ARBORIST REPORT

HIGHWAY 124 & POPLAR SIDE ROAD

TOWN OF COLLINGWOOD

PREPARED FOR:

CHARIS DEVELOPMENTS LTD.

PREPARED BY:

C.F. CROZIER & ASSOCIATES INC.

70 HURON STREET, SUITE 100
COLLINGWOOD, ON L9Y 4L4

APRIL 2026

CFCA FILE NO. 2199-6198-2

CROZIER
CONSULTING ENGINEERS

Revision Number	Date	Comments
Rev. 0	September 17, 2024	Issued for OPA/ZBA
Rev.1	April 7, 2026	Issued for Tree Permit Application
Rev. 2	April 20, 2026	Issued for Updated Tree Permit Application

TABLE OF CONTENTS

LIST OF APPENDICES

1.0 Introduction

C.F. Crozier & Associates was retained to provide a tree inventory and assessment of existing trees within the boundaries of the property located at the South-East Corner of Highway 124 and Poplar Side Road as they pertain to the Town of Collingwood Tree By-law and Development Standards. The site is located at the south end of the Town of Collingwood adjacent to an existing residential neighbourhood to the East and a commercial neighborhood to the West. Commercial, retail is proposed for phase 1 and 2 and residential and office space is proposed for phase 3 on the site.

Field work was completed on August 20, 2024, and this report relates to the condition of the trees as observed on that date. The report is meant to describe the health and composition of the existing trees on site, the evaluation of which will inform the Tree Protection Plan.

2.0 Methodology

The following Town of Collingwood policies and by-laws were referred to for the purposes of completing the Arborist report and Tree Protection Plan:

- By-Law No. 2012-084 Being a By-Law to Prohibit and Regulate the Destruction or Injury of trees in the Town of Collingwood, June 25, 2012
- Town of Collingwood Development Standards, July 2007
- Town of Collingwood Urban Design Manual, December 2010

Existing trees of all sizes were inventoried and evaluated using Trimble GPS and a current survey depicting edge of row of trees only, dated September 22, 2021. The inventory includes all trees within the site boundary, all trees with a DBH of 15cm or more, within 10.0 meters of the site boundary and all Town owned trees along the adjacent boulevards. Species at risk/endangered species were searched for and have been documented.

This inventory is summarized graphically in the Tree Protection Plan, which is to be read together with this report and shall form part of this report. For the purposes of this report, trees and groupings of trees are identified in terms of:

i. Tree ID number – number assigned to the tree.
ii. Tree species – botanical and common names provided.
iii. Diameter breast height (DBH) – measured in cm 1.4m above ground.
iv. Canopy radius – in metres.
v. Arboricultural condition – condition of tree considering trunk integrity, crown structure and crown vigor.
vi. Directive – Tree to be retained or removed.
vii. Minimum tree protection zones (TPZ) for retained trees – Minimum Tree Protection Zone in meters, using similar methods to many other municipalities.
viii. Comments – Additional information regarding the tree or grouping.

The following rating system was used in describing the arboricultural condition of the trees inventoried:

Good: Indicates a condition of vigor and no major concerns.
Fair: Indicates an adequate tree, which may have some minor issues.
Poor: Indicates declining health, poor form, or other more serious issues.
Dead: Indicates a dead tree that should be removed.

3.0 Summary of Trees Inventoried

The following section discusses the reason for removal and the retention of trees within and adjacent to the subject site. Please refer to Appendix 1 for the tree inventory chart that provides further information regarding each tree, Appendix 2 for an aerial photo of the property, Appendix 3 for the Tree Protection Plan identifying the locations of each tree discussed, and Appendix 4 for the DNA test results for tree #9.

3.1 Development Impacts/Tree Removal

A total of eighty-six (86) trees and five (5) tree groupings were inventoried and assessed, of which seventy-three (73) trees and four (4) groupings were determined to be in conflict with the proposed development. Trees and vegetation within the property will be removed to facilitate placement of fill and re grading of the property.

Tree #1 is located within the ROW along Poplar Sideroad. It is an invasive tree, in poor condition and underneath overhead hydro lines. Trees #2 to 9, 13, 30, 31, and 32 are along the eastern property boundary and will be retained. Preliminary grading indicates that there is potential they may be injured/harmed due to the placement of fill and grading within the drip line to match grade at the eastern property line. Measures to mitigate these potential grading impacts will be considered and implemented where possible during detailed design. Trees 61 and 62 are in the ROW on Hurontario Street and considered to be invasive species. The Town of Collingwood has requested they be removed.

3.2 Tree Retention and Protection

Trees #2 to 9, 13, 30, 31, and 32 are along the eastern property boundary and will be retained to provide a buffer between the commercial development and adjacent residential land use. Trees 4, and 31 will be retained and are in poor condition. Trees #2, 3, 5, 6, 7, 8, 9, 32, 35, 37 & 38 will be retained and are in fair condition. Trees 13 and 30 will be retained and are in good condition.

Tree #9 has been identified as a Juglans species. As such a DNA test was undertaken and has confirmed that the tree is a hybrid between white and Japanese walnut species, Juglans cinerea x Juglans ailantifolia. See Appendix 4 for the DNA test results. The tree will be retained and is in fair condition. Trees within the wetland area as shown on the tree protection plans will be retained and tree within the marsh area will be removed by hand. Further information can be found on the tree protection plans.

As the above-mentioned trees are being retained, the establishment of a Tree Protection Zone around them is required. The purpose of the tree protection zone is to prevent root damage, soil compaction and soil contamination during construction activities and as such workers and machinery shall not disturb or move the tree protection zone in any way. To prevent damage and access to the roots tree protection hoarding shall be installed as per Town of Collingwood Tree Protection Fence STD No. 1110. The tree protection hoarding shall be maintained in good condition for the duration of construction and shall not be removed until all construction activities have been completed. No fill, excavation, equipment, vehicles, supplies, or waste are permitted within the tree protection zone. Tree protection signage shall be attached to all sides of the tree protection barrier and shall be a minimum of 40cm x 60cm and made of white corrugated plastic board or equivalent material.

The Town of Collingwood shall be contacted to obtain approval prior to any changes to the location of the approved TPZ or sediment control, or where temporary access to the TPZ is proposed. Before, during and post construction a Landscape Architect or certified consulting Arborist (I.S.A.) should make periodic visits to ensure tree protection barriers are being properly utilized. Any hazard trees or limbs should be identified for removal by the Developer if required.

4.0 Tree Replacement

As per the Town of Collingwood Urban Design Manual, 30% tree canopy cover at maturity is required for site plan approval. Refer to the Conceptual Landscape Plan prepared by C.F. Crozier & Associates Inc., January 28, 2026, for the location of proposed replacement trees. Canopy coverage meets and exceeds the 30% tree canopy coverage requirement. Please refer to the landscape plans for the location of proposed replacement trees.

5.0 Compensation Requirements

Through the tree removal permit application process, the Town of Collingwood provided comments requesting tree compensation. Based on these comments we have determined the following tree compensation for the subject site. There are **twenty-six (26)** trees proposed for removal which require compensation as they are over 15cm DBH. Compensation did not account for invasive species, dead or extremely hazardous trees. A table has been provided below outlining the compensation calculations in accordance with the Town of Collingwood request.

DBH of Trees to be removed	Compensation Ratio	# of trees to be removed	# of replacement Trees Required	Compensation Value
15 to 29 cm	1	19	19	$28,500.00
30 to 49 cm	2	4	8	$12,000.00
50 to 74 cm	3	3	9	$13,500.00
> 74 cm	4	0	0	$0.00
	Total	**26**	**36**	**$54,000.00**

Table 1: Tree Replacement Calculation Table

The total of thirty-six (36) replacement trees are required based on the Town's request, for this site based on the proposed tree removals. The compensation value was determined by calculating the replacement cost of the tree, tree installation and a 3-year warranty as directed by the Town of Collingwood. The Trees within the wetland area have been included in the compensation calculation and will not be removed until an offsetting agreement has been reached with the Nottawasaga Valley Conservation Authority (NVCA). The compensation amount will be held as a security and would only be drawn upon for planting on-site or elsewhere in the Town in the event the development does not proceed in a timely manner.

6.0 Summary and Recommendations

In total, eighty-six (86) individual trees and five (5) tree groupings were inventoried and assessed on and within 10.0m of the subject property. We have based our recommendations for retention and removal of trees on the current site plan drawings and the health and condition of the trees while assuming best practices during construction.

A total of seventy-three (73) individual trees and four (4) tree groupings were determined to be in conflict with the proposed development or in poor/dead condition. The remaining thirteen (13) trees

will be retained and protected by tree protection hoarding the locations of which are shown on the Tree Protection Plan (Appendix 3).

The following recommendations are made to minimize impacts on those trees to be retained:

- Tree protection hoarding shall be installed and maintained in good condition for the duration of construction and shall not be removed until all construction activities have been completed.

- No fill, excavation, equipment, vehicles, supplies, or waste are permitted within the tree protection zone.

- Before, during and post construction a Landscape Architect or certified Arborist (I.S.A.) should make periodic visits to ensure tree protection barriers are being properly utilized.

7.0 LIMITATIONS OF ASSESSMENT

The assessment presented in this report has been made using accepted standard arboriculture techniques as outlined in the Council of Tree and Landscape Appraisers (2020) Guide for Plant Appraisal, 10th edition. These techniques include visual examination of above-ground parts of each tree. The trees observed were not climbed, probed, cored, or dissected, and excavation for detailed root crown inspection was not performed. Since some symptoms may only be present seasonally, the extent of observations that can be made may be limited by the time of year in which the inspection took place.

It must be realized that trees are living organisms, and their health and vigour continually change over time due to seasonal variations, changes in site conditions, and other factors. For this reason, the assessment presented in this report is valid at the time of inspection, and no guarantee is made about the continued health of trees that are deemed to be in good condition. It is recommended that the trees be re-assessed periodically. While every standing tree has the potential for failure and therefore poses some risk, a tree assessment is a good indication of present health and potential problems that could arise in the future.

Respectfully submitted,

C.F. CROZIER & ASSOCIATES INC.

Matthew Campbell, OALA, CSLA, ISA Certified Arborist ON-3008A, TRAQ
Senior Contract Administrator

J:\2100\2199- Charis Developments\6198- The Gateway Centre\Reports\Arboriculture\2026.04.17 Updated Arborist Report\2199-6198 Arborist Report_2026.04.07.docx

APPENDIX 1

TREE INVENTORY CHARTS

ID No.	Botanical Name	Common Name	DBH (cm) (Diameter at Breast Height)	Canopy Radius (m)	Condition	Directive	Compensation Number	Compensation Value	Comment
1	*Pinus sylvestris*	Scots pine	21	1.5	Poor	**Remove**			Under hydro utility line, topped. Invasive species. Confirm removal with the County.
2	*Acer platanoides*	Norway maple	15	2.5	Fair	Retain			Boundary tree, grape ivy. Invasive species.
3	*Ulmus pumila*	Siberian elm	25	3.5	Fair	Retain			Boundary tree, fence inclusion, codominant at 1.4m. Invasive species.
4	*Ulmus pumila*	Siberian elm	57	6	Poor	Retain			Boundary tree, dead wood in canopy, evidence of rot. Invasive species.
5	*Ulmus pumila*	Siberian elm	31	4	Fair	Retain			Boundary tree, fill on root zone, poor canopy. Invasive species.
6	*Ulmus pumila*	Siberian elm	42	6	Fair	Retain			Boundary tree, dead wood in canopy. Invasive species.
7	*Ulmus pumila*	Siberian elm	34	6	Fair	Retain			Boundary tree, multi-stem: 34, 32, & 30cm DBH. Invasive species.
8	*Ulmus pumila*	Siberian elm	50	7	Fair	Retain			Boundary tree, irregular crown, long horizontal branches within site. Invasive species.
9	*Juglans spp.*	Hybrid between white and Japanese Walnut	32	5	Fair	Retain			Boundary tree, leaves are blistering, one sided canopy. DNA testing confirmed species is a hybrid. Refer to DNA report.
10	*Populus alba*	White poplar	21	4	Good	**Remove**	1	$1,500.00	
11	*Populus alba*	White poplar	25	3	Good	**Remove**	1	$1,500.00	Growing on bottom of fill pile.
12	*Populus alba*	White poplar	16	3.5	Good	**Remove**	1	$1,500.00	Growing on bottom of fill pile.
13	*Acer platanoides*	Norway maple	34	5	Good	Retain			Multi-stem: 34, 34, 18, 25, & 20cm DBH. Invasive species.
14	*Ulmus pumila*	Siberian elm	20	4	Good	**Remove**			Growing on fill pile. Invasive species.
15	*Ulmus pumila*	Siberian elm	21	4	Good	**Remove**			Growing on fill pile. Invasive species.
16	*Populus alba*	White poplar	15	4.5	Good	**Remove**	1	$1,500.00	
17	*Ulmus pumila*	Siberian elm	15	4.5	Fair	**Remove**			Multi-stem: 15 & 15cm DBH, growing on fill pile. Invasive species.
18	*Ulmus pumila*	Siberian elm	15	3.5	Poor	**Remove**			2 stems, growing on fill pile, diseased. Invasive species.
19	Populus nigra	Black poplar	30	1	Poor	**Remove**	2	$3,000.00	Columnar form
20	Populus nigra	Black poplar	22	1	Poor	**Remove**	1	$1,500.00	Multi-stem: 22 & 22cm DBH
21	Populus nigra	Black poplar	36	1	Poor	**Remove**	2	$3,000.00	Multi-stem: 36 & 22cm DBH
22	*Ulmus pumila*	Siberian elm	15	2	Fair	**Remove**			Invasive species.
23	*Fraxinus spp.*	Ash species	28	0	Dead	**Remove**			Multi-stem: 28 & 22cm DBH.
24	*Fraxinus spp.*	Ash species	22	0	Dead	**Remove**			
25	*Salix spp.*	Willow spp.	17	2.5	Good	**Remove**	1	$1,500.00	
26	*Fraxinus spp.*	Ash species	18	0	Dead	**Remove**			
27	*Fraxinus spp.*	Ash species	22	0	Dead	**Remove**			
28	*Fraxinus spp.*	Ash species	22	0	Dead	**Remove**			
29	*Salix spp.*	Willow spp.	28	5.5	Fair	**Remove**	1	$1,500.00	Multi-stem: 28cm DBH x 5
30	*Acer platanoides*	Norway maple	31	4	Good	Retain			Boundary tree. Invasive species.
31	*Malus spp.*	Common apple	16	3	Poor	Retain			Boundary tree
32	*Malus spp.*	Common apple	23	4	Fair	Retain			Boundary tree
33	*Pyrus spp.*	Pear spp.	22	2	Fair	**Remove**	1	$1,500.00	
34	*Pyrus spp.*	Pear spp.	24	3.5	Good	**Remove**	1	$1,500.00	
35	*Malus spp.*	Apple spp.	18	3	Fair	Retain 2/ **Remove 3**	3	$4,500.00	5 Malus spp. All roughly same size.
36	*Fraxinus spp.*	Ash species	16	0	Dead	**Remove**			4 dead Ash spp with over 15cm DBH. Located at the edge of wet area
37	*Salix nigra*	Black willow	70	12	Fair	**Remove**	3	$4,500.00	Multi-stem: 70, 60, 50, & 60cm DBH with dead wood in canopy
38	*Salix nigra*	Black willow	65	10	Fair	**Remove**	3	$4,500.00	
39	*Acer negundo*	Manitoba maple	30	4	Fair	**Remove**			Invasive species.
40	*Fraxinus spp.*	Ash species	20	0	Dead	**Remove**			
41	*Malus spp.*	Common apple	21	3.5	Fair	**Remove**	1	$1,500.00	Multi-stem: 21 & 15cm DBH, with one sided crowed
42	*Pinus strobus*	Eastern white pine	38	4.5	Fair	**Remove**	2	$3,000.00	Split leader and thin canopy
43	*Fraxinus spp.*	Ash species	19	0	Dead	**Remove**			
44	*Fraxinus spp.*	Ash species	18	0	Dead	**Remove**			
45	*Acer platanoides*	Norway maple	19	4.5	Good	**Remove**			In hedgerow. Invasive species.
46	*Fraxinus spp.*	Ash species	15	0	Dead	**Remove**			
47	*Fraxinus spp.*	Ash species	19	0	Dead	**Remove**			
48	*Acer platanoides*	Norway maple	17	4	Fair	**Remove**			Poor form. Invasive species.
49	*Fraxinus spp.*	Ash species	17	0	Dead	**Remove**			
50	*Fraxinus spp.*	Ash species	21	0	Dead	**Remove**			
51	*Fraxinus spp.*	Ash species	22	0	Dead	**Remove**			
52	*Fraxinus spp.*	Ash species	20	0	Dead	**Remove**			
53	*Acer platanoides*	Norway maple	20	3.5	Good	**Remove**			Invasive species.
54	*Fraxinus spp.*	Ash species	18	0	Dead	**Remove**			Group of three
55	*Fraxinus spp.*	Ash species	20	0	Dead	**Remove**			
56	*Acer platanoides*	Norway maple	26	5	Good	**Remove**			Invasive species.
57	*Fraxinus spp.*	Ash species	22	0	Dead	**Remove**			
58	*Fraxinus spp.*	Ash species	22	0	Dead	**Remove**			
59	*Robinia pseudoacacia*	Black locust	33	4	Good	**Remove**			Co-dominant at 1.4. Invasive species.
60	*Robinia pseudoacacia*	Black locust	50	6	Fair	**Remove**			Dead wood in canopy. Invasive species.
61	*Robinia pseudoacacia*	Black locust	26	6	Fair	**Remove**			Located at ROW. Multi-stem: 2 x 26, 20, & 12cm DBH. Invasive species. Permission to remove given by the Town of Collingwood on April 9, 2026.
62	*Robinia pseudoacacia*	Black locust	24	5	Fair	**Remove**			Located at ROW. Multi-stem: 24, 20, & 25cm DBH. Invasive species. Permission to remove given by the Town of Collingwood on April 9, 2026.
63	*Fraxinus spp.*	Ash species	51	0	Dead	**Remove**			
64	*Picea pungens*	Blue spruce	35	3.5	Fair	**Remove**	2	$3,000.00	Growing in shade
65	*Pinus sylvestris*	Scots pine	44	4.5	Fair	**Remove**			Invasive species.
66	*Fraxinus spp.*	Ash species	39		Dead	**Remove**			
67	*Acer negundo*	Manitoba maple	26	6	Poor	**Remove**			Leaning heavily to the north, irregular canopy. Invasive species.

ID No.	Botanical Name	Common Name	DBH (cm) (Diameter at Breast Height)	Canopy Radius (m)	Condition	Directive	Compensation Number	Compensation Value	Comment
68	*Thuja occidentalis*	Eastern white cedar	15	3	Good	**Remove**			Cedar grouping, under 15 cm DBH, 22 stems
69	*Pyrus spp.*	Pear spp.	18	4	Fair	**Remove**	1	$1,500.00	Co-dominant at 1 metre. Multi-stem: 15 & 18cm DBH
70	*Pyrus spp.*	Pear spp.	21	5	Good	**Remove**	1	$1,500.00	
71	*Prunus spp.*	Cherry spp.	23	3.5	Poor	**Remove**	1	$1,500.00	Clump form
72	*Prunus spp.*	Plum spp.	23	2.5	Poor	**Remove**	1	$1,500.00	Dead wood in canopy with poor form
73	*Prunus spp.*	Plum spp.	19	1.5	Poor	**Remove**	1	$1,500.00	Dying and dead wood in canopy
74	*Elaeagnus angustifolia*	Russian olive	16 21 14	6	Poor	**Remove**			Multi-stem: 16, 21, & 14 with irregular canopy. Invasive species.
75	*Thuja occidentalis*	Eastern white cedar	15	3	Good	**Remove**			Clump of four with under 15cm DBH
76	*Pinus sylvestris*	Scots pine	35	2.5	Fair	**Remove**			Sparse crown. Invasive species.
77	*Pinus sylvestris*	Scots pine	26	3.5	Fair	**Remove**			6 trees in corner: 16, 26, 20, 17, 16, & 26cm DBH. Invasive species.
78	*Pinus sylvestris*	Scots pine	36	6	Fair	**Remove**			Hedgerow. Invasive species.
79	*Pinus sylvestris*	Scots pine	34	6	Fair	**Remove**			Invasive species.
80	*Fraxinus spp.*	Ash species	23	0	Dead	**Remove**			
81	*Fraxinus spp.*	Ash species	15	0	Dead	**Remove**			
82	*Fraxinus spp.*	Ash species	25	0	Dead	**Remove**			
83	*Pinus strobus*	Eastern white pine	28	4	Fair	Retain			
84	*Fraxinus spp.*	Ash species	18	0	Dead	Retain			
85	*Salix babylonica*	Weeping willow	50	7	Fair	**Remove**	3	$4,500.00	
86	*Salix spp.*	Willow spp.	16	2	Good	**Remove**	1	$1,500.00	
					TOTAL COMPENSATION		**36**	**$54,000.00**	

ID No.	Name	Condition	Directive	Comment
87	*Tree Grouping #1*	Dead	**Remove**	Ash spp.
88	*Tree Grouping #2*	Fair/ Dead	**Remove**	Willow spp. & Malus spp. with dead Ash spp. Tree grouping within SWDM2-2 will be retained. Tree grouping outside of SWDM2-2 will be removed. Refer to Tree Preservation Plan drawings.
89	*Tree Grouping #3*	Fair/ Dead	Retain	Outside of property. Willow spp. & Malus spp. with dead Ash spp.
90	*Tree Grouping #4*	Dead	**Remove**	Ash spp.
91	*Tree Grouping #5*	Dead	**Remove**	Ash spp.

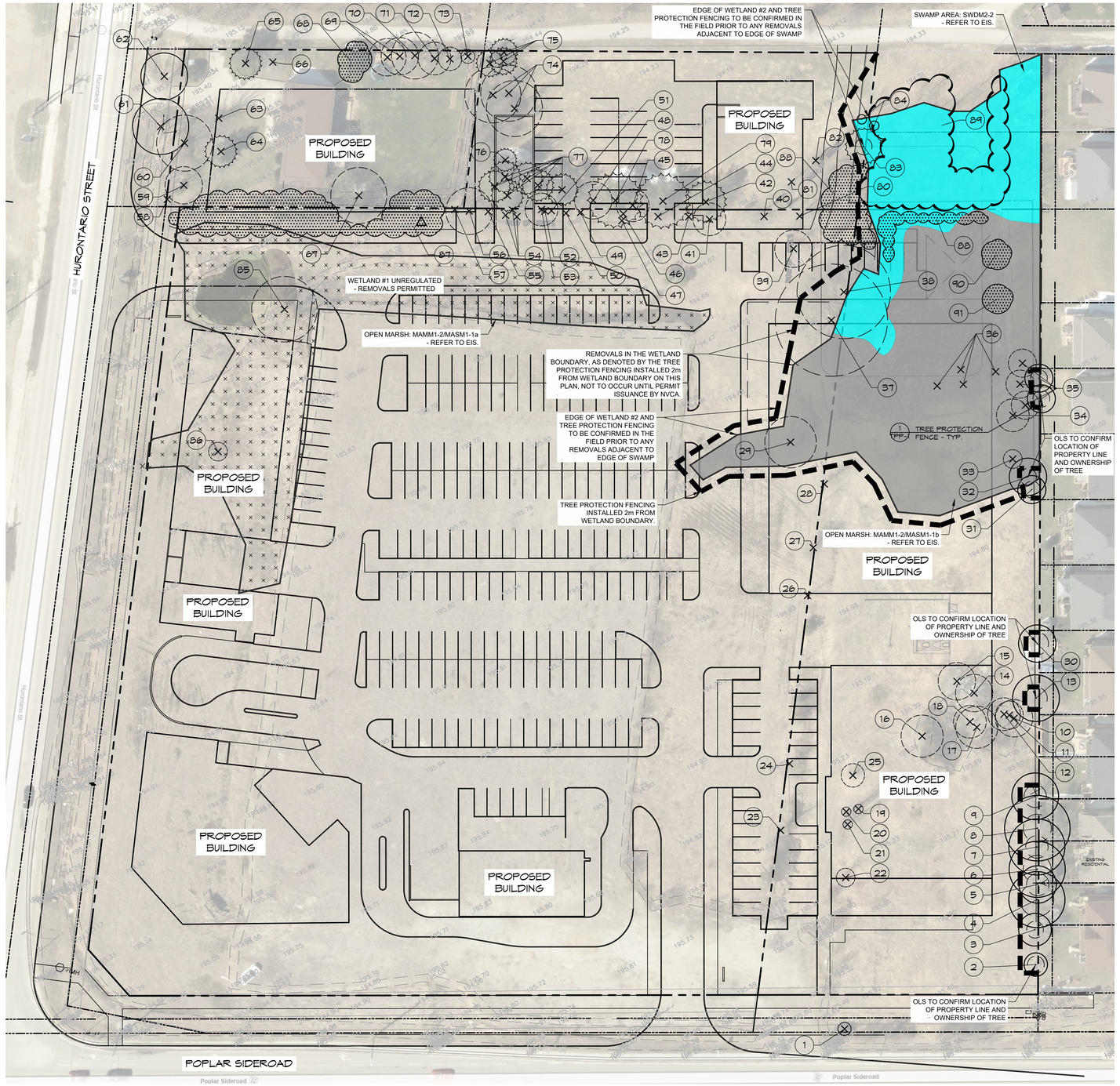
APPENDIX 2

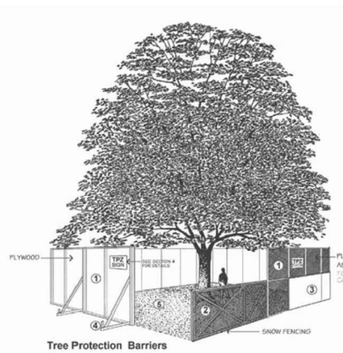
AERIAL PHOTO


Poplar Sideroad
Poplar Sideroad

APPENDIX 3

TREE PROTECTION PLAN





Tree Protection Barriers

1. Tree protection barriers must be 2.4m (8ft) high, plywood clad hoarding or an equivalent approved by Town of Collingwood.
2. Tree protection barriers for trees situated on road allowance where visibility must be maintained can be 1.2m (4ft.) high and consist of orange plastic web snow fencing on a wood frame made of 2"x 4"s .
3. Where some excavate or fill has to be temporarily located near a tree protection barrier, plywood must be used to ensure no material enters the Tree Protection Zone.
4. All supports and bracing should be outside the Tree Protection Zone. All such supports should minimize damaging roots outside the Tree Protection Barrier.
5. No construction activity, grade changes, surface treatment or excavations of any kind is permitted within the Tree Protection Zone.

NO.	REVISION	APR'D	DATE

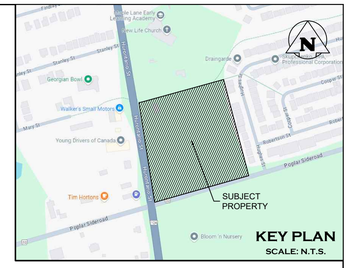
TOWN OF COLLINGWOOD	APR'D: EDH	DATE: JAN/03
	DRAWN:	SCALE: NTS
TREE PROTECTION	STD. No. 1110	

1 TPP-2 TREE PROTECTION FENCE

N.T.S.

NOTES:

1. SWAMP: SWDM2-2 - NO REMOVALS WITHIN PROTECTION FENCING UNTIL PERMIT ISSUANCE BY THE NVCA.
2. OPEN MARSH: MAMM1-2/MASM1-1b - NO REMOVALS WITHIN PROTECTION FENCING UNTIL PERMIT ISSUANCE BY THE NVCA.
3. OPEN MARSH: MAMM1-2/MASM1-1a REMOVALS PERMITTED.
4. FOR TREE PROTECTION FENCING, PRESERVATION AND REMOVAL NOTES, REFER TO NOTES ON DRAWING TPP-2.
5. FOR TREE INVENTORY CHART AND TREE GROUPING INVENTORY CHART, REFER TO CHARTS ON DRAWING TPP-2.



KEY PLAN
SCALE: N.T.S.

LEGEND

- PROPERTY BOUNDARY
- LOT BOUNDARY
- EXISTING VEGETATION TO BE REMOVED
- EDGE OF VEGETATION TO BE RETAINED AND PROTECTED
- TREE PROTECTION FENCE
- EXISTING FENCE
- PRIVACY FENCE - SEE ARCH. DWGS
- EXISTING DECIDUOUS TREE TO BE REMOVED
- EXISTING CONIFEROUS TREE TO BE REMOVED
- EXISTING DECIDUOUS TREE TO BE RETAINED OR PROTECTED
- EXISTING CONIFEROUS TREE TO BE RETAINED OR PROTECTED
- MINIMUM TREE PROTECTION ZONE
- 14 TREE ID. #
- ELC BOUNDARY SWAMP: SWDM2-2 AS PER EIS - NO REMOVALS UNTIL PERMIT ISSUANCE BY NVCA.
- ELC OPEN MARSH: MAMM1-2/MASM1-1b AS PER EIS - NO REMOVALS UNTIL PERMIT ISSUANCE BY NVCA.
- ELC OPEN MARSH: MAMM1-2/MASM1-1a AS PER EIS - REMOVALS PERMITTED

N

10 0m 10 20 30 40

SCALE: 1:500

NOTES:

1. TOPOGRAPHIC SURVEY PROVIDED BY J.D. BARNES LIMITED (RECEIVED ON 2024.07.24).
2. BASE INFORMATION AND SITE PLAN PROVIDED BY CHARIS DEVELOPMENTS LTD. (RECEIVED ON 2026.01.23).
3. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE NOTED.

Town

NO.	ISSUE	DATE: YYYY/MM/DD
0	ISSUED FOR SUBMISSION - OPA/ZBA	2024/09/17
1	ISSUED FOR TREE PERMIT APPLICATION	2026/04/07
2	ISSUED FOR UPDATED TREE PERMIT APPLICATION	2026/04/20

ARBORIST

MATTHEW CAMPBELL, OALA, CSLA, ISA CERTIFIED ARBORIST (ISA ON-3008-A), TRAQ

LANDSCAPE ARCHITECT

ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS A.J. PHILLIPS 2026.04.20 OALA MEMBER

Project

THE GATEWAY CENTRE
TOWN OF COLLINGWOOD

Drawing

TREE PROTECTION PLAN

CROZIER CONSULTING ENGINEERS

Drawn By K.C.	Design By	Project	2199-6198
Check By A.P.	Check By M.C.	Drawing	TPP-1

\\CROZIER-FILES\Projects\2100\2199- Charis Developments\6198- The Gateway Centre\CAD\LA\6198_TPP.dwg, 2026-04-21 2:48:34 PM, _DWG To PDF.pc3

ID No.	Botanical Name	Common Name	DBH (cm) (Diameter at Breast Height)	Canopy Radius (m)	Condition	Directive	Compensation Number	Compensation Value	Comment
1	*Pinus sylvestris*	Scots pine	21	1.5	Poor	**Remove**			Under hydro utility line, topped. Invasive species. Confirm removal with the County.
2	*Acer platanoides*	Norway maple	15	2.5	Fair	Retain			Boundary tree, grape ivy. Invasive species.
3	*Ulmus pumila*	Siberian elm	25	3.5	Fair	Retain			Boundary tree, fence inclusion, codominant at 1.4m. Invasive species.
4	*Ulmus pumila*	Siberian elm	57	6	Poor	Retain			Boundary tree, dead wood in canopy, evidence of rot. Invasive species.
5	*Ulmus pumila*	Siberian elm	31	4	Fair	Retain			Boundary tree, fill on root zone, poor canopy. Invasive species.
6	*Ulmus pumila*	Siberian elm	42	6	Fair	Retain			Boundary tree, dead wood in canopy. Invasive species.
7	*Ulmus pumila*	Siberian elm	34	6	Fair	Retain			Boundary tree, multi-stem: 34, 32, & 30cm DBH. Invasive species.
8	*Ulmus pumila*	Siberian elm	50	7	Fair	Retain			Boundary tree, irregular crown, long horizontal branches within site. Invasive species.
9	*Juglans spp.*	Hybrid between white and Japanese Walnut	32	5	Fair	Retain			Boundary tree, leaves are blistering, one sided canopy. DNA testing confirmed species is a hybrid. Refer to DNA report.
10	*Populus alba*	White poplar	21	4	Good	**Remove**	1	$1,500.00	
11	*Populus alba*	White poplar	25	3	Good	**Remove**	1	$1,500.00	Growing on bottom of fill pile.
12	*Populus alba*	White poplar	16	3.5	Good	**Remove**	1	$1,500.00	Growing on bottom of fill pile.
13	*Acer platanoides*	Norway maple	34	5	Good	Retain			Multi-stem: 34, 34, 18, 25, & 20cm DBH. Invasive species.
14	*Ulmus pumila*	Siberian elm	20	4	Good	**Remove**			Growing on fill pile. Invasive species.
15	*Ulmus pumila*	Siberian elm	21	4	Good	**Remove**			Growing on fill pile. Invasive species.
16	*Populus alba*	White poplar	15	4.5	Good	**Remove**	1	$1,500.00	
17	*Ulmus pumila*	Siberian elm	15	4.5	Fair	**Remove**			Multi-stem: 15 & 15cm DBH, growing on fill pile. Invasive species.
18	*Ulmus pumila*	Siberian elm	15	3.5	Poor	**Remove**			2 stems, growing on fill pile, diseased. Invasive species.
19	Populus nigra	Black poplar	30	1	Poor	**Remove**	2	$3,000.00	Columnar form
20	Populus nigra	Black poplar	22	1	Poor	**Remove**	1	$1,500.00	Multi-stem: 22 & 22cm DBH
21	Populus nigra	Black poplar	36	1	Poor	**Remove**	2	$3,000.00	Multi-stem: 36 & 22cm DBH
22	*Ulmus pumila*	Siberian elm	15	2	Fair	**Remove**			Invasive species.
23	*Fraxinus spp.*	Ash species	28	0	Dead	**Remove**			Multi-stem: 28 & 22cm DBH.
24	*Fraxinus spp.*	Ash species	22	0	Dead	**Remove**			
25	*Salix spp.*	Willow spp.	17	2.5	Good	**Remove**	1	$1,500.00	
26	*Fraxinus spp.*	Ash species	18	0	Dead	**Remove**			
27	*Fraxinus spp.*	Ash species	22	0	Dead	**Remove**			
28	*Fraxinus spp.*	Ash species	22	0	Dead	**Remove**			
29	*Salix spp.*	Willow spp.	28	5.5	Fair	**Remove**	1	$1,500.00	Multi-stem: 28cm DBH x 5
30	*Acer platanoides*	Norway maple	31	4	Good	Retain			Boundary tree. Invasive species.
31	*Malus spp.*	Common apple	16	3	Poor	Retain			Boundary tree
32	*Malus spp.*	Common apple	23	4	Fair	Retain			Boundary tree
33	*Pyrus spp.*	Pear spp.	22	2	Fair	**Remove**	1	$1,500.00	
34	*Pyrus spp.*	Pear spp.	24	3.5	Good	**Remove**	1	$1,500.00	
35	*Malus spp.*	Apple spp.	18	3	Fair	Retain 2/ **Remove 3**	3	$4,500.00	5 Malus spp. All roughly same size.
36	*Fraxinus spp.*	Ash species	16	0	Dead	**Remove**			4 dead Ash spp with over 15cm DBH. Located at the edge of wet area
37	*Salix nigra*	Black willow	70	12	Fair	**Remove**	3	$4,500.00	Multi-stem: 70, 60, 50, & 60cm DBH with dead wood in canopy
38	*Salix nigra*	Black willow	65	10	Fair	**Remove**	3	$4,500.00	
39	*Acer negundo*	Manitoba maple	30	4	Fair	**Remove**			Invasive species.
40	*Fraxinus spp.*	Ash species	20	0	Dead	**Remove**			
41	*Malus spp.*	Common apple	21	3.5	Fair	**Remove**	1	$1,500.00	Multi-stem: 21 & 15cm DBH, with one sided crowed
42	*Pinus strobus*	Eastern white pine	38	4.5	Fair	**Remove**	2	$3,000.00	Split leader and thin canopy
43	*Fraxinus spp.*	Ash species	19	0	Dead	**Remove**			
44	*Fraxinus spp.*	Ash species	18	0	Dead	**Remove**			
45	*Acer platanoides*	Norway maple	19	4.5	Good	**Remove**			In hedgerow. Invasive species.
46	*Fraxinus spp.*	Ash species	15	0	Dead	**Remove**			
47	*Fraxinus spp.*	Ash species	19	0	Dead	**Remove**			
48	*Acer platanoides*	Norway maple	17	4	Fair	**Remove**			Poor form. Invasive species.
49	*Fraxinus spp.*	Ash species	17	0	Dead	**Remove**			
50	*Fraxinus spp.*	Ash species	21	0	Dead	**Remove**			
51	*Fraxinus spp.*	Ash species	22	0	Dead	**Remove**			
52	*Fraxinus spp.*	Ash species	20	0	Dead	**Remove**			
53	*Acer platanoides*	Norway maple	20	3.5	Good	**Remove**			Invasive species.
54	*Fraxinus spp.*	Ash species	18	0	Dead	**Remove**			Group of three
55	*Fraxinus spp.*	Ash species	20	0	Dead	**Remove**			
56	*Acer platanoides*	Norway maple	26	5	Good	**Remove**			Invasive species.
57	*Fraxinus spp.*	Ash species	22	0	Dead	**Remove**			
58	*Fraxinus spp.*	Ash species	22	0	Dead	**Remove**			
59	*Robinia pseudoacacia*	Black locust	33	4	Good	**Remove**			Co-dominant at 1.4. Invasive species.
60	*Robinia pseudoacacia*	Black locust	50	6	Fair	**Remove**			Dead wood in canopy. Invasive species.
61	*Robinia pseudoacacia*	Black locust	26	6	Fair	**Remove**			Located at ROW. Multi-stem: 2 x 26, 20, & 12cm DBH. Invasive species. Permission to remove given by the Town of Collingwood on April 9, 2026.
62	*Robinia pseudoacacia*	Black locust	24	5	Fair	**Remove**			Located at ROW. Multi-stem: 24, 20, & 25cm DBH. Invasive species. Permission to remove given by the Town of Collingwood on April 9, 2026.
63	*Fraxinus spp.*	Ash species	51	0	Dead	**Remove**			
64	*Picea pungens*	Blue spruce	35	3.5	Fair	**Remove**	2	$3,000.00	Growing in shade
65	*Pinus sylvestris*	Scots pine	44	4.5	Fair	**Remove**			Invasive species.
66	*Fraxinus spp.*	Ash species	39		Dead	**Remove**			
67	*Acer negundo*	Manitoba maple	26	6	Poor	**Remove**			Leaning heavily to the north, irregular canopy. Invasive species.
68	*Thuja occidentalis*	Eastern white cedar	15	3	Good	**Remove**			Cedar grouping, under 15 cm DBH, 22 stems
69	*Pyrus spp.*	Pear spp.	18	4	Fair	**Remove**	1	$1,500.00	Co-dominant at 1 metre. Multi-stem: 15 & 18cm DBH
70	*Pyrus spp.*	Pear spp.	21	5	Good	**Remove**	1	$1,500.00	
71	*Prunus spp.*	Cherry spp.	23	3.5	Poor	**Remove**	1	$1,500.00	Clump form
72	*Prunus spp.*	Plum spp.	23	2.5	Poor	**Remove**	1	$1,500.00	Dead wood in canopy with poor form
73	*Prunus spp.*	Plum spp.	19	1.5	Poor	**Remove**	1	$1,500.00	Dying and dead wood in canopy
74	*Ebreagnus angustifolia*	Russian olive	16 21 14	6	Poor	**Remove**			Multi-stem: 16, 21, & 14 with irregular canopy. Invasive species.
75	*Thuja occidentalis*	Eastern white cedar	15	3	Good	**Remove**			Clump of four with under 15cm DBH
76	*Pinus sylvestris*	Scots pine	35	2.5	Fair	**Remove**			Sparse crown. Invasive species.
77	*Pinus sylvestris*	Scots pine	26	3.5	Fair	**Remove**			6 trees in corner: 16, 26, 20, 17, 16, & 26cm DBH. Invasive species.
78	*Pinus sylvestris*	Scots pine	36	6	Fair	**Remove**			Hedgerow. Invasive species.
79	*Pinus sylvestris*	Scots pine	34	6	Fair	**Remove**			Invasive species.
80	*Fraxinus spp.*	Ash species	23	0	Dead	**Remove**			
81	*Fraxinus spp.*	Ash species	15	0	Dead	**Remove**			
82	*Fraxinus spp.*	Ash species	25	0	Dead	**Remove**			
83	*Pinus strobus*	Eastern white pine	28	4	Fair	Retain			
84	*Fraxinus spp.*	Ash species	18	0	Dead	Retain			
85	*Salix babylonica*	Weeping willow	50	7	Fair	**Remove**	3	$4,500.00	
86	*Salix spp.*	Willow spp.	16	2	Good	**Remove**	1	$1,500.00	
					TOTAL COMPENSATION		**36**	**$54,000.00**	

TREE INVENTORY CHART

GENERAL

1. THE TREE MANAGEMENT/PRESERVATION PLAN IS TO BE READ IN CONJUNCTION WITH THE ASSOCIATED ARBORIST REPORT PREPARED BY C.F. CROZIER & ASSOCIATES INC. AND SHALL NOT BE UTILIZED AS A STANDALONE DOCUMENT.
2. ALL EXISTING TREES AT PROPERTY BOUNDARIES AND ON ADJACENT PROPERTIES SHALL BE PRESERVED AND PROTECTED. WHERE TREES WHICH THAT ARE LOCATED AT SHARED PROPERTY BOUNDARIES OR ON ADJACENT PROPERTIES ARE IDENTIFIED BY THIS PLAN TO SUSTAIN INJURY OR REQUIRE REMOVAL, THE OWNER OF THE ADJACENT PROPERTY'S WRITTEN PERMISSION IS REQUIRED PRIOR TO ANY CONSTRUCTION OR REMOVALS WORKS COMMENCE.
3. FOR TREE INVENTORY CHART - ONSITE & OFF PROPERTY, REFER TO DRAWING TPP-2.

TREE PROTECTION FENCING

1. THE CONTRACTOR SHALL INSTALL TREE PROTECTION FENCING (TPF) TO PROTECT TREES IDENTIFIED FOR PRESERVATION.
2. ALL TPF WILL CONFORM WITH THE ARBORIST REPORT AND DETAIL(S) INCLUDED ON THESE PLANS. WHERE CURRENT GOVERNING MUNICIPAL/CITY STANDARDS DIFFER, CONTACT PROJECT ARBORIST OR CONTRACT ADMINISTRATOR FOR DIRECTION.
3. NO SUBSTITUTIONS OF MATERIALS, PRODUCTS OR QUANTITIES WILL BE ACCEPTED WITHOUT THE PRIOR WRITTEN PERMISSION OF THE PROJECT ARBORIST.
4. UPON INSTALLATION OF THE TPF, THE CONTRACTOR SHALL CONTACT THE PROJECT ARBORIST TO REVIEW AND APPROVE THE FENCING AND LOCATION(S) IN WRITING PRIOR TO COMMENCEMENT OF ANY SITE WORK.
5. THE TPF SHALL REMAIN IN THE APPROVED LOCATIONS THROUGHOUT THE DURATION OF THE SITE WORKS AND SHALL NOT BE MOVED AT ANY TIME TO ACCOMMODATE CONSTRUCTION OR SITE WORK.
6. THE CONTRACTOR SHALL INSPECT TPF WEEKLY AND MAINTAIN AS REQUIRED THROUGH ALL STAGES OF DEVELOPMENT/CONSTRUCTION. THE TPF SHALL BE REMOVED AT THE COMPLETION OF ALL SITE WORKS AND DISTURBED AREAS SHALL BE RESTORED TO ORIGINAL CONDITION.

TREE PRESERVATION

1. THE TREE PROTECTION ZONE (TPZ) IS PROTECTED AND DELINEATED BY THE TPF OR AS OTHERWISE DEFINED IN THE APPROVED ARBORIST REPORT. THE CONTRACTOR IS NOT TO PROCEED IN UNCERTAINTY.
2. ANY POTENTIAL OR INCURRED INJURY/DAMAGE TO ADJACENT TREE(S) IDENTIFIED TO BE PRESERVED SHALL BE IMMEDIATELY REPORTED TO THE PROJECT ARBORIST AND REVIEWED ON SITE. INJURY/DAMAGE INCLUDES ANY REQUIRED ARBORICULTURAL TREATMENT INCLUDING BUT NOT LIMITED TO: LIMB PRUNING, TRUNK DAMAGE, ROOT EXPOSURE OR REQUIRED CUTTING/REMOVAL OR ANY OTHER ACTIVITY THAT HAS THE POTENTIAL TO HARM THE TREE.
3. THE TPZ IS NOT TO BE USED FOR ANY TYPE OF STORAGE INCLUDING MATERIALS, EQUIPMENT OR STOCKPILES.
4. NO TRENCHING OR TUNNELING FOR UNDERGROUND SERVICES SHALL OCCUR WITHIN THE TPZ.
5. ANY EQUIPMENT USE WITHIN THE TPZ WILL BE RESTRICTED THROUGHOUT ALL STAGES OF DEVELOPMENT. THIS APPLIES TO TPZS WITHIN OR OUTSIDE OF THE PROJECT LIMIT LINE.
6. ABSOLUTELY NO ALTERATION OF GRADES OR CONSTRUCTION ACTIVITY IS PERMITTED WITHIN THE TPF AND TPZ. ABSOLUTELY NO FLUSHING OF CONTAMINANT SHALL BE PERMITTED TOWARDS OR WITHIN THE TPZ.
7. WHEN WORKING ADJACENT TO TREES TO BE PRESERVED SITE PREPARATION MEASURES SUCH AS PRUNING FOR OVERHEAD CLEARANCE MAY BE REQUIRED. PREPARATORY PRUNING SHALL ONLY BE PERFORMED WHEN COMPLETED BY OR UNDER THE DIRECT SUPERVISION OF AN ISA CERTIFIED ARBORIST (OR APPROVED QUALIFIED PERSON AS APPROVED BY THE PROJECT ARBORIST).
8. ALL PRUNING WORK SHALL BE PERFORMED BY A QUALIFIED INDIVIDUAL AND SHALL BE IN ACCORDANCE WITH CURRENT HORTICULTURAL PRACTICES INCLUDING BUT NOT LIMITED TO:
   a. PRUNING CUTS SHALL BE MADE JUST BEYOND THE BRANCH COLLAR AND SHOULD BE LIMITED TO THINNING CUTS. HEADING CUTS WILL ONLY BE ACCEPTED IN SPECIFIC CASES AS DIRECTED BY AN ARBORIST AND SHOULD BE AVOIDED WHERE POSSIBLE.
   b. PRUNING OF ALL STEMS GREATER THAN 50 MM IN DIAMETER SHOULD BE MADE WITH A THREE-CUT METHOD TO AVOID TEARING LIVING BARK TISSUE.
   c. NO WOUND DRESSINGS SHALL BE APPLIED.
16. WHERE SOIL EXCAVATION/GRADING WORK IS REQUIRED WITHIN THE ROOTING ZONE OF A TREE TO BE PRESERVED (THE ROOTING ZONE OFTEN EXTENDS BEYOND THE IDENTIFIED TPZ AND CAN BE 3 TIMES THE DRIPLINE RADIUS OR MORE):
   a. ROOTS SHALL BE CLEANLY SEVERED BEFORE STRIPPING AND REMOVING SOIL TO AVOID DAMAGE TO THE TREE AND THE ROOT SYSTEM. ROOTS TO BE CUT USING APPROPRIATE EQUIPMENT (I.E. TRENCHER ADAPTED TO THIS SPECIFIC USE/CHAINSAW/ROOT PRUNING MACHINE). ROOTS MAY BE SEVERED USING THE CLEAN EDGE OF A STRAIGHT EXCAVATOR BUCKET UNDER SUPERVISION OF AN ISA CERTIFIED ARBORIST.
   b. NO ATTEMPTS TO CUT EXISTING ROOTS WITH THE DIGGING BUCKET OF ANY HEAVY MACHINERY WILL BE PERMITTED AS IT CAN CAUSE THE ROOTS TO TEAR AND PULL AND BE HARMFUL TO ROOT REGENERATION AND RECOVERY.
   c. ANY EXPOSED ROOTS OF A TREE TO BE PRESERVED WITH A DIAMETER GREATER THAN 2.5CM (1 INCH) SHALL BE PRUNED BACK TO THE SOIL FACE.
   d. AN EXCAVATION AREA WITHIN THE TPZ SHALL BE BACKFILLED IMMEDIATELY AND/OR ROOTS SHALL BE KEPT CONSTANTLY MOIST WITH BURLAP COVERED WITH WHITE PLASTIC AND CHECKED A MINIMUM OF 2 TIMES A DAY, FOR A MAXIMUM OF 48 HOURS. IF ROOTS ARE TO BE EXPOSED FOR A PERIOD GREATER THAN 48 HOURS, THE EXPOSED AREA SHALL BE COVERED WITH A MINIMUM OF 150 MM (6 INCHES) OF MULCH AND MAINTAINED IN A MOIST CONDITION DURING CONSTRUCTION UNTIL THE AREA CAN BE PROPERLY BACKFILLED.
17. TREES SHALL NOT HAVE ANY RIGGING CABLES, FENCING, SIGNAGE OR HARDWARE OF ANY SORT ATTACHED OR WRAPPED AROUND THEM.
18. NO CONTAMINANTS OR TOXIC MATERIALS SHALL BE DUMPED OR FLUSHED WHERE THEY MAY COME INTO CONTACT WITH THE FEEDER ROOTS OF TREES TO BE PRESERVED.
19. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ALL AVOIDABLE DAMAGE TO PRESERVED TREES DURING ALL STAGES OF CONSTRUCTION.
20. WATERING OR OTHER MAINTENANCE OF TREES TO BE PRESERVED MAY BE REQUIRED IF CONSTRUCTION ACTIVITIES ARE OBSERVED TO BE CAUSING STRESS OR IMPACTING HEALTH AS DETERMINED BY THE PROJECT ARBORIST.

TREE REMOVALS

1. PRIOR TO THE COMMENCEMENT OF TREE REMOVALS, ALL TREES DESIGNATED FOR REMOVAL MUST BE CLEARLY IDENTIFIED IN THE FIELD.
2. WHERE POSSIBLE, REMOVALS, CHIPPING, AND/OR BRUSH REMOVAL IS TO BE COMPLETED OUTSIDE THE WINDOW OF APRIL 1 TO AUGUST 31. THIS WINDOW ACCOUNTS FOR ACTIVE BIRD NESTING AND BAT MATERNITY ROOSTING PERIODS. WHERE REMOVALS MUST OCCUR WITHIN THE RESTRICTED ACTIVITY WINDOW, NEST AND ROOSTING HABITAT ASSESSMENTS TO PROTECT SPECIES PROTECTED UNDER THE MIGRATORY BIRDS CONVENTION ACT, 1994 AND ENDANGERED SPECIES ACT, 2007. THESE SURVEYS MUST BE COMPLETED BY A QUALIFIED BIOLOGIST OR ORNITHOLOGIST.
3. TREES SHALL ALWAYS BE FELLED AWAY FROM ADJACENT PRESERVED TREES TO PREVENT AVOIDABLE DAMAGE TO THE CROWNS AND STEMS.

ID No.	Name	Condition	Directive	Comment
87	*Tree Grouping #1*	Dead	**Remove**	Ash spp.
88	*Tree Grouping #2*	Fair/ Dead	**Remove**	Willow spp. & Malus spp. with dead Ash spp. Tree grouping within SWDM2-2 and the subject property will be removed pending execution of offset agreement with NVCA. Tree grouping outside of SWDM2-2 and within the subject property will be removed. Refer to Tree Preservation Plan
89	*Tree Grouping #3*	Fair/ Dead	Retain	Outside of property. Willow spp. & Malus spp. with dead Ash spp.
90	*Tree Grouping #4*	Dead	**Remove**	Ash spp.
91	*Tree Grouping #5*	Dead	**Remove**	Ash spp.

TREE GROUPING INVENTORY CHART

1. THIS DRAWING IS THE EXCLUSIVE PROPERTY OF C.F. CROZIER & ASSOCIATES INC. AND THE MODIFICATION AND/OR REPRODUCTION OF ANY PART OF THIS DRAWING IS STRICTLY PROHIBITED WITHOUT WRITTEN AUTHORIZATION FROM THIS OFFICE.
2. THE DIGITAL FILES CONTAIN INTELLECTUAL AND DIGITAL DATA PROPERTY THAT IS THE EXCLUSIVE PROPERTY OF C.F. CROZIER & ASSOCIATES INC.
3. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, LEVELS, AND DATUMS ON SITE AND REPORT ANY DISCREPANCIES OR OMISSIONS TO C.F. CROZIER & ASSOCIATES INC. PRIOR TO CONSTRUCTION.
4. THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT.
5. ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
6. DO NOT SCALE DRAWINGS.

NOTES:

1. TOPOGRAPHIC SURVEY PROVIDED BY J.D. BARNES LIMITED (RECEIVED ON 2024.07.24).
2. BASE INFORMATION AND SITE PLAN PROVIDED BY CHARIS DEVELOPMENTS LTD. (RECEIVED ON 2026.01.23).
3. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE NOTED.

Town

NO.	ISSUE	DATE: YYYY/MM/DD
0	ISSUED FOR SUBMISSION - OPA/ZBA	2024/09/17
1	ISSUED FOR TREE PERMIT APPLICATION	2026/04/07
2	ISSUED FOR UPDATED TREE PERMIT APPLICATION	2026/04/20

ARBORIST

MATTHEW CAMPBELL, OALA, CSLA, ISA CERTIFIED ARBORIST (ISA ON-3008-A), TRAQ

LANDSCAPE ARCHITECT

ONTARIO ASSOCIATION OF LANDSCAPE ARCHITECTS — A.J. PHILLIPS — 2026.04.20 — OALA — MEMBER

Project

THE GATEWAY CENTRE
TOWN OF COLLINGWOOD

Drawing

TREE INVENTORY CHART PLAN

CROZIER CONSULTING ENGINEERS

Drawn By	Design By	Project
K.C.		2199-6198
Check By	Check By	Drawing
A.P.	M.C.	TPP-2

\\CROZIER-FILES\Projects\2100\2199- Charis Developments\6198- The Gateway Centre\CAD\LA\6198_TPP.dwg, 2026-04-21 2:48:45 PM, _DWG To PDF.pc3

APPENDIX 4

DNA REPORT FOR TREE #9

CANADIAN CENTRE FOR DNA BARCODING
DNA Testing Laboratory Report

Date of issue: September 6, 2024

CLIENT INFORMATION

Client Name:	Alison Phillips
Client Address:	Crozier Consulting Engineers 1 First Street, Suite 200 Collingwood, ON L9Y 1A1
Contact Name:	Alison Phillips (aphillips@cfcrozier.ca)

ITEMS

Description:	One plant sample (fresh leaves) from putative butternut species submitted for hybrid detection Sample ID: CCDBFR1478; Process ID: ABCBF1088-24
Dates Received:	August 23, 2024
Dates of Analysis:	August 26 – 30, 2024
Sample Received and Analyzed by:	Nguyen NguyenTX. / Canadian Centre for DNA Barcoding, Biodiversity of Ontario, University of Guelph, 50 Stone Road East, Guelph

METHODS

To ascertain the identity of the species from the submitted sample, an approximate 2mm by 2mm area of leave from sample was subsampled using sterile techniques. Sample was ground to a fine powder and then lysed. Total genomic DNA was extracted using validated spin column DNA extraction protocol. Two target genetic markers: the second internal transcribed spacer from the nuclear ribosomal DNA (ITS2), and an intergenic spacer between the chloroplast genes *trnL* and *trnF* (*trnL-trnF*) were amplified by using the Polymerase Chain Reaction (PCR) with the primers *ITS_S2F/ITS4* and *trnLUAA-c/trnFGAA-f*, respectively; followed by cycle sequencing with standardized commercially available BigDye Terminator v3.1 kit. Sequencing reactions were analyzed by high-voltage capillary electrophoresis using the automated ABI 3730xL DNA Analyzer. Bidirectional forward and reverse sequences were generated for each amplicon. Resulting trace files were assembled into contigs and consensus sequences, and then manually edited in CodonCode Aligner (version 9.1.1.) software. The sequences of ITS2 and *trnL-trnF* were compared against the BOLD reference libraries. Based on the percentage of nucleotide sequence divergence (a number of nucleotide substitutions) between sequences from the test samples and reference DNA barcodes, the closest match was used to infer species identity of the corresponding test sample provided by the contributor. The quality of the sequence traces for ITS2 was done by visual inspection to resolve hybridization. Images, sequences, and their associated trace files with quality scores were uploaded to the secure BOLD project called “CCDB forensic sampling [ABCBF]”.

IMAGING

The items were photographed in the Photography Lab Area by Nguyen NguyenTX., using a Canon ELPH 300 HS, 12.1 megapixels. Pictures were uploaded to the BOLD website into a secure project called “CCDB forensic sampling [ABCBF]”. See Appendix 1 for item images.

INTERPRETATION

The ITS2 marker demonstrates five nucleotide substitutions between *Juglans cinerea* (white walnut, commonly known as butternut) and *Juglans ailantifolia* (Japanese walnut) reference sequences across the amplified ~344 base pair length. Unlike the plastid genome, ribosomal nuclear DNA is inherited by both maternal and paternal organisms. Thus, hybridization events are reflected in the trace file chromatograms as mixed signals at the characteristic nucleotide positions.

The *trnL-trnF* marker demonstrates five nucleotide substitutions between *Juglans cinerea* (white walnut) and *Juglans ailantifolia* (Japanese walnut) reference sequences across the amplified ~950 base pair length. The marker is used as supplementary evidence to confirm species identity. The *trnL-trnF* marker is a part of the chloroplast genome and is inherited maternally. Therefore, this marker confirms the maternal lineage in a hybrid but on its own does not detect a hybridization event.

RESULTS

Sample ID	Process ID	Hybridity detected	Maternal organism
CCDBFR1478	ABCBF1088-24	Yes	*Juglans ailantifolia* (Japanese walnut)

ITS2 sequences of 344 base pairs were obtained for sample CCDBFR1478. Sample sequences were aligned against the known reference sequences for *Juglans cinerea* (white walnut), *Juglans ailantifolia* (Japanese walnut), and their hybrid *Juglans cinerea* x *Juglans ailantifolia*.

Across the amplified length of the ITS2 marker, five diagnostic nucleotide substitutions differentiate *Juglans cinerea* (white walnut) and *Juglans ailantifolia* (Japanese walnut). At these five nucleotide positions, sample CCDBFR1478 were identical to references for hybrid *Juglans cinerea x Juglans ailantifolia*. The chromatogram traces for these sequences showed evidence of mixed base calls at the diagnostic nucleotide positions, which confirms that sample CCDBFR1478 is of hybrid origin (Figures 1). The phylogenetic tree of the ITS2 marker for sample is shown in Figure 2.

trnL-trnF

Across the amplified length of the *trnL-trnF* marker, five diagnostic nucleotide substitutions differentiate *Juglans cinerea* (white walnut) and *Juglans ailantifolia* (Japanese walnut). At these five nucleotide positions, sample CCDBFR1478 was identical to references for *Juglans ailantifolia* (Japanese walnut). As the chloroplast genome is inherited maternally, our results indicate that *Juglans ailantifolia* (Japanese walnut) was the maternal organism for sample CCDBFR1478 (Figures 4). The phylogenetic tree of the *trnL-trnF* marker for this sample is shown in Figure 5.

CONCLUSIONS

The present testing has indicated that sample CCDBFR1478 is a hybrid between white and Japanese walnut species: *Juglans cinerea* x *Juglans ailantifolia*. The maternal organism belongs to *Juglans ailantifolia* (Japanese walnut).

Based on appropriate statistical BOLD match calculations and a reasonable degree of scientific certainty of the BOLD reference library, the taxonomic identity of the detected DNA source in these samples is considered practically proven.

RESULTS REPORTED BY:

Nguyen NguyenT.X., MSc; Wildlife Forensic Technician

RESULTS REVIEWED BY:

Maria Kuzmina, PhD; Plant Lead

Evgeny V. Zakharov, PhD; Director, CCDB

FIGURES

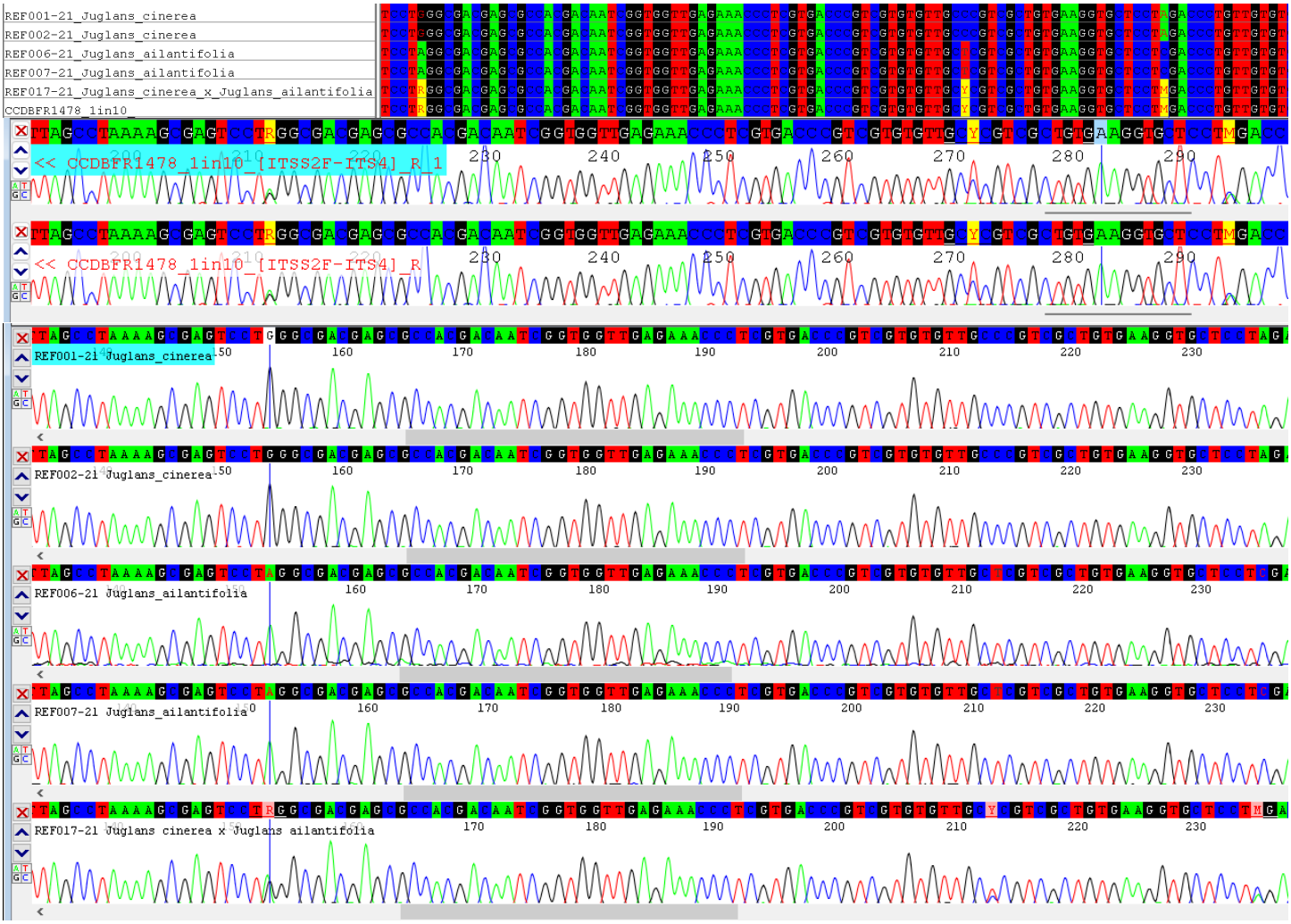


Figure 1 – ITS2 sequence comparison of sample CCDBFR1478 with references for *Juglans cinerea*, *Juglans ailantifolia*, and their hybrid *Juglans cinerea x Juglans ailantifolia*. Diagnostic nucleotide positions 3, 4 and 5 are shown.

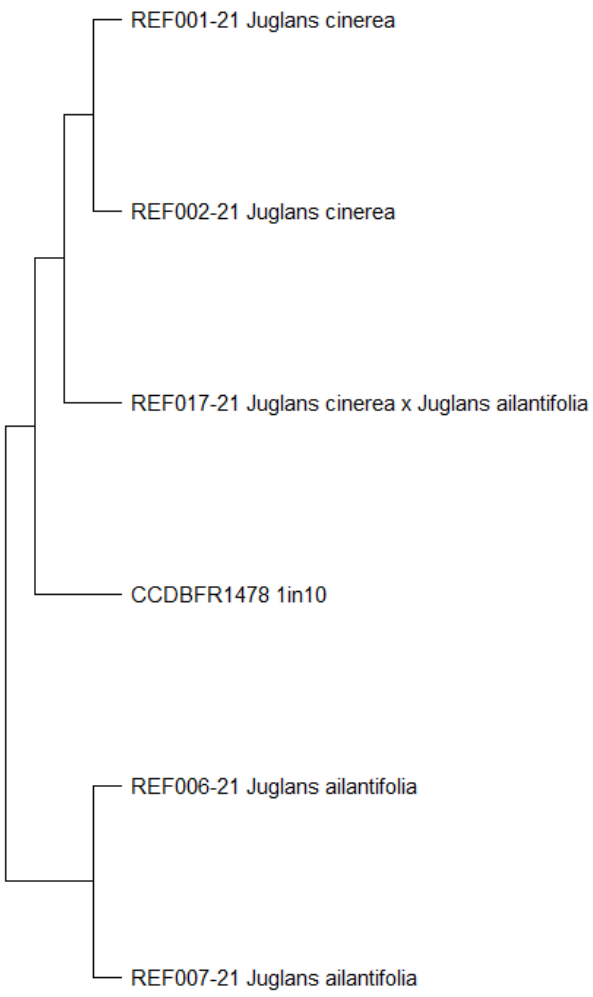


Figure 2 – Neighbour joining phylogenetic tree of ITS2 sequences of the query sample CCDBFR1478, and their references: *Juglans cinerea*, *Juglans ailantifolia*, and hybrid *Juglans cinerea x Juglans ailantifolia.*

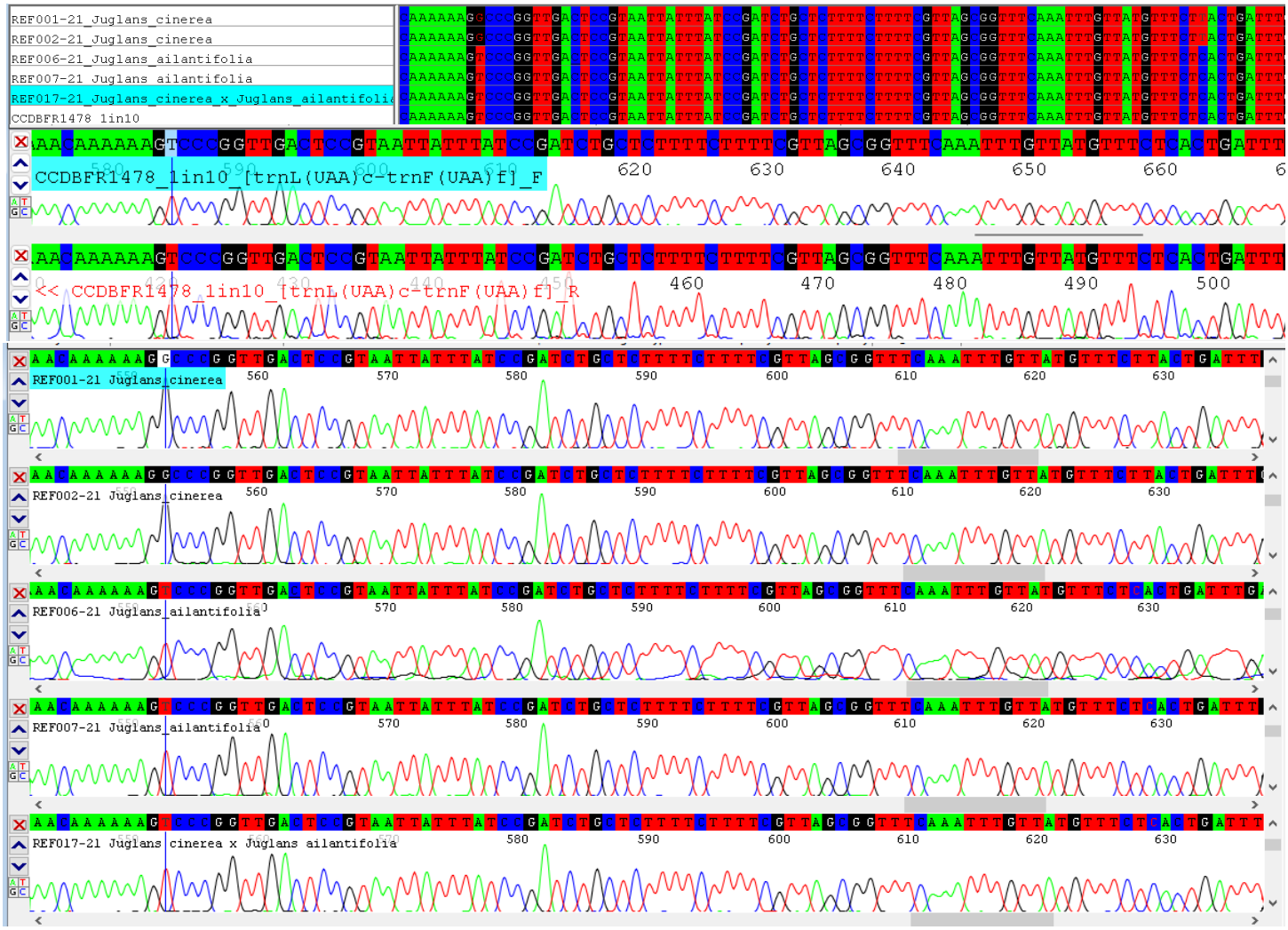


Figure 3 – trnL-trnF sequence comparison of sample CCDBFR1478 with references for *Juglans cinerea*, *Juglans ailantifolia, and* hybrid *Juglans cinerea x Juglans ailantifolia.* Diagnostic nucleotide positions 4 and 5 are shown.

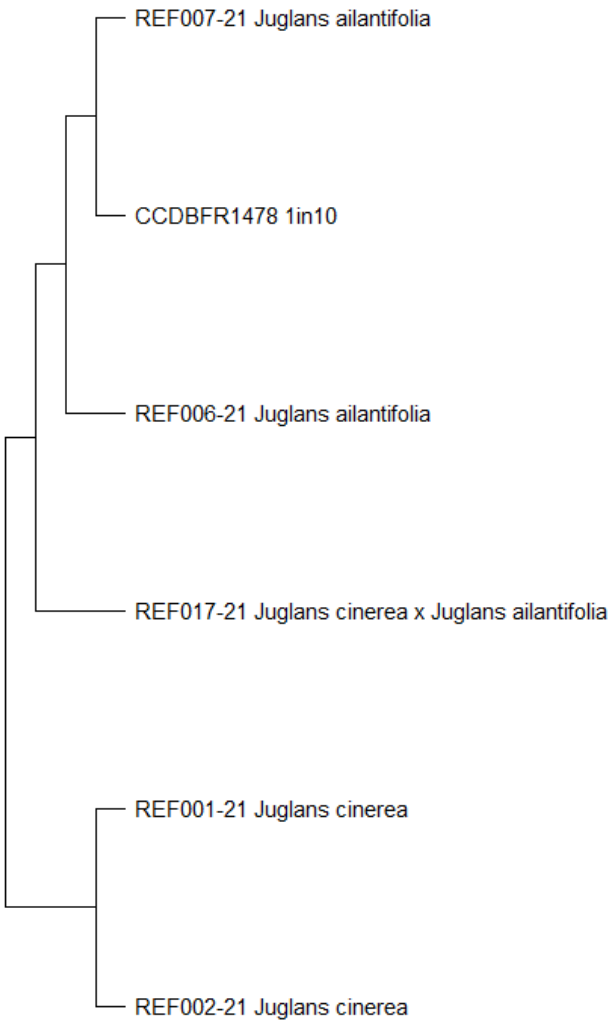


Figure 4 – Neighbour joining phylogenetic tree of *trnL-trnF* sequences of the query sample CCDBFR1478, and their references: *Juglans cinerea*, *Juglans ailantifolia*, and hybrid *Juglans cinerea x Juglans ailantifolia*.

Appendix 1. Image Inventory

Image1: Sample CCDBFR1478.