31 ha woodland portion forming part of ESA #47 along the eastern property limits is also proposed for removal. This area constitutes an unmanaged coniferous plantation that is highly disturbed. Hazard trees adjacent 870 Scenic Drive include 33 dead/dying Ash trees are required to be removed by the City of Hamilton.

Preservation of trees within the vicinity of the Long Bisby Building and within the valley lands are proposed for preservation; further refinement of the valley limits will require a more detailed tally of trees that may be affected by the proposed development. Specimen trees, trees greater than or equal to 45 cm DBH of native origin are proposed for preservation, where feasible.

If you have any questions regarding this submission, do not hesitate to contact us.

Respectfully submitted
GeoProcess Research Associates Inc.

Jenn Reader

Jenn Reader, B.Sc. ERPG
ISA Certified Arborist #ON-1792A

Appendix A. Tree Inventory Table

Tree #	Common Name	Scientific Name	DBH	TI	CS	CV	CDB	Haz	Specimen (≥45 cm)	Comments	Recommend Preservation	Proposed Removal
1	Norway Maple	*Acer platanoides*	33	G	G	G						1
2	Norway Maple	*Acer platanoides*	33	G	G	G				stem wound at base (L), co-dominance at 2.5 m		1
3	Norway Maple	*Acer platanoides*	31	G	G	G				pruning wounds (L)		1
4	Norway Maple	*Acer platanoides*	31	G	G	G				pruning wounds (L), stem wound at base (L)		1
5	Norway Maple	*Acer platanoides*	26	P	F	F	50	Y		Crown die back		1
	Norway Maple	*Acer platanoides*	14	G	G	G	30					1
7	Little-Leaf Linden	*Tilia cordata*	34	G	G	G					Y	
8	White Ash	*Fraxinus americana*	40	G	G	P	60	Y		Broken branches (M), crown die back		1
9	White Mulberry	*Morus alba*	72	P	F	F	30			Co-dominance at base, split at union with rot	Y	
10	Norway Spruce	*Picea abies*	54.5	G	G	G					Y	
11	Norway Spruce	*Picea abies*	45	G	G	G					Y	
12	Red Maple	*Acer rubrum*	14,25,34	G	G	G			Y	Multi-stem at breast height	Y	
13	Red Oak	*Quercus rubra*	54.5	G	G	G			Y	Pruning wounds (L)	Y	
14	Red Oak	*Quercus rubra*	57.5	G	G	G	15		Y		Y	
15	Shagbark Hickory	*Carya ovata*	39	G	G	G					Y	
16	Shagbark Hickory	*Carya ovata*	37	G	G	G					Y	
17	White Birch	*Betula papyrifera*	35	G	G	G					Y	
18	White Birch	*Betula papyrifera*	28	G	G	G					Y	
19	Basswood	*Tilia americana*	17,22	F	G	G				Co-dominance at base, lean (L) of one trunk	Y	
20	White Mulberry	*Morus alba*	35	F	F	G				Exposed roots (M)	Y	
21	White Oak	*Quercus alba*	102	G	G	G	15		Y		Y	
22	Shagbark Hickory	*Carya ovata*	58	G	G	G			Y		Y	
23	Shagbark Hickory	*Carya ovata*	50	G	G	G			Y		Y	
24	Red Oak	*Quercus rubra*	89	G	G	G			Y		Y	
25	Red Oak	*Quercus rubra*	82	G	G	G			Y		Y	
26	White Mulberry	*Morus alba*	44.5	F	G	F	40			Crown dieback	Y	
27	White Mulberry	*Morus alba*	45	F	G	G	30			Not surveyed 1 m north of fence, 6 m west of fence	Y	
28	White Spruce	*Picea glauca*	30	F-G	G	G				Root zone embedded in asphalt, pruning wounds (L), crowded	Y	
29	Black Walnut	*Juglans nigra*	53	G	G	G			Y	Portion of root zone embedded in asphalt	Y	
30	Shagbark Hickory	*Carya ovata*	21	G	G	G					Y	
31	White Spruce	*Picea glauca*	37	G	G	G					Y	
32	White Birch	*Betula papyrifera*	40	G	G	G					Y	
33	Sugar Maple	*Acer saccharum*	73	P	P	P	80	Y		Main leader dead		1
34	White Oak	*Quercus alba*	87	G	G	G	25		Y		Y	
35	Red Oak	*Quercus rubra*	102	F-G	G	G			Y	Insect defoliation, stem wounds (M)	Y	

36	Red Maple	*Acer rubrum*	51	G	G	P-F	40		Y	Crown die back, pruning wounds (L)	Y	
37	Bur Oak	*Quercus macrocarpa*	37	G	G	F	30			Crown die back	Y	
38	Bur Oak	*Quercus macrocarpa*	35	G	G	F	35			Crown die back	Y	
39	Red Oak	*Quercus rubra*	37	G	F	G				Crowded	Y	
40	Red Oak	*Quercus rubra*	81	G	G	G			Y		Y	
41	Red Oak	*Quercus rubra*	45	G	G	G			Y		Y	
42	Red Oak	*Quercus rubra*	~60	G	G	G	20		Y	In fenced area, no access	Y	
43	Shagbark Hickory	*Carya ovata*	49	G	G	G	20		Y	Defoliation	Y	
44	Cherry species	*Prunus sp.*	55	F	F	F				Multi-stem above breast height, poor form, exposed root (H)	Y	
45	Sugar Maple	*Acer saccharum*	70	F-G	G	G			Y	Growth deficit at base, exposed roots (M)	Y	
46	Norway Maple	*Acer platanoides*	18	G	G	G					Y	
47	Norway Maple	*Acer platanoides*	29	G	G	G					Y	
48	Norway Maple	*Acer platanoides*	17	G	G	G					Y	
49	Norway Maple	*Acer platanoides*	13	G	G	G					Y	
50	Honey locust cultivar	*Gleditsia triacanthos x*	15,16.5,18	G	G	G	15			Multi-stem at 0.25 m	Y	
51	Sugar Maple	*Acer saccharum*	57	G	G	G			Y	Exposed roots (L)	Y	
52	White Spruce	*Picea glauca*	54	G	G	G			Y		Y	
53	Honey locust cultivar	*Gleditsia triacanthos x*	44	G	G	G	25				Y	
54	White Ash	*Fraxinus americana*	14	G	G	G					Y	
55	Crab Apple	*Malus sylvestris*	21,21,25,26,28	G	F	F	35			Multi-stem at base, broken branches (M)	Y	
56	Austrian Pine	*Pinus nigra*	46	G	G	F	35			Pruning wounds (L)		
57	Little-Leaf Linden	*Tilia cordata*	52	G	F	F	30			Coppice Growth (L)		1
58	Little-Leaf Linden	*Tilia cordata*	51	G	G	G						1
59	Black Locust	*Robinia pseudoacacia*	55	G	F	P	50			Co-dominance at breast height, lean (L)	Y	
60	Manitoba Maple	*Acer negundo*	72	G	G	G	20			Co-dominance above breast height	Y	
61	Black Locust	*Robinia pseudoacacia*	51	G	F	P	50			Co-dominance at 2.0 m	Y	
62	Sugar Maple	*Acer saccharum*	68	G	G	G	20		Y	Broken branches (L)	Y	
63	Crab Apple	*Malus sylvestris*	26	P	P	P	50	Y		Co-dominance at base, pruning wounds (H) - one stem dead		1
64	Crab Apple	*Malus sylvestris*	22,30,32	F	F	F	30			Multi-stem		1
65	Crab Apple	*Malus sylvestris*	23,23,30	F	F	F	30			Multi-stem		1
66	Sugar Maple	*Acer saccharum*	68	F	G	G			Y	Exposed roots (M), stem wound at base with rot	Y	
67	Carya sp.	*Hickory sp.*	38	G	F	P	50					1
68	European Ash	*Fraxinus excelsior*	32	F	G	G				Mechanical damage to base		1
69	Cherry species	*Prunus sp.*	32	F-P	F	F	30	Y		stem wound on trunk with rot		1
70	Norway Maple	*Acer platanoides*	33	G	G	G				Broken branches (L)		1
71	Norway Maple	*Acer platanoides*	33.5	G	G	G	20			Pruning wounds (L)		1
72	Norway Maple	*Acer platanoides*	33.5	G	G	G	20			Pruning wounds (L)		1

73	Red Cedar	*Juniperus virginiana*	23.8	F	F	F-P	40			Exposted roots (L)		1
74	Norway Maple	*Acer platanoides*	37	G	G	G				Exposted roots (L)		1
75	Norway Maple	*Acer platanoides*	40	P	G	G		Y		Stem wound 1.5 m-2.5m (H) with rot		1
76	Russian Olive	*Elaeagnus angustifolia*	13,13.17	F	F	F	30			multi-stem at base, stem wound at base		1
77	Russian Olive	*Elaeagnus angustifolia*	13,14,26	F	F	F	30	Y		multi-stem at 1.0 m, stem wound at base		1
78	Ironwood	*Ostrya virginiana*	44	F	G	G				stem wound at breast height	Y	
79	European Ash	*Fraxinus excelsior*	30	G	F	F	35			growth deficit at base, (L), crowded with #80		1
80	European Ash	*Fraxinus excelsior*	31	G	F	F	35			crowded with #79		1
81	Crab Apple	*Malus sylvestris*	31	G	G	G	15			Broken branches (L)		1
82	Norway Maple	*Acer platanoides*	37	G	G	G				Exposed roots (L), girdling roots (L)		1
83	Norway Maple	*Acer platanoides*	20	F	G	G				Lean (L), stem wounds at base (M), exposed roots (L)		1
84	Crab Apple	*Malus sylvestris*	21,24	G	G	G				co-dominance at 0.5 m, pruning wounds (L), broken branches (L)		1
85	Crab Apple	*Malus sylvestris*	17,25,34	G	G	G				multi-stem at 1.0 m, pruning wounds (M)		1
86	Norway Maple	*Acer platanoides*	43	G	G	G				pruning wounds (L)		1
87	Crab Apple	*Malus sylvestris*	15,15,20,21	F	F	F				multi-stem at 1.0 m, pruning wounds (L), stem wounds (M), 2 dead branches		1
88	Crab Apple	*Malus sylvestris*	15,16,20,27	F	G	G				multi-stem at 0.5m, stem wounds (L)		1
89	Crab Apple	*Malus sylvestris*	19,19,29	F	G	G				multi-stem at 0.5m, stem wounds (M)		1
90	Crab Apple	*Malus sylvestris*	20.5,30.5	G	F	F				stem wounds (M), co-dominant at 0.25m		1
91	Crab Apple	*Malus sylvestris*	16,21	P	P	P		Y		pruning wounds (H), broken branches (M), co-dominance at 0.5 m		1
92	Crab Apple	*Malus sylvestris*	15,18,24,21	F	F	F	25			multi-stem at 0.5 m, pruning wounds (M)		1
93	Crab Apple	*Malus sylvestris*	11,18,20,24,27	F	F	F	25			multi-stem at 0.5 m, pruning wounds (M)		1
94	Norway Maple	*Acer platanoides*	35	F	F	P	60	Y		co-dominance at 2.0 m, pruning wounds (L)		1
95	Norway Maple	*Acer platanoides*	20	G	G	G				lean (L)		1
96	Norway Maple	*Acer platanoides*	39	G	G	F-G	30			pruning wounds (L), exposed roots (L)		1
97	Norway Spruce	*Picea abies*	26	G	F	F	20			poor form		1
98	Norway Spruce	*Picea abies*	33	G	F	G				Exposed roots (L), poor form		1
99	Norway Maple	*Acer platanoides*	25	F	G	G				exposed roots (M)		1
100	Norway Spruce	*Picea abies*	18.5	F	F	F	25			lean (M)		1
101	Norway Spruce	*Picea abies*	33	F	F	F				Lean (L), exposed roots (M), stem wound at base (M)		1
102	Norway Spruce	*Picea abies*	34	P	P	P	60	Y		crown die back		1
103	Horse Chestnut	*Aesculus hippocastanum*	35,47	P	F	F		Y		Crack (M) from breast height to 2.0m, co-dominance with crack at union		1
104	Norway Spruce	*Picea abies*	26	G	F	F	35			Crowded, poor form		1
105	Norway Spruce	*Picea abies*	31	G	F	P				Crowded, poor form		1
106	Norway Spruce	*Picea abies*	37	G	F	G				Crowded, poor form		1

107	Norway Spruce	*Picea abies*	38	G	F	G				Crowded, poor form		1
108	Norway Spruce	*Picea abies*	17	G	F	G				Crowded, poor form		1
109	Norway Spruce	*Picea abies*	38	G	F	G				Crowded, poor form		1
110	Norway Spruce	*Picea abies*	32.5	G	F	G				Crowded, poor form		1
111	Norway Spruce	*Picea abies*	44.5	G	G	G				Crowded, poor form		1
112	White Mulberry	*Morus alba*	29	G	G	G	15					1
113	Norway Maple	*Acer platanoides*	40	G	G	G				girdling roots (L)		1
114	Norway Maple	*Acer platanoides*	44	P-F	G	G				stem wounds (H) with rot, pruning wounds (M), exposed roots (L), girlding (L)		1
115	Norway Maple	*Acer platanoides*	35	G	G	F	30			canker at base (L), pruning wounds (L)		1
116	Norway Maple	*Acer platanoides*	34	F	F	P	45	Y		stem wound at base with rot, pruning wounds (M)		1
117	Norway Maple	*Acer platanoides*	29	P	F	F	25	Y		stem wound at base (H)		1
118	Norway Maple	*Acer platanoides*	48.5	G	G	G				Co-dominance at 2.0 m, pruning wounds (M)		1
119	Norway Maple	*Acer platanoides*	58	G	G	G				pruning wounds (M)		1
120	Norway Maple	*Acer platanoides*	49.5	F	G	G				stem wound at base (M), pruning wounds (L)		1
121	Norway Maple	*Acer platanoides*	46.5	G	G	G	10			co-dominance at 2.0 m, broken branches (L)		1
122	Norway Maple	*Acer platanoides*	50.5	G	G	G	10			pruning wounds (M), exposed roots (L)		1
123	Norway Maple	*Acer platanoides*	46	G	G	G				pruning wounds (L), co-dominance at 2.0 m		1
124	Norway Maple	*Acer platanoides*	50.5	F	G	G				stem wound at base, pruning wounds (L)		1
125	Norway Maple	*Acer platanoides*	41	G	G	G				co-dominance at 2.0 m , pruning wounds (L)		1
126	Norway Maple	*Acer platanoides*	49	G	G	G	15			co-dominance at 2.0 m		1
127	Norway Maple	*Acer platanoides*	42.5	F	F	F	40			co-dominance at 2.25 m, pruning wounds (L), crack at base		1
128	Norway Maple	*Acer platanoides*	45	F	F	F	25			co-dominance at 2.25 m, pruning wounds (L), stem wound at base (M)		1
129	Norway Maple	*Acer platanoides*	51	F	G	G				pruning wounds (L), crack at base to 2.0 m		1
130	Norway Maple	*Acer platanoides*	39	G	G	G				co-dominance at 2.0 m	Y	
131	Norway Maple	*Acer platanoides*	44	G	G	G				pruning wounds (L)	Y	
132	Norway Maple	*Acer platanoides*	60	G	G	G				exposed roots (M), pruning wounds (L)	Y	
133	Norway Maple	*Acer platanoides*	58	G	G	G				exposed roots (L), pruning wounds (L)		1
134	Norway Maple	*Acer platanoides*	64	P	F	F		Y		broken branches (M), stem wound at base to 2.0 m with rot		1
135	Norway Maple	*Acer platanoides*	51	F	G	F	30			co-dominance at 2.0 m, pruning wounds (L), exposed roots (M)		1
136	Norway Maple	*Acer platanoides*	60	F	G	F-G	20			exposed roots (M), broken branches (L), pruning wounds (L)		1
137	Norway Maple	*Acer platanoides*	48	F	F	F	30			lean (L), co-dominance at 2.0 m, stem wound at base (M)		1
138	Norway Maple	*Acer platanoides*	57	G	G	F	35			exposed roots (L)		1
139	Norway Maple	*Acer platanoides*	39	F	F	P-F	40			broken branches (L), leaf wilt		1
140	Black Locust	*Robinia pseudoacacia*	56	G	F	F	35			broken branches (L)	Y	

141	Bur Oak	*Quercus macrocarpa*	50	G	G	F	35		Y	gypsy moth evidence (H), *planted in memory of deceased 1987**	Y	
142	Bur Oak	*Quercus macrocarpa*	52	G	G	F	30		Y	gypsy moth evidence (H)	Y	
143	Scots Pine	*Pinus sylvestris*	36.5	G	F	G				lean (L), broken branches (L), *Parthenocissus quinquefolia* present		1
144	Norway Spruce	*Picea abies*	51	G	G	G				pruning wounds (M)		1
145	Norway Maple	*Acer platanoides*	30	F	G	G				stem wound at base (M)		1
146	Honey locust cultivar	*Gleditsia triacanthos x*	59	G	G	G	15			broken branches (L)		1
147	Norway Maple	*Acer platanoides*	36	G	G	G						1
148	Red Pine	*Pinus resinosa*	38	F	F	F				lean (L), poor form, broken branches, chlorotic		1
149	Red Pine	*Pinus resinosa*	28	F	F	F				broken branches (M), chlorotic		1
150	Red Pine	*Pinus resinosa*	34.5	G	F	G				broken branches (M)		1
151	Red Pine	*Pinus resinosa*	35	F	F	F				lean (M), broken branches (M), poor form		1
152	Red Pine	*Pinus resinosa*	43	F	F	F				bowed crown, broken branches (M)		1
153	Pin Oak	*Quercus palustris*	70	G	G	G			Y	broken branches (L)	Y	
154	Pin Oak	*Quercus palustris*	75	G	G	G	15		Y	exposed roots (L), girdling root (L)	Y	
155	Red Pine	*Pinus resinosa*	37.5	F	F	F				poor form, broken branches (M)		1
156	Red Pine	*Pinus resinosa*	42	F	F	F				poor form, broken branches (L)		1
157	Red Pine	*Pinus resinosa*	44	F	F	F				broken branches (H)		1
158	Red Pine	*Pinus resinosa*	28	F	F	F				broken branches (M)		1
159	Red Pine	*Pinus resinosa*	33	F	F	F				broken branches (M)		1
160	Red Pine	*Pinus resinosa*	36	F	F	F				broken branches (M), lean (L)		1
161	Red Pine	*Pinus resinosa*	42	F	F	G				bowed crown, broken branches (L), poor form		1
162	Red Pine	*Pinus resinosa*	32	F	F	F				broken branches (L), poor form, lean (L)		1
163	Red Pine	*Pinus resinosa*	25	F	F	F				broken branches (L), poor form, lean (L)		1
164	Red Pine	*Pinus resinosa*	54	F	F	F				poor form		1
165	Scots Pine	*Pinus sylvestris*	41	G	G	G	15					1
166	Scots Pine	*Pinus sylvestris*	46	G	G	G						1
167	Scots Pine	*Pinus sylvestris*	32	G	G	G						1
168	Red Pine	*Pinus resinosa*	35	F	F	F				Chlorotic, poor form, broken branches (L)		1
169	Red Pine	*Pinus resinosa*	31	F	F	P	50			Chlorotic, poor form, broken branches (L)		1
170	Red Pine	*Pinus resinosa*	46	F	F	F				Chlorotic, poor form, broken branches (L)		1
171	Red Pine	*Pinus resinosa*	54	F	F	F				Chlorotic, poor form, broken branches (L)		1
172	Eastern White Cedar	*Thuja occidentalis*	21	G	G	G						1
173	Norway Maple	*Acer platanoides*	11	G	G	G				Lean (L)		1
174	Eastern White Cedar	*Thuja occidentalis*	14.5	F	F	P	40					1
175	Eastern White Cedar	*Thuja occidentalis*	29	G	F	F						1
176	Eastern White Cedar	*Thuja occidentalis*	24	F	F	F	30					1
177	Norway Maple	*Acer platanoides*	27	G	F	G				Lean (L)		1
178	Eastern White Cedar	*Thuja occidentalis*	8,10,5	F	F	P	45			Co-dominance at 1.0 m, lean (L)		1
179	Eastern White Cedar	*Thuja occidentalis*	16	F	F	P	60			lean (L)		1
180	Eastern White Cedar	*Thuja occidentalis*	19	F	F	P	60			Lean (L)		1
181	Norway Maple	*Acer platanoides*	19	G	F	G				lean (L), exposed roots (L)		1

182	Norway Maple	*Acer platanoides*	25	G	F	G				lean (L), exposed roots (L)		1
183	Red Pine	*Pinus resinosa*	43	F	F	F				poor form		1
184	Red Pine	*Pinus resinosa*	44	F	F	F						1
185	Scots Pine	*Pinus sylvestris*	32	F	F	F				bowed crown		1
186	Scots Pine	*Pinus sylvestris*	26	F	F	F				bowed crown, sapsucker holes		1
187	Trembling Aspen	*Populus tremuloides*	33,34	G	G	G	15			co-dominance at 1.0m		1
188	Norway Maple	*Acer platanoides*	19	G	F	G				exposed roots (M)		1
189	Norway Maple	*Acer platanoides*	20	G	F	G						1
190	Norway Maple	*Acer platanoides*	22	F	F	G				co-dominance at 3.0 m , exposed roots (M)		1
191	Cherry species	*Prunus sp.*	13	F	F	F				lean (L), crowded		1
192	Norway Maple	*Acer platanoides*	18	F	G	G				stem wound (L), lean (L)		1
193	Scots Pine	*Pinus sylvestris*	37	G	G	G						1
194	Red Pine	*Pinus resinosa*	46	F	F	F				Poor form		1
195	Red Pine	*Pinus resinosa*	47	G	F	F				Poor form		1
196	Red Pine	*Pinus resinosa*	37	G	F	F				Poor form		1
197	Red Pine	*Pinus resinosa*	60	G	F	F				Poor form		1
198	Red Pine	*Pinus resinosa*	27	G	F	F				Poor form. Lean (L)		1
199	Scots Pine	*Pinus sylvestris*	29	G	G	G				Poor form, bench around base of tree		1
200	Red Pine	*Pinus resinosa*	38	F	F	F				Poor form		1
201	Red Pine	*Pinus resinosa*	39	F	F	F				Poor form		1
202	Red Pine	*Pinus resinosa*	45	F	F	F				Poor form		1
203	Red Pine	*Pinus resinosa*	51	F	F	F				Poor form		1
204	Red Pine	*Pinus resinosa*	45	F	F	F				Poor form		1
205	Honey locust cultivar	*Gleditsia triacanthos x*	74	G	G	G				co-dominance at 2.0 m		1
206	Little-Leaf Linden	*Tilia cordata*	36	G	G	G						1
207	Cherry species	*Prunus sp.*	21,23	P	P	P		Y		broken branches (H), co-dominance at 1.0m		1
208	Eastern White Cedar	*Thuja occidentalis*	25	G	G	G						1
209	Little-Leaf Linden	*Tilia cordata*	42	G	G	G				girdling roots (L)		1
210	Little-Leaf Linden	*Tilia cordata*	40	G	G	G				girdling roots (L)		1
211	Little-Leaf Linden	*Tilia cordata*	41	G	G	G				exposed roots (M)		1
212	Little-Leaf Linden	*Tilia cordata*	61	G	G	G				co-dominance at breast height		1
213	Little-Leaf Linden	*Tilia cordata*	56	F	G	G				exposed roots (M)		1
214	Norway Maple	*Acer platanoides*	27	F	G	G				exposed roots (M), lean (L)		1
215	Little-Leaf Linden	*Tilia cordata*	49	F	G	G				stem wounds (M)		1
216	Little-Leaf Linden	*Tilia cordata*	50	G	G	G						1
217	Eastern White Cedar	*Thuja occidentalis*	26	G	G	G						1
218	Katsura Tree	*Cercidiphyllum japonicum*	8,18,22,21	F	G	G				exposed roots (M), multi-stem at base		1
219	Katsura Tree	*Cercidiphyllum japonicum*	6,18,19,22,23	F	G	G				exposed roots (M), multi-stem at base		1
220	Katsura Tree	*Cercidiphyllum japonicum*	6,9,10,22	F	G	G				exposed roots (M), multi-stem at base		1
221	Shagbark Hickory	*Carya ovata*	57	G	G	G			Y		Y	

222	American Beech	*Fagus grandifolia*	~50,45,40,65	F-P	F	F	30	Y		multi-stem at 1.0 m, stem wound at base with rot		1
223	Norway Maple	*Acer platanoides*	26	F	G	G				lean (L)		1
224	Norway Maple	*Acer platanoides*	41	G	G	F				exposed roots (M), girdling roots (L), lean (L)		1
225	Crab Apple	*Malus sylvestris*	19	G	G	G						1
226	Crab Apple	*Malus sylvestris*	23	G	F	F				epicormic branching (M)		1
227	Red Oak	*Quercus rubra*	58	G	G	G	10		Y		Y	
228	Freeman's Maple	*Acer freemani*	66	G	G	G	25		Y	Co-dominance at 2.0 m, broken branches (L)	Y	

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)*
CDB	Crown Die Back	*(%)*
HAZ	Hazard Tree	*(Yes, No)*
~ = estimate; (L) = light; (M) = moderate; (H) = heavy		

Appendix B. Photo Plate

Photo # 1 Brow Lands July 27, 2016 Southern Limit of Eastern Woodland adjacent open field (facing east)	
Photo # 2 Brow Lands July 27, 2016 Eastern Woodland – mature Red Oak and Scots Pine in foreground	

Photo # 3 Brow Lands July 27, 2016 Eastern Woodland – heavy Common Buckthorn understory and groundlayer	
Photo # 4 Brow Lands July 27, 2016 Eastern Woodland – mature plantation and deciduous trees naturalizing with younger tree specimens	

Photo # 5 Brow Lands July 27, 2016 Eastern Woodland – Mature White Oak along southern limit of woodland 88 cm diameter at breast height City of Hamilton Heritage Tree	
Photo # 6 Brow Lands July 27, 2016 Eastern Woodland – poor forest structure due to high levels of non-native invasive species and historic and on-going recreational use	

Photo # 7 Brow Lands July 27, 2016 Old Tennis Court	
Photo # 8 Brow Lands July 27, 2016 Eastern Woodland Sugar Maple dominated with no understory	

Photo # 9 Brow Lands July 27, 2016 Eastern Woodland – Sugar Maple dominated north of the old tennis court	
Photo # 10 Brow Lands July 27, 2016 Eastern Woodland – Sugar Maple dominated with small wet pockets	

Photo # 11 Brow Lands July 27, 2016 Chedoke Creek	
Photo # 12 Brow Lands July 27, 2016 Chedoke Creek and Reed-canary Grass Mineral meadow Marsh	

Photo # 13 Brow Lands July 27, 2016 Chedoke Creek	
Photo # 14 Brow Lands July 27, 2016 Chedoke Creek and associated valley land	


Scenic Drive and Sanatorium Road, Hamilton
Tree Inventory and Preservation Plan
Urban Solutions c/o Valery Homes
105 Main Street East, Suite 501 Hamilton L8N1G6
Scale: 1:750
Drawn By: JJ
Date Issued: 1-DEC-16
Checked By: JR
Drawing No.
1
No.
REVISIONS
DATE
INITIAL
1
REPORT_SUBMISSION
12/01/16
JJ
LEGEND
Property Boundary
Tree Protection Fence Location
Surveyed Tree Location (Deciduous)
Surveyed Tree Location (Coniferous)
80 Tree Identified for Preservation
74 Tree Identified for Removal
66 Specimen Tree
75 Hazard Tree (identified for Removal)
Dead Tree
Tree Preservation Area
Tree Removal Area
minimum Tree Preservation Zone (mTPZ)
GeoProcess
RESEARCH ASSOCIATES
SCENIC DRIVE
SAN PEDRO DRIVE
CRESCENT ROAD
SAN PAULO DRIVE
REGISTERED PLAN No 699
REGISTERED PLAN No 1381
CONCESSION
PART 4
PLAN 62R-17555
PART 10
PLAN 62R-17555

KUNTZ FORESTRY CONSULTING Inc.

PO Box 1267 Lakeshore W PO, Oakville, ON L6K 0B3
t: 289.837.1871 f: 1.866.693.6390
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25 October 2016, revised 13 January 2017

Valery Homes
c/o GeoProcess Research Associates
133 King Street West
PO Box 65506 Dundas
Dundas, ON L9H 6Y6

Forest Assessment, Scenic Drive, Hamilton, Ontario

Introduction

Kuntz Forestry Consulting Inc. was retained by Valery Homes c/o GeoProcess Research Associates to provide a Forest Assessment and Constraints Analysis for a small conifer plantation (approximately 0.28 ha). The removal of this plantation is proposed to accommodate a high end residential development. The subject property is located northeast of Scenic Drive and Sanatorium Road, in Hamilton.

Methodology

Field assessments were conducted on 13 October 2016. Standard forest assessment protocol utilizing four basal area factor 2 (BAF2) prism sweeps was conducted to determine species composition and basal area within the woodlot (refer to Figure 1 for the approximate location of the plots). Trees tallied were divided into Acceptable Growing Stock (AGS) or Unacceptable Growing Stock (UGS) based on their health and condition. General observations on the ecological integrity of the subject woodlot were conducted. A Trimble GeoExplorer® 6000 series unit was used to map the boundary of the area of low ecological integrity and the location of mature, specimen trees (refer to Figure 1 for the location of these trees).

Results and Analysis

The subject wooded area appears to be an old, unmanaged conifer plantation that has been heavily thinned and allowed to regenerate naturally (refer to Figure 1 for the boundary of the subject area). The species composition of the subject area is 23% Austrian Pine (*Pinus nigra*), 19% White Ash (*Fraxinus americana*), 17% Norway Maple (*Acer platanoides*), 17% Norway Spruce (*Picea abies*), 13% Scots Pine (*Pinus sylvestris*), and 12% other species, including Red Oak (*Quercus rubra*), Black Cherry (*Prunus serotina*), Sugar Maple (*Acer saccharum*), and Basswood (*Tilia americana*). Non-native species comprise 69% of the species composition. There is an area of dead Ash trees towards the northeast portion of the subject area, adjacent the house. A mature specimen Red Oak, Shagbark Hickory (*Carya ovata*) and White Oak (*Quercus alba*) were identified towards the western limit of the subject area (Refer to Figure 1 for the location of these trees).

The majority of the trees were found in the polewood (10-24 cm diameter) and small sawlog (26-36 cm diameter) size classes with a total basal area of 24 m^2/hectare. Minimal to no tree regeneration was observed and was predominantly Norway Maple and White Ash. The majority of the trees were greater than 15cm diameter and there was little to no native shrub or tree understorey.

Shrub species observed were limited to Common Buckthorn (*Rhamnus cathartica*) and non-native Honeysuckle species (*Lonicera* spp.), both non-native, invasive species. Due to seasonal constraints, herbaceous vegetation could not be identified; however, it was noted that the forest floor was highly disturbed, with the lack of leaf litter layer development. Exposed soil was noted in several areas. The presence of Common Buckthorn was heavy near the edges of the wooded area and comprised the dominant understorey vegetation within the subject wooded area. The majority of the Common Buckthorn individuals observed were small (less than 2m in height); however, the shrubs are widespread and densely established.

Refer to Appendix A for the stand analysis table and Appendix B for photos of the subject area.

Summary and Recommendations

Kuntz Forestry Consulting Inc. was retained by Valery Homes c/o GeoProcess Research Associates to provide a Forest Assessment and Constraints Analysis for a small conifer plantation (approximately 0.28 ha). The removal of this plantation is proposed to accommodate a high end residential development. The subject property is located northeast of Scenic Drive and Sanatorium Road, in Hamilton.

The subject area has poor ecological integrity with low native tree species diversity and a high population of non-native, invasive Common Buckthorn. The forest floor is disturbed with little to no native tree species regeneration. If left unmanaged, it is unlikely that this wooded feature would be able to self regenerate due to the lack of tree regeneration and dense Common Buckthorn cover. Based on these characteristics, the subject area represents a low constraint to development. It is recommended that the Shagbark Hickory and White Oak be protected at their dripline. Preservation of the Red Oak may be considered during the planning process via a Tree Inventory and Preservation Plan report.

Replacement of the conifer plantation through restoration of other lands on the subject property is recommended. The removal of trees within the conifer plantation may be compensated by planting trees along the escarpment brow, as recommended by GeoProcess Research Associates' Restoration Plan (12 January 2017) and shown in Figure 2 of this report. Currently, the area along the top of the escarpment brow is very narrow and consists of a few scattered trees. The intent of the replacement tree plantings is to expand the wooded area along the top of the escarpment brow through reforestation techniques. Plantings will be contiguous to the larger ecological feature, replacing Sanatorium Road with a forested area. All planted trees will be native and reflective of the local landscape. The area of conifer plantation proposed for removal is approximately 0.28 ha and the area of replacement plantings is approximately 1.03 ha. The recommended replacement plantings will serve to buffer and expand the larger ecological feature along the escarpment brow while increasing the ecological function and value of the area to be restored.

Respectfully Submitted,
Kuntz Forestry Consulting Inc.

Peter Kuntz

Peter Kuntz, H.B.Sc.F., R.P.F.
Principal, Registered Professional Forester

Amy Choi

Amy Choi, B.Sc(Env.), M.Sc.F.
Associate Forest Ecologist
ISA Certified Arborist #ON-1609A

Appendix A. Stand Analysis Table

Location: Scenic Drive, Hamilton
Date: 13 October 2016
Surveyor: AC
Compartment Number: Conifer Plantation
Stations Tallied: 4

Stand Analysis Tally (by Species, Size Class and Quality Class)

Tree Size Class >>>>	Polewood 10-24 cm		Sawtimber Sizes						Total All Sizes	
			Small 26-36 cm		Medium 38-48 cm		Large 50 cm +			
Species	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*
Norway Spruce (*Picea abies*)	2		5		1				**8**	**0**
White Ash (*Fraxinus americana*)		3		6					**0**	**9**
Norway Maple (*Acer platanoides*)	6	2							**6**	**2**
Red Oak (*Quercus rubra*)					1				**1**	**0**
Austrian Pine (*Pinus nigra*)	2	1	4	4					**6**	**5**
Black Cherry (*Prunus serotina*)	1								**1**	**0**
Scots Pine (*Pinus sylvestris*)	1	1		4					**1**	**5**
Sugar Maple (*Acer saccharum*)	2								**2**	**0**
Basswood (*Tilia americana*)		2							**0**	**2**
Total Number of Trees	14	9	9	14	2	0	0	0	25	23
BA (m^2/ha)	7	4.5	4.5	7	1	0	0	0	12.5	11.5
Total BA (m^2/ha)	11.5		11.5		1		0		24	

Additional Information
Topography: Flat
Soil Moisture: Dry-Fresh

Appendix B. Photos

Photo 1. Area of dead, standing Ash trees

Photo 2. Failed trees and dense Common Buckthorn regeneration

Photo 3. Open, understorey with disturbed forest floor and limited to no tree regeneration


LEGEND
Subject Area of low ecological integrity (0.28 ha)
Approximate forest assessment plot locations
Mature, specimen Tree locations
N
W
E
S
PART 10
PLAN 62R-17555
68cm Shagbark Hickory
87cm White Oak
ZWOODLOT
ZWOODLOT1
ZWOODLOT2
WOODLOT
WOODLOT2
SCRIBE
IB
BUSH
BANK
Issue/Revisions
Report Submission
Report Revision
Base Data: A.J. Clarke and Associates Ltd. (topo), Hamilton Maps (base map)
KUNTZ FORESTRY CONSULTING Inc.
Client
Valery Homes c/o
GeoProcess Research Associates
133 King Street West, PO Box 65506 Dundas, Dundas, ON L9H
Property
Scenic Drive (Brow Lands)
Hamilton, Ontario
Existing Conditions
Forest Assessment
Project P1380
Date 25 October 2016
Scale 1:300
Figure 1

LEGEND

- Subject Area of low ecological integrity (0.28 ha)
- Approximate forest assessment plot locations
- Mature, specimen Tree locations
- Approximate Restoration Planting Zone (1.03 ha)*

*Derived from GeoProcess Research Associates Restoration Plan Drawing No. 1

No.	Issue/Revisions	Date
1	Report Submission	25 Oct 2016
2	Report Revision	23 Jan 2017
3		
4		

Base Data: A.J. Clarke and Associates Ltd, (topo), Hamilton Maps (base map)

KUNTZ FORESTRY CONSULTING Inc.

Client
Valery Homes c/o
GeoProcess Research Associates
133 King Street West, PO Box 65506 Dundas, Dundas, ON L9H

Property
Scenic Drive (Brow Lands)
Hamilton, Ontario

Existing Conditions
Proposed Restoration Area

Project	P1380
Date	25 October 2016
Scale	1:1500

Figure 2

WILLIAMS
& ASSOCIATES
Forestry Consulting Ltd.

5369 Wellington 27, RR 1
Rockwood, Ontario N0B 2K0
Tel 519 856 1286 Fx 519 856 4288

★ ★ ★ ★

Email: forstar@execulink.com
Website: http://www.forestar.ca

February 14, 2017 **Browlands Forest Operating Prescription**

Owner: **Valery (Chedoke Browlands) Developments Ltd.**
Location: **828 Sanitorium Road, Lot 57 Con 2 Hamilton**

The property complex is Part of Lot 57, Concession 2 and is bounded by the brow of the Niagara Escarpment on the north side, Scenic Drive to the south and is bisected by Sanatorium Road. Natural heritage features associated with the property include a portion of Hamilton Escarpment ESA #47 along the eastern portion of the property that extends below the property below the escarpment brow. Chedoke Creek bisects an isolated woodland along the western portion of the property.

The property complex includes 828 Sanitorium Drive which host part of the former Sanitorium facility (a heritage building) and a significant woodlot. The City of Hamilton marked 33 dying ash on February 10, 2016, near adjoining residences along the southern property line. Tthe City subsequently issued an order requiring their removal; which for various reasons has not been complied with to date. The mandatory removal of these 33 trees is proposed to be conducted with other operations described later in this plan.

Woodland Description: The woodland stands are shown in Map 1.

The core woodland **(Stand 1)** is an uneven-aged stand located north and east of the building. The canopy is made up of a combination of older red and white oaks, shagbark hickory, and sugar maple, and younger sugar maple. This forest started out as an even-aged canopy that has broken up since the 1950's as individual trees have died or declined. Currently, some older trees are healthy, but many are declining or have recently died. As the original even-aged canopy trees dropped out, patches of mostly young sugar maple have developed. Patches of young maple and other species have become established, creating four younger age classes and the original canopy. The size classes include the older canopy trees and four younger classes: seedlings, saplings (4 to 15 cm dbh), polewood (15 to 30 cm dbh) and trees> 30 cm dbh. Stand composition in Stand 1 was estimated visually.

Three smaller patches of trees comprise the southern end of the woodland, a formerly landscaped area that includes a retired tennis court. An 1934 aerial photo shows this area to have scattered trees, likely with turf ground cover north and west of the tennis court (Stand 2), and a more open area now occupied by the plantation and ash stand (Stand 3 & 4) that are subject to this prescription/permit application. The understory of stands 2,3 & 4 is dominated by young buckthorn with some exontic honeysuckle. Stand composition of Stands 2 was estimated visually and the composition of Stands 3 & 4 (aggregated) are from the attached report (Kuntz Forestry Consulting Inc.).

Stand 1: Mh_5Or_2 $Hish_1Ow_1O_1$ Other = He,I,Cb,E,A,Bd **Basal Area** 30 m^2/ha (visual estimate)
Stand 2: Or_3Hish_2 $Ow_1Mh_1O_1$ Other = Ms,Cb,hawth **Basal Area** 12 m^2/ha (visual estimate)
Stand 3: SN_4PS_3 PA_1O_1 Other = Or,MN,Ow,Aw,Bd,Mh **Basal Area** 24 m^2/ha (Kuntz,visual)
Stand 4: Aw_9O_1 Other = MN **Basal Area** 24 m^2/ha (Kuntz,visual)

February 14, 2017 **Browlands Forest Operating Prescription** (Cont'd)

Owner: **Valery (Chedoke Browlands) Developments Ltd.**
Location: **828 Sanitorium Road, Lot 57 Con 2 Hamilton**

Landowner Objectives:

The owners would like to maintain the historic woodland in a natural state, but develop a long-term strategy to manage tree-safety issues associated with public use. They are proposing to remove trees from Stands 3 & 4 as described in the tree cutting application and Map 1. These include the ash hazard trees and associated younger Norway Maple in Stand 4.

The owners are required to remove the hazardous ash that are mostly in the Southeast corner of the woodland (Stand 4 - 0.09 ha). When the ash are removed, the owners also plan to remove associated invasive Norway maple and the buckthorn understory; and the adjacent Norway spruce/Scotts pine plantation (Stand 3 - 0.19 ha), associated trees and associated buckthorn understory.

They would propose to increase the net forested area on the property be using a naturalization strategy to develop a new forest in a 1.0x ha strip of land along the brow of the escarpment, north of this property. This new forest area would serve as a 5 to 1 replacement for removing the plantation area on 828 Sanitorium Drive, and perhaps a lower ratio for replacing other trees affected under later applications.

Stick Nests: Stands 2, 3, 4 and the southern part of Stand 1 were surveyed for stick nests by Peter Williams and Peter Kuntz. No raptor nests were noted although four and three grey squirrel nests were noted in Stands 1 and 3 respectively. On that basis, tree cutting activities would not disturb nesting birds if conducted before March 20 or there about.

Background:

The core woodland is a valuable natural area with limited invasion by buckthorn and other invasive exotic species. The understory of the disturbed woodland (Stand 2), the plantation (Stand 3 and ash stand (Stand 4) is dominated by buckthorn. Following ash mortality, Stands 3 & 4 will be dominated by exotic species including the Norway maple, Scotts pine (invasive species), Norway spruce and Austrian pine. The ongoing disturbance in the core woodland (Stand 1) from decline and mortality of older trees, provides openings for aggressive invasive plants like buckthorn and Norway maple (in Stands 3 & 4) to successfully invade and degrade this significant escarpment woodland.

Ninety percent of Stand 4 will be cleared in the near future under order to remove 33 hazardous ash. There is no good reason to leave the remaining Norway maple in the mid-canopy or the weedy understory.

Most of the trees in Stand 3 have limited natural value, although they provide habitat for squirrels and shelter for migrating birds. The Norway spruce and the several desirable hardwoods are healthy, but the some of the Austrian pine are being affected by *Diplodia* shoot blight, the Scotts pine and Norway maple are invasive and generally undesirable. Removing this stand would help prevent colonization of Stand 1 with by invasive plants.

Proposed Operations:

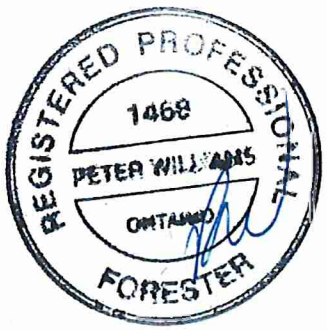
The owners propose that during the removal of 33 hazardous ash trees, clearing of ash-dominant Stand 4 (0.09 ha) be completed by removing the remaining trees (mostly Norway maple) and the understory dominated by invasive buckthorn; and that Stand 3 (0.19 ha) be cleared at the same time.

Clearing of these areas would be compensated for by naturalizing a 1.03-ha strip along the brow of the escarpment on a property as shown in the attached map. We would recommend that the replanting prescription (to be approved by the City) would be design to establish oak/hickory maple forests such as in Stand 1, Carolinian in nature, by planting appropriate species of trees and shrubs ranging in size from seedlings to caliper stock. This forest restoration project would replace the area occupied by Stand 3 with a naturalized area at a 5 to 1 ratio, or perhaps be considered as replacement area for clearing some trees under future application.

If approved, it would be prudent to conduct the work as soon as possible to clear the existing order from the City to remove the 33 hazard trees and minimize disturbance to migrating birds and remain compliant to the Migratory Birds Convention Act.

Peter Williams

Peter Williams, M.Sc. R.P.F.
Williams & Associates, Forestry Consulting Ltd



Peter Kuntz

Peter Kuntz, H.B.Sc.F., R.P.F
Kuntz Forestry Consulting Inc,

LEGEND

Stand Boundary

MAP 1

No.	Issue/Revisions	Date
1	Report Submission	15 Feb 2017
2		
3		
4		

Base Data: A.J. Clarke and Associates Ltd. (topo), Hamilton Maps (base map)

KUNTZ FORESTRY CONSULTING Inc.

Client
Valery Homes c/o
GeoProcess Research Associates
133 King Street West, PO Box 65506 Dundas, Dundas, ON L9H 6

Property
Scenic Drive (Brow Lands)
Hamilton, Ontario

Existing Conditions
Forest Operating Prescription Stands

Project	P1380
Date	15 February 2017
Scale	1:1000
Figure	1