## **Appendix E**

Tree Management Plan



# MMGROUP

Prepared for: City of Mississauga

## MAVIS ROAD CLASS ENVIRONMENTAL ASSESSMENT

ARBORIST REPORT

April 2017



## **Arborist Report**

#### MAVIS ROAD CLASS ENVIRONMENTAL ASSESSMENT

**Prepared For:** 

**City of Mississauga** 

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**April 2017** 

#### TABLE OF CONTENTS

1.0	)	INTRODUCTION4	
2.0	)	BACKGROUND4	
2.1		DEFINITIONS5	<u>,</u>
2.2	2	TREE ASSESSMENT CRITERIA6	;
2.3	3	TREE CONDITION	;
3.0	)	DISCUSSION6	;
3.1		SUMMARY OF EXISTING CONDITIONS6	;
3.2	2	BY-LAWS / PERMITS / DIRECTIVES8	j
		City of Mississauga Private Tree Protection By-Law 254-12 (2012) and Developmen Design Construction Hoarding Detail (Jan. 2008)8	
		P. CFIA Directive (D-03-08): Phytosanitary Requirements to Prevent the Introduction in Spread Within Canada of the Emerald Ash Borer, Agrilus Planipennis (Fairmaire)8	
4.0		ANALYSIS8	)
4.1		Summary of Recommendations for Tree Preservation / Removal	}
	4.1.1	Ray Lawson Boulevard to Highway 4079	)
	4.1.2	P. Highway 407 to Twain Avenue / Knotty Pine Grove9	)
	4.1.3	B Twain Avenue / Knotty Pine Grove to Kaiser Drive / Envoy Drive	)
	4.1.4	Kaiser Drive / Envoy Drive to Derry Road West	)
	4.1.5	5 Derry Road West to Novo Star Drive / Crawford Mill Avenue	)
	4.1.6	Novo Star Drive / Crawford Mill Avenue to Western Skies Way / Craig Carrier Court	
	4.1.7	Western Skies Way / Craig Carrier Court to Courtneypark Drive West11	1
5.0	)	TREE MANAGEMENT PROCESS12	)
5.1		Tree Removals	)
5.2		Tree Protection Fencing12	)
5.3		Monitoring Plan	
	5.3.1	Construction	<b>?</b>
	5.3.2	Post-Construction	}
6.0	)	TREE PRESERVATION STRATEGIES	)
6.1		General Notes	)
6.2		Pruning Practices	

6.3	Establishment of Tree Protection Zone (TPZ)16
7.0	CONCLUSIONS16
8.0	LIMITATIONS OF ASSESSMENT
9.0	REFERENCES
Tables	
Table 1	Tree Inventory and Preservation Charts
Appendi	x
Appendix Appendix	

#### 1.0 INTRODUCTION

MMM Group (MMM), a wholly owned subsidiary of WSP Global Inc., conducted an inventory and assessment of trees located along Mavis Road from Courtneypark Drive West to the North City Limit, including intersections and approaches. The report is an inventory of the trees located within the Mavis Road right-of-way and within 10 metres of the right-of-way on either side. No inventory was conducted for trees located north of Highway 407. Information for these trees was captured based on the Region of Peel's (Region) recently completed Mavis Road Widening Project 09-4060 from Steeles Avenue West to Highway 407 ETR, which is under warranty until October 31, 2017. The subject area includes 407 ETR lands, City of Mississauga property and private property located along the Mavis Road right-of-way.

This report is to be read in conjunction with:

- Tree Inventory and Preservation Charts (see Table 1)
- Tree Management Plans (see Appendix A)
- Associated Engineering Drawings

The trees in the study area were inventoried and assessed based on their health and condition at the time of report preparation. At the time of report preparation no concept plan or design drawings were available. Tree management recommendations are provided based on municipal standards and best management practices. Recommendations for retention or removal of individual trees should be re-examined when the preliminary road widening design plans become available.

#### 2.0 BACKGROUND

Mavis Road within the study area consists of a 4-lane urban cross-section flanked by predominantly residential properties and occasional commercial plazas. See the Tree Management Plans for alignment and land ownership details.

Vegetation along the alignment exists in four forms:

- 1. Groups of planted native and non-native coniferous and deciduous street trees located in the grassed strip adjacent to the Mavis Road sidewalk;
- 2. Planted trees on private property directly adjacent to the Mavis Road right-of-way that were planted by homeowners;
- 3. Groups of native and non-native deciduous vegetation that have been established in lands adjacent to the Mavis Road right-of-way (e.g. Fletcher's Flats green space and adjacent to Highway 407 ramp); and,
- 4. Groups of native coniferous and deciduous vegetation that were recently planted by local organizations.

The majority of vegetation on site consists of planted non-native street trees, the most dominant species of which is Colorado Spruce (*Picea pungens*) and Norway Maple (*Acer platanoides*).

#### 2.1 Definitions

The following are the definitions of the assessment categories utilized in the tree assessment:

Tree Number Refers to the steel numbered tag, alphabetical value and tree

grouping number on the Tree Management Plans eg: 001, 'A' and

'G1'

**Species** The botanical and common names are provided for each tree.

**DBH** Refers to diameter (in centimetres) at breast height and is measured

at 1.4 m above the ground for each tree.

Canopy Width Measurement of the tree canopy from its trunk to its dripline,

recorded as a radius.

**Tree Protection Zone** Refers to the preservation area of the tree to be protected with tree

protection measures. No construction activities are to be undertaken

within this zone.

**Suppressed** Refers to trees that have their crowns completely overtopped by

adjacent trees and received limited to very limited sunlight.

**Co-dominant Stem**Stems equal in size and relative importance, usually associated with

either the trunks and stems or scaffold limbs and branches in the

crown.

**Union** Junction point where two or more stems meet. A 'U' shaped junction

indicates a well formed union. A 'V' shaped junction indicates a weakly formed union, whereas stems grow and increase in girth, weak bark called 'included bark' forms within the junction and stems

start to push apart causing vertical cracks and loss of structure.

Tree form Refers to branches and stems that have formed irregularly often

resulting in contorted growth, weak attachments, weakly formed unions and co-dominant stems. The irregular growth of scaffold (lateral) branches typically leads to damage to other scaffold

branches

**Root Zone** Refers to the subterranean area around the tree measured from the

trunk to the dripline plus one metre.

#### 2.2 Tree Assessment Criteria

All inventoried trees have been reviewed using the following criteria. The tree condition for each of the criteria is assessed on a scale of poor, fair and good.

Trunk Integrity (T.I.) An assessment of the trunk for defects or weaknesses. It is

measured on a scale of poor, fair, good.

Canopy Structure (C.S.) An assessment of the scaffold branches, unions and the canopy of

the tree. This is measured on a scale of poor, fair, good.

Canopy Vigour (C.V.) An assessment of the health of the tree, based on comparison of

the amount of deadwood and live growth in the crown compared to a 100% healthy tree. The size, colour and amount of foliage are also considered in this category. This is measured on a scale of poor,

fair, good.

#### 2.3 Tree Condition

Tree health recorded in relation to each of the assessment criterion (TI, CS and CV)

Good: Tree displays less than 15% deficiency/defect within the given tree

assessment criteria (TI, CS, CV).

Fair: Tree displays 15%-40% deficiency/defect within the given tree

assessment criteria (TI, CS, CV).

**Poor:** Tree displays greater than 40% deficiency/defect within the given

tree assessment criteria (TI, CS, CV).

#### 3.0 DISCUSSION

Field observations were undertaken on June 1<sup>st</sup> and 6<sup>th</sup>, 2016 in areas shown on the Tree Management Plans (see Appendix A). Detailed tree assessments for tree species, general health condition and dripline radius were undertaken for trees within the subject property limits and within 10m of the subject property limits. Trees with a DBH greater than 10 cm were inventoried. All new plantings found onsite were also inventoried. This includes trees with a DBH smaller than 10cm that are supported by stakes and guys, or within a cultivated landscape.

#### 3.1 Summary of Existing Conditions

The inventory was restricted to the area within 10m of the existing Mavis Road. Tree inventory findings are recorded in the Tree Inventory and Preservation Charts (see Table 1) and in the Tree Management Plans (see Appendix A).

A total of +/- 920 trees are located within the study area. A total of +/- 843 located between Courtneypark Rd. West and Highway 407 were inventoried (368 on the east side of Mavis Road and 475 on the west side). A further 77 (approximately) are located north of Highway 407

between the highway on-ramp and Ray Lawson Boulevard and were not inventoried or assessed in the field. A total of 208 trees are located on private property and 711 are located on public property, including street trees along Mavis Road and adjacent streets, the Highway 407 ramps and Fletcher's Flats green space.

A total of 250 trees were individually tagged. Approximately 562 trees were assessed in 105 groupings. A total of 30 trees were individually assessed but not tagged owing to barriers to access and/or private ownership. Trees range in size from 5-25 cm diameter at breast height (DBH).

Trees were found to be in mostly fair to good condition. Vegetation found to be in fair to poor condition showed signs and symptoms of weakly formed unions, poor form due to abnormal development of scaffold branches causing injury to other branches, co-dominant stems, included bark, trunk wounds, winter/environmental damage, scorched and/or undersized leaves, sprouting, exfoliating bark, sucker growth, suppression, broken branches and deadwood ranging between 10-70%.

The majority of trees on site are planted three or more metres apart and have adapted to the wind-swept conditions common to major corridors. Several privately-owned trees are located behind chainlink or privacy fencing.

The breakdown of trees inventoried on and adjacent to the study area includes:

- Colorado Spruce (*Picea pungens*)
- Norway Maple (*Acer platanoides*)
- Silver Maple (Acer saccharinum)
- Austrian Pine (*Pinus nigra*)
- Thornless Honeylocust (*Gleditsia triacanthos var. inermis*)
- Crabapple species (*Malus sp.*)
- Ornamental Pear (*Pyrus sp.*)
- American Elm (*Ulmus americana*)
- Manitoba Maple (Acer negundo)
- Zelkova (Zelkova serrata)
- Basswood (*Tilia americana*)
- Celtis occidentalis (Celtis occidentalis)
- Norway Spruce (Picea abies)
- Red Oak (Quercus rubra)
- Littleleaf Linden (*Tilia cordata*)
- White Oak (Quercus alba)
- Eastern White Cedar (*Thuja occidentalis*)
- Ash species (*Fraxinus sp.*)
- White Mulberry (*Morus alba*)
- Burr Oak (Quercus macrocarpa)
- Pawpaw (Asimina triloba)
- Juniper species (*Juniperus sp.*)

#### 3.2 By-laws / Permits / Directives

3.2.1 City of Mississauga Private Tree Protection By-law 254-12 (2012) and Development and Design Construction Hoarding Detail (Jan. 2008)

The City of Mississauga Urban Forestry Department has a tree protection policy in place for privately owned trees. No trees on private property should be injured or harmed. In addition, the City of Mississauga's hoarding detail is included in the Tree Management Plans, which specifies the size of tree protection zone and style of tree protection barrier that should be implemented.

3.2.2 CFIA Directive (D-03-08): Phytosanitary Requirements to Prevent the Introduction Into and Spread within Canada of the Emerald Ash Borer, Agrilus planipennis (Fairmaire)

The Canadian Food Inspection Agency issues a prohibition of movement where the emerald ash borer (EAB) has been confirmed. EAB has been found in Mississauga and therefore has been identified as part of the EAB Regulated Area encompassing most of southern and central Ontario and western Quebec. The study area is within identified areas prohibiting the movement of regulated materials (including but not limited to ash wood or bark and ash wood chips or bark chips) from the regulated area.

• Ash trees were observed within the limits of work. A visual assessment confirmed the presence of Emerald Ash Borer within these trees. These trees are permitted to be either chipped on site and/ or cut down and removed from site. Chipped Ash material that is to remain on site must be grinded or chipped to a size of less than two and a half (2.5) cm in any two (2) dimensions. All Ash material chipped or whole that is removed from site, must be disposed of within the regulated area of Canada. Removal, disposal and treatment of Ash material must be in compliance with Appendix 5 & 6 of directive #D-03-08. If it is necessary for Ash materials to be disposed of outside of this area than a 'Movement Certificate' will be required from the CFIA prior to transport. Contractor to consult with CFIA Mississauga office for specific requirements (1050 Courtneypark Dr E, Mississauga, ON L5T 1L7, (289) 247-4098).

#### 4.0 ANALYSIS

Tree preservation and removal recommendations were determined based on proposed grading plans, the City of Mississauga's Tree Protection By-Law and best management practices.

#### 4.1 Summary of Recommendations for Tree Preservation / Removal

Trees selected for retention should be protected with tree protection fencing at the dripline or as far from the dripline as the proposed limit of grading allows. No construction activity is permitted within the tree protection zone. Based on the proposed limit of grading and construction works, a total of 145 trees are required to be removed, including 6 dead standing trees. A total of 65 trees will be impacted by grading and construction works within the critical root zone. In addition, dead trees and trees in poor condition (e.g. topped leaders, considerable dieback) should be considered for removal and where possible, replaced with appropriate native species. If the design allows, plantings should be considered in areas where street trees were previously removed. Best efforts should be made during the detailed design phase to retain all trees located on private property and trees that are in fair to good condition. Through the use of appropriate mitigation measures, tree protection and sensitivity to the tree preservation, tree removals may be

kept to a minimum. Refer to Section 6.0 for Tree Preservation Strategies. Descriptions of individual trees and groupings are presented below.

#### 4.1.1 Ray Lawson Boulevard to Highway 407

**Tree numbers: G106-G110, T31** 

As noted above, information on trees located north of Highway 407 was obtained from as-built drawings provided by the Region of Peel and aerial photography/street imagery dated June 2016 available online. No field survey was conducted for these trees. The as-built drawings are included in Appendix B and described to a limited extent in Table 1.

Trees recommended for retention: G106, G107 (Retain 14), G108, G109 (Retain 11), G110 (Retain 9), T31

A total of 46 trees are recommended for retention and preservation. Of these trees, 3 will be impacted by grading and construction works within the critical root zone.

Trees recommended to be removed: G107 (Remove 5), G109 (Remove 11), G110 (Remove 15)

Proposed grading works will require the removal of 31 trees. Refer to Tree Management Plans (Appendix A) for specific tree impacts within groupings.

#### 4.1.2 Highway 407 to Twain Avenue / Knotty Pine Grove

Tree numbers: 1-31, 80-110, G1-G11, G41-G56, T30

Trees along this block of Mavis Road consist of one woodlot grouping (G1) beside the Highway 407 on-ramp, 171 planted native and non-native street trees and 7 trees located away from the street. There are 14 dead trees. The woodlot grouping is in fair to good condition, contains a mature Sugar Maple and should be protected if grading allows.

Trees recommended for retention: 1-26, 80-102, G1-G10, G11 (Retain 1), G41-G46, G47 (Retain 3), G48, G49 (Retain 2), T30

A total of 125 trees are recommended for retention and preservation. Of these trees, 49 will be impacted by grading and construction works within the critical root zone.

Trees recommended to be removed: 27-31, 103-110, G11 (Remove 2), G47 (Remove 1), G49 (Remove 1), G50-G56

Proposed grading works will require the removal of 53 trees. Refer to Tree Management Plans (Appendix A) for specific tree impacts within groupings.

#### 4.1.3 Twain Avenue / Knotty Pine Grove to Kaiser Drive / Envoy Drive

Tree numbers: 32-41, 55-79, G12-G20, G32-G40, T1-T2

Trees along this block of Mavis Road consist of 98 planted native and non-native street trees and 17 trees located off of the street. There are also three sections of cut stumps where rows of street trees have been removed.

Trees recommended for retention: 32-35, 37-41, 55-79, G12-G20, G32-G40, T1-T2

A total of 114 trees are recommended for retention and preservation.

Trees recommended to be removed: 36

It is recommended that 1 Ash tree (tree number 36) showing heavy dieback and evidence of Emerald Ash Borer should be removed.

4.1.4 Kaiser Drive / Envoy Drive to Derry Road West

Tree numbers: 42-54, G21-31, T3-T18, T29

Trees along this block of Mavis Road consist of 83 planted native and non-native street trees and 10 trees located off of the street. There are 8 dead trees.

Trees recommended for retention: 53, 54, G21-G25, G26 (Retain 8), G27-31, T3-T18, T29

A total of 78 trees are recommended for retention and preservation. Of these trees, 2 will be impacted by grading and construction works within the critical root zone.

Trees recommended to be removed: 42-52, G26 (Remove 4)

Proposed grading works will require the removal of 15 trees. Refer to Tree Management Plans (Appendix A) for specific tree impacts within groupings.

4.1.5 Derry Road West to Novo Star Drive / Crawford Mill Avenue

Tree numbers: 170-225, G25, G95-G101, T19, T20, T28

Trees along this block consist of one grouping on public property (G25 – 16 trees) that contains native species planted by a local organization, as well as 88 planted native and non-native street trees and 15 trees located off of the street. There are 7 dead trees.

Trees recommended for retention: 170-200, 206-225, G25, G93-G101, T19, T20, T28

A total of 114 trees are recommended for retention and preservation. Of these trees, 2 will be impacted by grading and construction works within the critical root zone.

Trees recommended to be removed: 201-205

Proposed grading works will require the removal of 5 trees.

4.1.6 Novo Star Drive / Crawford Mill Avenue to Western Skies Way / Craig Carrier Court

Tree numbers: 145-169, 226-250, G68-72, G85-G92, G102-G104, T21, T22, T26, T27

Trees along this block of Mavis Road consist of 116 planted native and non-native street trees and 37 trees located off of the street. There are 17 dead trees.

Trees recommended for retention: 145-169, 226-250, G68-72, G85-G92, G102-G104, T21, T22, T26, T27

All trees located within this area are recommended for retention and preservation.

#### Trees recommended to be removed:

No tagged trees or trees in groupings are recommended for removal. However, dead trees and trees in poor condition (e.g. topped leaders, considerable dieback) should be considered for removal and where possible, replaced with appropriate native species.

4.1.7 Western Skies Way / Craig Carrier Court to Courtneypark Drive West

Tree numbers: 111-144, G58-G67, G73-G84, T23-T25

Trees along this block of Mavis Road consist of 7 groupings of naturalized native and non-native trees in Fletcher's Flats green space (G60-G64 and G74-G75 – approximately 60 trees), 86 planted native and non-native street trees and 39 trees located off of the street. There are several dead Ash trees in grouping G64, as well as 3 dead trees located on Mavis Road and 2 dead trees off of the street.

Trees recommended for retention: 111-134, G58-G67, G73, G74 (Retain 8), G75-G79, G80 (Retain 1), G81 (Retain 1), G84, T23

A total of 145 trees are recommended for retention and preservation. Of these trees, 9 will be impacted by grading and construction works within the critical root zone.

Trees recommended to be removed: 135-144, G74 (Remove 5), G80 (Remove 5), G81 (Remove 8), G82, G83, T24, T25

Proposed grading works will require the removal of 40 trees. In addition, it is recommended that the dead Ash trees in the meadow groupings should be removed and consideration should be given to enhancement of the meadow area through the planting of native species.

#### 5.0 TREE MANAGEMENT PROCESS

The tree management process can be found below. Steps include initial tree removals to post-construction monitoring.

#### 5.1 Tree Removals

Removals should be marked in the field by a consulting arborist prior to any cutting or stumping taking place. Removals will be based on proposed roadway widening limits and tree health condition.

#### 5.2 Tree Protection Fencing

The following guidelines will apply to the installation of tree protection fence:

- A site meeting will be held with the contractor and consulting arborist to review the staked layout for the temporary tree protection fence to confirm the clearing limits and the installation location.
- A site inspection will take place to inspect the installed tree protection fencing and, if in accordance with the Arborist Report and Tree Management Plans, issue a certification letter to the City of Mississauga for their review and approval.
- All of the tree protection measures are to be installed and approved prior to commencement of site grading. Periodic inspection and maintenance of the tree protection measures will be required throughout construction.
- During the detailed design phase it is recommended that consideration is given to adding silt fabric to existing chain link fencing on public property where tree protection fencing is required, in place of standard tree protection fencing. This will reduce the amount of disturbance to the critical root zone of trees recommended for preservation.
- To avoid root zone impacts on trees to be retained, excavated material will not be stored against the tree protection barrier. The temporary protection fence is to be maintained throughout the entire construction period. No equipment storage, flushing of fuel, washing of construction equipment, and storage of spoil or construction debris is to occur behind the temporary protection fence.

#### 5.3 Monitoring Plan

#### 5.3.1 Construction

 Upon completion of initial grading, a site inspection will be undertaken by a consulting arborist to monitor tree protection fencing, unintended damage, pruning needs and hazard trees. • Inspections will be undertaken by a consulting arborist to ensure that the tree preservation measures are maintained during construction.

#### 5.3.2 Post-Construction

 The temporary protection fence will be removed last after review and approval by a consulting arborist once all construction has ended, soils are stabilized and all equipment has been removed.

#### 6.0 TREE PRESERVATION STRATEGIES

The survival rates for trees which are in proximity to construction are dependent on the resultant changes to a variety of environmental and anthropogenic factors. These construction activities bring about changes to environmental features of the existing microclimate including winds, temperature, soil moisture, available sunlight, soil quality, and the level of the water table. Increased human activities may also damage the structure and/or physiology of the trees. The full effects of the damage may not appear until several years after its occurrence. Thus, it is essential that both vegetative clearing and preservation methods follow the guidelines below and those generally accepted as keeping with good horticultural and construction practices. The guidelines are subject to adjustments deemed reasonable and appropriate considering the proximity and number of trees involved and the site-specific servicing requirements.

#### 6.1 General Notes

The following is a list of practical considerations for the construction phase of the project that applies to all trees that may be impacted by construction.

- Prior to the commencement of tree removals, all limits of the locations of the tree protection fencing must be clearly staked in the field and approved by the Contract Administrator. All trees within the tree protection zone must be left standing. The tree removals must be coordinated to be completed outside of the migratory bird nesting season.
- All removals must be felled into the work area to ensure that damage does not occur to the trees within the tree protection zone.
- Upon completion of the tree removals, all felled trees are to be removed from the site, and all brush chipped. All brush, roots and wood debris must be shredded into pieces that are smaller than 25 mm in size to ensure that any insect pests that could be present within the wood are destroyed. This work must be completed outside of the migratory bird nesting season.
- The City of Mississauga is within the EAB Regulated area covering most of southern Ontario. The removal and disposal of Ash (*Fraxinus sp.*) is subject to the Canadian Food and Inspections Agencies (CFIA) regulations. As mandated by the Canadian Food

Inspection Agency a *prohibition of movement will be issued for properties where the emerald ash borer (EAB) has been confirmed*. This measure prohibits the movement of regulated materials outside of the regulated area. Regulated materials include: ash trees (whole or parts), ash nursery stock, ash logs and branches, ash lumber, wood, packaging materials with an ash component, ash wood or bark, ash wood chips or bark chips, firewood from all tree species. EAB regulated articles moving out of a regulated area must be accompanied by a *Movement Certificate issued by the CFIA*. All vehicles used to transport regulated articles must be cleaned of debris prior to loading at origin and prior to departure from the receiving facility. The required treatment will depend upon the regulated article transported, but may include sweeping or power washing. Should it be necessary to dispose of materials on site methods of disposal include incineration or deep burial. For more information about transporting regulated articles and disposal contact your local CFIA office

- Tree protection fencing must be constructed and installed as per the details on the approved Tree Management Plan (see Appendix A). Upon installation of the fencing, the Contractor will contact the Contract Administrator to review and approve the fencing and its location prior to commencement of any grading work.
- Areas within the tree protection zone are not to be used for any type of storage (e.g. storage of debris, construction material, surplus soils, and construction equipment). No trenching or tunneling for underground services shall be located within the tree protection zone or dripline of trees designated for preservation within or adjacent to the construction zone.
- No grade changes shall occur within the tree protection zone unless approved as part of
  this report. In the event that any grade changes may occur, either as a cut or fill situation,
  the Contract Administrator must be notified prior to such work occurring to ensure that all
  precautions to preserve the tree can be made.
- Trees shall not have any rigging cables or hardware of any sort attached or wrapped around them, nor shall any contaminants be dumped within the protective areas. Further, no contaminants shall be dumped or flushed where they may come into contact with the feeder roots of the trees.
- In the event that it is necessary to remove additional limbs or portions of trees, after construction has commenced, to accommodate construction, the Contract Administrator is to be informed and under their direction the removal is to be executed carefully and in full accordance with arboricultural techniques, by a certified arborist.

#### 6.2 Pruning Practices

 All limbs damaged or broken during the course of construction should be pruned cleanly, utilizing by-pass secateurs in accordance with approved horticultural practices. Should there be a potential risk of transfer of disease from infected to non-infected trees, tools must be disinfected after pruning each tree by dipping in methyl hydrate. This practice is particularly important during periods of tree stress and when pruning many members of the same genera, within which a disease could be spread quickly (i.e., Verticillium Wilt on Maples or Fireblight on genera of the Rosacea family).

- During excavation operations in which the root area is affected, the Contractor is to prune all exposed roots cleanly. Pruned root ends are to be neatly and squarely trimmed and the area is to be backfilled with clean native fill as soon as possible to prevent desiccation and promote root growth. The exposed roots should not be allowed to dry out, and the Contractor shall discuss watering of the roots with a consulting arborist so that the roots shall maintain optimum soil moisture during construction and backfilling operations, yet so not to interfere with construction operations. Backfilling must be with clean uncontaminated topsoil from an approved source. Texture must be coarser than existing soils, and to come into clean contact with existing soils (remove air pockets, sod, etc.)
- All pruning cuts should be made to a growing point such as a bud, twig or branch, cut just outside the branch collar (the swollen area at the base of the branch that sometimes has a bark ridge), and perpendicular to the branch being pruned rather than as close to the trunk as possible. This minimizes the site of the wound. No stubs should be left. Poor cut location, poor cut angle and torn cuts are not acceptable.
- Tree roots should not be excavated within the critical structural rooting area.
  This is the minimum area of the root system necessary to maintain vitality or stability of the
  tree. Typically this area extends to the dripline of the tree. The severing of one root can
  cause approximately 5-20% loss of the root system. A reduction of this area by greater
  than 30% can pose stability concerns for the tree.
- Extensive pruning is best completed before plants break dormancy. Pruning should be limited to the removal of no more than one third (1/3) of the total bud and leaf bearing branches. Pruning should include the careful removal of:
  - deadwood,
  - branches that are weak, damaged, diseased and those which will interfere with construction activity,
  - secondary leaders of conifers,
  - trunk and root suckers.
  - trunk waterspouts, and
  - tight V-shaped or weak crotches (included unions).
- The Contractor must report immediately any damage to trees such as broken limbs, damage to roots, or wounds to the main trunk or stem systems so that the damage can be assessed immediately.
- The tree protection fencing will be maintained until all construction is completed, soils are stabilized and all of the equipment has been removed from the site.

#### 6.3 Establishment of Tree Protection Zone (TPZ)

- Tree preservation measures, including the establishment of the Tree Protection Zone (TPZ) shall apply to the individual trees denoted for preservation on the Tree Management Plan (Appendix A), as well as all vegetated areas noted for retention.
- Trees located within the study area that are to be preserved will have tree protection fencing installed at the dripline to establish a tree protection zone. All trees located on adjacent properties shall be preserved unless otherwise stated in this report.
- No grade changes shall occur within the tree protection zone. In the advent that grade changes occur either as a cut or fill situation, the Contract Administrator must be notified so that precautions to preserve the tree can be determined prior to the placement of fill or excavation activities.
- Every precaution must be taken to prevent damage to trees and protect root systems from damage, compaction and contamination resulting from the construction to the satisfaction of the Contract Administrator.
- Trees that require pruning to permit construction activities have been identified in this
  Arborist Report. In the event that it is necessary to remove additional limbs or portions of
  trees, after construction has commenced, to accommodate construction, the Contract
  Administrator is to be informed and under their direction the removal is to be executed
  carefully and in full accordance with arboricultural techniques, by a certified arborist.
- Any damage to trees such as broken limbs, damage to roots, or wounds to the main trunk
  or stem systems are to be reported to a consulting arborist so that the damage can be
  assessed immediately and mitigation can be promptly implemented.

#### 7.0 CONCLUSIONS

The implementation of tree management and protection measures outlined within this report will promote the continued health of trees to be retained. Enhancement of the boulevard and remaining open spaces adjacent to the new roadway limit will help mitigate the overall loss of vegetation. Any trees slated for removal should be done so with care, avoiding and mitigating any negative impacts to adjacent trees to be retained, and in accordance with good arboricultural practices. Care should be taken to protect trees with tree protection fencing as illustrated on the attached plans. Tree protection fencing shall be erected prior to the start of construction and demolition.

#### 8.0 LIMITATIONS OF ASSESSMENT

It is our policy to attach the following clause regarding limitations. We do this to ensure that the client is aware of what is technically and professionally realistic in retaining trees.

The assessment of the trees presented in this report has been made using accepted arboricultural techniques. These include a visual examination of all the above ground parts of the tree for structural defects, scars, external indications of decay such as fungal fruiting bodies, evidence of attack by insects, discoloured foliage, the condition of any visible root structures, the degree and direction of lean (if any), the general condition of the trees and the surrounding site, and the proximity of property and people. Except where specifically noted, the trees were not cored, probed or climbed and there was no detailed inspection of the root crowns involving excavations. Notwithstanding the recommendations and conclusions made in this report, it must be recognized that trees are living organisms, and their health and vigour constantly change over time. They are not immune to changes in site conditions or seasonal variations in the weather conditions.

While reasonable efforts have been made to ensure that the subject trees are healthy, no guarantees are offered, or implied, that these trees or any of their parts will remain standing. It is both professionally and practically impossible to predict with absolute certainty the behaviour of any single tree or its component parts under all circumstances. Inevitably, a standing tree will always pose some level of risk. Most trees have the potential for failure under adverse weather conditions, and the risk can only be eliminated if the tree is removed. Although every effort has been made to ensure that this assessment is reasonably accurate, the trees should be reassessed periodically. The assessment presented in this report is valid at the time of inspection.

**WSP | MMM GROUP LIMITED** 

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#### 9.0 REFERENCES

City of Mississauga. 2012. Private Tree Protection By-Law

Canadian Food Inspection Agency. 2014. CFIA Directive (D-03-08): Phytosanitary Requirements to Prevent the Introduction Into and Spread within Canada of the Emerald Ash Borer, Agrilus planipennis (Fairmaire)

Region of Peel. 2014. Existing Tree Survey – Mavis Road (from Steeles Ave. West to Highway 407).

#### Table 1

**Tree Inventory and Preservation Charts** 

			Tal	ble 1: Ti	ree Invei	ntory	and F	rese	rvation Chart	S		
Project: Ma	vis Drive Class EA								nd Nicholas Miniga			
-	d Work: June 1 and 6				Sunny, 25 t	_						Conditions: Good, Fair, Poor, Dead
Tree Tag	Botanical Name	Common Name	No.		Height (m)	-	e Condit		Tree Ownership	Dripline	Recommendation	Remarks
#						TI	CS	CV		Radius		
CS - Canopy St CV - Canopy vi	rity: assessment of the trunk for any ructure: assessment of scaffold brar	nches, unions and canopy e tree, based on comparison of the a	mount of dea	adwood and liv	ve growth in the	Fair: tree	e displays displays 1	5-40% de	n 15% deficiency/defect w eficiency/defect within the nan 40% deficiency/defec	given tree	assessment criteria (TI	,CS,CV)
	on / Removal Legend Trees to be impacted, removed, or Trees recommended to be retained	varied recommendations					ping numb		<u>a)</u>			
	Trees recommended to be retained	and preserved	MAVIS	ROAD - EA	ST SIDE - R				VARD TO HIGHWA	Y 407		
	ation on trees located north or these trees.	of Highway 407 was obtaine	d from as-	built drawir	ngs provided	by the	Region	of Peel	and aerial photogra	phy/stree	t imagery dated Ju	une 2016 available online. No field survey was
G106	Unknown, newly planted - Flandscape contract drawing	•	6	10-15		-	-	-	Public	1	Retain	No field data recorded.
G107	Unknown, newly planted - Flandscape contract drawing	•	19	10-15		-	-	-	Public	1	Remove 5; 1 impacted	No field data recorded. Refer to Tree Management Plans for specific tree impacts within grouping.
			MAVIS	ROAD - W	EST SIDE -	STEEL	ES AVE	NUE W	EST TO HIGHWAY	407		
G108	Unknown, newly planted - Flandscape contract drawing	•	5	15		-	-	-	Private	1.5	Retain	No field data recorded.
G109	Unknown, newly planted - Flandscape contract drawing	•	22	10		-	-	-	Public	1	Remove 11; 1 impacted	No field data recorded. Refer to Tree Management Plans for specific tree impacts within grouping.
T31	Unknown, newly planted - Flandscape contract drawing	_	1	10		-	-	-	Public	1	Retain	No field data recorded.
G110	Unknown - Located adjacel Lake Crescent townhomes.		~24	N/A		-	-	-	Private	1	Remove 15; 1 impacted	No field data recorded. Refer to Tree Management Plans for specific tree impacts within grouping.
		M	AVIS ROA	AD - EAST	SIDE - HWY	407 TC	TWAIN	AVEN	IUE / KNOTTY PINE	GROVE		
1	Pinus nigra	Austrian Pine	1	8, 10	5	F	F	Р	Public	3	Retain	Co-dominant union
2	Pinus nigra	Austrian Pine	1	12, 13	5	F	Р	F	Public	3	Retain	Co-dominant union
3	Pinus nigra	Austrian Pine	1	10	3	F	Р	Р	Public	2	Retain	
4-10	Acer saccharinum	Silver Maple	7	12-20		F	F	G	Public	3	Retain	Trunk wounds, suckering
11-13	Gleditsia triacanthos var. inermis	Thornless Honeylocust	3	10-15		G	G	G	Public	3	Impacted	Some suckering along trunks. Grading within critica root zone.
14-20	Acer saccharinum	Silver Maple	7	12-20		F	F	G	Public	3	Impacted	Trunk wounds, suckering. Grading within critical roczone.
21-23	Acer saccharinum	Silver Maple	3	25		F	F	G	Public	6	Retain	
24-26	Gleditsia triacanthos var. inermis	Thornless Honeylocust	3	12-15		G	F	G	Public	6	Impacted	Grading within critical root zone.
27-28	Acer platanoides	Norway Maple	2	15		F	F	G	Private	5	Remove	#28 is multi-stemmed and suckering. Grading within 1.5m of trunks.
29-31	Acer platanoides 'Crimson King'	Crimson King Norway Maple	3	13		F	F	P-F	Private	4	Remove	#29 has heavy dieback; #31 has heavy lean. Gradin within 1.5m of trunks.

			Tal	ble 1: Tı	ree Inve	ntory	and F	Prese	rvation Chart	S		
Project: May	vis Drive Class EA			Field Wor	k Complete	d By: S	arah Ta	slimi a	nd Nicholas Miniga	n		
	d Work: June 1 and 6				Sunny, 25 t							Conditions: Good, Fair, Poor, Dead
Tree Tag	Botanical Name	Common Name	No.	DBH (cm)	Height (m)	Tre	e Condi	tion	Tree Ownership	Dripline Radius	Recommendation	Remarks
π						TI	CS	CV				
CS - Canopy Str CV - Canopy vig	ity: assessment of the trunk for any ructure: assessment of scaffold brar	nches, unions and canopy e tree, based on comparison of the ar	mount of dea	adwood and liv	e growth in the	Fair: tree	ee displays displays	15-40% d	n 15% deficiency/defect w eficiency/defect within the nan 40% deficiency/defect	given tree	assessment criteria (TI,	CS,CV)
Tree Preservation	on / Removal Legend Trees to be impacted, removed, or Trees recommended to be retained						ping numl		<u>g)</u>			
G1		re <i>Acer saccharum</i> (Sugar Ma	aple - 40c	m DBH), ur	nderstorey	G G	F	G	Public - HWY 407 Ramp		Retain	
G2	Picea pungens	Colorado Spruce	5	10-12	2.5-4	P-F	P-F	P-F	Public	1	Retain	1 tree in grouping dead, leaders bent on 2
G3	Picea pungens	Colorado Spruce	7	15-20	6	G	G	G	Public	2	Retain	
G4	Picea pungens	Colorado Spruce	7	15-20	6-8	G	G	G	Public	2	Impacted	Grading within critical root zone.
G5	Picea pungens	Colorado Spruce	5	10-15	4-6	F	F	P-G	Public	2	3 Impacted	Grading within critical root zone of 3 trees in grouping
G6	Picea pungens	Colorado Spruce	6	15-20	6-8	G	G	G	Public	2	Retain	
G7	Pinus nigra	Austrian Pine	2	25	5,6	G,P	G,P	G	Public	5	Retain	
G8	Picea pungens	Colorado Spruce	5	10-13	6-7	G	G	G	Public	1	Retain	
G9	Acer platanoides 'Columnare'	Columnar Norway Maple	3	12		G	F	G	Public	1	Retain	
G10	Picea pungens	Colorado Spruce	5	10-13	6-8	G	G	G	Public	1-2	Retain	
G11	Pinus nigra	Austrian Pine	3	15-20	6	Р	Р	Р	Public	3	Remove 2; 1 impacted	1 tree in grouping dead. Refer to Tree Management Plans for specific tree impacts within grouping.
		MA	VIS ROA	D - WEST	SIDE - HWY	′ 407 TC	TWAI	N AVE	NUE / KNOTTY PINI	E GROV	E	
80-83	Acer platanoides	Norway Maple	4	15		G	G	G	Public	4	Retain	
84-87	Zelkova serrata	Zelkova	4			Р	Р	Р	Public	2	Retain	1 tree in grouping (#87) dead, #84 and #85 >40% dieback
88-91	Malus species	Crabapple	4	15		G	G	G	Public	3-4	Impacted	Grading within critical root zone.
92-98	Zelkova serrata	Zelkova	7	15		F	F	P-F	Public	2	Impacted	1 leader topped. Grading within critical root zone.
99	Ulmus americana	American Elm	1	15		F	F	Р	Public	4	Impacted	Leaves under sized, burnt spots. Grading within critical root zone.
100	Ulmus americana	American Elm	1	20		F	F	F	Public	6	Impacted	Some dieback. Grading within critical root zone.
101-102	Gleditsia triacanthos var. inermis	Thornless Honeylocust	2	10		G	G	G	Public	4	Impacted	Grading within critical root zone.
103-107	Ulmus americana	American Elm	5	15		G	G	F	Public	3	Remove	Located within limit of grading or grading within 1.5m of trunk.
108-110	Acer saccharum	Sugar Maple	3	12-15		G	G	G	Public	5	Remove	Located within limit of grading.

			Tal	ble 1: Tr	ree Inve	ntory	and F	rese	rvation Charts	S		
Project: May	vis Drive Class EA			Field Wor	k Complete	d By: S	arah Ta	slimi a	nd Nicholas Miniga	n		
Date of Field	d Work: June 1 and 6			Weather:	Sunny, 25 t	o 30 de	grees C	elcius				Conditions: Good, Fair, Poor, Dead
	Botanical Name	Common Name	No.	DBH (cm)	Height (m)	Tre	e Condit	ion	Tree Ownership	Dripline	Recommendation	Remarks
#						TI	CS	CV	1	Radius		
CS - Canopy Str CV - Canopy vig	rity: assessment of the trunk for any d ructure: assessment of scaffold brand gour: assessment of the health of the	ches, unions and canopy tree, based on comparison of the am	nount of dea	adwood and liv	ve growth in the	Fair: tree	ee displays displays 1	5-40% d	n 15% deficiency/defect w eficiency/defect within the han 40% deficiency/defect	given tree	assessment criteria (TI	,CS,CV)
	, colour and amount of foliage are als	o considered										
Tree Preservation	on / Removal Legend Trees to be impacted, removed, or v Trees recommended to be retained						iping numb number (n		<u>g)</u>			
G41		Colorado Spruce	3	10-15	6-8	G	G	G	Public	2	Retain	
G42	Picea pungens	Colorado Spruce	4	15	8	G	G	G	Public	2	Retain	
G43	Gleditsia triacanthos var. inermis	Thornless Honeylocust	2	<10		G	G	G	Public	2	Retain	
G44	Pinus nigra	Austrian Pine	5	15	6-8	G	G	G	Public	3	3 Impacted	Grading within critical root zone of 3 trees in grouping
G45	Pinus nigra	Austrian Pine	4	15	6-8	G	G	G	Public	3	2 Impacted	Grading within critical root zone of 2 trees in grouping
G46	Picea pungens	Colorado Spruce	3	10-15	2-8	P-F	P-F	F	Public	2	Retain	
G47	Picea pungens	Colorado Spruce	4	10-15	3-7	F	F	G	Public	1	Remove 1; 3 impacted	Refer to Tree Management Plans for specific tree impacts within grouping.
G48	Acer platanoides	Norway Maple	2	<10		G	F	F	Public	2	Impacted	Grading within critical root zone.
G49	Picea pungens	Colorado Spruce	3	<10	2	F	Р	Р	2 Public, 1 Private	<1	Remove 1	>40% dieback, leaders bent. Refer to Tree Management Plans for specific tree impacts within grouping.
G50	Grouping: 2 <i>Picea pungens</i> platanoides (Norway Maple)		6	<10	2	Р	Р	Р	Public	<1	Remove	3 dead trees in grouping. Located within limit of grading.
G51	Picea pungens	Colorado Spruce	6	10	6-8	G	G	G	Private	2	Remove	Located within limit of grading.
G52	Picea pungens	Colorado Spruce	5	10	6-8	G	G	G	Private	2	Remove	Located within limit of grading.
G53	Acer rubrum	Red Maple	4	<10		G	G	F	Private	2	Remove	15% dieback, leaves wilting. Located within limit of grading
G54	Picea pungens	Colorado Spruce	6	10	5	G	G	G	Private	2	Remove	Located within limit of grading.
G55	Quercus rubra	Red Oak	3	<10		G	G	F	Private	2	Remove	15% dieback. Located within limit of grading.
G56	Picea pungens	Colorado Spruce	6	10	3-5	G	G	G	Private	2	Remove	Located within limit of grading.
T30	Morus alba	White Mulberry	1	10		G	G	G	Private	1	Retain	

roject: Ma	vis Drive Class EA			Field Wor	k Complete	d By: S	arah Ta	slimi aı	nd Nicholas Miniga	an		
-	d Work: June 1 and 6				Sunny, 25 to							Conditions: Good, Fair, Poor, Dead
	Botanical Name	Common Name	No.		Height (m)		e Condit		Tree Ownership	Dripline	Recommendation	Remarks
#						TI	CS	CV		Radius		
S - Canopy S V - Canopy vi own. The size	rity: assessment of the trunk for any of tructure: assessment of scaffold bran gour: assessment of the health of the e, colour and amount of foliage are als	ches, unions and canopy tree, based on comparison of the a	amount of de	adwood and liv	ve growth in the	Fair: tree	e displays displays 1	5-40% de	15% deficiency/defect v fficiency/defect within the an 40% deficiency/defec	given tree	assessment criteria (TI	,CS,CV)
ee Preservati	on / Removal Legend Trees to be impacted, removed, or Trees recommended to be retained					G#: Grou T#: Tree	iping numb number (n	per (no tag o tag)	<u>a)</u>			
		MAVIS ROAL	O - EAST	SIDE - TWA	AIN AVENUE	/ KNO	TTY PIN	IE GRO	VE TO KAISER DE	RIVE / EN	VOY DRIVE	
32-35	Acer platanoides	Norway Maple	4	15		G	G	G	Public	3	Retain	
36	Fraxinus sp.	Ash species	1	14		F	Р	Р	Public	4	Remove	Leader broken, 90% dieback , Emerald Ash Borel evidence
37	Tilia cordata	Littleleaf Linden	1	15		G	G	F	Public	4	Retain	Burnt spots on leaves
38	Tilia cordata	Littleleaf Linden	1	15		G	G	F	Public	4	Retain	Burnt spots on leaves
39-41	Tilia cordata	Littleleaf Linden	3	20		G	F	F	Public	4	Retain	Burnt spots on leaves
G12	Picea pungens	Colorado Spruce	2	10	6	G	G	G	Public	1	Retain	
G13	Picea pungens	Colorado Spruce	4	10-13	6-8	G	G	G	Public	1-2	Retain	
G14	Picea pungens	Colorado Spruce	7	15	8-9	G	G	G	Public	1-2	Retain	
G15	Gleditsia triacanthos var. inermis	Thornless Honeylocust	9	<10		G	F	G	Public	3-4	Retain	Some co-dominant unions, suckering
G16	Picea pungens	Colorado Spruce	5	10-15	6-8	G	G	G	Public	1-2	Retain	
G17	Picea pungens	Colorado Spruce	5	10-15	6-8	G	G	G	Public	1-2	Retain	
G18	Picea pungens	Colorado Spruce	3	15	8	G	G	F	Public	1-2	Retain	
G19	Acer platanoides 'Crimson King'	Crimson King Norway Maple	2	10		G	G	G	Private	2	Retain	
G20	Corner lot grouping: 2 Pices Spruce), 2 Pyrus (Ornamer Chamaecyparis (Cypress) s	ntal Pear) species, 1	5	10-15		G	G	G	Private	2	Retain	Some suckering
T1	Gleditsia triacanthos var. inermis	Thornless Honeylocust	1	<10		G	G	G	Public	2	Retain	
T2	Morus alba	White Mulberry	1	<10		G	G	G	Public	1	Retain	

			Tal	ble 1: T	ree Invei	ntory	and F	rese	rvation Charts	5		
Project: Ma	vis Drive Class EA			Field Wor	k Complete	d By: Sa	arah Ta	slimi a	nd Nicholas Miniga	n		
Date of Fiel	d Work: June 1 and 6			Weather:	Sunny, 25 t	o 30 de	grees C	elcius				Conditions: Good, Fair, Poor, Dead
Tree Tag	<b>Botanical Name</b>	Common Name	No.	DBH (cm)	Height (m)	Tre	e Condit	ion	Tree Ownership	Dripline	Recommendation	Remarks
#						TI	CS	CV		Radius		
CS - Canopy S CV - Canopy vi	rity: assessment of the trunk for any tructure: assessment of scaffold brar	nches, unions and canopy e tree, based on comparison of the ar	nount of dea	adwood and liv	ve growth in the	Fair: tree	e displays displays 1	15-40% d	n 15% deficiency/defect wi eficiency/defect within the nan 40% deficiency/defect	given tree	assessment criteria (TI,	CS,CV)
Tree Preservat	on / Removal Legend Trees to be impacted, removed, or Trees recommended to be retained					G#: Grou T#: Tree			<u>a)</u>			
		MAVIS ROAD	- WEST	SIDE - TWA	AIN AVENUE	E / KNO	TTY PIN	NE GRO	OVE TO KAISER DR	IVE / EN	IVOY DRIVE	
55-58	Acer platanoides	Norway Maple	4	25		G	G	G	Public	3-4	Retain	
59-61	Malus species	Crabapple	3	10		G	G	G	Public	2	Retain	
62-73	Ulmus americana	American Elm	12	12-20		G	G	G	Public	3	Retain	
74-75	Gleditsia triacanthos var. inermis	Thornless Honeylocust	2	10-15		F	G	G	Public	5	Retain	Some split bark
76-79	Gleditsia triacanthos var. inermis	Thornless Honeylocust	4	10-15		F	G	G	Public	5	Retain	Some split bark
G32	Corner lot grouping: 2 Pyru Pear), 1 Picea pungens (C		3	10		G	G	G	Private	2	Retain	
G33	Picea pungens	Colorado Spruce	3	12	6	P-G	P-G	P-G	Public	1	Retain	1 leader topped
G34	Picea pungens	Colorado Spruce	9	10-15	6-8	G	G	G	4 Public, 5 Private	2	Retain	
G35	Picea abies	Norway Spruce	2	10	8	G	G	G	Private	2	Retain	
G36	Grouping: 1 Acer platanoid pungens (Colorado Spruce	es (Norway Maple), 5 <i>Picea</i>	6	10-15	2-6	P-G	P-G	P-G	Public	1-2	Retain	3 Spruce leaders topped, 1 Spruce leader bent
G37	Picea pungens	Colorado Spruce	5	6-8		G	G	G	Public	2	Retain	
G38	Acer negundo	Manitoba Maple	2	<10		Р	Р	F	Public	3	Retain	Multi-stemmed
G39	Picea pungens	Colorado Spruce	3	15	6-8	G	G	G	Public	2	Retain	
G40	Picea pungens	Colorado Spruce	3	<10-17	4-8	F	G	G	Public	1-2	Retain	1 under 10cm

roject: May	is Drive Class EA			Field Wor	k Complete	d Bv· S		Prese	nd Nicholas Miniga			
-	d Work: June 1 and 6			+	Sunny, 25 to				na miniga			Conditions: Good, Fair, Poor, Dead
	Botanical Name	Common Name	No.		Height (m)	-	e Condit		Tree Ownership	Dripline	Recommendation	Remarks
#						TI	CS	CV	·	Radius		
S - Canopy St V - Canopy vig rown. The size	ity: assessment of the trunk for any of ructure: assessment of scaffold bran jour: assessment of the health of the colour and amount of foliage are als	ches, unions and canopy tree, based on comparison of the an	nount of de	adwood and liv	ve growth in the	Fair: tree	ee displays displays 1	15-40% d	n 15% deficiency/defect w eficiency/defect within the nan 40% deficiency/defect	given tree	assessment criteria (TI,	CS,CV)
ee Preservation	on / Removal Legend Trees to be impacted, removed, or Trees recommended to be retained					G#: Grou T#: Tree	ping numb number (n	oer (no ta no tag)	g)			
		MA	/IS ROA	D - EAST S	IDE - KAISE	R DRIV	E / ENV	OY DR	RIVE TO DERRY RO	AD WES	Τ	
G21	Corner lot grouping: 4 <i>Picea Pyrus</i> (Ornamental Pear) sp (Colorado Spruce)		6	10-15	8-10	G	G	G	1 Public, 5 Private	3-4	Retain	
G22	Picea pungens	Colorado Spruce	3	15	8-10	G	G	G	Public	2	Retain	
G23	Picea pungens	Colorado Spruce	4	15	8-10	G	G	G	Public	2	Retain	
G24	Gleditsia triacanthos var. inermis	Thornless Honeylocust	3	<10		G	F	G	Public	3	Retain	1 branch broken on centre tree
T3	Quercus alba	White Oak	1	12		F	G	G	Public	3	Retain	Leader leaning at top, co-dominant union
T4	Quercus alba	White Oak	1	10		G	G	G	Public	2	Retain	Leader leaning at top, co-dominant union
T5	Pinus nigra	Austrian Pine	1	15	6	G	G	G	Public	2	Retain	
T6	Quercus rubra	Red Oak	1	10		F	Р	Р	Public	1	Retain	>40% dieback
T7	Quercus rubra	Red Oak	1	10		G	F	F	Public	2	Retain	15-40% dieback
Т8	Quercus rubra	Red Oak	1	10		G	F	G	Public	2	Retain	15-40% dieback
Т9	Pinus nigra	Austrian Pine	1	15	6	G	G	G	Public	3	Retain	
T10-T13	Tilia americana 'Fastigiata'	Columnar Basswood	3	<10		G	F	G	Public	1	Retain	T11 >40% dieback, still staked
T14	Quercus alba	White Oak	1	10		F	F	F	Public	2	Retain	15% dieback, co-dominant union
T15	Quercus alba	White Oak	1	10		G	F	G	Public	3	Retain	Co-dominant union
T16-T17	Pyrus species	Ornamental Pear	2	12		G	F	G	Public	1	Retain	Crowded crown, too many internal branches
T18	Pinus nigra	Austrian Pine	1	17	7	G	G	G	Public	3	Retain	

			Ta	ble 1: Ti	ree Inve	ntory	and F	Prese	ervation Charts	5		
Project: Ma	vis Drive Class EA								nd Nicholas Miniga			
Date of Fiel	d Work: June 1 and 6				Sunny, 25 t	o 30 de	grees C	elcius				Conditions: Good, Fair, Poor, Dead
Tree Tag #	Botanical Name	Common Name	No.	DBH (cm)	Height (m)	Tre	e Condit	tion	Tree Ownership	Dripline Radius	Recommendation	Remarks
#						TI	CS	CV	]	rtaarao		
CS - Canopy St CV - Canopy viç	rity: assessment of the trunk for any ructure: assessment of scaffold bran	nches, unions and canopy e tree, based on comparison of the ar	mount of dea	adwood and liv	e growth in the	Fair: tree	ee displays displays 1	15-40% d	n 15% deficiency/defect wildeficiency/defect within the han 40% deficiency/defect	given tree	assessment criteria (TI	,CS,CV)
ree Preservati	on / Removal Legend Trees to be impacted, removed, or Trees recommended to be retained						ping numb		ng)			
		MAV	/IS ROAI	O - WEST S	IDE - KAISI	ER DRI\	/E / EN\	VOY DI	RIVE TO DERRY RO	AD WES	ST	
G26	Laurelwood Terrace Entran platanoides 'Crimson King' pungens (Colorado Spruce	(Norway Maple), 10 Picea	12	10-15	6-8	G	G	G	Private	2-4	Remove 4; 1 impacted	Refer to Tree Management Plans for specific tree impacts within grouping.
42-53	Acer platanoides	Norway Maple	12	15		G	G	G	Private	3-5	Remove 11; 1 impacted	Refer to Tree Management Plans for specific tree impacts within grouping.
G27	Picea pungens	Colorado Spruce	9	10-15	6-8	G	G	G	Public	2	Retain	1 tree in grouping dead
G28	Acer platanoides 'Crimson King'	Crimson King Norway Maple	13	<10		G	F	F-G	Public	1	Retain	Some dieback (<15%)
G29	Picea pungens	Colorado Spruce	5	12	6-10	G	G	G	Public	2	Retain	
G30	Tilia americana	Basswood	3	15		G	G	G	Public	3	Retain	
54	Gleditsia triacanthos var. inermis	Thornless Honeylocust	1	13		G	G	G	Public	1	Retain	
T29	Picea pungens	Colorado Spruce	1	12	8	G	G	G	Public	2	Retain	
G31	Corner lot grouping: 1 Asim Picea pungens (Colorado S (Crabapple) species, 2 Pyro species	Spruce), 1 <i>Malus</i>	6	<10		F	F	G	1 Public, 5 Private	1-2	Retain	
		MAVIS ROAL	D - EAST	SIDE - DEI	RRY ROAD	WEST	TO NOV	O STA	R DRIVE / CRAWFO	RD MIL	L AVENUE	
170	Gleditsia triacanthos var. inermis	Thornless Honeylocust	1	12		G	G	G	Public	4	Retain	
171	Gleditsia triacanthos var. inermis	Thornless Honeylocust	1	<10		G	F	G	Public	2	Retain	Undersized
172-173	Celtis occidentalis	Common Hackberry	2	15		G	G	G	Public	3	Retain	
174	Celtis occidentalis	Common Hackberry	1	13		G	G	G	Public	4	Retain	
175-181	Acer platanoides	Norway Maple	7	10-15		F	G	G	Public	3	Retain	Some trunks split
182-191	Gleditsia triacanthos var. inermis	Thornless Honeylocust	10	10-15		G	F	G	Public	4	Retain	Some co-dominant leaders
192	Acer platanoides	Norway Maple	1	15		G	G	G	Public	3	Retain	
193	Ulmus americana	American Elm	1	10		F	G	G	Public	1.5	Retain	Trunk splits

			Tal	ble 1: T	ree Inver	ntory	and F	rese	rvation Chart	S		
Project: Ma	vis Drive Class EA			Field Wor	k Complete	d By: S	arah Ta	slimi ar	nd Nicholas Miniga	an		
Date of Field	d Work: June 1 and 6			Weather:	Sunny, 25 to	30 de	grees C	elcius				Conditions: Good, Fair, Poor, Dead
_	Botanical Name	Common Name	No.	DBH (cm)	Height (m)	Tre	e Condit	ion	Tree Ownership	Dripline Radius	Recommendation	Remarks
#						TI	CS	CV		Raulus		
CS - Canopy St CV - Canopy viç	rity: assessment of the trunk for any ructure: assessment of scaffold brar	ches, unions and canopy tree, based on comparison of the ar	mount of dea	adwood and liv		Fair: tree	—— e displays displays 1	15-40% de	n 15% deficiency/defect v eficiency/defect within the an 40% deficiency/defec	given tree a	assessment criteria (TI	,CS,CV)
Tree Preservation	on / Removal Legend Trees to be impacted, removed, or Trees recommended to be retained					G#: Grou T#: Tree	ping numb	per (no tag	<u>a)</u>			
194	Ulmus americana	American Elm	1	10		G	G	Р	Public	2	Retain	Undersized leaves, burnt spots
195-198	Acer platanoides	Norway Maple	4	15		G	G	G	Public	3	Retain	
G93	Corner lot grouping: 4 Pyrupungens (Colorado Spruce		7	10-15	8	G	F	F	Private	1-3	Retain	
G94	Picea pungens	Colorado Spruce	3	10		G	G	G	Public	2	Retain	
G95	Picea pungens	Colorado Spruce	7	10	1.5-8	P-G	P-G	P-G	Public	2	Retain	2 leaders cut off, 1 undersized
G96	Picea pungens	Colorado Spruce	5	12		G	F	F	Public	2	Retain	
G97	Picea pungens	Colorado Spruce	3	15	8-10	G	G	G	Public	2	Retain	
T19	Picea pungens	Colorado Spruce	1	10	8	G	G	G	Private	2	Retain	
T20	Pyrus species	Ornamental Pear	1	<10		G	G	G	Private	1	Retain	
		MAVIS ROAD	) - WEST	SIDE - DE	RRY ROAD	WEST	ΓΟ NOV	O STA	R DRIVE / CRAWF	ORD MIL	L AVENUE	
G25	Meadow grouping: Picea po young Pinus nigra (Austrian		16	5-20	8-10	G	F	G	Public		Retain	Some leaders bent at top
G98	Window Street Grouping: 5 Spruce)	Picea pungens (Colorado	5	10	8-10	G	G	F	Public	2	Retain	1 dead Ash in grouping; understorey consists of: young Celtis occidentalis and Populus tremuloides.
G99	Picea pungens	Colorado Spruce	5	10		F	G	F	Public	1.5	Retain	
T28	Acer platanoides	Norway Maple	1	20		G	G	G	Private	3	Retain	
G100	Thuja occidentalis	Eastern White Cedar	4	<10	5	G	G	G	Public	<1	Retain	

			Ta	ble 1: Tı	ree Invei	ntory	and F	rese	rvation Chart	S		
Project: Ma	vis Drive Class EA								nd Nicholas Miniga			
Date of Fiel	d Work: June 1 and 6			Weather:	Sunny, 25 t	o 30 de	grees C	elcius				Conditions: Good, Fair, Poor, Dead
_	Botanical Name	Common Name	No.	DBH (cm)	Height (m)	Tre	e Condit	ion	Tree Ownership	Dripline Radius	Recommendation	Remarks
#						TI	CS	CV		Radius		
CS - Canopy St CV - Canopy vi	rity: assessment of the trunk for any ructure: assessment of scaffold brain	nches, unions and canopy e tree, based on comparison of the an	nount of dea	adwood and liv	e growth in the	Fair: tree	e displays displays 1	15-40% de	n 15% deficiency/defect w eficiency/defect within the nan 40% deficiency/defect	given tree	assessment criteria (TI	,CS,CV)
Tree Preservati	on / Removal Legend Trees to be impacted, removed, or Trees recommended to be retained					G#: Grou T#: Tree			<u>a)</u>			
G101	Corner lot grouping: 3 <i>Pice</i> (Ornamental Pear) species	a pungens, 2 Pyrus	5	10-15	6-8	G	G	F	Private	2-3	Retain	
199-204	Zelkova serrata	Zelkova	6	10-15		G	G	F	Public	2-4	Remove 4; 2 Impacted	#200 has orange "X" on trunk - may be scheduled for removal by City. Refer to Tree Management Plans for specific tree impacts within grouping.
205-207	Malus species	Crabapple	3	12		F	G	G	Public	2	Remove 1	Refer to Tree Management Plans for specific tree impacts within grouping.
208-214	Ulmus americana	American Elm	7	10-15		F	F	Р	Public	4	Retain	Undersized leaves, burnt spots
215-219	Malus species	Crabapple	5	13		F	G	G	Public	2	Retain	Leaning trunks
220-224	Zelkova serrata	Zelkova	5	10		F	F	F	Public	2	Retain	#221 to be removed (orange 'X' on trunk)
225	Acer platanoides 'Globosum'	Globe Norway Maple	1	10		F	G	G	Public	2	Retain	Trunk split
		MAVIS ROAD - EAST SIDE	- NOVO	STAR DRIV	E / CRAWF	ORD MI	LL AVE	NUE T	O WESTERN SKIE	S WAY /	CRAIG CARRIER	COURT
145	Acer saccharinum	Silver Maple	1	10		G	G	G	Public	1.5	Retain	
146	Acer saccharinum	Silver Maple	1	10		Р	Р	Р	Public	1	Retain	Trunk wounds, dieback
147-148	Acer saccharinum	Silver Maple	2	12		G	F	G	Public	2	Retain	
149-166	Gleditsia triacanthos var. inermis	Thornless Honeylocust	18	10-15		G	G	G	Public	1-3	Retain	#152 is undersized with lots of suckering and a trunk wound
167	Gleditsia triacanthos var. inermis	Thornless Honeylocust	1	10		F	F	F	Public	3	Retain	1 leader damaged (co-dominant)
168	Celtis occidentalis	Common Hackberry	1	13		G	G	G	Public	2	Retain	
169	Celtis occidentalis	Common Hackberry	1	10	2-6	G	G	G	Public	4	Retain	
G68	Picea pungens	Colorado Spruce	2	10	2-3	G	F	G	Public	1	Retain	
G69	Gleditsia triacanthos var. inermis	Thornless Honeylocust	6	<10		F	G	G	Public	2-3	Retain	Suckering along trunk
G70	Private grouping: Pyrus (P (Colorado Spruce)	ear) species, Picea pungens	5	10-15		G	G	G	Private	3	Retain	
G71	Picea pungens	Colorado Spruce	5	10	3	G	G	G	Public	1-2	Retain	
G85	Picea pungens	Colorado Spruce	5	10	3-6	G	G	F	Public	2	Retain	

			Ta	ble 1: Tı	ree Invei	ntory	and F	rese	rvation Chart	S		
Project: Ma	vis Drive Class EA			Field Wor	k Complete	d By: S	arah Ta	slimi a	nd Nicholas Miniga	n		
	d Work: June 1 and 6				Sunny, 25 t							Conditions: Good, Fair, Poor, Dead
Tree Tag #	Botanical Name	Common Name	No.	DBH (cm)	Height (m)	Tre	e Condit	ion	Tree Ownership	Dripline Radius	Recommendation	Remarks
"						TI	CS	CV				
CS - Canopy St CV - Canopy viç crown. The size	rity: assessment of the trunk for any of tructure: assessment of scaffold brandour: assessment of the health of the colour and amount of foliage are also	ches, unions and canopy tree, based on comparison of the an	nount of de	adwood and liv	ve growth in the	Fair: tree	e displays displays 1	5-40% d	n 15% deficiency/defect w eficiency/defect within the nan 40% deficiency/defec	given tree	assessment criteria (TI,	CS,CV)
Tree Preservation	on / Removal Legend Trees to be impacted, removed, or Trees recommended to be retained						ping numb number (n		<u>g)</u>			
G86	Acer saccharinum	Silver Maple	4	<10		G	F	Р	Public	1-2	Retain	
G87	Picea pungens	Colorado Spruce	5	15	6-8	G	G	G	Public	2	Retain	
G88	Picea pungens	Colorado Spruce	6	<10	3-6	G	G	G	Public	1	Retain	
G89	Picea pungens	Colorado Spruce	4	5-10		G	F	F	Public	1-2	Retain	
G90	Picea pungens	Colorado Spruce	7	5-10		G	F	F	Private	1-2	Retain	
G91	Pyrus species	Ornamental Pear	4	15-20	3	G	G	G	Private	2-4	Retain	
G92	Picea pungens	Colorado Spruce	3	<10	8	G	G	F	Public	1	Retain	
T21	Celtis occidentalis	Common Hackberry	1	<10		G	F	F	Public	1	Retain	
T22	Celtis occidentalis	Common Hackberry	1	<10		G	G	G	Public	2	Retain	
	I	MAVIS ROAD - WEST SIDE	- NOVO	STAR DRIV	/E / CRAWF	ORD M	ILL AVE	NUE T	O WESTERN SKIE	S WAY /	CRAIG CARRIER	COURT
226-230	Ulmus americana	American Elm	5	10-13		G	G	G	Public	3	Retain	
231-236	Acer platanoides	Norway Maple	6	12		G	G	G	Public	3	Retain	
237-242	Acer platanoides	Norway Maple	7	15-20		G	G	G	Public	3	Retain	
243	Zelkova serrata	Zelkova	1	20		Р	Р	G	Public	3	Retain	Split and included bark, co-dominant union
244-248	Acer platanoides 'Globosum'	Globe Norway Maple	5	10		G	G	G	Public	2	Retain	
249	Ulmus americana	American Elm	1	13		G	G	G	Public	3	Retain	
250	Fraxinus species	Ash species	1	12		G	F	G	Public	3	Retain	
G72	Corner lot grouping: <i>Pinus s</i> pungens (Colorado Spruce)	` '	18	10-20	6-10	G	G	G	2 Public, 16 Private	2-4	Retain	
G102	Corner lot grouping: 3 Picea (Ornamental Pear) species,	pungens, 2 Pyrus	5	10-15	8	G	F	G	Private	2-4	Retain	
G103	Picea pungens	Colorado Spruce	8	12	6-8	G	G	F	Public	2	Retain	

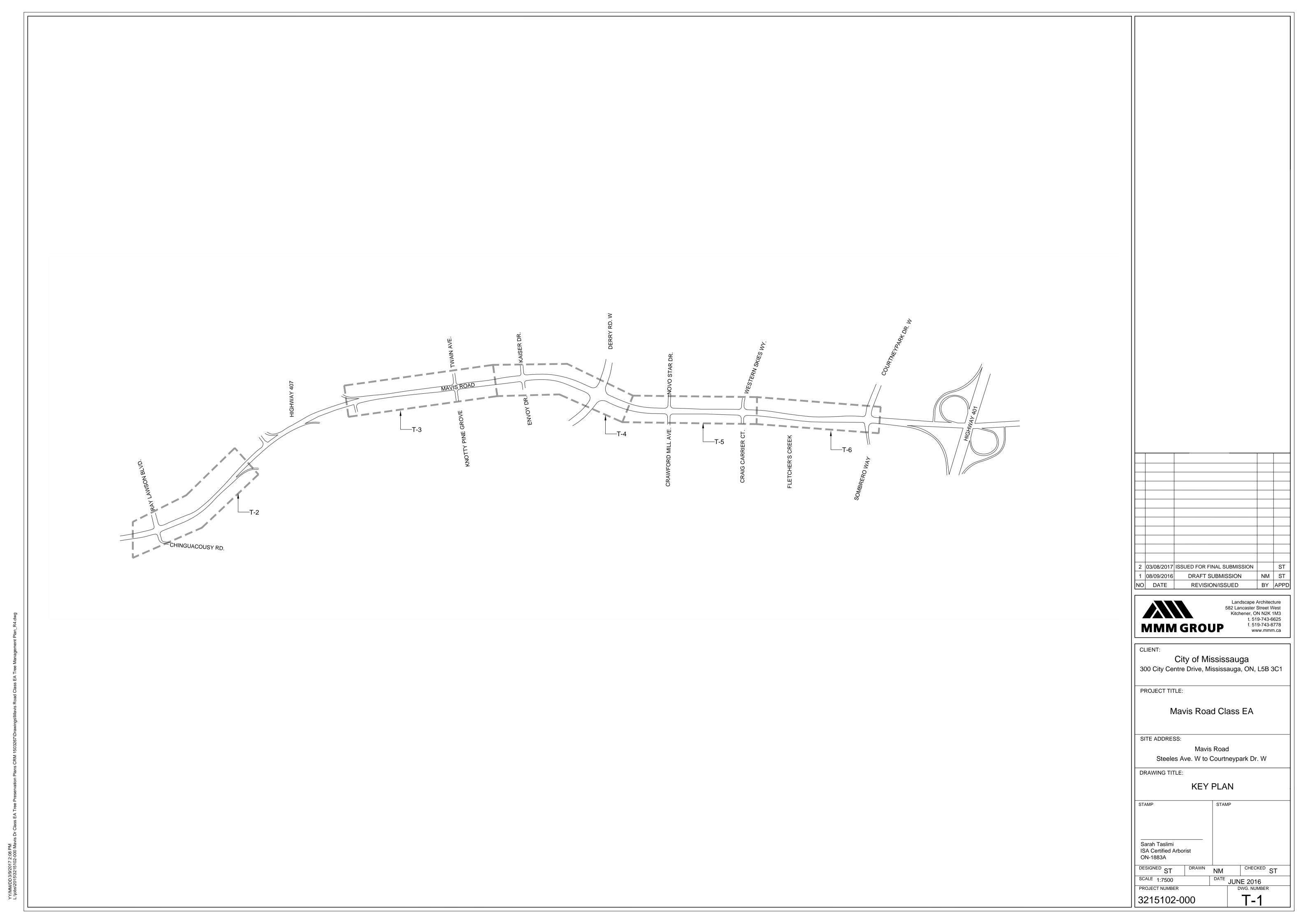
			Та	ble 1: Tı	ree Inver	ntory	and F	rese	rvation Chart	S						
Project: Ma	vis Drive Class EA								nd Nicholas Miniga							
Date of Fiel	d Work: June 1 and 6	Weather:	Sunny, 25 to	o 30 de	grees C	elcius		Conditions: Good, Fair, Poor, Dead								
Tree Tag	Botanical Name	Common Name	No.	DBH (cm)	Height (m)	Tre	Tree Condition Tree Ownership		Tree Ownership	Dripline	Recommendation	Remarks				
#						TI	CS	CV		Radius						
CS - Canopy St CV - Canopy viç crown. The size	ity: assessment of the trunk for any of ructure: assessment of scaffold brandpour: assessment of the health of the product and amount of foliage are also	ches, unions and canopy tree, based on comparison of the ar	nount of de	adwood and liv	re growth in the	Fair: tree	e displays displays 1	15-40% de	n 15% deficiency/defect w eficiency/defect within the nan 40% deficiency/defec	given tree	assessment criteria (TI	,CS,CV)				
Tree Preservation / Removal Legend Trees to be impacted, removed, or varied recommendations Trees recommended to be retained and preserved							G#: Grouping number (no tag) T#: Tree number (no tag)									
G104	Picea pungens	Colorado Spruce	7	10-15	5-8	G	G	G	Public	2	Retain					
G105	Picea pungens	Colorado Spruce	4	10-15	6	G	G	G	Public	2	Retain					
T26	Acer saccharinum	Silver Maple	1	10		G	G	G	Public	2	Retain					
T27	Acer saccharinum	Silver Maple	1	<10		G	G	G	Public	1.5	Retain					
		MAVIS ROAD - EA	ST SIDE	- WESTER	N SKIES W	AY / CR	AIG CA	RRIER	COURT TO COURT	TNEYPAR	RK DRIVE WEST					
111	Acer platanoides	Norway Maple	1	10		G	G	F	Private	2	Retain					
112	Acer platanoides	Norway Maple	1	15		G	G	G	Private	2	Retain					
113-120	Tilia americana	Basswood	8	10-15		F	G	G	Private	2	Retain	Lots of suckering, multi-stemmed				
G58	Malus species	Crabapple	8	<10		F	F	P-F	Private	2	Retain	1 tree in grouping dead				
G59	Picea pungens	Colorado Spruce	2	10	3	G	G	G	Private	1	Retain					
G60	G60 Meadow grouping: 3 <i>Acer negundo</i> (Manitoba Maple), 3 <i>Acer saccharinum</i> (Silver Maple)		6	<10		P-F	F	F-G	Public	2-4	Retain					
G61	G61 Meadow grouping: 2 Acer saccharinum (Silver Maple), 1 Quercus macrocarpa (Burr Oak)		3	<10		G	F	P-F	Public	2	Retain					
G62	Meadow grouping: Picea (Spruce) species, <i>Pinus</i> Strobus (White Pine), <i>Acer negundo</i> (Manitoba Maple) and <i>Pyrus</i> (Ornamental Pear) species			<10		G	F	P-F	Public	2-3	Retain	Some trees covered in grapevine, multiple dead				
G63	Strobus (White Pine), Acer negundo (Manitoba Maple)				F	F	P-F	Public	3-4	Retain						
G64			10	<10		F	Р	P-F	Public	2-4	Retain	Multiple dead Ash in grouping				
G65	Gleditsia triacanthos var. inermis	Thornless Honeylocust	6	<10		G	F	F	Public	3	Retain	Suckering, 15% dieback				
G66	Picea pungens	Colorado Spruce	3	<10	2	G	G	G	Public	1	Retain					
G67	Corner lot grouping: 4 Pyrus species, 3 Picea pungens		7	10-15	6-8	G	F	F	Private	1-3	Retain					
T23	Acer platanoides	Norway Maple	1	10		G	F	F	Private	1	Retain	30% dieback				

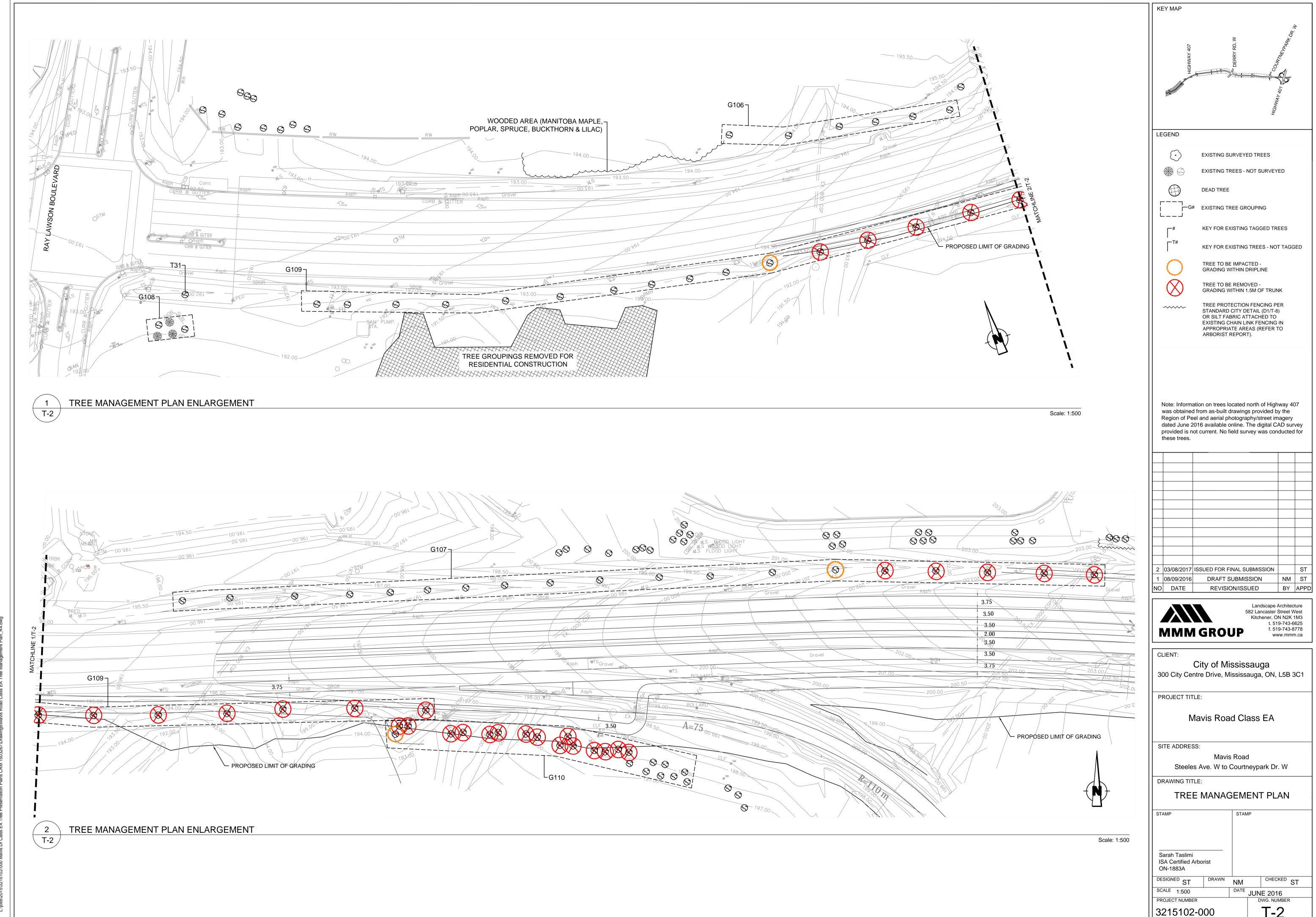
			ıa	1					rvation Charts						
-	vis Drive Class EA					_			nd Nicholas Miniga	n		le w e la			
Date of Field Work: June 1 and 6  Tree Tag Botanical Name Common Name No.					Sunny, 25 t Height (m)		grees C e Condit		Tree Ownership	Conditions: Good, Fair, Poor, Dead					
#	Botanicai Name	Common Name	No.	DBH (CIII)	Height (III)	TI	CS	CV	Tree Ownership	Dripline Radius	Recommendation	Remarks			
ree Assessme	nt Criteria:					Tree Con	dition	<u> </u>							
S - Canopy Št V - Canopy viç	rity: assessment of the trunk for any ructure: assessment of scaffold brar gour: assessment of the health of the , colour and amount of foliage are al	nches, unions and canopy e tree, based on comparison of the am	nount of dea	adwood and liv	re growth in the	Fair: tree	displays 1	15-40% d	n 15% deficiency/defect wi eficiency/defect within the nan 40% deficiency/defect	given tree	assessment criteria (TI	,CS,CV)			
Tree Preservation / Removal Legend Trees to be impacted, removed, or varied recommendations Trees recommended to be retained and preserved							G#: Grouping number (no tag) T#: Tree number (no tag)								
		MAVIS ROAD - WES	ST SIDE	- WESTER	N SKIES W	AY / CR	AIG CA	RRIER	COURT TO COURT	NEYPA	RK DRIVE WEST				
121-125 Acer platanoides Norway Maple 5			5	12-15		G	G	G	Public	3	Retain				
126-133	Gleditsia triacanthos var. inermis	Thornless Honeylocust	8	10-15		G	G	G	Public	6	Retain				
134-139	Celtis occidentalis	Common Hackberry	6	15-20		G	G	F	Public	6	Remove 5; 1 Impacted	Refer to Tree Management Plans for specific tree impacts within grouping.			
140-144	Acer platanoides 'Columnare'	Columnar Norway Maple	5	15		G	G	G	Public	2-3	Remove	Located within limit of grading.			
G73 Corner lot grouping: 5 <i>Picea pungens</i> (Colorado Spruce), 4 <i>Pyrus</i> (Ornamental Pear) species, 1 <i>Gleditsia triacanthos var. inermis</i> (Thornless Honeylocust)		10	10-20	6-10	G	G	G	2 Public, 8 Private	2-4	Retain					
G74	Meadow grouping: 3 Acer saccharinum (Silver Maple), 10 Acer negundo (Manitoba Maple)		13	5-15		G	F	G	Public	1-5	Remove 5	Refer to Tree Management Plans for specific tree impacts within grouping.			
G75	Meadow grouping: 3 Pinus strobus (White Pine) 3		10			F	G	G	Public	1-5	Retain	and a second sec			
G76	Acer negundo	Manitoba Maple	3	<10		F	Р	F	Public	3	Retain	Multi-stemmed			
G77	Picea pungens	Colorado Spruce	7	15	6-8	G	G	G	Public	2	Retain				
G78	Window Street Grouping: 5 3 Acer saccharum (Sugar N	Pinus nigra (Austrian Pine), Maple)	8	<10		G	G	G	Public	2-3	6 Impacted	Refer to Tree Management Plans for specific tree impacts within grouping.			
G79	Picea pungens	Colorado Spruce	6	10	6-8	G	G	G	Public	2	1 Impacted	Refer to Tree Management Plans for specific tree impacts within grouping.			
G80	Picea pungens	Colorado Spruce	6	10-15	6-8	G	F	G	Public	1-2	Remove 5; 1 Impacted	1 leader bent, >40% dieback. Refer to Tree Management Plans for specific tree impacts within grouping.			
Window Street Grouping: 6 <i>Picea pungens</i> (Colorado Spruce), 2 Malus (Crabapple) species, 1 <i>Pinus nigra</i> 9 (Austrian Pine)			<10		F	F	F	Public	1	Remove 8	Refer to Tree Management Plans for specific tree impacts within grouping.				
G82	Picea pungens	Colorado Spruce	7	10-15	4-6	G	F	F	Public	1	Remove	has co-dominant leaders. Refer to Tree     Management Plans for specific tree impacts within grouping.			

Table 1: Tree Inventory and Preservation Charts															
Project: Mavis Drive Class EA Field Work Comple							ed By: Sarah Taslimi and Nicholas Minigan								
Date of Field	Weather:	Sunny, 25 to	o 30 deg	grees C	Conditions: Good, Fair, Poor, Dead										
Tree Tag	Botanical Name	Common Name	No.	DBH (cm)	Height (m)	, , ,				Recommendation	Remarks				
#						TI	CS	CV		Radius					
Tree Assessment Criteria: TI - Trunk Integrity: assessment of the trunk for any defects or weaknesses. CS - Canopy Structure: assessment of scaffold branches, unions and canopy CV - Canopy vigour: assessment of the health of the tree, based on comparison of the amount of deadwood and live growth in the crown. The size, colour and amount of foliage are also considered  Tree Preservation / Removal Legend Trees to be impacted, removed, or varied recommendations							Tree Condition Good: tree displays less than 15% deficiency/defect within the given tree assessment criteria (TI,CS,CV) Fair: tree displays 15-40% deficiency/defect within the given tree assessment criteria (TI,CS,CV) Poor: tree displays greater than 40% deficiency/defect within the given tree assessment criteria (TI,CS,CV)  G#: Grouping number (no tag)								
G83	Trees recommended to be retained  Picea pungens	Colorado Spruce	3		4	T#: Tree r	P	P	Public	1	Remove	2 trees in grouping dead, 1 undersized. Located within limit of grading.			
G84 Corner lot grouping: 2 <i>Tilia americana 'Fastigiata'</i> (Columnar Basswood), 1 <i>Juniperus</i> (Juniper)			<10		F	F	F	Private	1-2	Retain					
T24	Gleditsia triacanthos var. inermis	Thornless Honeylocust	1	<10		G	G	G	Public	3	Remove	Located within limit of grading.			
T25	Gleditsia triacanthos var. inermis	Thornless Honeylocust	1	<10		G	G	P-G	Public	3	Remove	Grading within 1.5m of trunk.			

### Appendix A

**Tree Management Plans** 





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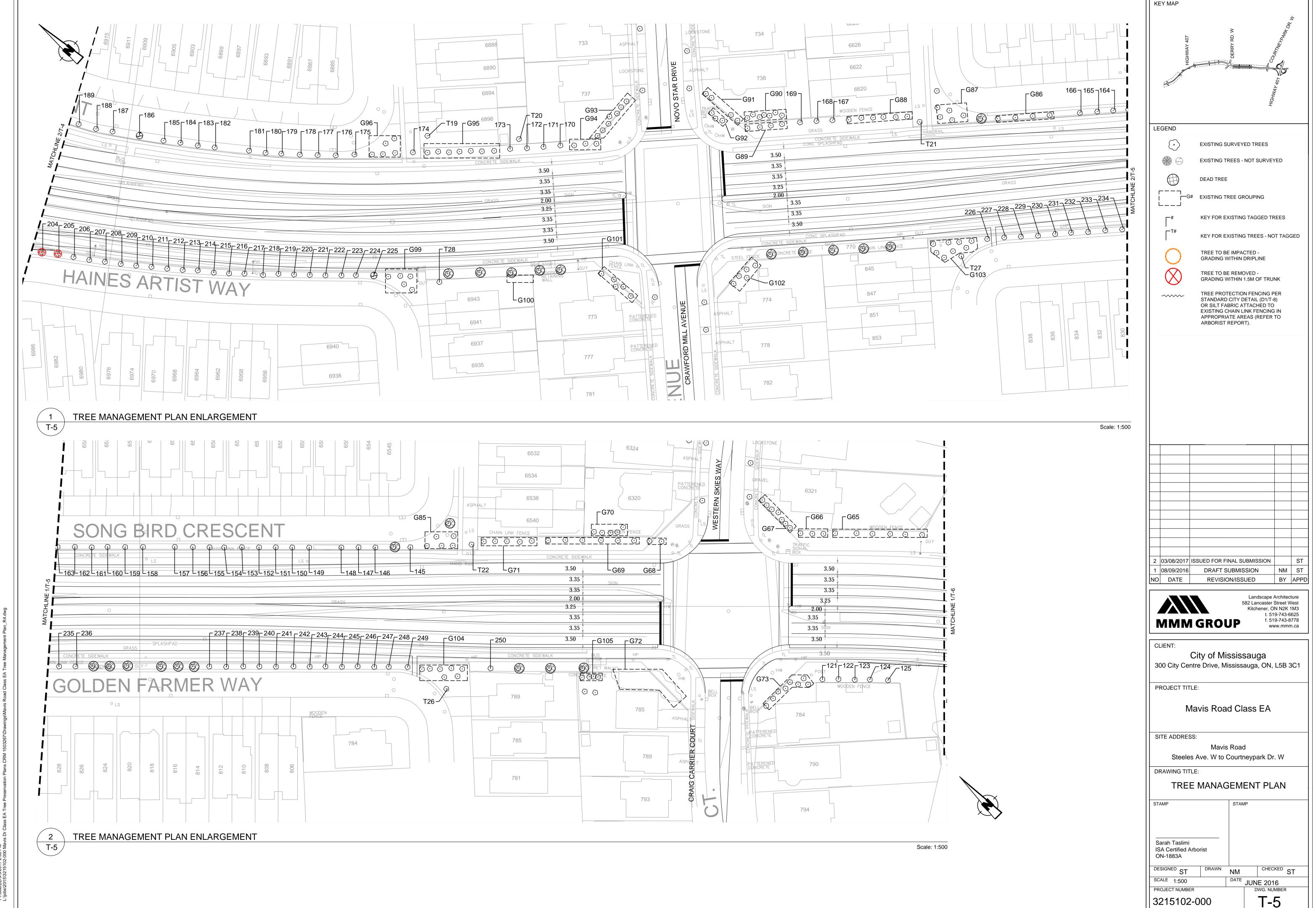


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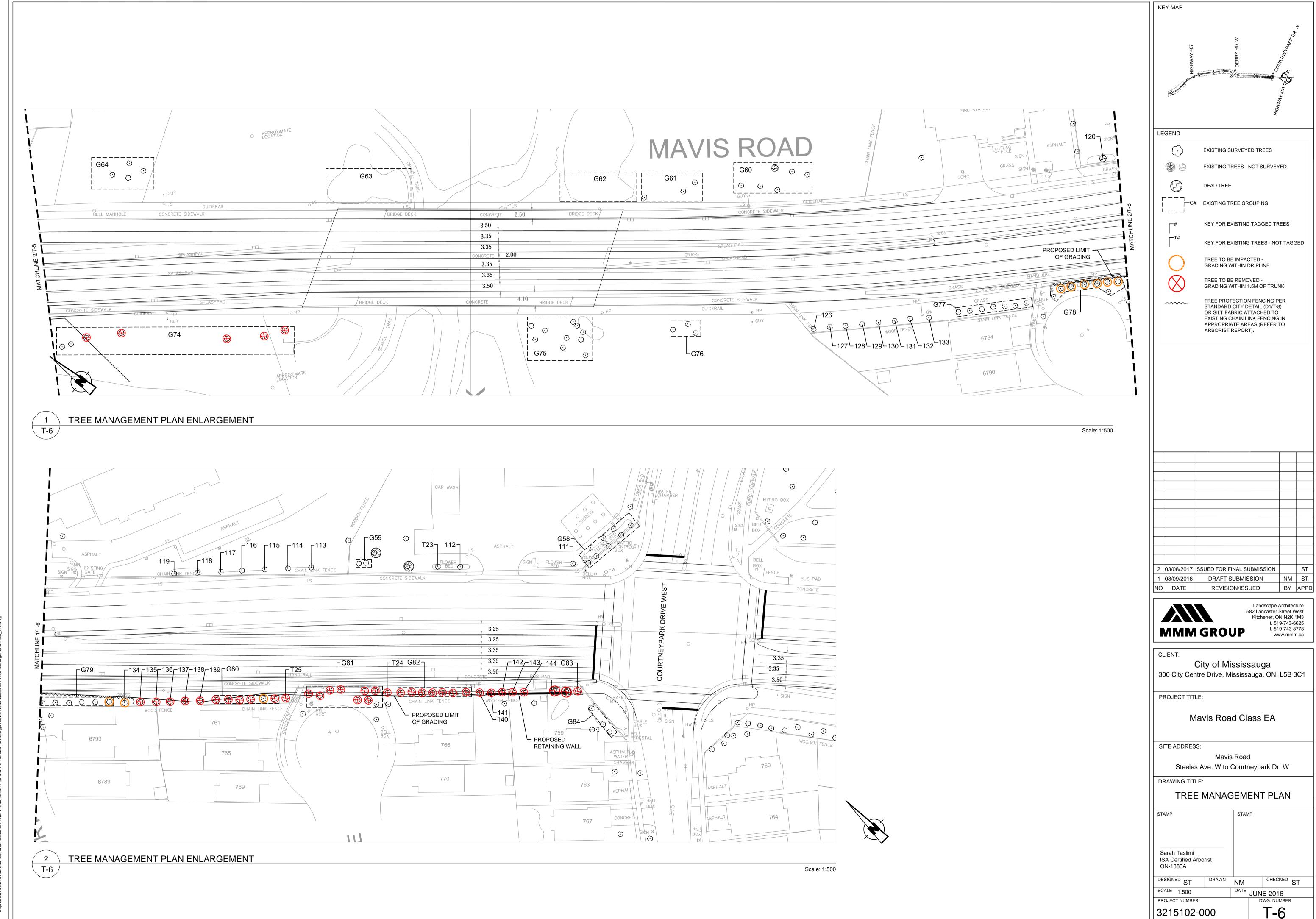
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YY/MM/DD3/9/2017 2:08 PM L:\jobs\2015\3215102-000 Mavis Dr Class EA Tree Preservation Plans CRM 1503267\Drawings\Mavis Road Class EA Tree ESTABLISHMENT OF TREE PROTECTION ZONE (TPZ):

- TREE PRESERVATION MEASURES, INCLUDING THE ESTABLISHMENT OF TREE PROTECTION ZONE (TPZ) SHALL APPLY TO THE VEGETATION IDENTIFIED TO BE RETAINED AND PROTECTED. THE TREE PROTECTION ZONE SHALL CONSIST OF TREE PROTECTION FENCING AS PER CITY OF MISSISSAUGA STANDARD, PLACED AT THE DRIPLINE OF VEGETATION TO BE PRESERVED. REFER TO DETAILS ON
- NO GRADE CHANGES SHALL OCCUR WITHIN TREE PROTECTION ZONE. IN THE EVENT THAT GRADE CHANGES OCCUR EITHER AS A CUT OR FILL SITUATION, THE CONSULTING ARBORIST MUST BE NOTIFIED SO THAT PRECAUTIONS TO PRESERVE THE TREE CAN BE DETERMINED PRIOR TO THE PLACEMENT OF FILL OR EXCAVATION ACTIVITIES.
- EVERY PRECAUTION MUST BE TAKEN TO PREVENT DAMAGE TO TREES AND ROOT SYSTEMS FROM DAMAGE, COMPACTION AND CONTAMINATION RESULTING FROM THE CONSTRUCTION TO THE SATISFACTION OF THE CONSULTING ARBORIST.
- TREES THAT REQUIRE PRUNING TO PERMIT CONSTRUCTION ACTIVITIES WILL BE DONE SO IN ACCORDANCE WITH GOOD ARBORICULTURAL PRACTICES. IN THE EVENT THAT IT IS NECESSARY TO REMOVE ADDITIONAL LIMBS OR PORTIONS OF TREES, AFTER CONSTRUCTION HAS COMMENCED, TO ACCOMMODATE CONSTRUCTION, THE CONSULTING ARBORIST IS TO BE INFORMED AND UNDER THEIR DIRECTION THE REMOVAL IS TO BE EXECUTED CAREFULLY AND IN FULL ACCORDANCE WITH ARBORICULTURAL TECHNIQUES, BY A CERTIFIED ARBORIST.
- ANY DAMAGE TO TREES SUCH AS BROKEN LIMBS, DAMAGE TO ROOTS, OR WOUNDS TO THE MAIN TRUNK OR STEM SYSTEMS ARE TO BE REPORTED TO THE CONSULTING ARBORIST SO THAT THE DAMAGE CAN BE ASSESSED IMMEDIATELY AND MITIGATION CAN BE PROMPTLY IMPLEMENTED.

# TREE PROTECTION ZONE:

APPLIES TO TREES LOCATED THE LIMIT OF GRADING OR NOTED OTHERWISE. THESE TREES ARE TO BE PRESERVED AND WILL HAVE SILT / TREE PROTECTION FENCING INSTALLED AT ALONG THE LIMIT OF GRADING / LIMIT OF WORK TO ESTABLISH THE TREE PROTECTION ZONE. ANY DAMAGE TO TREES SUCH AS BROKEN LIMBS, DAMAGE TO ROOTS, OR WOUNDS TO THE MAIN TRUNK OR STEM SYSTEMS ARE TO BE REPORTED TO THE CONSULTING ARBORIST SO THAT THE DAMAGE CAN BE ASSESSED IMMEDIATELY AND MITIGATION CAN BE PROMPTLY IMPLEMENTED. WITHIN A TREE PROTECTION ZONE THERE IS TO BE:

- NO CONSTRUCTION • NO ALTERING OF GRADE BY ADDING FILL, EXCAVATING, TRENCHING, SCRAPING, DUMPING OR
- DISTURBANCE OF ANY KIND. NO STORAGE OF CONSTRUCTION MATERIALS, EQUIPMENT, SOIL, CONSTRUCTION WASTE OR DEBRIS WITHIN THE DRIP LINE
- NO MOVEMENT OF VEHICLES, EQUIPMENT
- NO PARKING OF VEHICLES OR MACHINERY
- NO DIGGING, BORING
- NO RIGGING CABLES SHALL BE WRAPPED AROUND OR INSTALLED IN TREES
- NO CONTAMINANTS WILL BE PLACED OVER ROOT SYSTEM

NO CONTAMINANTS WILL BE DUMPED OR FLUSHED WHERE FEEDER ROOTS OF TREES EXIST.

## WORK WITHIN A TREE PROTECTION ZONE:

IF WORK MUST BE CONDUCTED WITHIN A TREE PROTECTION ZONE THE CONTRACTOR SHOULD MINIMIZE SOIL COMPACTION AND MECHANICAL ROOT DAMAGE BY UTILIZING ONE OF THE FOLLOWING FOUR METHODS:

- 1. APPLYING 150-300mm OF MULCH TO AREA. UPON COMPLETION REMOVE EXCESS MULCH LEAVING A 100mm DEPTH LAYER OF MULCH.
- 2. LAYING 20mm THICK PLYWOOD OR 100X100mm WOOD BEAMS OVER A 100+MM THICK LAYER OF WOOD CHIP MULCH. UPON COMPLETION REMOVE PLYWOOD AND LEAVE MULCH LAYER IN PLACE. 3. APPLYING 100-150mm DEPTH OF GRAVEL OVER A TAUT, STAKED GEOTEXTILE FABRIC. UPON
- COMPLETION REMOVE GRAVEL AND GEOTEXTILE. 4. PLACING COMMERCIAL LOGGING OR ROAD MATS ON TOP OF A MULCH LAYER. UPON COMPLETION REMOVE MATS. STONE, GEOTEXTILE, AND MULCH EXCEEDING 100mm THICK WILL BE REMOVED FROM THE TREE PRESERVATION AREA ONCE THE THREAT OF SOIL OR ROOT DAMAGE HAS

### TREE PRESERVATION AND PROTECTION RECOMMENDATIONS:

THE SURVIVAL RATES FOR TREES, WHICH ARE IN PROXIMITY TO CONSTRUCTION SITES ARE DEPENDENT ON THE RESULTANT CHANGES TO A VARIETY OF ENVIRONMENTAL AND ANTHROPOGENIC FACTORS. THESE CONSTRUCTION ACTIVITIES BRING ABOUT CHANGES TO A VARIETY OF ENVIRONMENTAL FEATURES INCLUDING THE EXISTING MICROCLIMATE INCLUDING WINDS, TEMPERATURE, SOIL MOISTURE, AMOUNT OF AVAILABLE SUNLIGHT, SOIL QUALITY, AND THE LEVEL OF THE WATER TABLE. INCREASED HUMAN ACTIVITIES MAY ALSO DAMAGE THE STRUCTURE AND / OR PHYSIOLOGICAL ACTIVITIES OF THE TREES. THE FULL EFFECTS OF THE DAMAGE MAY NOT APPEAR UNTIL SEVERAL YEARS AFTER ITS OCCURRENCE, THUS, IT IS ESSENTIAL THAT BOTH VEGETATIVE CLEARING AND PRESERVATION METHODS FOLLOW THE GUIDELINES BELOW AND THOSE GENERALLY ACCEPTED AS KEEPING WITH GOOD HORTICULTURAL AND CONSTRUCTION PRACTICES. THE GUIDELINES ARE SUBJECT TO ADJUSTMENTS DEEMED REASONABLE AND APPROPRIATE CONSIDERING THE PROXIMITY AND NUMBER OF TREES INVOLVED AND THE SITE-SPECIFIC SERVICING REQUIREMENT.

### GENERAL RECOMMENDATIONS:

- ALL TREES WITHIN THE TREE PRESERVATION ZONE MUST BE LEFT STANDING. THE TREE REMOVALS MUST BE COORDINATED TO BE COMPLETED OUTSIDE OF THE BIRD NESTING SEASON, APRIL 1 TO AUGUST 31.
- ALL REMOVALS MUST BE FELLED INTO THE WORK AREA TO ENSURE THAT DAMAGE DOES NOT OCCUR TO THE TREES WITHIN THE TREE PRESERVATION ZONE.
- UPON COMPLETING OF THE TREE REMOVALS, ALL FELLED TREES ARE TO BE CHIPPED. THIS WORK MUST BE COMPLETED OUTSIDE OF THE BIRD NESTING SEASON, **APRIL 1 TO AUGUST 31.**
- TREE PROTECTION FENCING / SILT FENCE MUST BE INSTALLED AS PER THE CITY OF MISSISSAUGA STANDARD SILT FENCE DETAIL AND AS SHOWN ON THE APPROVED MUNICIPAL ENGINEERING PLAN. UPON INSTALLATION OF THE FENCING, THE CONTRACTOR WILL CONTACT THE CONSULTING ARBORIST TO REVIEW AN APPROVE THE FENCING AND ITS LOCATION PRIOR TO COMMENCEMENT OF ANY GRADING
- AREAS WITHIN THE TREE PRESERVATION ZONE ARE NOT TO BE USED FOR ANY TYPE OF STORAGE (E.G. STORAGE OF DEBRIS, CONSTRUCTION MATERIAL, SURPLUS SOILS. AND CONSTRUCTION EQUIPMENT). NO TRENCHING OR TUNNELLING FOR UNDERGROUND SERVICES SHALL BE LOCATED WITHIN THE TREE PROTECTION ZONE OR DRIPLINE OF TREES DESIGNATED FOR PRESERVATION WITHIN OR ADJACENT TO THE CONSTRUCTION ZONE.

### **ROOT PRUNING:**

AT THE COMMENCEMENT OF CONSTRUCTION PRUNE ROOTS CLEANLY USING ACCEPTABLE ARBORICULTURAL PRACTICES AND IMMEDIATELY BACKFILL WITH APPROPRIATE MATERIAL. ROOTS OVER 2.5cm DIAMETER THAT ARE TO BE CUT SHOULD BE PRUNED RATHER THAN LEFT TORN OR CRUSHED. THE FOLLOWING ARE GENERAL METHODS OF ROOT PRUNING:

- 1. SOIL EXCAVATION USING SUPERSONIC AIR TOOLS, PRESSURIZED WATER OR HAND TOOLS, FOLLOWED BY SELECTIVE ROOT CUTTING 2. CUTTING THROUGH THE SOIL ALONG A PREDETERMINED LINE ON THE SURFACE
- USING TOOL SPECIFICALLY DESIGNED TO CUT ROOTS
- 3. MECHANICALLY EXCAVATING (e.g. BACKHOE) THE SOIL AND PRUNING WHAT IS LEFT OF THE EXPOSED ROOTS.
- 4. CUTS TO BE MADE WITH HAND PRUNING SHEARS, BY-PASS BLADE, PRUNING SAW. DO NOT USE ANVIL TYPE PRUNERS.

### PRUNING PRACTICES:

- ALL LIMBS DAMAGED OR BROKEN DURING THE COURSE OF CONSTRUCTION SHOULD BE PRUNED CLEANLY, UTILIZING BY-PASS SECATEURS IN ACCORDANCE WITH APPROVED HORTICULTURAL PRACTICES. SHOULD THERE BE A POTENTIAL RISK OF TRANSFER OF DISEASE FROM INFECTED TO NON-INFECTED TREES; TOOLS MUST BE DISINFECTED AFTER PRUNING EACH TREE BY DIPPING IN METHYL HYDRATE. THIS PRACTICE IS PARTICULARLY IMPORTANT DURING PERIODS OF TREE STRESS AND WHEN PRUNING MANY MEMBERS OF THE SAME GENERA, WITHIN WHICH A DISEASE COULD BE SPREAD QUICKLY (I.E., VERTICILLIUM WILT ON MAPLES OR FIRE BLIGHT ON GENERA OF THE ROSACEA FAMILY).
- DURING EXCAVATION OPERATIONS IN WHICH THE ROOT AREA IS AFFECTED, THE CONTRACTOR IS TO PRUNE ALL EXPOSED ROOTS CLEANLY. PRUNED ROOT ENDS ARE TO BE NEATLY AND SQUARELY TRIMMED AND THE AREA IS TO BE BACKFILLED WITH CLEAN NATIVE FILL AS SOON AS POSSIBLE TO PREVENT DESICCATION AND PROMOTE ROOT GROWTH. THE EXPOSED ROOTS SHOULD NOT BE ALLOWED TO DRY OUT, AND THE CONTRACTOR SHALL DISCUSS WATERING OF THE ROOTS WITH THE CONSULTING ARBORIST SO THAT THE ROOTS SHALL MAINTAIN OPTIMUM SOIL MOISTURE DURING CONSTRUCTION AND BACKFILLING OPERATIONS, YET SO NOT TO INTERFERE WITH CONSTRUCTION OPERATIONS. BACKFILLING MUST BE WITH CLEAN UNCONTAMINATED TOPSOIL FROM AN APPROVED SOURCE. TEXTURE MUST BE COARSER THAN EXISTING SOILS, AND TO COME INTO CLEAN CONTACT WITH EXISTING SOILS (REMOVE AIR POCKETS,
- ALL PRUNING CUTS SHOULD BE MADE TO A GROWING POINT SUCH AS A BUD, TWIG OR BRANCH, CUT JUST OUTSIDE THE BRANCH COLLAR (THE SWOLLEN AREA AT THE BASE OF THE BRANCH THAT SOMETIMES HAS A BARK RIDGE). AND PERPENDICULAR TO THE BRANCH BEING PRUNED RATHER THAN AS CLOSE TO THE TRUNK AS POSSIBLE. THIS MINIMIZES THE SITE OF THE WOUND. NO STUBS SHOULD BE LEFT. POOR CUT LOCATION, POOR CUT ANGLE AND TORN CUTS ARE NOT ACCEPTABLE.
- TREE ROOTS SHOULD NOT BE EXCAVATED WITHIN THE CRITICAL STRUCTURAL ROOTING AREA. THIS IS THE MINIMUM AREA OF THE ROOT SYSTEM NECESSARY TO MAINTAIN VITALITY OR STABILITY OF THE TREE. TYPICALLY THIS AREA EXTENDS TO THE DRIPLINE OF THE TREE. THE SEVERING OF ONE ROOT CAN CAUSE APPROXIMATELY 5-20% LOSS OF THE ROOT SYSTEM. A REDUCTION OF THIS AREA BY GREATER THAN 30% CAN POSE STABILITY CONCERNS FOR THE TREE.
- A SLOW RELEASE FERTILIZER EG: BONE MEAL OR APPROVED EQUAL TO BE APPLIED TO TREES WHERE ROOT PRUNING OR ROOT DAMAGE HAS OCCURRED. APPLY PER MANUFACTURER'S RECOMMENDATIONS
- EXTENSIVE PRUNING IS BEST COMPLETED BEFORE PLANTS BREAK DORMANCY. PRUNING SHOULD BE LIMITED TO THE REMOVAL OF NO MORE THAN ONE THIRD (1/3) OF THE TOTAL BUD AND LEAF BEARING BRANCHES. PRUNING SHOULD INCLUDE THE CAREFUL REMOVAL
- DEADWOOD,
- BRANCHES THAT ARE WEAK, DAMAGED, DISEASED AND THOSE WHICH WILL
- INTERFERE WITH CONSTRUCTION ACTIVITY, SECONDARY LEADERS OF CONIFERS,
- TRUNK AND ROOT SUCKERS,
- TRUNK WATERSPOUTS, AND
- TIGHT V-SHAPED OR WEAK CROTCHES (INCLUDED UNIONS).

THE CONTRACTOR MUST IMMEDIATELY REPORT ANY DAMAGE TO TREES SUCH AS BROKEN LIMBS, DAMAGE TO ROOTS, OR WOUNDS TO THE MAIN TRUNK OR STEM SYSTEMS SO THAT THE DAMAGE CAN BE ASSESSED IMMEDIATELY.

THE TREE PROTECTION FENCING WILL BE MAINTAINED UNTIL ALL CONSTRUCTION IS COMPLETED, SOILS ARE STABILIZED AND ALL OF THE EQUIPMENT HAS BEEN REMOVED FROM

### TREE INJURY:

TYPICALLY TREE ROOTS EXTEND 1.5 TO 3 TIMES BEYOND THE DRIPLINE OF THE TREE AND ARE WITHIN THE TOP 150mm OF THE SOIL. TYPES OF DAMAGE FROM CONSTRUCTION INCLUDE:

- PHYSICAL INJURY
- SOIL COMPACTION
- SEVERING OF ROOTS SMOTHERING OF ROOTS
- SPLIT OR BROKEN BRANCHES **EXCESSIVE PRUNING**

SOIL COMPACTION REDUCES PORE SPACE, OXYGEN AVAILABLE TO ROOTS INCREASES CARBON DIOXIDE ACCUMULATION. RESTRICTS ROOT GROWTH AND THE ABILITY TO ABSORB WATER AND NUTRIENTS, AS WELL AS IMPAIRS DRAINAGE

SMOTHERING OF ROOTS: 90% OF FINE ABSORBING ROOTS ARE WITHIN THE UPPER 150-300mm OF THE SOIL. SMOTHERING WITH THE ADDITION OF SOIL CAN KILL THE ROOTS AND STRESS THE TREE. PHYSICAL INJURY, SPLIT OR BROKEN BRANCHES HINDER THE TREES ABILITY TO COMPARTMENTALIZE (CLOSE) WOUNDS PROPERLY.

# TREE TRANSPLANTING CRITERIA AND GUIDELINES

# TREE TRANSPLANTING CRITERIA

PASSED.

- TREE CRITERIA FOR TRANSPLANTING IS AS FOLLOWS:
  - 1. GENERALLY, TREES WITH 25CM DBH AND LESS CAN BE TRANSPLANTED 2. THE TREE NEEDS TO BE LOCATED WHERE ACCESS WITH TREE SPADE EQUIPMENT IS
  - 3. TREES THAT HAVE A FAIR OR POOR CONDITION ARE NOT RECOMMENDED FOR TRANSPLANTING.
- FOR TREES THAT CAN BE TRANSPLANTED; THESE SHALL BE FLAGGED ON SITE BY A CERTIFIED ARBORIST PRIOR TO SITE DEMOLITION WORKS. THE TREES COULD BE RELOCATED WITHIN ADJACENT LANDS WHERE EXISTING TREES ARE BEING PRESERVED OR IN OTHER AREAS AS APPROVED BY THE OWNER. THE PROPOSED LOCATIONS SHALL BE STAKED BY A CERTIFIED ARBORIST OR LANDSCAPE ARCHITECT. THE TRANSPLANTING SHOULD BE UNDERTAKEN PER STANDARD TRANSPLANTING PROCEDURES (REFER TO TREE TRANSPLANTING GUIDELINES).
- TREES IN POOR HEALTH THAT ARE WITHIN THE LIMIT OF WORK BUT MAY BE RETAINED DURING CONSTRUCTION SHOULD BE CONSIDERED FOR REMOVAL DUE TO THE PROBABILITY OF THE TREE BECOMING A FUTURE HAZARD (FALLING DOWN) AND THE LIKELIHOOD, SHOULD THE TREE FAIL, OF HITTING A TARGET (PEOPLE AND PROPERTY WITHIN THE PARK, ALONG BOULEVARDS
- TREES ADJACENT TO THE PROPOSED AREA OF WORKS ARE TO BE PROTECTED AS PER THE MUNICIPALITY, MINISTRY OF NATURAL RESOURCES, AND CONSERVATION AUTHORITY'S REQUIREMENTS AND DETAILS FOR TREE PROTECTION (ALSO REFER TO MITIGATION MEASURES: TREE PROTECTION DURING CONSTRUCTION, AND EDGE MANAGEMENT).
- THE TREE PRESERVATION PLAN MAKES SPECIFIC RECOMMENDATIONS FOR THE TREES REVIEWED WITHIN THE WORK AREA BASED ON CURRENT DESIGN DRAWINGS, HOWEVER, UNFORESEEN FUTURE DEVELOPMENT CONSTRAINTS SUCH AS SERVICING AND CONSTRUCTION REQUIREMENTS MAY REQUIRE THE REMOVAL OF ADDITIONAL TREES.
- WHERE TREES HAVE CANOPIES OVERHANGING THE WORK AREA, PRUNING OF THE CANOPY AND/OR ROOTS THAT ARE WITHIN THE WORK AREA MAY BE REQUIRED TO FACILITATE CONSTRUCTION WORKS. THIS PRUNING IS TO BE UNDERTAKEN BY A CERTIFIED ARBORIST, AND IN ACCORDANCE WITH STANDARD PROFESSIONAL ARBORIST PRACTICES.
- DURING AND AFTER THE WORKS, THE TREES REMAINING SHOULD BE REVIEWED ANNUALLY AND/OR ON AN AS-NEEDED BASIS FOR HEALTH CONDITION FOR A PERIOD UP TO A MINIMUM OF THREE YEARS. DUE TO NEGATIVE CONSTRUCTION EFFECTS, THE TREES MAY EXPERIENCE A DECLINE IN HEALTH OVER A PERIOD OF MONTHS OR YEARS. TREES FOUND TO BE HAZARDOUS SHOULD BE REMOVED AS SOON AS POSSIBLE TO MAINTAIN A SAFE ENVIRONMENT.

# TREE TRANSPLANTING GUIDELINES:

TRANSPLANT PLANT MATERIAL TO FINAL PLANTING LOCATION AS INDICATED ON BUFFER ENHANCEMENT PLAN OR APPROVED EQUAL BY CONTRACT ADMINISTRATOR.

- TRANSPLANT SCHEDULE: THE OPTIMUM TIME FOR TRANSPLANTING TREES IS DURING THE COOLER MONTHS IN SPRING AND EARLY FALL.
- PLANT PIT PREPARATION: REMOVE ALL DEBRIS, STONES, ETC., FROM PITS. PLACE PLANTING SOIL IN PIT AND THOROUGHLY FIRM TO A LEVEL UPON WHICH PLANT WILL REST AT PROPER
  - 1. BALLS LESS THAN 900MM IN DIAMETER: 2 TIMES WIDTH OF BALL AND 225MM DEEPER THAN BALL
  - 2. BALLS OVER 900MM DIAMETER: THE WIDTH OF THE BALL PLUS 900MM AND AT LEAST 225MM DEEPER THAN BALL
  - 3. SLOPES: MEASURE PIT SIZES ON SLOPES FROM THE LOWER SIDE.
- PLANTING LAYOUT: PROVIDE STAKES AND STAKE OUT ALL TREE LOCATIONS AND PLANTING AREAS. OBTAIN LAYOUT APPROVAL FROM THE LANDSCAPE ARCHITECT PRIOR TO EXCAVATING
- ANTI-DESICCANT: ANTI-DESICCANT EMULSION SHALL BE A PRODUCT SPECIFICALLY MANUFACTURED TO PROVIDE A FLEXIBLE SURFACE FILM TO REDUCE TRANSPIRATION YET NOT IMPEDE PASSAGE OF CARBON DIOXIDE AND OXYGEN.

# SETTING PLANTS:

- 1. ONE TO TWO DAYS PRIOR TO TRANSPLANTING, THE TREE SHOULD BE
- WATERED SO THAT THE SOIL IS SATURATED TO A MINIMUM 300MM DEPTH. 2. SET PLANTS PLUMB AND AT A LEVEL SO THAT AFTER SETTLEMENT THEY BEAR THE SAME GROUND LEVEL RELATIONSHIP AS BEFORE THEY WERE DUG. 3. BACKFILL PITS TO 1/3 DEPTH OF BALL COMPACTING IN LAYERS NOT
- EXCEEDING 100MM. REMOVE BURLAP AND ADJUST TO AVOID AIR POCKETS. COMPLETE BACKFILL AND SETTLE WITH WATER. 4. AFTER TRANSPLANTING, THE TREE SHOULD BE WATERED SO THAT THE SOIL IS SATURATED TO A MINIMUM 300MM DEPTH. AFTER THAT, THE TREE SHOULD

BE WATERED REGULARLY TO MAINTAIN HEALTH. WHEN POSITIONED IN THE

NEW PLANTING PIT, THE TREE SHOULD BE ABOUT 50-75MM ABOVE GRADE TO

ALLOW FOR FUTURE SETTLEMENT. TREES TRANSPLANTED FROM A WOODLOT OR FOREST AREA AND/OR GROWING CLOSE TO OTHER TREES SHOULD NOT BE TRANSPLANTED TO AN OPEN OR EXPOSED LOCATION.

- MULCHING: SPREAD 100MM SHREDDED BARK MULCH OVER FINISHED SURFACE OF EACH PLANT, PLANT BED OR HEDGE TRENCH - WATER PLANTS THOROUGHLY AFTER MULCHING.THE TRANSPLANTED TREE SHOULD BE MULCHED TO A DEPTH OF 100-150MM WITH SHREDDED CONIFEROUS BARK, WITH THE MULCH OFFSET A DISTANCE OF 150MM FROM THE TRUNK. THE MULCH SHOULD BE SPREAD AN AVERAGE OF 100MM PAST THE EDGE OF THE ROOT BALL.
- STAKING: SET TREE STAKES INTO SOLID GROUND BELOW BOTTOM OF PLANT BEFORE BACKFILLING. PLACE STAKES AT THE OUTER EDGE OF THE ROOTS OR BALL IN LINE WITH THE PREVAILING WIND AT A 10 DEGREE ANGLE FROM THE TREE TRUNK THE TRANSPLANTED TREE SHOULD BE STAKED UNTIL THE TREE ROOTS ARE RE-ESTABLISHED. WITH STAKES POSITIONED TO BUTTRESS AGAINST THE PREVAILING WIND.
- WRAPPING: WRAP ALL DECIDUOUS TREES WITHIN 4 DAYS AFTER TRANSPLANTING. WRAPPING MATERIAL FOR TREE TRUNKS SHALL BE NEW BURLAP, AT LEAST 270 G/M2 IN WEIGHT AND NOT LESS THAN 150 MM NOR MORE THAN 250 MM IN WIDTH, OR A HEAVY WATERPROOF CREPE PAPER NOT LESS THAN 100 MM NOR MORE THAN 150 MM WIDE. TREES SHOULD NOT BE TRANSPLANTED ON HOT AND WINDY DAYS. THE FOLIAGE SHOULD BE PROTECTED FROM WATER LOSS DURING THE PROCESS BY WRAPPING WITH TARP DURING TRANSPORTATION.
- SURFACE FINISH: FORM A SAUCER AS INDICATED ON DRAWINGS OR AS DIRECTED. GRADE SOIL TO FORM A BASIN ON LOWER SIDE OF SLOPE PLANTINGS, WHICH WILL CATCH AND RETAIN WATER. TOP DRESS ALL BASINS WITH COMMERCIAL FERTILIZER (10-6-4) SPREAD EVENLY AT THE RATE OF 1KG/SQUARE METRE OF PLANT PIT SURFACE. BREAK BASINS BEFORE GROUND FREEZES.
- PRUNING: PRUNE IMMEDIATELY AFTER PLANTING USING SHARP TOOLS APPROVED BY THE LANDSCAPE ARCHITECT. REMOVE APPROXIMATELY 1/3 OF THE WOOD OF DECIDUOUS PLANTS, MAINTAINING THE NATURAL HABIT OF THE PLANT. CUT NO LEADERS. PAINT ALL PRUNING CUTS 3/4 INCH IN DIAMETER OR OVER WITH ANTISEPTIC, WATERPROOF, ADHESIVE AND ELASTIC TREE WOUND PAINT CONTAINING NO KEROSENE, COAL TAR, CREOSOTE OR OTHER MATERIAL HARMFUL TO CAMBIUM OR LIVING TISSUE.
- GUYING: GUY WIRE TIGHTENERS SHALL BE GALVANIZED TURNBUCKLES OR AN ACCEPTABLE MANUFACTURED DEVICE WHICH TWISTS AND LOCKS GUY WIRES. CONNECT MULTI-STEM TREES WITH PROTECTED CONNECTING WIRES MAINTAINING EACH STEMS RELATIONSHIP TO ONE ANOTHER. MAINTAIN ALL GUYS UNTIL END OF GUARANTEE.
- FERTILIZING: TRANSPLANTED TREES WITH A SLOW RELEASE FERTILIZER EG: BONE MEAL OR APPROVED EQUAL. APPLY PER MANUFACTURER'S RECOMMENDATIONS.

2 03/08/2017 ISSUED FOR FINAL SUBMISSION ST DRAFT SUBMISSION NM ST NO DATE REVISION/ISSUED BY APPD

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MANA COOLID	f. 519-743-8778
MM GROUP	www.mmm.ca

City of Mississauga

300 City Centre Drive, Mississauga, ON, L5B 3C1

PROJECT TITLE:

CLIENT:

Mavis Road Class EA

SITE ADDRESS: Mavis Road

Steeles Ave. W to Courtneypark Dr. W DRAWING TITLE:

TREE PROTECTION NOTES

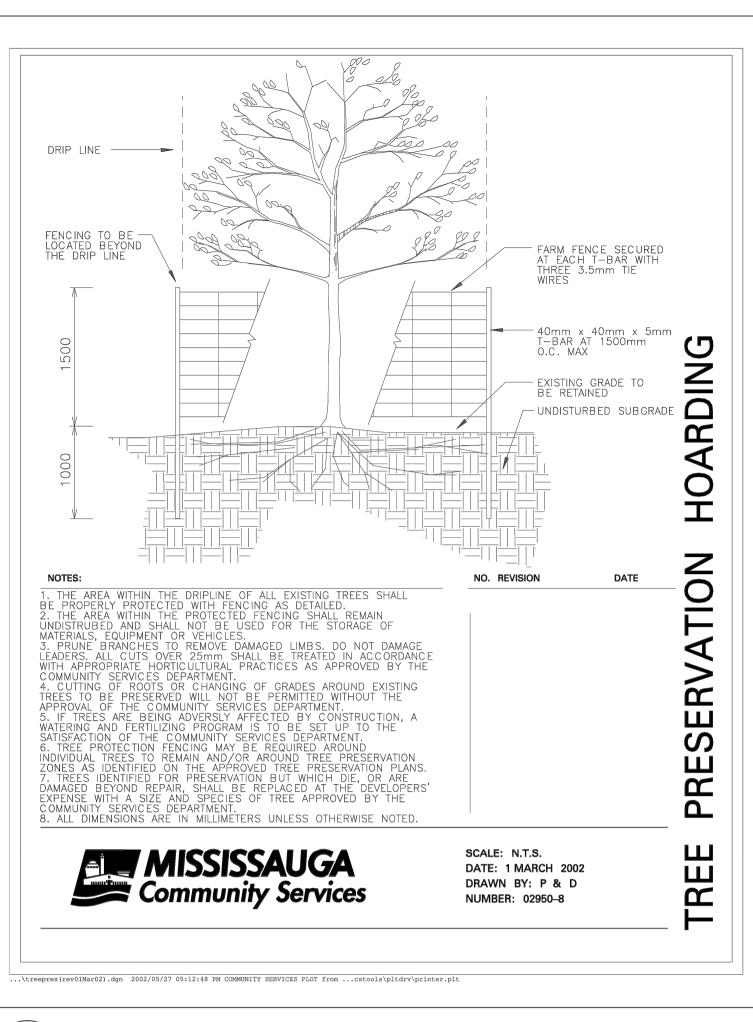
Sarah Taslimi ISA Certified Arborist ON-1883A DESIGNED ST CHECKED ST DATE JUNE 2016

PROJECT NUMBER 3215102-000

T-8

DWG. NUMBER

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T-9

CITY OF MISSISSAUGA TREE PROTECTION HOARDING DETAIL

2 03/08/2017 ISSUED FOR FINAL SUBMISSION DRAFT SUBMISSION NO DATE REVISION/ISSUED BY APPD

MMM GROUP	Landscape Architecture 582 Lancaster Street West Kitchener, ON N2K 1M3 t. 519-743-6625 f. 519-743-8778 www.mmm.ca

City of Mississauga 300 City Centre Drive, Mississauga, ON, L5B 3C1

PROJECT TITLE:

Mavis Road Class EA

SITE ADDRESS: Mavis Road Steeles Ave. W to Courtneypark Dr. W DRAWING TITLE: DETAILS

Sarah Taslimi ISA Certified Arborist ON-1883A

DESIGNED ST CHECKED ST NM SCALE N.T.S. DATE JUNE 2016 PROJECT NUMBER DWG. NUMBER

3215102-000

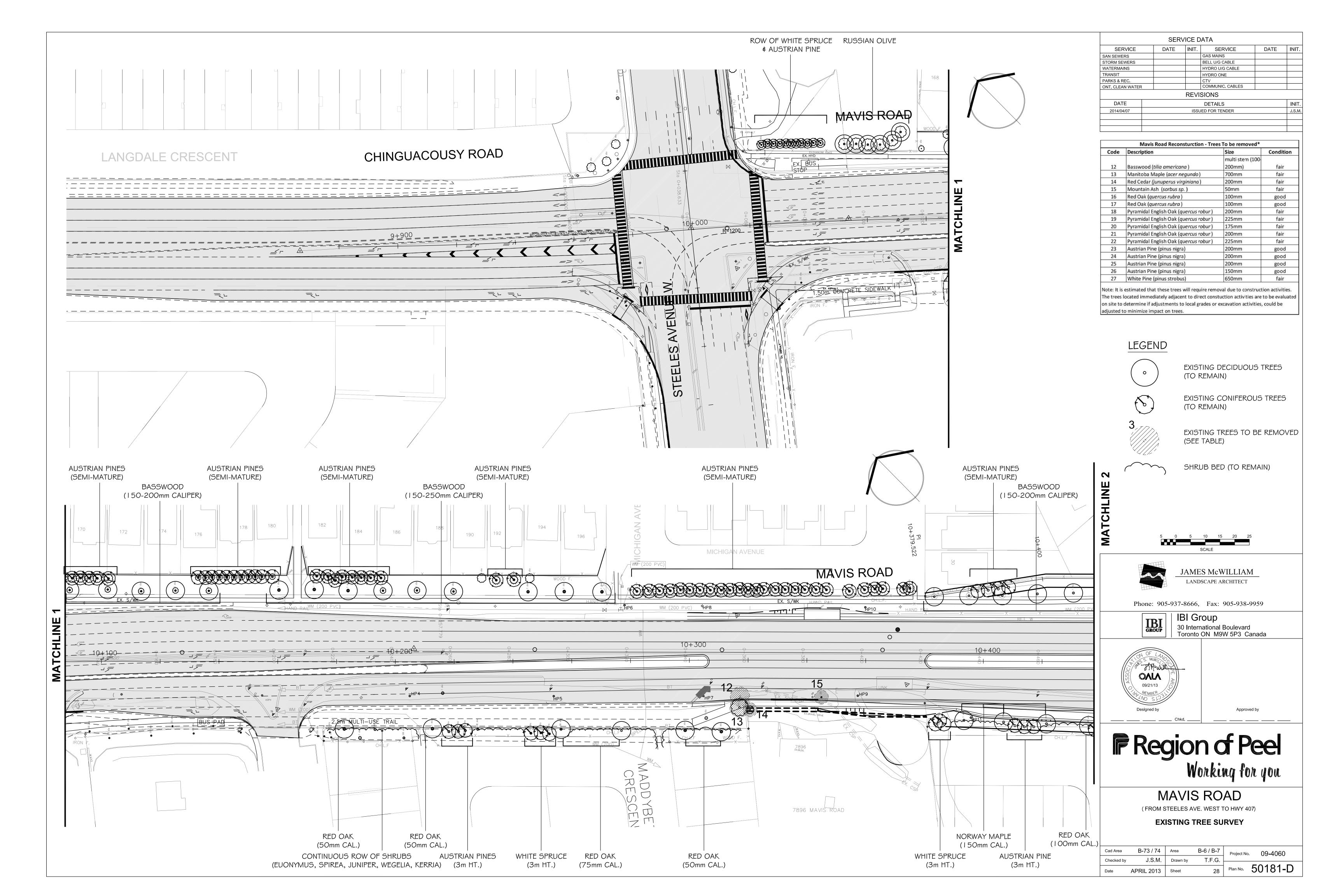
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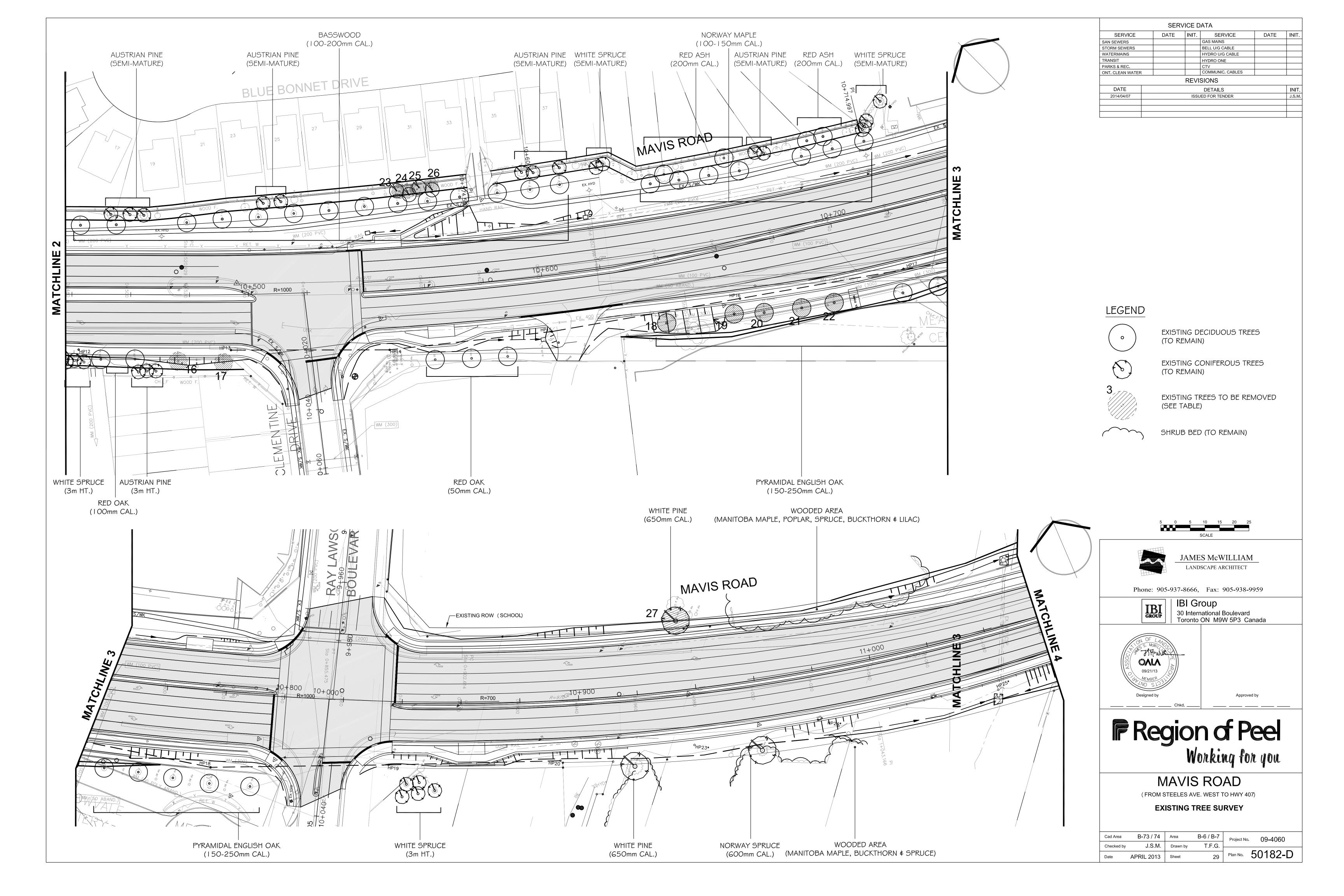
YY/MM/DD3/9/2017 2:08 PM L:\jobs\2015\3215102-000 Mavis

# Appendix B

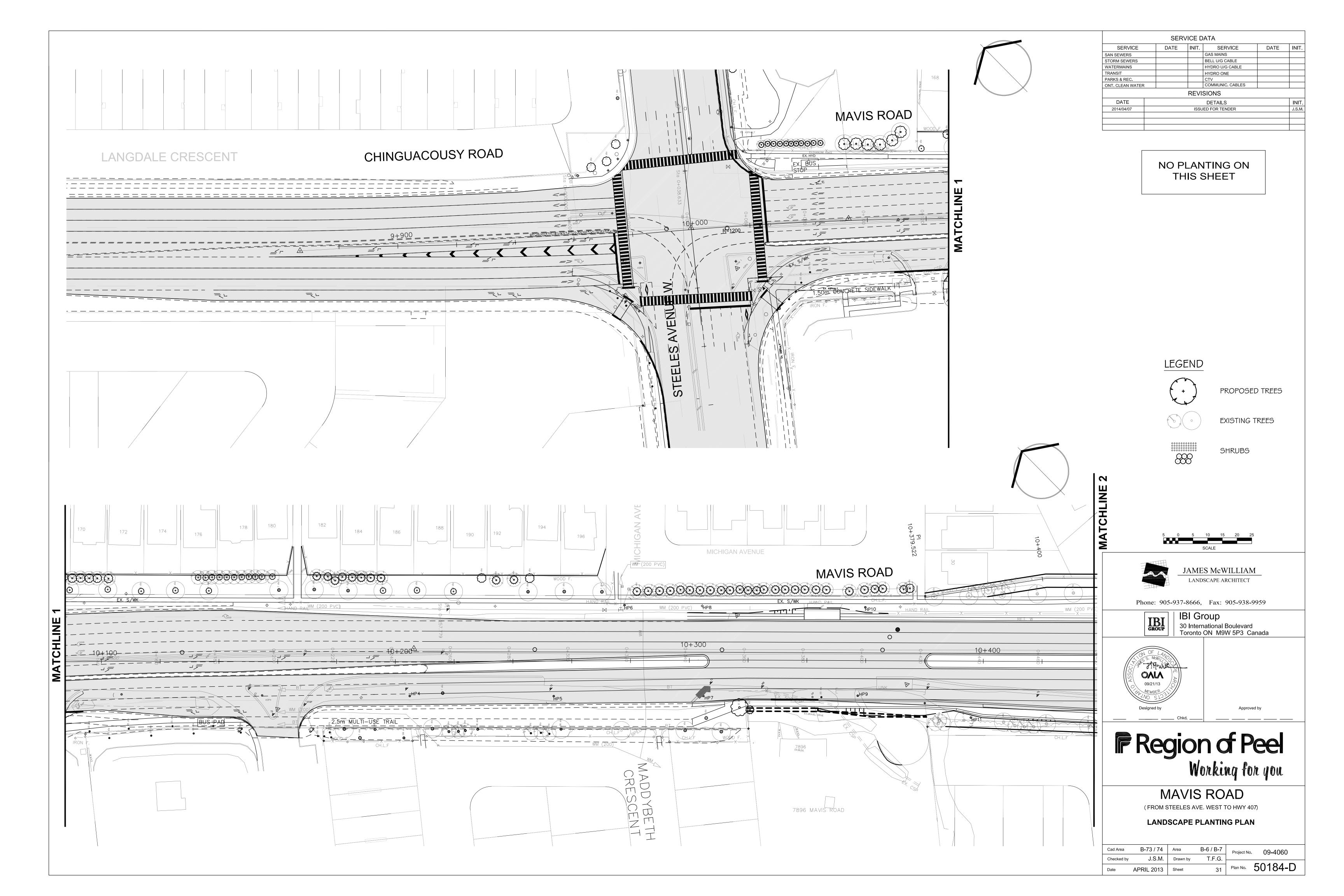
Existing Tree Survey – Mavis Road (from Steeles Ave. W to Highway 407)

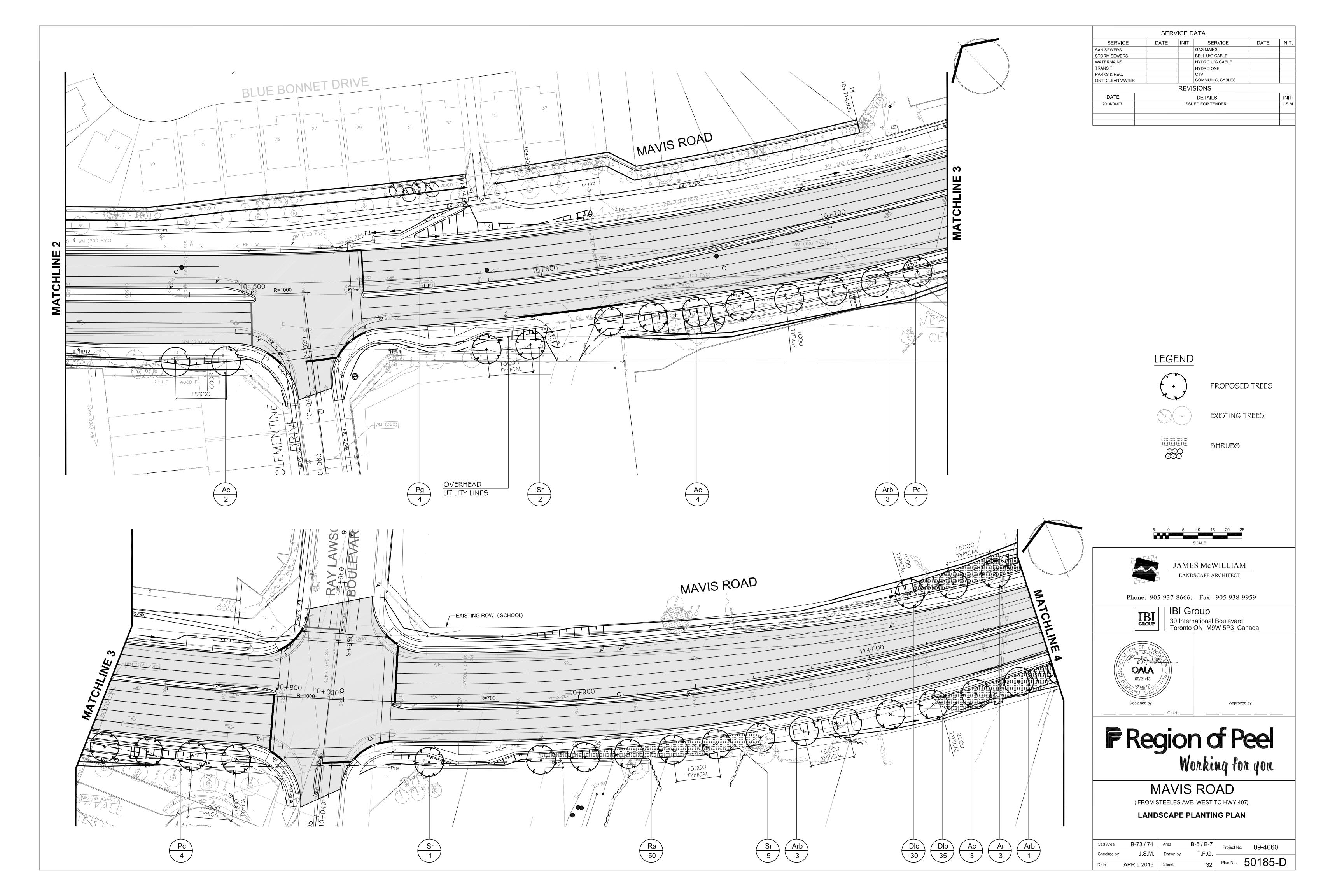
Region of Peel, 2014

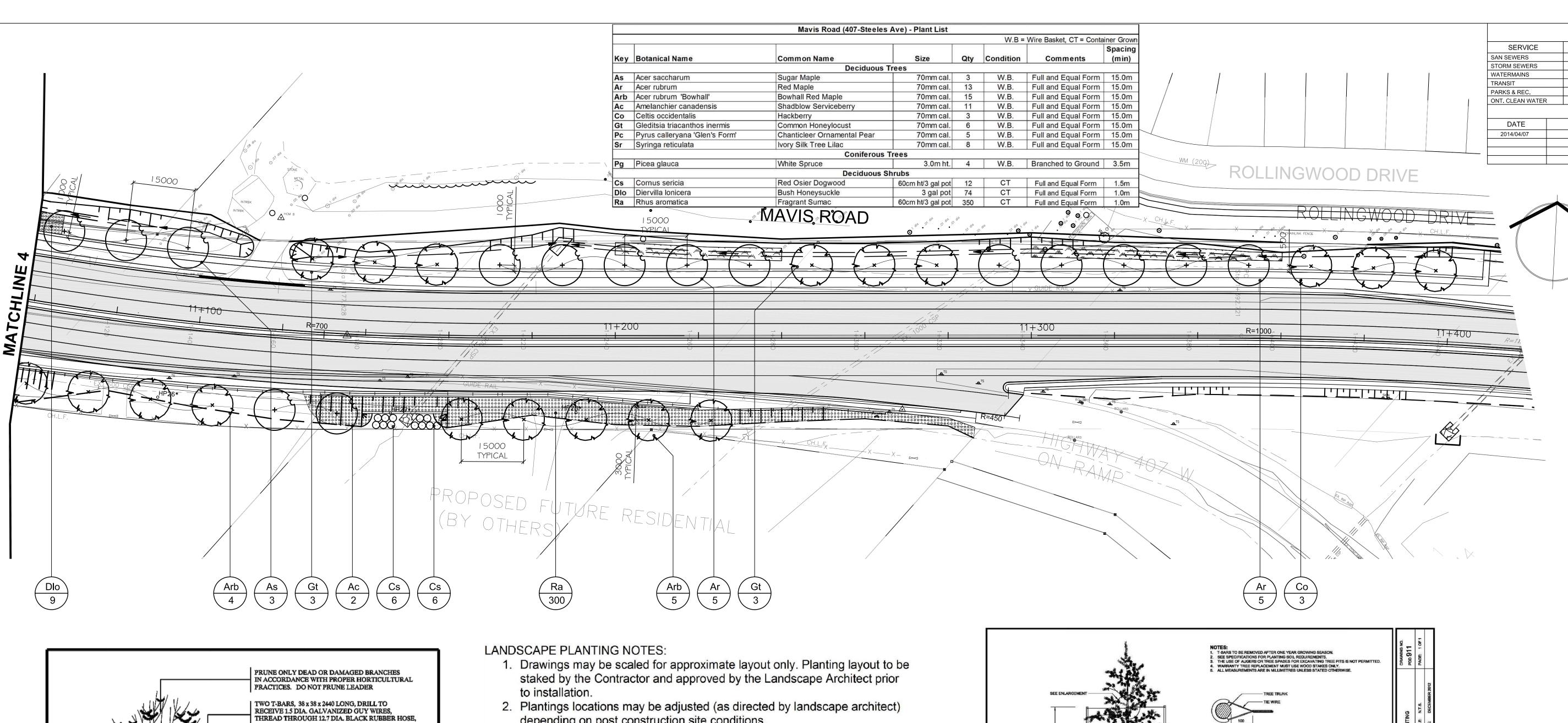




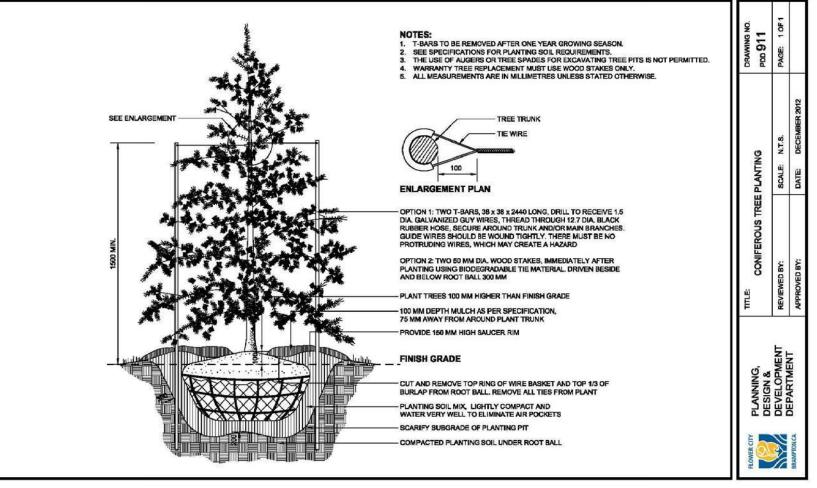


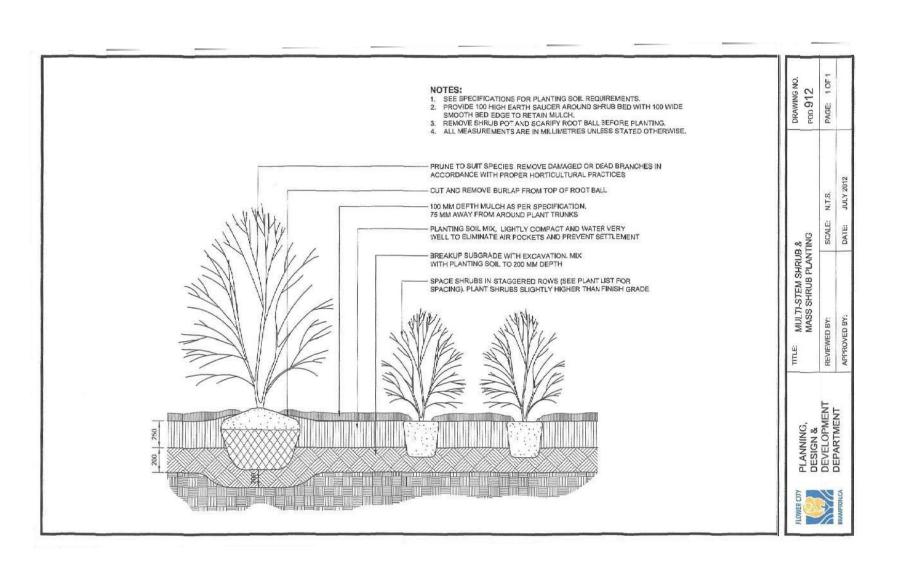


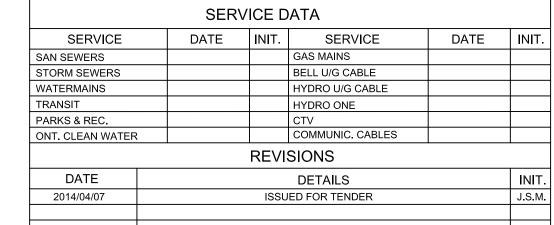


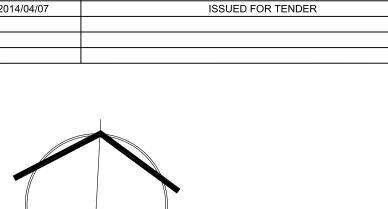


- depending on post construction site conditions.
- 3. Ensure that plant material is not planted in swales, or on unstable slopes,
- 4. Contractor shall be responsible for coordinating with utility companies the stake out of all utility locations. All utilities to be staked in the field prior to planting stake out.
- 5. Do not plant any trees directly above underground utilities (minimum offset = 1000mm) or under overhead utilities (recommended offset = 3000mm where feasible) or as directed by the contract administrator.
- 6. Plant materials specified for this project are to conform to the Canadian Nursery Trades Association (C.N.T.A.), specifications for size, species, and condition, as indicated on the drawings. Any plant materials that do not conform (in the opinion of the Landscape Architect) will be removed form the site and replaced by the Contractor at no additional cost to the
- Plant material collected from non-nursery source will not be accepted.
- 8. Plant material to be approved at source by landscape architect, prior to shipment to the site. The Landscape Architect reserves the right to reject any plant materials that have not been inspected and approved.
- 9. The Landscape Architect can refuse to accept any plant material at the site that exhibit transportation/installation damage, poor growth habit, or disease. Plant material rejected by the Landscape Architect will be promptly removed from the site and replaced with material of acceptable quality at no additional cost to the project.
- 10. Planting installation process to conform to OPS NSSP 'Construction Specification for Tree and Shrub Planting'.
- 11. Shredded bark mulch to be spread uniformly around base of trees and shrubs (continuous bed) to a depth of 75mm and a radius of 300mm from trunk. Do not place mulch in direct contact with trunk. Use only shredded pine or cedar bark mulch. Provide sample for approval prior to installation. Hardwood chips will be rejected by the Landscape Architect.
- 12. Contractor to maintain all plant materials in accordance with OPS NSSP 'Maintenance and Warranty for Landscaping' specifications. All tree stakes are to be removed prior to the final, one year, inspection of the site.
- 13. The Contractor is to identify with the owner and Landscape Architect any maintenance requirements necessary for warranty purposes.

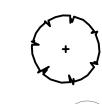












PROPOSED TREES

**EXISTING TREES** 





**SHRUBS** 



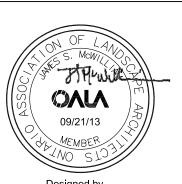


JAMES McWILLIAM LANDSCAPE ARCHITECT

Phone: 905-937-8666, Fax: 905-938-9959



**IBI** Group 30 International Boulevard Toronto ON M9W 5P3 Canada





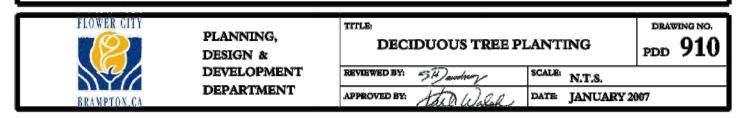
# Region of Peel Working for you

# MAVIS ROAD

(FROM STEELES AVE. WEST TO HWY 407)

LANDSCAPE PLANTING PLAN **AND DETAILS** 

Cad Area	B-73 / 74	Area	B-6 / B-7	Project No.	09-4060
Checked by	J.S.M.	Drawn by	T.F.G.		
Date	APRIL 2013	Sheet	33	Plan No.	50186-D



1. STEEL T-BARS TO BE REMOVED AT END OF WARRANTY PERIOD, PRIOR TO FINAL INSPECTION

3. REMOVE TREE WRAP PRIOR TO INSPECTION BY CITY OF BRAMPTON REPRESENTATIVE.

5. THE USE OF AUGERS OR TREESPADES FOR EXCAVATING TREE PITS IS NOT PERMITTED.

6. ALL MEASUREMENTS ARE IN MILLIMETRES UNLESS STATED OTHERWISE

2. SEE SPECIFICATIONS FOR PLANTING SOIL REQUIREMENTS.

4. CALIPER TO BE MEASURED 305 ABOVE FINISH GRADE.

SEE ENLARGEMENT

GUIDE WIRES SHOULD BE WOUND TIGHTLY - THERE MUST BE NO PROTRUDING WIRES

TIE WIRE

ENLARGEMENT

PLAN VIEW

VHICH MAY CREATE A HAZARD

Y THE LANDSCAPE ARCHITECT

PROTECTIVE BURLAP TREE WRAP,

100 MM SHREDDED BARK MULCH, BY GRO-BARK OR ALL-TREAT FARMS, OR APPROVED ALTERNATE

PROVIDE 150 MM HIGH SAUCER RIM

SCARIFY SUBGRADE OF PLANTING PIT

REMOVE TOP RING OF WIRE BASKET AND TOP 1/3 OF BURLAP FROM ROOT BALL

PLANTING MIX, LIGHTLY COMPACT AND WATER VERY WELL

TO ELLIMINATE AIR POCKETS

PLANT TREES 100 MM HIGHER THAN FINISH GRADE

COMPACTED PLANTING SOIL UNDER ROOT BALL

FINISH GRADE

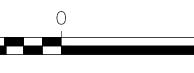
USE THREE T-BARS FOR 100 CALIPER TREES OR LARGER. LARGER TREES MAY BE GUYED RATHER THAN STAKED, AS DIRECTED











EXISTING TREE TO REMAIN

EXISTING TREE OR GROUP OF TREES IMPACTED BY GRADING