ARBORIST REPORT AND TREE SURVEY PLAN

170 Columbia Street West
Waterloo, Ontario

Submission Date:
January 23, 2026

July 31, 2026

Prepared by:

NAK DS Inc.
a Division of NAK Design Strategies Inc.

Arborist Report for Development Applications

Municipal Address of Property:
170 and 180 Columbia Street West
Waterloo, Ontario

Consulting Arborist Information:

NAK DS Inc. a Division of NAK Design Strategies Inc.
Paul Ferris
pferris@nak-design.com
T. 416.565.8547
213 Sterling Road, Suite 211, Toronto, Ontario M6R 2B2

Date of Inspection:

August 27, 2025
** Note: Trees not tagged as part of inventory.

Scope of Work:

NAK DS Inc., a Division of NAK Design Strategies Inc., was retained to review the site and identify and evaluate all trees on the subject site and within 6m of the subject site as well as all trees on adjacent street frontages of the subject property as required by the City of Waterloo Tree By-Law.

Tree No.	Tree Species	DBH (cm)	TPZ (m)	Drip Line / Canopy (m)	Plant Condition **** Health & Structure Elements	Observations & Comments	Location (site, adjacent private property with address, shared boundary tree with address, public ROW)	Recommended Action (Remove, Preserve, Preserve with Impact or Transplanted)	Protective Measure
1	Red oak *Quercus rubra*	25.5	8	6	Good	Defined trunk flare; high live crown ratio (LCR); normal foliage colour and size; generally balanced crown form.	Site	Remove- To accommodate proposed development.	N/A
2	Sugar maple *Acer saccharum*	24	8	6	Good	Branching starts at ~1.6m with multiple branches forming the crown; well distributed branches; high LCR: dense crown condition.	Site	Remove- To accommodate proposed development.	N/A
3	Red oak *Quercus rubra*	28.5	9	7	Good	Similar to tree 1 with normal foliage colour and size; also possesses minimal deadwood; competing crown with adjacent tree.	Site	Remove- To accommodate proposed development.	N/A
4	Sugar maple *Acer saccharum*	26	9	7	Poor	Defined trunk flare; girdling roots; thinning crown; declining health with poor crown conditions.	Site	Remove- To accommodate proposed development.	N/A
5	Colorado blue spruce *Picea pungens*	44	9	7	Poor	Trunk with no major visible defects; crown pruned up 'crown raised'; crown mortality – partial and full dead branches;	Site	Remove- To accommodate proposed development.	N/A
6	Colorado blue spruce *Picea pungens*	37.5	9	7	Poor	Flat lower trunk section condition; trunk with no major visible defects; crown pruned up 'crown raised'; crown mortality – partial and full dead branches; declining health condition.	Site	Remove- To accommodate proposed development.	N/A

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7	Norway maple *Acer platanoides*	22.5	8	6	Poor	Girdling roots condition; branching starts at ~1.6m; thinning upper crown condition possibly due to significant girdling roots.	Public ROW	Remove- To accommodate proposed development.	N/A
8	Mountain ash *Sorbus americana*	29.5 @ 0.8m AGL	2.4	7	Good	Multiple branching starts at ~1m forming tree crown; full dense crown condition; balanced crown shape.	Public ROW	Preserve with Impact	Tree protection hoarding as indicated on Vegetation Management Plan (VMP1).
9	Red oak *Quercus rubra*	15	2.4	5	Fair	Slight trunk lean; poor branching distribution; minimal crown deadwood; poor crown shape – imbalanced.	Site	Remove- To accommodate proposed development.	N/A
10	Colorado blue spruce *Picea pungens*	30.5	6	4	Poor	No defined trunk flare; crown with epicormic shoots; significant crown mortality; possible infestation.	Site	Remove- To accommodate proposed development.	N/A
11	Colorado blue spruce *Picea pungens*	34	5	3	Very poor	Two upright branches at ~1.7m with one branch being dead; low live crown volume; crown previously pruned; significant crown mortality.	Site	Remove- To accommodate proposed development.	N/A

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12	Mountain ash *Sorbus americana*	21.5	6	4	Fair	Tree located within 1m of sidewalk; branching starts at ~1m similar to tree #8; lower vertical trunk scar; imbalanced crown shape; competing crown with tree 13.	Site	Preserve with Impact	Tree protection hoarding as indicated on Vegetation Management Plan (VMP1). Excavation for proposed sidewalk within tree preservation zone to be done by hand.
13	Shubert chokecherry *Prunus virginiana 'Schubert'*	25.5	9	7	Fair	Trunk with no major visible defects; some crown deadwood; generally balanced crown condition; competing crown with adjacent tree.	Site	Preserve with Impact	Tree protection hoarding as indicated on Vegetation Management Plan (VMP1). Excavation for proposed sidewalk within tree preservation zone to be done by hand.
14	Norway maple *Acer platanoides*	26.5	2.4	6	Fair	Girdling roots present; good branch distribution; dense crown condition; high LCR.	Site	Preserve with Impact	Tree protection hoarding as indicated on Vegetation Management Plan (VMP1).
15	Mountain ash *Sorbus americana*	21	6	4	Fair	Crown starts at ~1.2m with multiple branching condition; full crown form; lower trunk section with scar.	Site	Preserve with Impact	Tree protection hoarding as indicated on Vegetation Management Plan (VMP1). Excavation for proposed sidewalk within tree preservation zone to be done by hand.

Tree No.	Tree Species	DBH (cm)	TPZ (m)	Drip Line / Canopy (m)	Plant Condition **** Health & Structure Elements	Observations & Comments	Location (site, adjacent private property with address, shared boundary tree with address, public ROW)	Recommended Action (Remove, Preserve, Preserve with Impact or Transplanted)	Protective Measure
16	Colorado blue spruce *Picea pungens*	33	8	6	Poor	Significant crown mortality – partial and full branches are dead; crown previously pruned up; planted burlap still showing at ground level.	Site	Remove- To accommodate proposed development.	N/A
17	Mountain ash *Sorbus americana*	28 @ 0.7m	7	5	Good	Branching starts at ~1m with a full crown condition; balanced crown; lower trunk scar present;	Site	Remove- To accommodate proposed development.	N/A
18	Red oak *Quercus rubra*	22	2.4	5	Good	Trunk with no visible major defects; good branch distribution; normal foliage colour and size; defined trunk flare; moderate thinning of crown.	Site	Remove- To accommodate proposed development.	N/A
19	Red oak *Quercus rubra*	18.5	7	5	Good	Defined trunk flare; balanced crown form; full crown condition.	Site	Remove- To accommodate proposed development.	N/A
20	Norway maple *Acer platanoides*	20.5	6	4	Poor	Significant crown mortality; no defined trunk flare; imbalanced crown form.	Site	Remove - To accommodate streetscape for proposed development.	N/A
21	Single leaf hawthorn *Crataegus monogyna*	25 @ 0.7m	7	5	Fair	Upright forming branches; competing crown with adjacent tree; dense crown condition; crown epicormic shoots; crown pruned.	Site	Remove- To accommodate proposed development.	N/A

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22	Single leaf hawthorn *Crataegus monogyna*	22.5 @ 0.9	6	4	Fair	Upright forming branches; competing crown with adjacent tree; dense crown condition; crown epicormic shoots; crown pruned.	Site	Remove- To accommodate proposed development.	N/A
23	Single leaf hawthorn *Crataegus monogyna*	22 @ 0.9	6	4	Fair	Upright forming branches; competing crown with adjacent tree; dense crown condition; crown epicormic shoots; crown pruned.	Site	Remove- To accommodate proposed development.	N/A
24	Thornless honey locust *Gledistia triaconthos*	35.5	11	9	Good	Tree located near building with river rock surrounding tree; imbalanced crown form; crown with epicormic shoots; generally the tree in good health condition.	Site	Remove- To accommodate proposed development.	N/A
25	Thornless honey locust *Gledistia triaconthos*	22.5	10	8	Good	Tree located near building with river rock surrounding tree; imbalanced crown form; crown with epicormic shoots; generally the tree in good health condition.	Site	Remove- To accommodate proposed development.	N/A
26	Thornless honey locust *Gledistia triaconthos*	33	10	8	Fair	Tree located near building with river rock surrounding tree; imbalanced crown form; crown with epicormic shoots.	Site	Remove- To accommodate proposed internal driveway.	N/A

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27	Pyramidal English oak *Quercus robur 'Fastigiata'*	56 @0.25	6	4	Fair	The end positioned oak tree forming a row adjacent to the existing building; Branching starts at 0.5m into multiple upright branches forming the narrow tight dense crown condition typical of this tree species; small amount of crown deadwood.	Site	Remove- To accommodate proposed internal driveway.	N/A
28	Pyramidal English oak *Quercus robur 'Fastigiata'*	50.5 @ 0.25	7	5	Fair	An oak forming a tree row adjacent the existing building; Branching starts at 0.5m into multiple upright branches forming the narrow tight dense crown condition typical of this tree species; small amount of crown deadwood; imbalanced crown condition.	Site	Remove- To accommodate proposed internal driveway.	N/A
29 tag 2559	Pyramidal English oak *Quercus robur 'Fastigiata'*	49.5 @ 0.25	6	4	Fair	An oak forming a tree row adjacent the existing building; Branching starts at 0.5m into multiple upright branches forming the narrow tight dense crown condition typical of this tree species; small amount of crown deadwood.	Site	Remove- To accommodate proposed internal driveway.	N/A

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30	Pyramidal English oak *Quercus robur 'Fastigiata'*	43.5 @ 0.25	6	4	Fair	Trunk bulge; surface roots; the end positioned oak tree forming a row adjacent the existing building; Branching starts at 0.5m into multiple upright branches forming the narrow tight dense crown condition typical of this tree species; small amount of crown deadwood.	Site	Remove- To accommodate proposed internal driveway.	N/A
31	Horse chestnut *Aesculus hippocastanum*	29 @ 1m	8	6	Good	Tree located between parking lot and the LRT wire fence; branching starts at 1.5m; slightly crooked trunk form; dense crown condition.	Site	Remove- To accommodate proposed internal driveway.	N/A
32	Black walnut *Juglans nigra*	~30	2.4	7	Fair	Large tree located on LRT site; high LCR; balanced crown condition; trunk with no major visible defects.	Adjacent Private Property (Waterloo Central Railway)	Preserve with Impact	Tree protection hoarding as indicated on Vegetation Management Plan (VMP1).
33	Horse chestnut *Aesculus hippocastanum*	18.5	5	3	Very poor	Small tree with vertical trunk seam and indent; competing crowns; leaf blotch infected by bacterial fungus.	Site	Remove- To accommodate proposed internal driveway.	N/A
34	Horse chestnut *Aesculus hippocastanum*	30	7	5	Very poor	Large trunk scar; crown deadwood; leaf blotch infected by bacterial fungus.	Site	Remove- To accommodate proposed internal driveway.	N/A

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35	Horse chestnut *Aesculus hippocastanum*	50	9	7	Good	Girdling root; high LCR; crown previously pruned; branching starts at ~1.5m; full crown condition.	Site	Remove- To accommodate proposed internal driveway.	N/A
36 tag 2549	Horse chestnut *Aesculus hippocastanum*	41.5	9	7	Good	Trunk with no major visible defects; full crown condition; crown previously pruned.	Site	Remove- To accommodate proposed internal driveway.	N/A
37 tag 2548	Horse chestnut *Aesculus hippocastanum*	30.5	8	6	Poor	Large trunk scar on west side; crown deadwood; leaf blotch infected by bacterial fungus.	Site	Remove- To accommodate proposed internal driveway.	N/A
38	Colorado blue spruce *Picea pungens*	~30	2.4	5	Good	Full crown condition; high LCR; balanced crown shape.	Adjacent Private Property (176 Columbia Street West)	Preserve	Tree protection hoarding as indicated on Vegetation Management Plan (VMP1).
39	Colorado blue spruce *Picea pungens*	~20	6	4	Fair	No true terminal leader; high LCR; partly suppressed tree by a poplar tree.	Adjacent Private Property (176 Columbia Street West)	Preserve	Tree protection hoarding as indicated on Vegetation Management Plan (VMP1).
40	English oak *Quercus robur*	22	7	5	Fair	Tree located in a small island surrounded by asphalt parking and drive aisle; balanced crown; crown epicormic shoots; declining health condition.	Adjacent Private Property (176 Columbia Street West)	Preserve	Tree protection hoarding as indicated on Vegetation Management Plan (VMP1).

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41	Ivory silk lilac *Syringa reticulata*	15	7	5	Very poor	Large trunk scar at 1.5m; poor crown condition.	Site	Remove- To accommodate proposed internal driveway layby parking.	N/A

NOTES:

Botanical and Common Name: The scientific and common name are identified for each tree.

Diameter at Breast Height (DBH): Tree diameter measurement in centimetres taken 1.4 metres up the tree's trunk from existing grade.

Plant Condition rating is determined based on International Society of Arboriculture (I.S.A.) protocol.

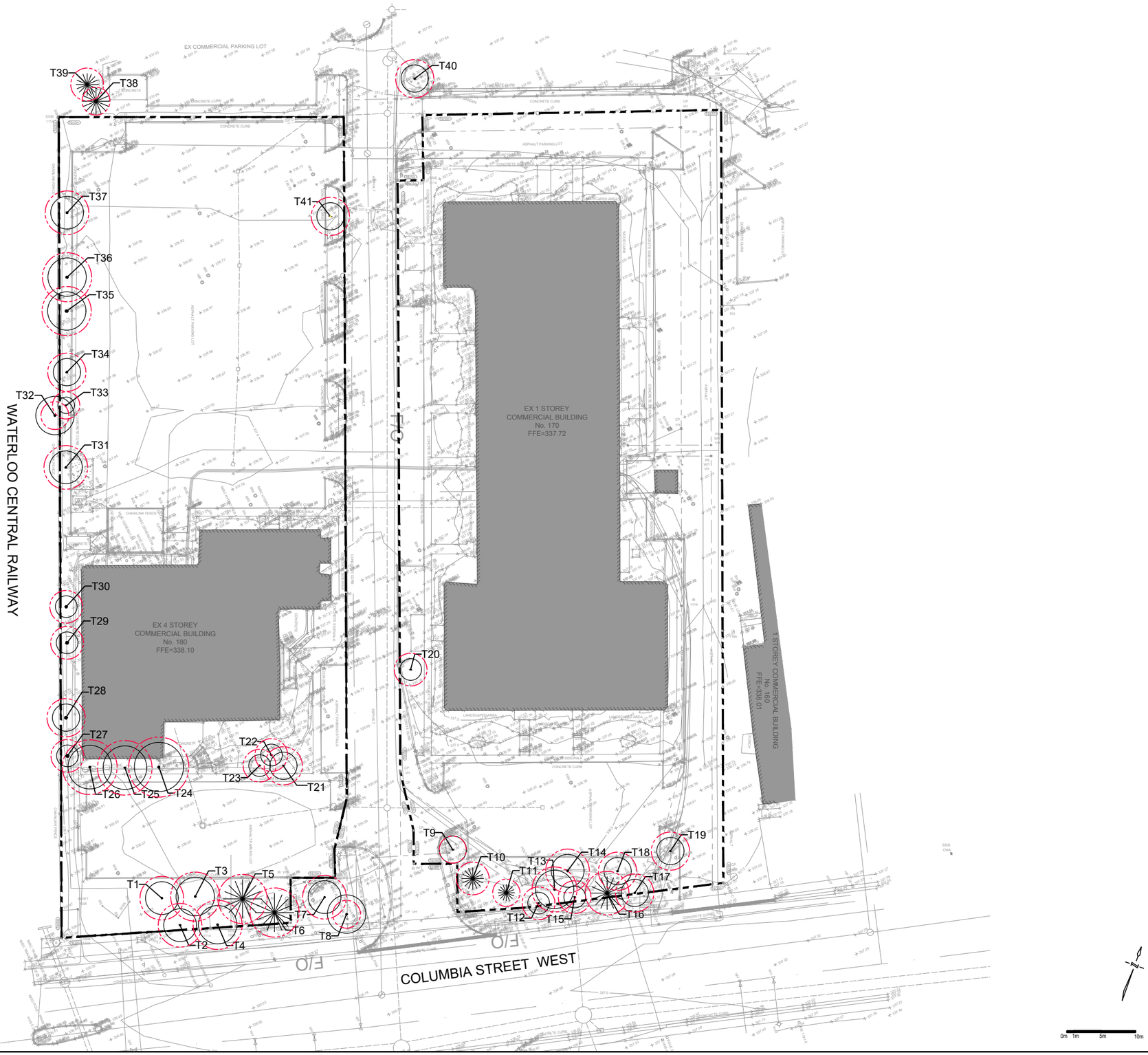
Tree Protection Zone/Fencing Guidelines:

Tree protection fence as shown on the Vegetation Management Plan is to be installed at minimum of **1m outside of the tree drip line** to delineate the required Tree Preservation Zone (TPZ). In locations where space is limited and proposed work cannot be avoided, Tree Protection Fencing has been located at the Minimum TPZ Distance, as referenced in the table below:

Trunk Diameter (DBH at 1.4m)	Minimum TPZ Distances Required
<10 cm	1.8 m
11 – 40 cm	2.4 m
41 – 50 cm	3.0 m
51 – 60 cm	3.6 m
61 – 70 cm	4.2 m
71 – 80 cm	4.8 m
81 – 90 cm	5.4 m
91 – 100+ cm	6.0 m

I verify that the information provided above is true, accurate and has been provided to the best of my ability.

Paul D. Ferris		*July 31, 2026*
Name of Consulting Arborist	*Signature of Consulting Arborist*	*Date*



Notes

BASE INFORMATION PROVIDED BY:
WALTER FEDY

BASED ON:
EXISTING CONDITIONS PLAN, DATED
DECEMBER 16, 2024

Legend

Existing Trees,
refer to Arborist Report

Extent of Tree Protection Zone (Typical) as per City of Waterloo Standards

T10 Deciduous Trees

T10 Coniferous Trees

Property Line

No.	Date:	Revision
2.	JUL. 31-26	Issued for Arborist Report
1.	JAN. 23-26	Issued for Arborist Report

This drawing is to be used for the following purpose:

Not to be used for construction unless signed by the Landscape Architect

NAK DS Inc.
a Division of NAK Design Strategies

213 Sterling Road
Suite 211
Toronto, Ontario
M6R 2B2

Client: IN8 Developments

Project: 170 Columbia Street West

Waterloo, Ontario

Drawing Title: Existing Tree Survey Plan

Date Plotted:	JULY 2026
Scale:	1:750
Drawn:	AD
Checked:	PF
Project No:	2740
Drawing No:	TS-1

Existing Tree Conditions



Fig. 1 - Tree T1



Fig. 2 - Tree T1 Base of Trunk



Fig. 3 - Tree T2



Fig. 4 - Tree T2 Base of Trunk



Fig. 5 - Tree T3



Fig. 6 - TreeT3 Base of Trunk



Fig. 7 - Tree T4

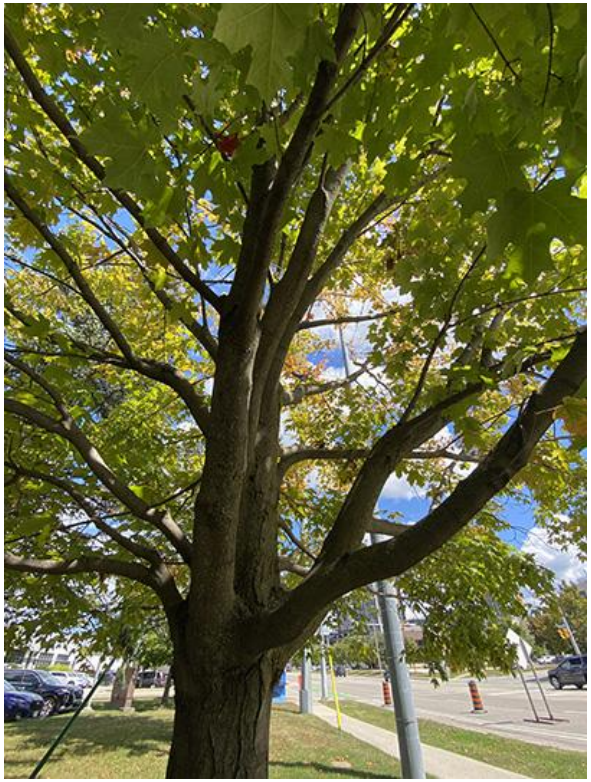


Fig. 8 - Tree T4 Crown Pruned Up "Crown Raised"



Fig. 9 - Tree T4 Base of Trunk



Fig. 10 - Tree T5



Fig. 11 - Tree T5 Base of Trunk



Fig. 12 - Tree T6 Looking West



Fig. 13 - Tree T6 Base of Trunk



Fig. 14 - Tree T6 Looking East



Fig. 15 - Tree T7



Fig. 16 - Tree T7 Branching Starts at 1.6m



Fig. 17 - Tree T7 Girdling Roots at Base of Trunk



Fig. 18 - Tree T8



Fig. 19 - Tree T8 Base of Trunk



Fig. 20 - Tree T9



Fig. 21 - Tree T9 Crown



Fig. 22 - Tree T9 Base of Trunk



Fig. 23 - Tree T10 Trunk Lean



Fig. 24 - Tree T10 Significant Crown Mortality



Fig. 25 - Tree T11 Dead Branch at Trunk Split



Fig. 26 - Tree T11



Fig. 27 - Tree T12



Fig. 28 - Tree T12 Branching Start at 1m



Fig. 29 - Tree T12 Trunk Location to Existing Sidewalk

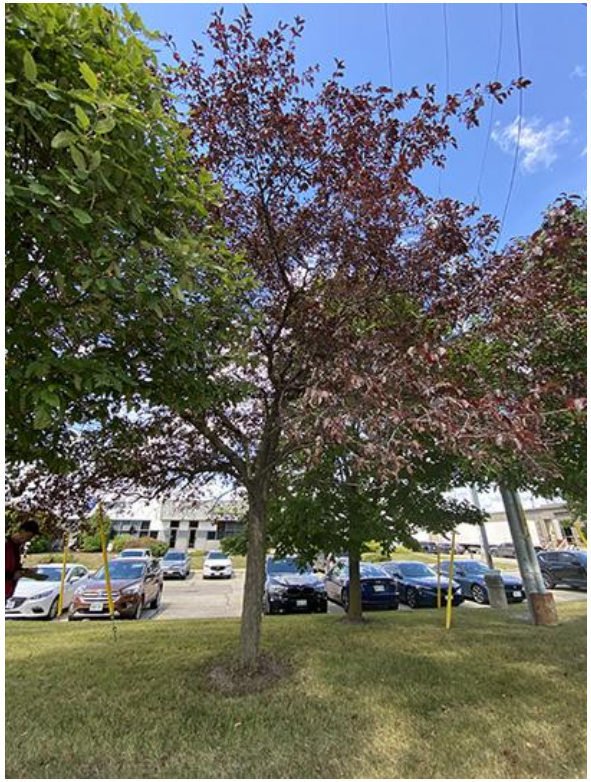


Fig. 30 - Tree T13 Crown Competing with Adjacent Trees



Fig. 31 - Tree T13 Crown Deadwood



Fig. 32 - Tree T13 Base of Trunk

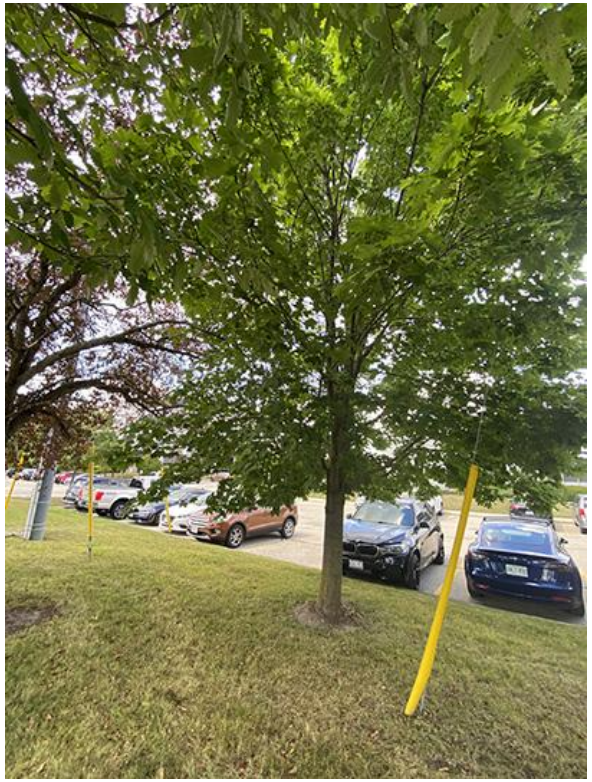


Fig. 33 - Tree T14

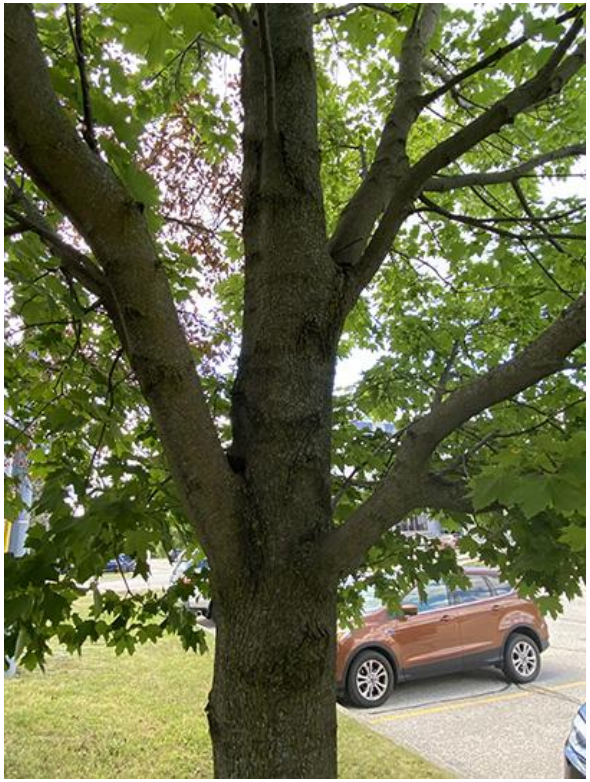


Fig. 34 - Tree T14 Branch Distribution



Fig. 35 - Tree T14 Base of Trunk



Fig. 36 - Tree T15



Fig. 37 - Tree T15 Lower Trunk



Fig 38 - Tree T15 Scar at Base of Trunk



Fig. 39 - Tree T16



Fig. 40 - Tree T16 Burlap at Base of Trunk



Fig. 41 - Tree T17



Fig. 42 - Tree T17 Branching Starting at 1m



Fig. 43 - Tree T17 Scar at Base of Trunk

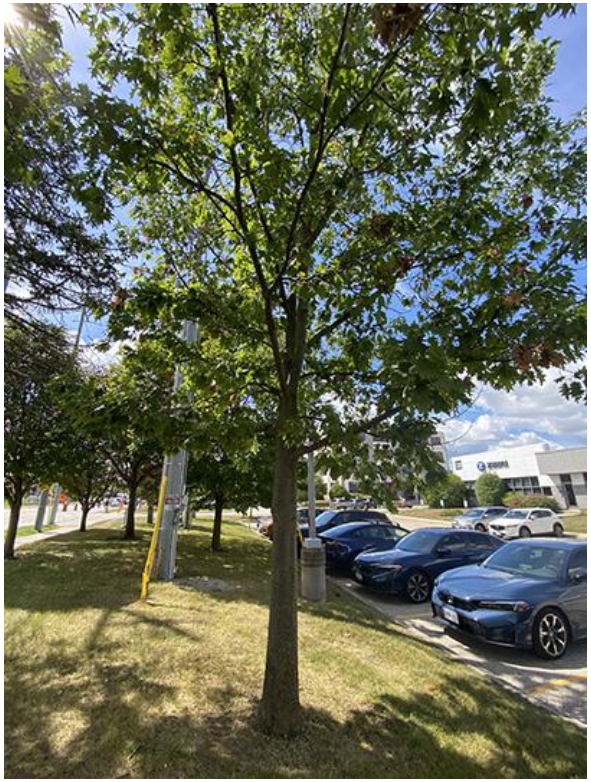


Fig. 44 - Tree T18



Fig. 45 - Tree T19 Looking Southwest



Fig. 46 - Tree T19 Base of Trunk



Fig. 47 - Tree T20 Imbalanced Crown



Fig. 48 - Tree T20 Significant Crown Mortality



Fig. 49 - Trees T22 and T21

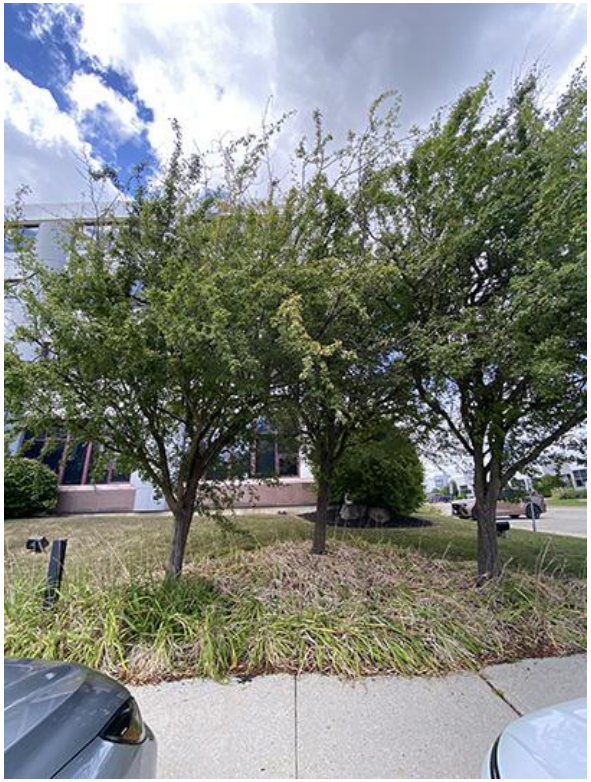


Fig. 50 - Trees T23, T22 and T21



Fig. 51 - Tree T21



Fig. 52 - Tree T22



Fig. 53 - Tree T23



Fig. 54 - Tree T24



Fig. 55 - Tree T24 Lower Trunk



Fig. 56 - Tree T24 Lower Trunk in River Rock



Fig. 57 - Tree T25



Fig. 58 - Tree T25 Lower Trunk in River Rock



Fig. 59 - Trees T26 and T25 (right)



Fig. 60 - Tree T26 Lower Trunk in River Rock



Fig. 61 - Tree T27



Fig. 62 - Tree T27 Base of Trunk



Fig. 63 - Tree T28



Fig. 64 - Tree T28 Base of Trunk



Fig. 65 - Tree T29



Fig. 66 - Tree T29 Base of Trunk



Fig. 67 - Tree T30



Fig. 68 - Tree T30 Base of Trunk Looking North



Fig. 69 - Tree T30 Base of Trunk Looking South



Fig. 70 - Tree T31

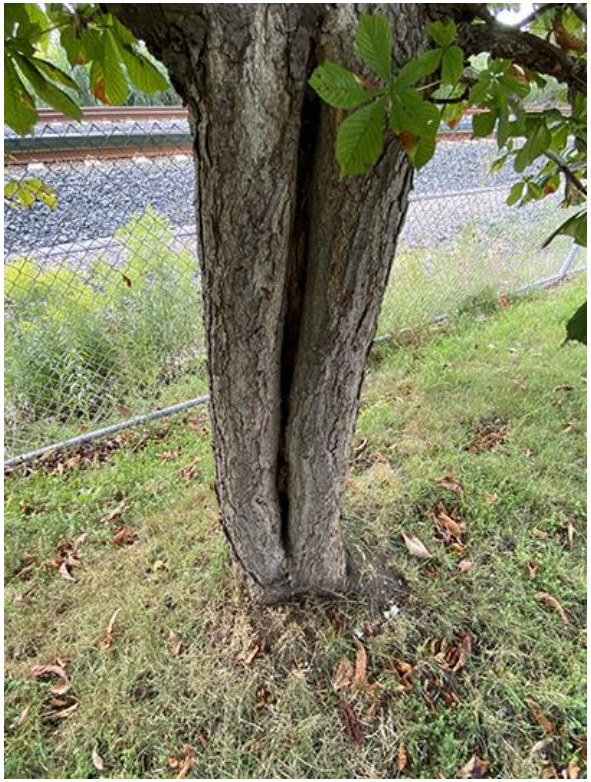


Fig. 71 - Tree T31 Lower Trunk



Fig. 72 - Tree T31 Trunk with T32 Beyond Fence



Fig. 73 - Tree T32



Fig. 74 - Tree T33



Fig. 75 - Tree T33 Leaf Blotch



Fig. 76 - Tree T33 Vertical Seam on Lower Trunk



Fig. 77 - Tree T34



Fig. 78 - Tree T35 Base of Trunk

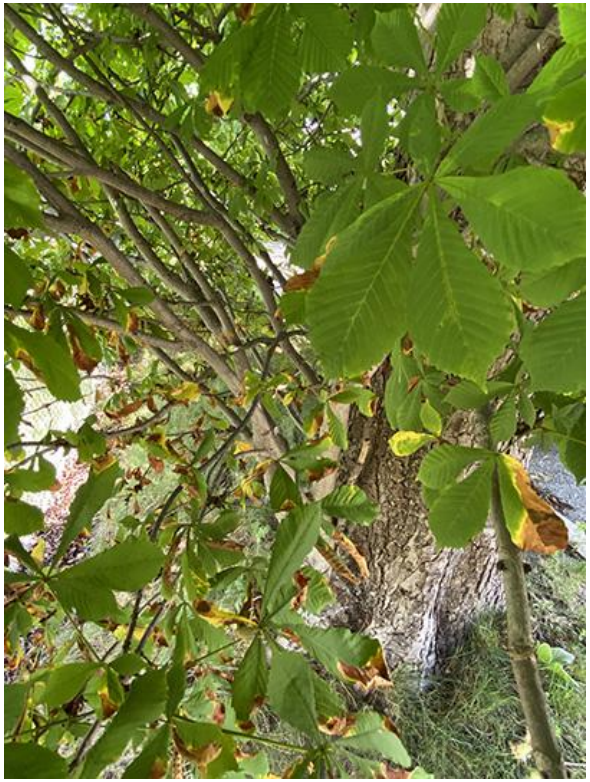


Fig. 79 - Tree T35 Leaf Blotch



Fig. 80 - Tree T36



Fig. 81 - Tree T37

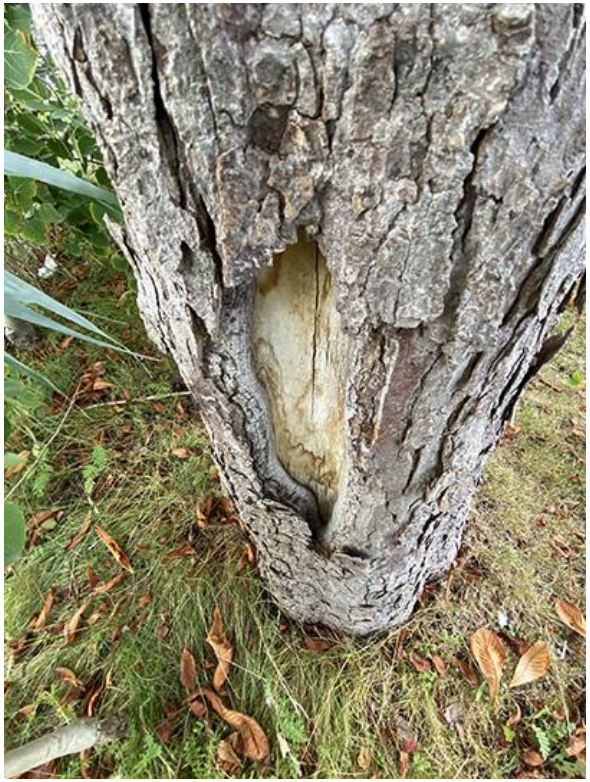


Fig. 82 - Tree T37 Trunk Scar



Fig. 83 - Tree T38



Fig. 84 - Tree T39 (middle)



Fig. 85 - Tree T40



Fig. 86 - Tree T41 Looking South



Fig. 87 - Tree T41 Trunk Scar