
2045 Heartwood Court, Mississauga.

Construction development Arborist Report.

Submitted by

Jonathan O'Neill, ISA ON-1533BUM

December 6th, 2020

To:

Lisa Miron.

By
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HbScF / Forestry Technician / Exterminator / 444A and 444B Journey Person
ISA ON-1533BUM
2045 Heartwood Court., Mississauga, ON.
December 6th, 2020

**ARBORIST REPORT FOR CONSTRUCTION DEVELOPMENT / RAVINE:
MISSISSAUGA**

By
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Honours Bachelor of Science in Forestry – Honours Forestry Degree
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Location: 2045 Heartwood Court, Mississauga, ON., L5C 4P7.

Property contact: Lisa Miron. lawyerlisa@gmail.com. (416)-569-7931.

Arborist contact for removal: Chris Sisty. (647)-572-0757.

Arborist contact for root pruning and supervision:

Introduction

This is a construction arborist report for development applications for Mississauga at 2045 Heartwood Court. Following the bylaws of City Mississauga Departments pertaining to the official plan amendment and re-zoning submissions for the redevelopment of the site the developer, homeowner, removal arborist, or architect will submit permit applications required to have the proposed dwelling constructed, installation of the new driveway occur. The city of Mississauga requires an Arborist Report / Tree preservation Plan for the construction processes. The report was made to find issues with trees during construction and make recommendations, so the construction processes will keep tree injury to a minimal, while removing trees where necessary, for example being a future construction / tree location conflict. Jonathan O'Neill was contacted by Chris Sisty in November 2019. Root pruning / injury will occur for tree #22 Eastern white pine, *Pinus strobus*, the excavation will be 5 or less meters from this tree. This report also includes a site plan, and tree protection. The report reflects the bylaws and

guidelines set out by City of Mississauga's tree protection bylaws. Included is an inventory and assessment of by-law protected trees on site, which includes tree protection zones where required.

Chart explanation:

Tree #: Inventoried tree marked on corresponding site plan.

Species: botanical name and common name of the tree

DBH: diameter breast height measurement. 1.4 meters from the ground.

Location: Private, city of boundary

Conditions: health, vigor, vitality, structure, location, obstructions etc.

TPZ: tree protection zone distances required for root protection.

TREES ON SITE CHART

Tree	Species	DBH in cm	Height	Crown size	Location / category	Tag #	Conditions	TPZ Tree Protection Zone, Meters
1	Red oak, <i>Quercus rubra.</i>	52 cm	17 m	10 m	Private	8 Flag 2	Fair, lots of stubs dead wood	7.2 m
2	Eastern white pine, <i>Pinus strobus</i>	69 cm	23 m	7 m	Private	9 Flag 3	Good	8.4 m
3	Elm, <i>Ulmus</i> sp.	33 cm	16 m	6 m	Private	10 flag 4	Dead	Remove
4	Black cherry, <i>Prunus nigra</i>	29 cm	15 m	7 m	Private	11 Flag 5	Dead	Remove
5	White pine	91 cm	25 m	10 m	Private	12 flag 6	Fair, stubs, lean	12 m
6	Black cherry	19 cm	11 m	4 m	Private	13 flag 7	Dyeing	Remove
7	Black oak	86 cm	30 m	12 m	Private	14 flag 8	Poor stubs dead wood	Recommend future removal for safety of house etc.

8	White pine	38 cm	20 m	6 m	Private	15 Flag 9	Poor	Recommend removal
9	Elm	25 cm	16 m	5 m	Private	16 flag 10	Fair, bark beetle damage	Recommend removal
10	Black cherry	31 cm	16 m	4 m	Private	17 flag 11	Poor structure	Recommend removal
11	Green ash, <i>Fraxinus americana</i>	70 cm	20 m	-	Private	18 flag 12	Dead	Removal
12	Manitoba maple, <i>Acer negundo</i>	16 cm	7 m	4 m	Private	19 flag 13	Poor	Recommend removal
13	Ash stub	52 cm	12 m	-	Private	20 flag 14	Dead chicot	Removal
14	Black cherry	18 cm	7 m	2 m	Private	21 flag 15	Poor, crook, stubs	Recommend removal
15	Black cherry	17 cm	10 m	3 m	Private	22 flag 16	Lean, crook, poor	Recommend removal
16	Black cherry	41 cm	20 m	6 m	Private	23 flag 17	Poor	Recommend removal
17	White oak, <i>Quercus alba</i>	49 cm	20 m	7 m	Private	24 flag 18	Poor, dead wood, lean	Recommend removal
18	White oak	37 cm			Private	25 flag 19	Fair, crook	4.8 m
19	Sugar maple, <i>Acer saccharum</i>	19 cm	12 m	6 m	Private	26 flag 20	Fair	2.4 m
20	White pine	27 cm	16 m	4 m	Private	27 flag 21	Fair	3.6 m

21	Elm, <i>Ulmus</i> sp.	18 cm	16 m	2 m	Private	28 flag 22	Dead	Removal
22	White pine	62 cm	25 m	10 m	Private	29 flag 23	Fair, low crown integrity, stubs, lean	Recommended removal, within 7.2 m TPZ
23	White oak	120 cm	30 m	15 m	Private, neighbours	30 flag 24	2 stems, included bark, structural issue, fair,	14.4 m
24	White oak	59 cm	25 m	12 m	Private, neighbours	31	Sparse foliage in canopy, poor	7.2 m
25	White oak	36 cm	21 m	6 m	Private, neighbours	32		4.8 m

Removing trees on private property

If you must remove trees on private property, you need to comply with the [Private Tree Protection By-law](#).

You only need a permit to remove trees on your private property if you are removing three or more trees 15 cm (6 inches) or greater in diameter, including dead or dying trees, per calendar year.

Apply for a tree removal permit

If you need a tree removal permit, complete the [tree permit application form](#) and provide any supporting documents or drawings that are required, such as locations of the trees, an arborist report and a replanting plan.

Tree permit cost

There are no fees for trees that are dead, dying or hazardous. However, a permit is still required if you are removing three or more trees that are 15 cm (6 inches) or greater.

You must submit the base permit fee of \$421.75 with your application. After your application is reviewed, the fee for each additional healthy tree to be removed that is 15 cm (6 inches) or greater is \$95.23.

On site there is 7 trees that should be removed, and there 9 are recommended removals (all are over 15 cm). There is 1 tree that is requested for removal, due to having the foundation within the 7.4 m TPZ (tree #22 white pine), as per open space grown tree.

Plants on site: raspberry, goldenrod, prickly lettuce, wild grape, dandelion, choke cherry, buckthorn, wild carrot, astor, buttercup, buckwheat, curled dock, lambs quarters, annual fleabane

Methods: Initially the architect drew up the building construction development to occur on site on a site plan. The site plan has been updated by Jonathan to show information about the trees on site (DBH, Tree Protection Zones - TPZ, species, latin names, health, vigor, vitality and structural conditions, and tree numbered identification.) The site plan / arborist report and Tree Chart describes if a tree is a direct construction conflict (tree injury or removal).

The site plan was used during the arborist inspection on site to locate and take down important information. Trees were measured at 1.4 m height, off site tree diameter class was estimated visually as per trespassing laws. Information was gathered as to be based on Mississauga tree bylaws. All trees on site were photographed; trees that are a construction conflict have their pictures added to this report main body. Trees at and above 15 centimeters are included in this report.

Suggestions that **shall be mandatorily** followed by the project supervisor of construction or contractors have been set out in this report.

Limits of assignment: none.

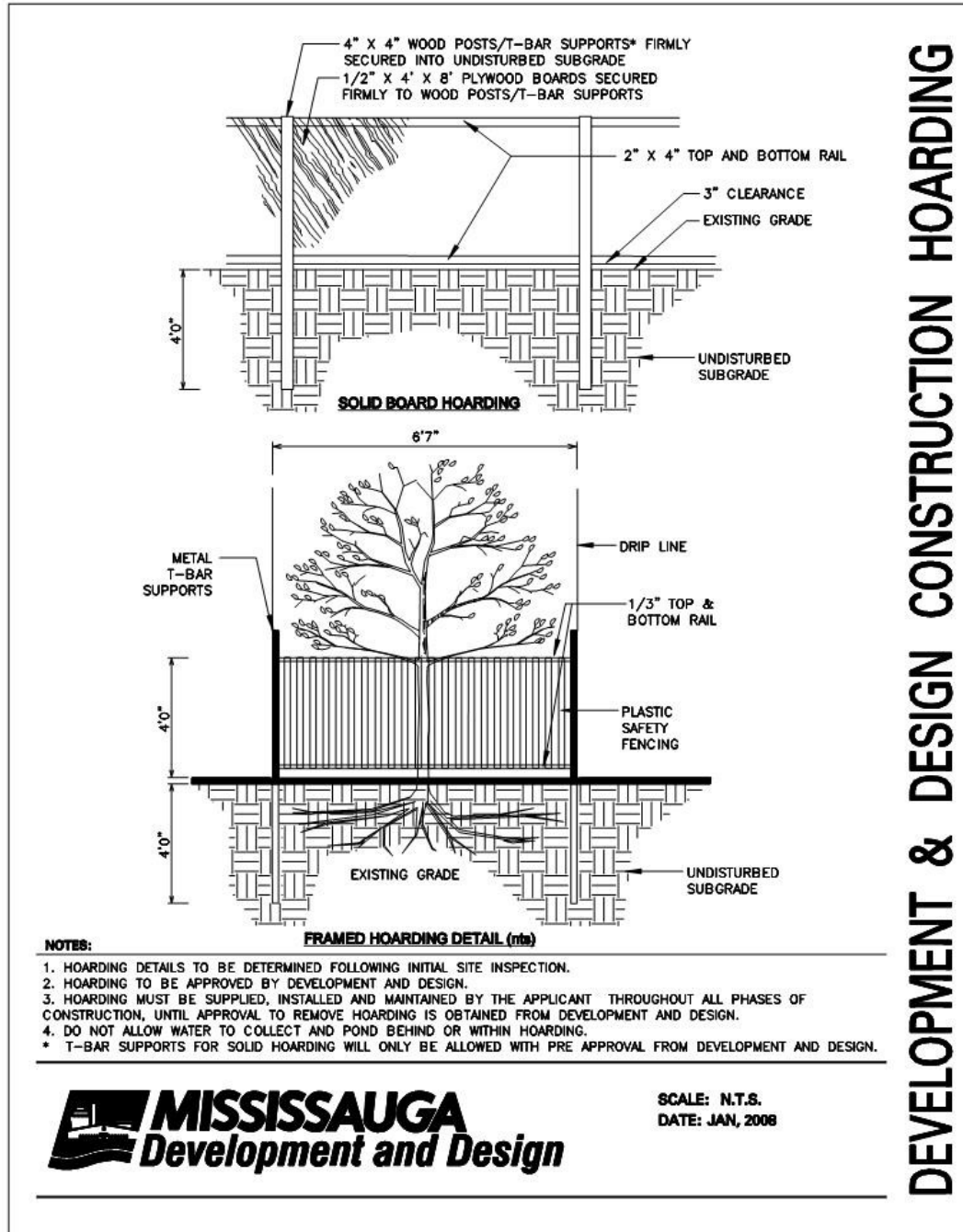
Tools: digital camera, diameter tape, digital measurement device (level / distance).

Arborist recommendations and tree protection zones 'TPZ'

- Construct and install TPZ hoarding before construction begin.
- Liase with the city of Mississauga before construction commencement. The city of Mississauga will control what trees are considered removal or injury bottom line.
- The tree permit bylaw (475-05) of the City of Mississauga controls the removals / injuries of trees within the city. A permit application must be submitted with an arborist report, and in this case a site plan to remove trees over 15 cm DBH. Permission to remove more than 2 trees (15 cm or greater dbh) a year is required from the City of Mississauga.

- The City of Mississauga will review the site plan, arborist report, proposed removals and replants. Tree replanting securities will be requested by the City, to
- Ensure that replants survive, in place and in good health. If trees are not replanted on site, replacement trees will be subject to the Corporate Tree Fund of Mississauga. Ask Mississauga about replacement tree security fees, that are on the proposed property or placed as cash in lieu. Replant trees will be updated on the site diagram, at the request from Mississauga after reviewing the report removal requests.
- Boundary trees must have co-ownership approved removal documentation. Shared trees with the city are called private, when 50 % of the trunk is on private property.

Construction information: During construction, soil from the foundation digging, shall not be put into TPZ areas, or placed on tree roots, even if outside the TPZ areas. Backfill soil can be kept on site, just not in TPZs or in the proximity of tree roots. No contractors are to prune city trees without city approval, this leads to fines, definitely do not remove a city shrub or tree no matter the size. There are not any trees or shrubs that will require pruning for the construction on site. Staging areas for construction are to be held outside of TPZs and drip lines of bylaw protected trees. **Construction / machinery access shall be on the south side of the building for 2045 Heartwood Court. To keep the expenses lower, orange plastic fencing is requested to be used instead of plywood hoarding (to be determined by Mississauga). This request is fair, due to distances from the future foundation.**

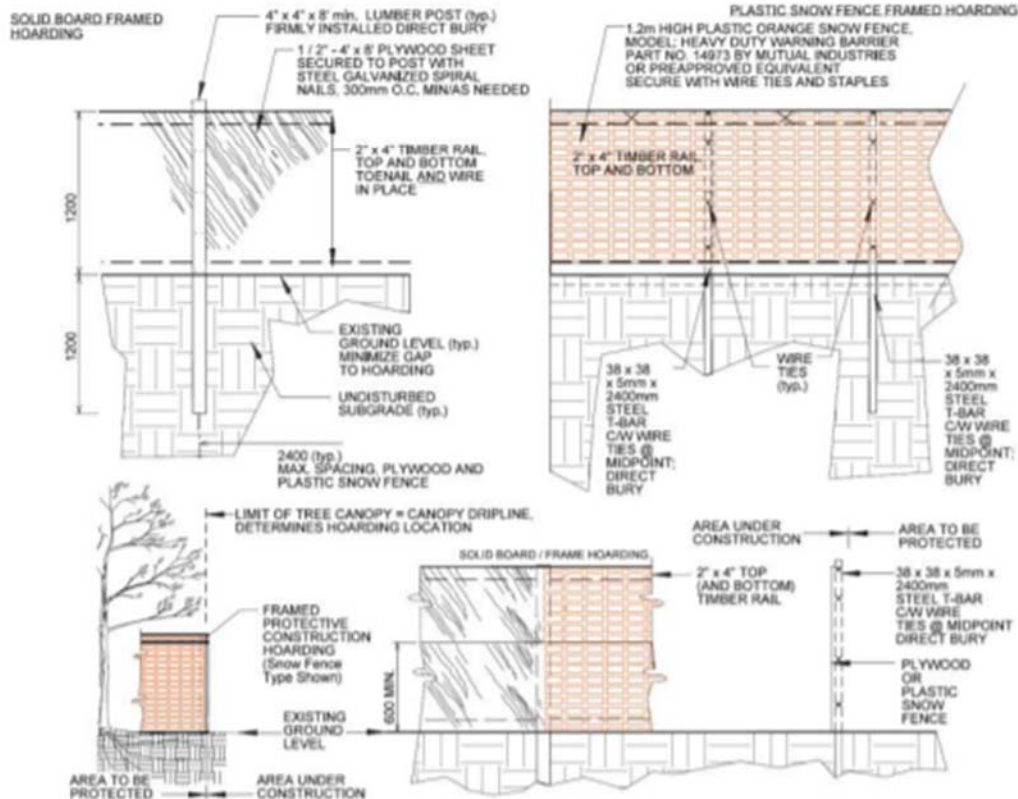


i:\planning\mapping\Special Projects\ 2008 \Construction\hoarding_04\ D&D_Construction.dgn

02830-6

Hoarding Framed Protective Construction Hoarding Solid Board- Plastic Snow Fence

NOTE:
 TO BE USED AS A GUIDELINE ONLY.
 NOT TO SCALE. REMOVE CITY TITLE BLOCK
 AND REDRAW TO REPRESENT SITE SPECIFIC
 CONDITIONS. ALL SITE SPECIFIC CONDITIONS
 ARE TO BE CONFIRMED BY THE PROJECT
 CONSULTANT.



NOTES

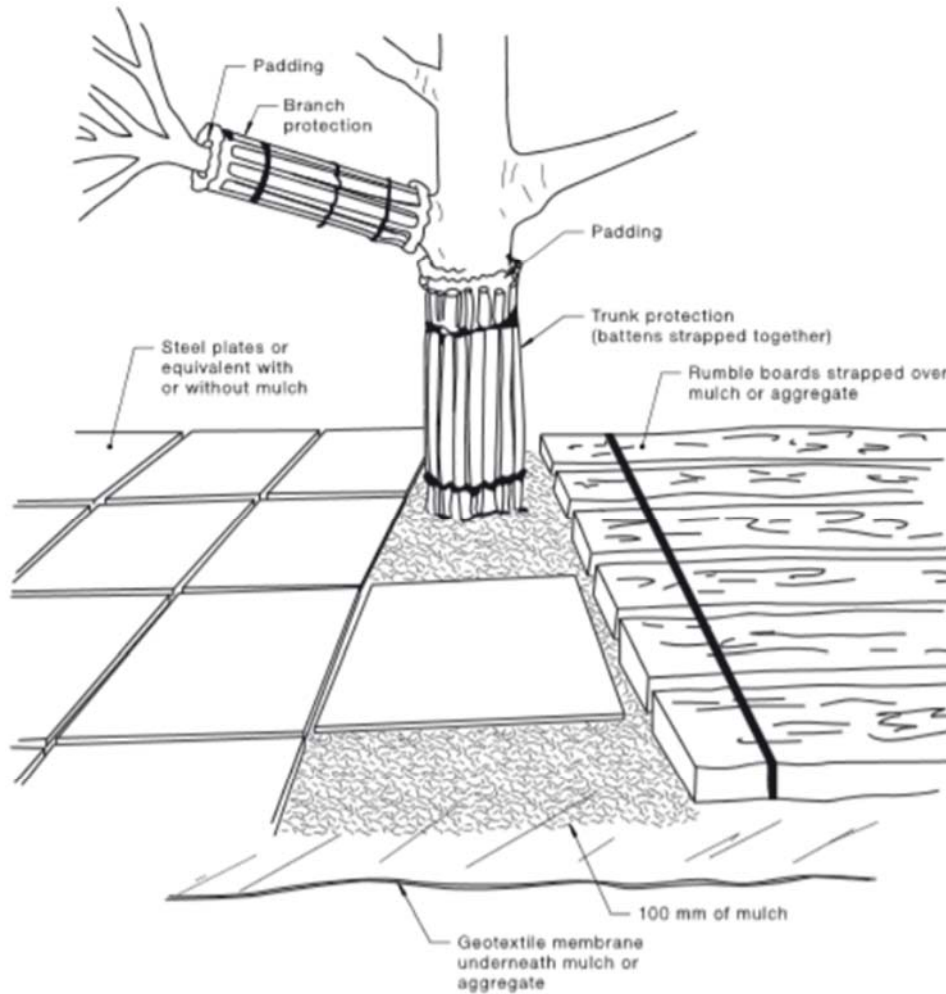
1. HOARDING LOCATION AS PER DRAWINGS. HOARDING INSTALLATIONS ARE TO INCLUDE WOVEN GEOTEXTILE FABRIC FOR SEDIMENT CONTROL.
2. NO MOBILIZATION OR CONSTRUCTION WORK TO OCCUR UNTIL HOARDING HAS BEEN INSPECTED AND APPROVED BY COMMUNITY SERVICES PROJECT MANAGER (CSPM). CONTRACTOR TO ARRANGE FOR A HOARDING INSPECTION WITH (CSPM). 48 HOUR NOTICE REQUIRED.
3. HOARDING TO BE SUPPLIED, INSTALLED AND MAINTAINED BY THE CONTRACTOR THROUGH ALL PHASES OF WORK ON SITE.
4. THE CONTRACTOR IS TO REMOVE AND DISPOSE THE HOARDING OFF SITE WHEN DIRECTED BY THE (CSPM).
5. ALL WOOD PRODUCTS TO BE NEW AND LUMBER KILN DRIED SPF.
6. ALL FASTENERS TO BE NEW GALVANIZED STEEL AND SECURELY INSTALLED. WIRE TIES MIN 3.5mm DIA. GALVANIZED STEEL.
7. DO NOT ALLOW WATER TO COLLECT AND/OR POND ON EITHER SIDE OF THE HOARDING.
8. WHEN INSTALLING DIRECT BURY TIMBER POSTS AND T-BARS, TAKE CARE TO AVOID VISIBLE AND ASCERTAINABLE TREE ROOTS.
9. PLACE HOARDING AT LIMIT OF TREE CANOPY DRIP LINE OR BEYOND (E.G. FURTHER AWAY FROM TRUNK OF TREE).
10. HOARDED OFF AREA TO REMAIN UNDISTURBED. NO STOCKPILING, STAGING OR MOVEMENT OF VEHICLES TO OCCUR WITHIN PROTECTED AREA.
11. FOR PROTECTION OF TREE'S AND ROOT SYSTEM, CONTRACTOR MAY BE REQUIRED TO PROVIDE WATERING, MULCHING, FERTILIZING, PRUNING OR OTHER ACTIVITIES TO ENSURE THE HEALTH OF THE TREE(S).
12. ALL MEASUREMENTS IN MILLIMETRES UNLESS NOTED OTHERWISE (E.G. DIMENSIONAL LUMBER).
13. CONTRACTOR RESPONSIBLE FOR LOCATES

N.T.S.

Detail: 02830-6

ORIGINAL DATE: Mar 08/18
 REVISION DATE: Mar 08/18





Above image: unnecessary at this site.

Prohibited Activities Within a TPZ

Except where authorized by Urban Forestry, any activity which could result in injury or destruction of a protected tree or natural feature, or alteration of grade within a Ravine and Natural Feature Protection (RNFP) area, is prohibited within a TPZ, including, but not limited to, any of the following examples:

- demolition, construction, replacement or alteration of permanent or temporary buildings or structures, parking pads, driveways, sidewalks, walkways, paths, trails, dog runs, pools, retaining walls, patios, decks, terraces, sheds or raised gardens
- installation of large stones or boulders
- altering grade by adding or removing soil or fill, excavating, trenching, topsoil or fill scraping, compacting soil or fill, dumping or disturbance of any kind
- storage of construction materials, equipment, wood, branches, leaves, soil or fill, construction waste or debris of any sort
- application, discharge or disposal of any substance or chemical that may adversely affect the health of a tree e.g. concrete sluice, gas, oil, paint, pool water or backwash water from a swimming pool
- causing or allowing water or discharge, to flow over slopes or through natural areas
- access, parking or movement of vehicles, equipment or pedestrians
- cutting, breaking, tearing, crushing, exposing or stripping tree's roots, trunk and branches.
- nailing or stapling into a tree, including attachment of fences, electrical wires or signs
- stringing of cables or installing lights on trees
- soil remediation, removal of contaminated fill
- excavating for directional or micro-tunnelling and boring entering shafts

The above mentioned prohibitions are for area(s) designated as a TPZ. If possible, these prohibitions should also be implemented outside the TPZ in areas where tree roots are located. The roots of a tree can extend from the trunk to approximately 2-3 times the distance of the dripline.

If requested by Mississauga instead of the removal request: ROOT PRUNING #22 Eastern white pine 62 cm

1. It is recommended any excavation done within the MTPZ of tree # __22__ be done via supersonic air tool (AirSpade©). This will expose roots without damaging them and keeps fine root hairs intact. Cinerea Urban Forestry Services offers AirSpading and root pruning services.
2. ROOT PRUNING - All root pruning is to be performed or supervised by an ISA Certified Arborist/MTCU Qualified Arborist. Root pruning may be conducted outside the MTPZ of any tree or within the MTPZ if a Permit to Injure has been issued by Urban Forestry.

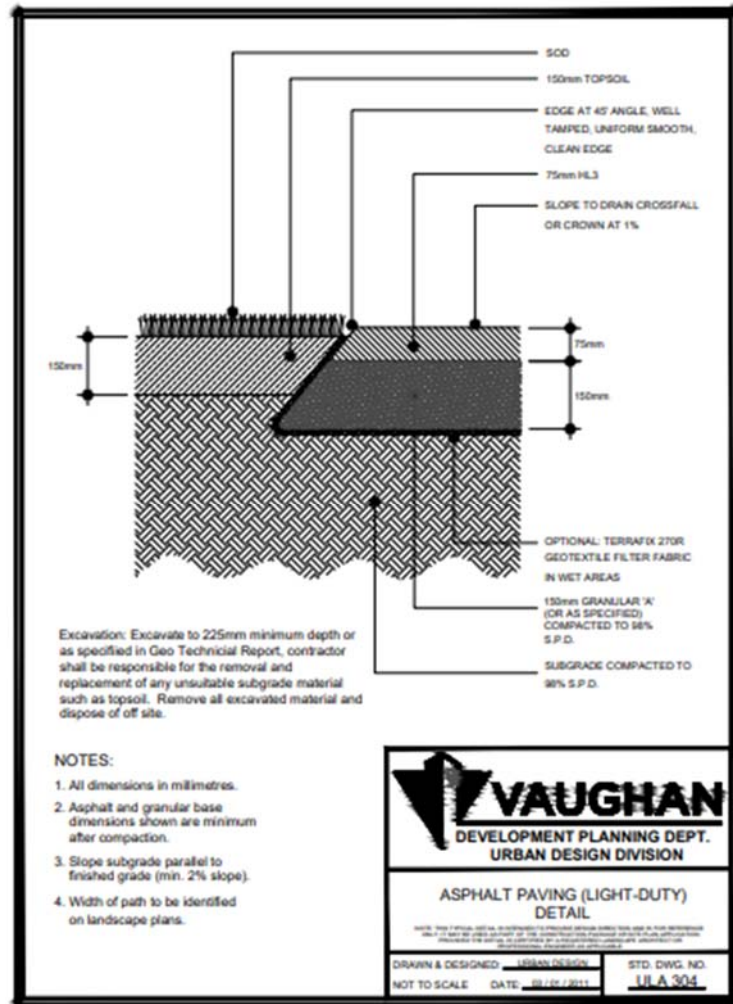
On privately-owned trees, the arborist may prune roots up to 5cm in diameter. On city-owned trees, the contractor performs the root pruning under the supervision of an ISA Certified Arborist. The contractor can prune roots up to 5cm in diameter. The contractor must fill out 'Contractor Agreement to Perform Arboricultural Services on City Owned Street Trees' and file with the City prior to performing root pruning. Any roots to be cut that are over 5cm in diameter must have approval by Urban Forestry prior.

ROOT PRUNING BY: Mark Ellis

ISA Board Certified Master Arborist Municipal Specialist ON-
1686BM Cinerea Urban Forestry Services
www.cinereaurbanforestryservices.ca

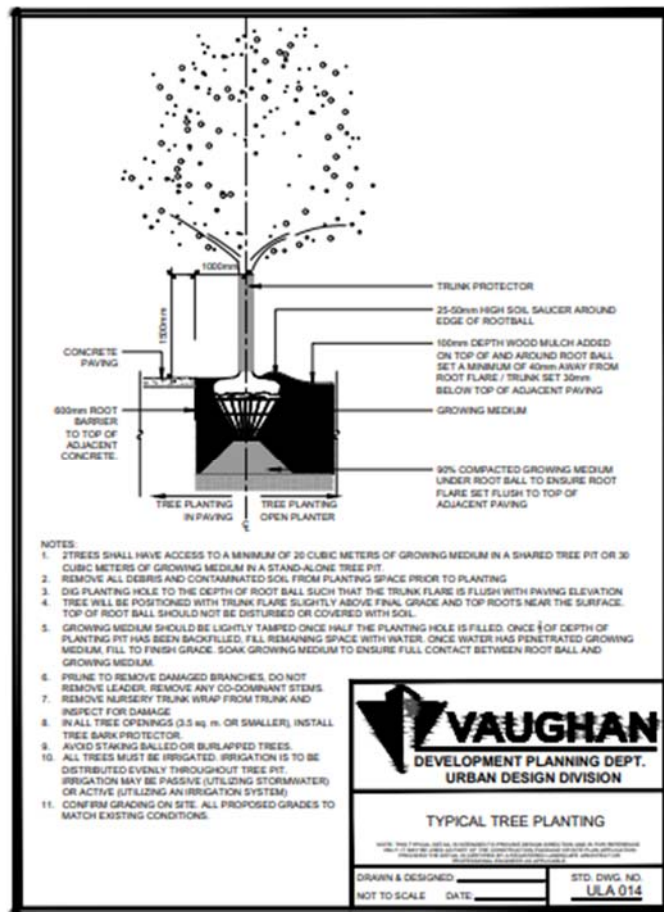
1-(905)-715-5921

Potential root pruning: There will not be heavy machinery or a bin placed in the TPZ. A certified person shall monitor the lifting of soil and replacement with bricks and subbase or asphalt, while working within this trees TPZ. A certified person is an R.P.F., or certified arborist. Notes, pictures, recommendations, and possibly prune roots, it shall be submitted to the city.



The driveway within the TPZ:
As James Urban the author of “Up by Roots” states about subbase: high compaction of the base is required, while still allowing tree root growth. Sand subbase could lead to warping, and a trip hazard. Gravel base has to high a pH for almost all trees (8.0 or higher). Soil / aggregate and structural soil is too expensive. Possible base material could be crushed shale, granite rail road ballast. A sand, stone / landscaping company may have further suggestions of subbase construction and materials. James also states “soil / aggregate structural soils are well drained and much dryer than loam soil, and therefore irrigation may be needed. Installation also required compaction of the subgrade, which may create poor drainage under the structural soil, making subsurface drainage mandatory.” A contractor with proven knowledge and skills in mixing and placing the material shall be used. During the driveway installation either the certified

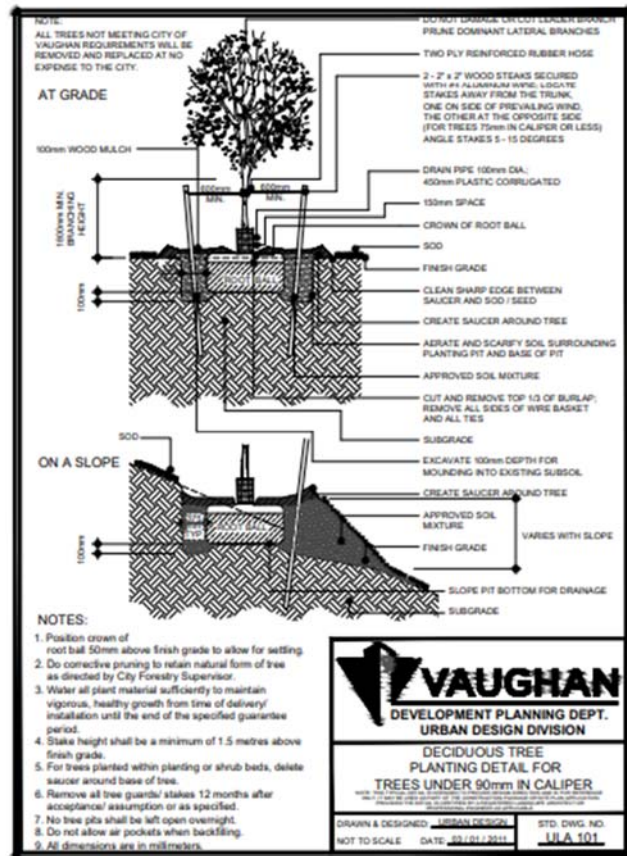
person or city staff may decide too much damage has been done to the trees’ roots, which would could change an injury request into a removal request. For, the type of brick / paver, its more beneficial to the tree’s health, vigor and vitality to use water permeable materials.



Replant general information: The replants must be selected from tree species that grow into large shade trees, should not be of all the same species (but a variety), and should be spaced minimum 6 m apart ideally 7-9 m, with 20-30 m² of soil area of good quality. Trees are to be planted 1.5 m from fences. Cash in lieu can be given to the city to replant trees elsewhere within the city of Mississauga.

Tree replant size is to be 50 mm caliper at the base of the stem. The replanted trees must be maintained in good health, proper species selection and also said location. The trees will be monitored by an arborist inspector from the city's Urban Forestry staff. So, take care of the trees' health, so they can become successful at adding to the canopy cover goals of the open

landscape. Use the replanting image in the appendices to properly plant new tree additions to your property if required. Hiring a qualified arborist or horticulturist to plant the trees and can provide care information is a good idea. **Vaughan replant images:** are ideal suggestions for work direction.



Assumptions and Limiting Conditions

1. Information has been gathered from numerous reliable sources since 2000 forestry studies and arborist education and experience. The material ideas and theories are correct and true, but the arborist can not rely on information provided by homeowners etc.

2. It is the on site arborist, homeowners, architect or the developers' duty to bring the report and pay the fees to Mississauga offices.

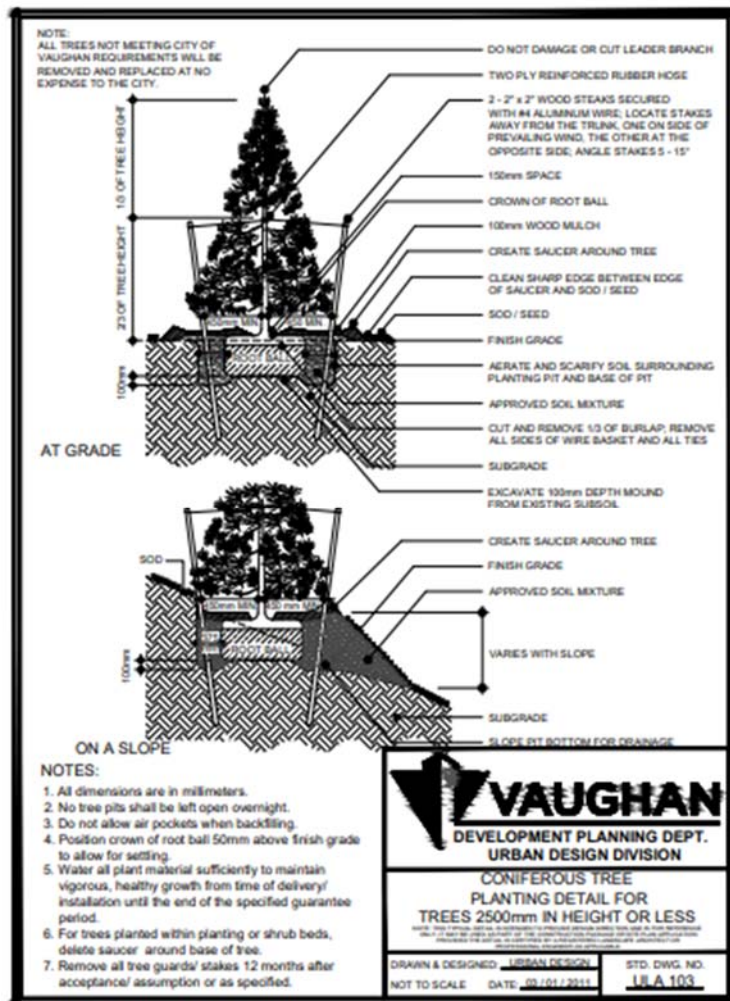
3. Without every page of this report or the signature page the report is incomplete and cannot be submitted to the city.

4. Paying for the arborist report does not allow you to publish it or distribute it,

without Jonathan O'Neill's consent. This report must not be used in media or any kind of advertising or distributing by the city.

5. Photographs in this report are not to scale and can not be used for engineering / architectural / survey purposes.

6. The report here only deals with the 2045 Heartwood Crt., property. The site inspection occurred in summer and fall of 2019. There was a reinspection in the fall of 2020.



Certificate of performance

I, Jonathan O'Neill certify that:

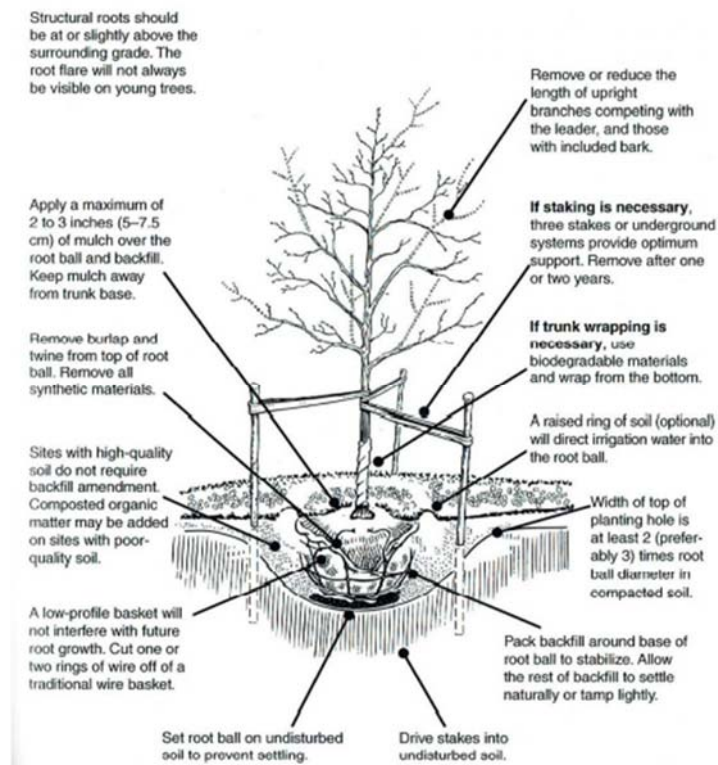
- I inspected the property myself, and believe my findings are accurate.
- I have no current or future interest in 2045 Heartwood Crt., trees, and do not have personal interest or bias with respect to the client or City bylaws.
- The observations of the properties' trees were true for inspection, but do not incur anything that shall happen after or an act of god situation.
- During dormant season there may be inaccuracy of a trees' health
- Trees can be hazardous at all life periods -healthy or not, therefore unpredictable.
- The report writer accepts no responsibility for information

provided that is not the truth.

- The arborist report writer will not be called upon to give testimony in court on the valuation of a tree for removal or injury or any other reason.
- The inspection findings, opinions, conclusions and recommendations are my own and the city of Toronto's / ISA and are based on a Forestry degree / Forestry diploma, 4 ISA certifications which includes ISA BCMA Master Arborist title, Utility and Arborist Journey Persons Class Qualifications from the Ontario College of Trades, and 8 Ministry of the Environment pesticide exterminator licenses.
- I did not have help constructing this report.
- The compensation received for this report, has nothing to do with whether or not a tree gets approved for removal or not. The information is valid and not construed.

In addition, I'm working towards RPF title, and all my current memberships are in good standing. I have been working in arborist / forestry field since 2000.


Jonathan O'Neill
ISA ON1533BUM, Master Arborist
Forester, Forestry Technician, Exterminator



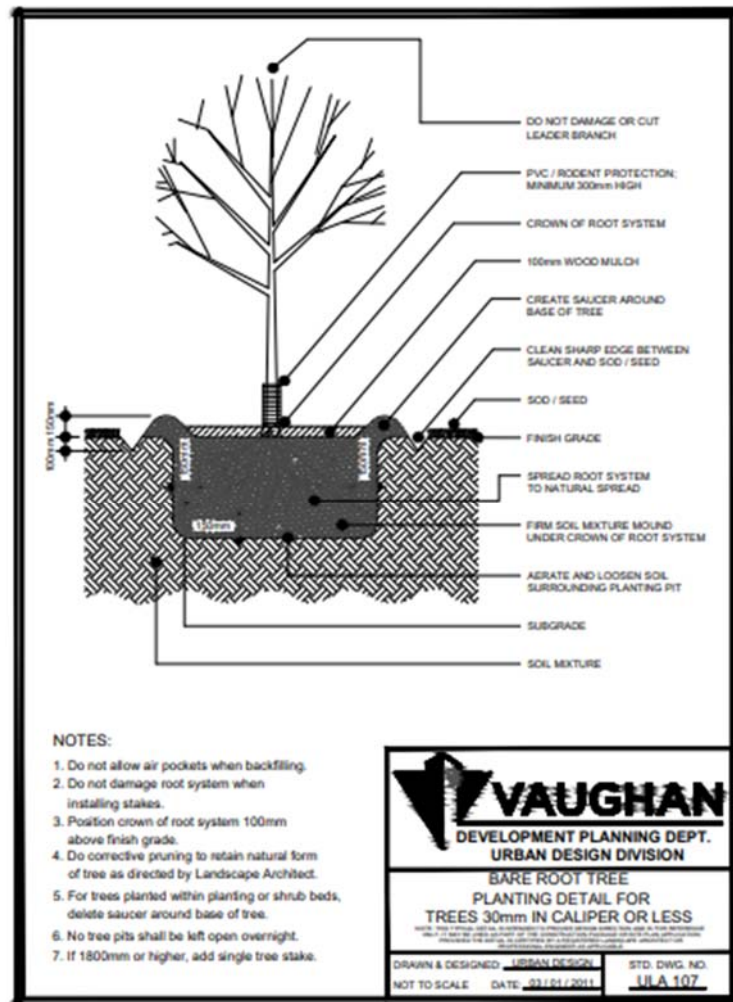
Tree protection TPZ

Construct the TPZ hoarding zones as described fully on the City of Mississauga. The design of the TPZ fencing must match the design as shown on the previous pages.

Basically, you make a square with

Private trees TPZ protection shall have TPZ fencing constructed of 3/4 inch thick sheets of plywood, 4 feet tall and 8 feet long, with the 2 inches x 4 inches wood placed on the outside on the ground and plywood sheet for support. The fencing on site should be inspected daily by the site supervisor or contractors, to check the integrity of the TPZs, and fix issues when needed.

17



not need to be on opposite properties. Again, always keep chemicals, liquids and sediments away from the trees, and soil in general. Keep all vehicles, machinery and pedestrians out of the TPZs. There is to be zero activity within a TPZ unless approved.

FOREST EDGE PLANNING LINK

https://s3-ca-central-1.amazonaws.com/trcaca/app/uploads/2016/02/17185406/Forest_Edge_Management_Plan_Guidelines_July_2004.pdf

EROSION AND SEDIMENT CONTROL GUIDELINE

Mississauga: Erosion and sediment control permit. You must get a permit before undertaking any activities that will disturb the land, such as excavation for construction. Any land disturbed by a construction project must be returned to the same (or better) condition after construction is complete.

The permit helps ensure that construction work is completed according to the [Erosion and Sediment Control By-law](#). The by-law helps to prevent sediments resulting from land disturbance from impacting the City's storm drainage network.

If you need to remove trees as part of your construction work, you may need to [apply for a tree removal permit](#).

Site dewatering

Site dewatering techniques control sedimentation of water accumulated on your construction site. If water needs to be removed from your site before it absorbs into the ground, it should be pumped into a holding tank. The water should be deposited into a City or Region approved sanitary manhole.

Documents you need

You will need to submit:

- A completed [Erosion and Sediment Control Permit Application](#)
- A copy of the Erosion and Sediment Control plan
- Conservation Authority approval, if applicable
- A copy of any pre-requisite approvals such as Tree Injury Questionnaire or Tree Permit Application, confirmation of well decommissioning

Jonathan O'Neill
ISA Board Certified Master Arborist BCMA
HbScF / Forestry Technician / Exterminator / 444A and 444B Journey Person
ISA ON-1533BUM
2045 Heartwood Court., Mississauga, ON.
December 6th, 2020

How to apply

Email your completed application and supporting documents to env.approvals@mississauga.ca.

Fees and security deposits

After you submit your application, staff will confirm the fee amounts and any security deposits that will apply to your work site.

You can pay your application fees at the customer service counter located at 3185 Mavis Road. Our office is open Monday to Friday, from 8:30 to 4 p.m.

Contact us

For more information, please email env.approvals@mississauga.ca or call 311 (905-615-4311 outside City limits).

<https://drive.google.com/file/d/0BxjqkzmOuaaRcW1RYkxhSTZ2Q00/view>

**EROSION & SEDIMENT CONTROL GUIDELINES FOR URBAN
CONSTRUCTION**

DECEMBER, 2006

These erosion and sediment control guidelines have been prepared for common usage in an effort to coordinate the response of various municipalities and agencies involved in land development, construction and water management. While a wide variety of sediment control manuals exist in various North American jurisdictions, this document was created with regard for the principles and guidelines that best suit the Greater Golden Horseshoe Area Conservation Authorities (GGHA CAs), which are listed below.

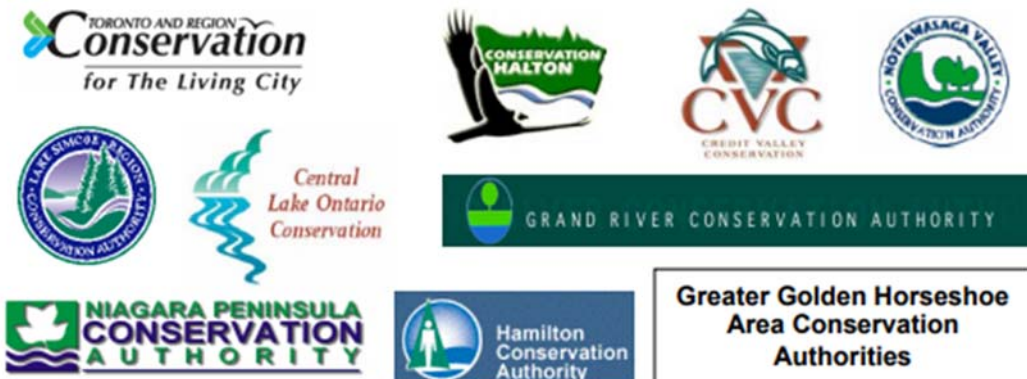


Table 1. Roles and Responsibilities of Involved Parties

Party	Roles and Responsibilities
Land Owner, Developer, Builder	<ul style="list-style-type: none"> ▪ Ultimate responsibility for ESC planning, design, implementation, inspection, monitoring, maintenance, operation, and decommissioning. ▪ May delegate this responsibility to numerous design and construction professionals to construct/implement, maintain and inspect /monitor for the duration of the undertaking. ▪ Signs agreements, approvals permits and Authorizations to which compliance is legally binding ▪ Ultimately responsible for the proper planning, design, implementation of a project and specifically the execution of an ESC Plan. ▪ Ensure constructors have copies of all pertinent approvals and permits as well as the details of an ESC Plan. ▪ Ensure contractors are aware of their responsibilities and are back charged for construction of ESC measures installed, maintained and specific restorations requirements. ▪ Liable for failure of ESC or regulatory violation. ▪ Participate in every step of ESC process.
Project Manager/ Design Engineers/ Sub-consultants/Specialties	<ul style="list-style-type: none"> ▪ Provide accurate and applicable impact assessment and design details which considers the potential for environmental effects ▪ Assist ESC Plan designer in planning ESC as it relates to construction phases, schedules and local sensitivities including soil conditions, vegetation, and public safety. ▪ Maintain awareness of consequences regarding ESC failures from a regulatory perspective and maintain ongoing contact with Owner. ▪ Aware of contingency Plan and direct use when/if necessary.
Erosion and Sediment Control (ESC) Plan Designer	<ul style="list-style-type: none"> ▪ Lead the development of the ESC Plan. ▪ Select and design ESC practices that suit the construction site/ environmental conditions. ▪ Visit site before designing the Plan and during its implementation. ▪ Review and approve of on-site design modifications. ▪ Develop contingency Plan for problems. ▪ Implement contingency Plan if warranted. ▪ Ensure inspection services are provided for the duration of the four phase construction process and stabilization period. ▪ Responsible for all four phases of construction process. Assigns personnel to inspect/monitor approved Plan throughout the construction process.
Contract Administrator	<ul style="list-style-type: none"> ▪ Traditionally owner's representative. ▪ Forms core of construction team. ▪ Provides construction specifics and schedules to rest of construction team. ▪ Liases with all parties including constructor and agencies, and ▪ Makes recommendations for the requirement of Specialists.

Table 1. Roles and Responsibilities of Involved Parties

Party	Roles and Responsibilities
Environmental Monitor (EM)	<ul style="list-style-type: none">▪ Understand the ESC Plan and construction methods.▪ Inform ESC Plan designer about any changes to the construction phases and schedules.▪ Recognizes the effective applications of ESC measures and communicates recommendations with contractor and Municipal Inspector.▪ Inspects all ESC measures every seven days and after all rainfall event and/or significant snowmelts.▪ Be aware of contingency plan and direct use when/if necessary▪ Provide feedback to contractor.▪ Keep track of construction phase modifications.▪ Document site inspections and corrective actions.▪ Maintain log books – records from weekly/event based inspections.
Contractor	<ul style="list-style-type: none">▪ Controls the implementation and effectiveness of ESC Plan.▪ Install the ESC measures as per specification.▪ Communicate with CA and site inspector of any failure of the control measure.▪ Should communicate with Inspector and ESC Plan designer concerns with ESC practice and on-site condition.▪ Vigilant for operation and maintenance of ESC measures.▪ Respond promptly to feedback from site inspector, regulator, or project manager.
Regulatory Agencies	<ul style="list-style-type: none">▪ Establish guidelines and updates as required.▪ Enforce the laws under the federal, provincial legislation and municipal by-laws.▪ Performance evaluation monitoring.▪ Should clearly communicate the submission requirements such as ESC Plan and Letter of Credit.▪ Review plans and provide comments/directions to EM.▪ Provide training workshops.

The following principles will assist in creating an effective ESC Plan:

- Adopt a multi-barrier approach to provide erosion and sediment control through erosion controls first,
 - Retain existing vegetation and stabilize exposed soils with vegetation where possible, erosion prevention is key in reducing sediment to downstream aquatic habitat;
 - Limit the duration of soil exposure and phase construction when possible;
 - Limit the size of disturbed areas by minimizing nonessential clearing and grading;
 - Minimize slope length and gradient of disturbed areas;
 - Maintain overland sheet flow and avoid concentrated flows;
 - Store/stockpile soil away (e.g. greater than 15 metres) from watercourses, drainage features and top of steep slopes;
 - Ensure contractors and all involved in ESC practices are trained in ESC Plan, implementation, inspections, maintenance, and repairs;
 - Adjust ESC Plan at construction site to adapt to site features, and
 - Assess all ESC practices before and after all rainfall and significant snowmelt events.
-

Table 2. Erosion and Sediment Control Requirements – Report.

ESC Plan Requirements – Report	Check
Project Description: Brief description of the nature and purpose of the land disturbing activity. Also include the legal description of the property and a reference to adjacent properties and landmarks.	<input type="checkbox"/>
Condition of Existing Site: Description of the land use, site topography, vegetation, and drainage of the site under existing conditions.	<input type="checkbox"/>
Condition of Existing Receiving Water: Description of local receiving waters such as watercourses and lakes (e.g. warm water fisheries, cold water fisheries, aquatic habitat use, confined or unconfined valley).	<input type="checkbox"/>
Adjacent Areas and Features: Description of neighbouring areas, such as residential and commercial areas, reserves, natural areas, parks, storm sewers, and roads that might be affected by the land disturbance.	<input type="checkbox"/>
Soils: A description of soils on the site, including erodibility, and grain size analysis. This description should include a summary of the geotechnical report for the site.	<input type="checkbox"/>
Critical Areas: Description of areas within the development site that have potential for serious erosion or sediment problems.	<input type="checkbox"/>
Permanent Stabilization: Description of how the site will be stabilized after construction is completed. This will require a phasing plan (to be provided on the ESC Plan drawing) of the stripped area to be reseeded and the expected time of stabilization.	<input type="checkbox"/>
Design Details of Erosion and Sediment Control Measures: The supporting calculations and design details of the sediment control measures. Specifically for ESC ponds - calculations and details include permanent pool and extended detention volumes, pond sizing volume, and calculations for the pond outlet and emergency overflow outlet.	<input type="checkbox"/>
Record Keeping Procedure: Include sample inspection and maintenance forms. Maintenance Record keeping procedure including name/designate of the person who will keep the inspection and maintenance record.	<input type="checkbox"/>
Stockpile Details: Stockpile details to include the height and volume at each proposed location.	<input type="checkbox"/>
Emergency Contact: Provide a list of emergency and non-emergency contacts (e.g. owner, site supervisor)	<input type="checkbox"/>
Stamped and Signed: ESC document/report must be stamped and signed by a Professional Engineer.	<input type="checkbox"/>

Table 3. Erosion and Sediment Control Plan Requirements - Drawing(s)

ESC Plan Requirements - Drawing(s)	Check
General Items: <ul style="list-style-type: none"> Site address including application number (e.g. SP or T number) Key map including site boundary limits A legend identifying ESC measures Drawing scale North arrow Location of any existing or proposed building(s) or structure(s) on the site 	<input type="checkbox"/>
Existing Contours: Existing elevation of the site at 0.5-1.0 m intervals to determine drainage patterns. Spot elevations may also be required. Extend existing contours to beyond property limit by a minimum of 30 meters.	<input type="checkbox"/>
Existing Vegetation: Location of any trees, shrubs, grasses, and unique vegetation to be preserved or removed. Tree bounding area(s) to be clearly shown.	<input type="checkbox"/>
Water Resources Location(s): Location of any water body such as wetlands, lakes, rivers, streams, or drainage course on or adjacent to the site.	<input type="checkbox"/>
Regional Storm Flood Plain and Fill Regulated Areas: Regional flood line level, fill regulated line and reference to relevant hydraulic model cross-section where applicable.	<input type="checkbox"/>
Critical Areas: Area within or near the proposed development with potential for serious erosion or sediment problems.	<input type="checkbox"/>
Proposed Contours/Elevation: Proposed changes in existing elevation contours for each stage of grading. A cut/fill plan showing existing and proposed contours. Spot elevation for proposed conditions should also be illustrated.	<input type="checkbox"/>
Site Boundary Limits and Limits of Clearing and Grading: Site boundary limits and the limits of all proposed land disturbing activities.	<input type="checkbox"/>
Existing and Proposed Drainage Systems: Location and direction of any existing/proposed storm drainage system (e.g. storm sewers, swales, ditches, etc.) and overland flow drainage patterns within and adjacent to the site.	<input type="checkbox"/>
Limits of Clearing and Grading: A line defining the boundary of the area to be disturbed.	<input type="checkbox"/>
Stockpile and Berm Data: Stockpile and/or berm locations, size and the diversion route of the runoff. Consideration will include proximity to existing homes.	<input type="checkbox"/>
Erosion and Sediment Control Measures Locations and Details: Location and details for all ESC measures proposed with notes provided to direct their timing/phasing such that there is an appropriate level of protection provided during all stages of construction (e.g. Sediment fence should be installed prior to any land disturbing activities)	<input type="checkbox"/>

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Stormwater Management Systems: Plan and cross section profiles of ESC ponds/SWM ponds and location(s) to be shown. Also include the storm inlet, outlet, emergency outlet, and other permanent and temporary drainage facilities (swales, waterways, and channels). Volume, depth, and inflow and outflow rates should be provided. ESC pond maintenance target volumes and drainage areas to the pond to be specified.	<input type="checkbox"/>
Stormwater Discharge Locations: All stormwater discharge locations are to be identified and detailed.	<input type="checkbox"/>
Access Road: A description of the site's access and measures to be taken to prevent the transfer of sediment off site via construction vehicles.	<input type="checkbox"/>
Internal Haul Road: The information about the internal haul road that will be used during construction and its maintenance schedule.	<input type="checkbox"/>
Construction Phasing and Scheduling: Details of phasing of the construction project and the scheduling of the proposed construction works.	<input type="checkbox"/>
Inspection and Maintenance: A schedule of regular inspections and repairs to erosion and sediment control practices that are provided in the ESC Plan. Monitoring and maintenance plan for sediment accumulation within the pond.	<input type="checkbox"/>
Stamped and Signed: All drawings must be stamped and signed as approved by a Professional Engineer.	<input type="checkbox"/>

6.2 Developing a Worksite Isolation Plan for In-stream Construction

EROSION CONTROL PRACTICES

Erosion prevention is essential and is the most effective method in protecting downstream aquatic habitat during the construction process. Erosion controls involve minimizing the extent of disturbed areas by clearing only what needs to be cleared, preserving and protecting natural cover and immediately stabilizing disturbed areas. **Table C1** lists some commonly used erosion prevention controls, but should not be limited to this list.

Table C1. Erosion Control Measures.

Name of Erosion Control Measure	Applicability						Temporary	Permanent	Reference Page
	Slopes	Streams/Rivers	Surface Drainage Ways	Table Lands	Borrow/Stockpile	Adjacent Property			
Vegetative Filter Strips	√	√	√	√	√	√	√		C-2
Mechanical Seeding*	√		√	√	√	√	√	√	C-3
Terraseeding*	√		√	√	√	√	√	√	C-5
Hydroseeding*	√		√	√	√	√	√	√	C-7
Top soiling	√		√	√	√	√		√	
Sodding	√		√	√	√	√		√	
Mulching	√		√	√	√	√	√	√	
Re-vegetative Systems	√		√	√	√	√	√	√	
Tree and Shrub Planting	√	√	√	√	√	√		√	
Erosion Control Matting/Blanket/Net (with Seed)	√		√	√	√	√		√	C-8
Growth Media Erosion Control Blanket	√	√	√	√	√	√	√	√	C-11
Lockdown Netting	√		√	√			√	√	C-14
Buffer/Riparian Zone Preservation		√						√	
Surface Roughening (Scarification)	√				√		√		C-16
Edge Saver	√	√		√				√	C-18

Note: * Various seeding practices.

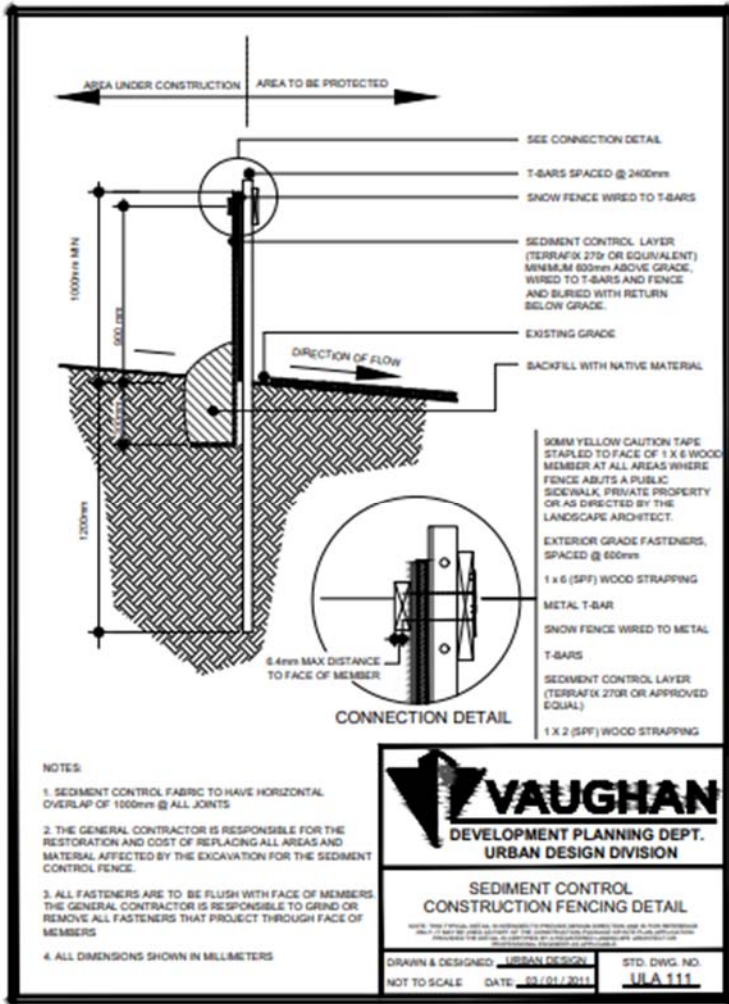
SEDIMENT CONTROL PRACTICES

Sediment controls are the next barrier(s) of the multi barrier approach, and are implemented when areas are continually disturbed and/or when a finite amount of time is required before vegetative practices can be employed and become fully effective. The design and selection of site specific sediment control measures are primarily governed by drainage area, length of upstream gradient/slopes, soil cover/type, construction schedule, and season in combination with cost and effectiveness.

Sediment controls have been categorized into three sections:

1. Perimeter Controls;
2. Settling Controls; and,
3. Filtration Controls.

Tables C2, C3, and C4 list the sediment control measures commonly utilized during the construction process. However, the list presented in this Guideline is not inclusive of all sediment control measures that exist.



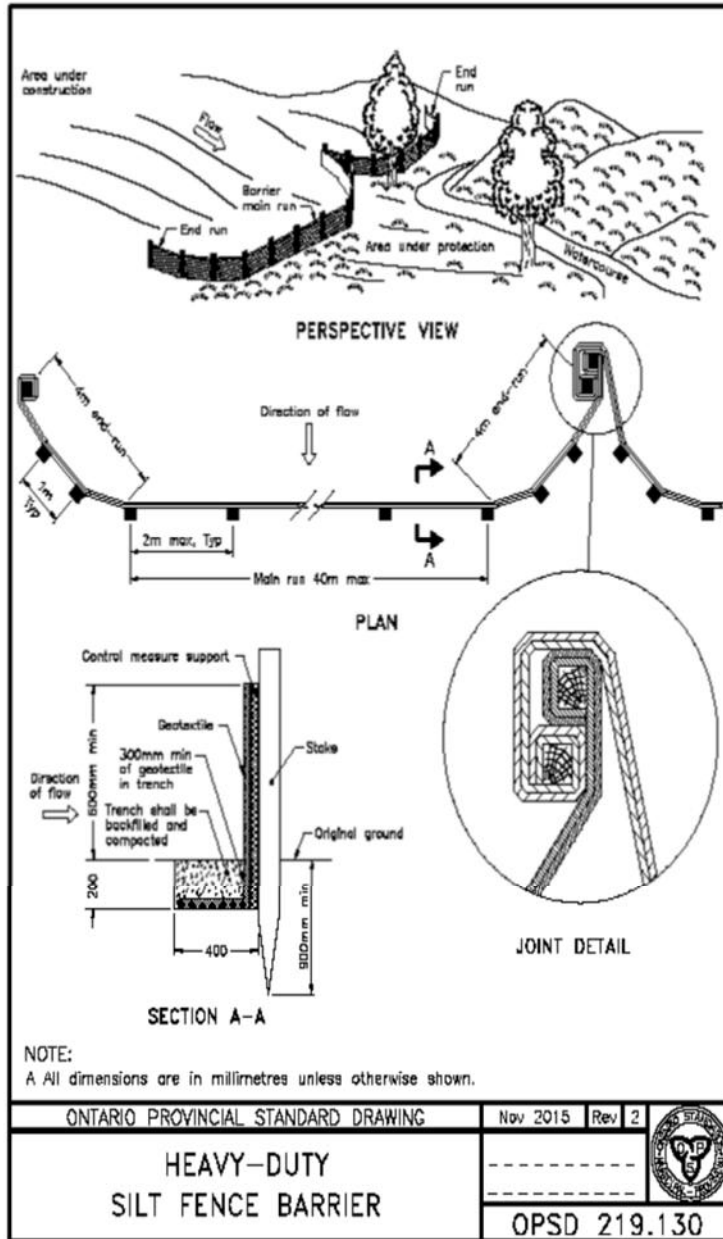


Figure 5: OPSD Detail for Heavy Duty Silt Fence Barrier

The following detail shall be used when constructing sediment protection fencing near trees.

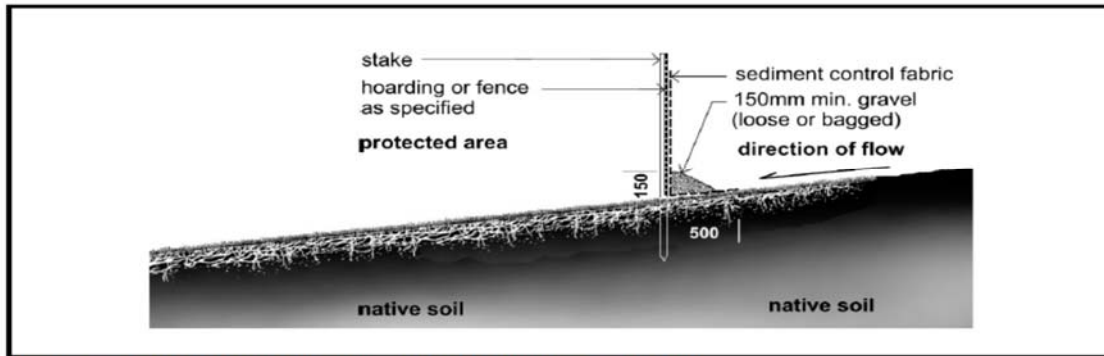


Figure 6: Sediment control barriers for use over tree root zone

FEDERAL REGULATIONS

Environmental Protection Act

Provincial - <http://www.e-laws.gov.on.ca:81/ISYSquery/IRL8C89.tmp/66/doc> or

Federal - <http://laws.justice.gc.ca/en/C-15.31/text.html>

Federal Fisheries Act

<http://laws.justice.gc.ca/en/F-14/240479.html> or

<http://laws.justice.gc.ca/en/F-14/text.html>

Navigable Waters Protection Act

<http://laws.justice.gc.ca/en/N-22/251715.html> or

<http://laws.justice.gc.ca/en/N-22/text.html>

Canadian Environmental Assessment Act

<http://laws.justice.gc.ca/en/C-15.2/275414.html> or

<http://laws.justice.gc.ca/en/c-15.2/text.html>

Migratory Birds Convention Act

<http://laws.justice.gc.ca/en/M-7.01/250946.html> or

<http://laws.justice.gc.ca/en/M-7.01/text.html>

Species at Risk Act

<http://laws.justice.gc.ca/en/S-15.3/276773.html> or

<http://laws.justice.gc.ca/en/s-15.3/text.html>

Canadian Wildlife Act

<http://laws.justice.gc.ca/en/W-9/265232.html> or

<http://laws.justice.gc.ca/en/W-9/text.html>

Endangered Species Act

<http://www.gnb.ca/0062/acts/acts/e-09-101.htm>

PROVINCIAL REGULATIONS

Ontario Water Resources Act (OWRA)

http://www.e-laws.gov.on.ca/DBLaws/Statutes/English/90o40_e.htm

Lakes and Rivers Improvement Act

http://www.e-laws.gov.on.ca/DBLaws/Statutes/English/90l03_e.htm

Provincial Policy Statements and Planning Act

http://www.mah.gov.on.ca/userfiles/page_attachments/Library/1/789108_ppsenglish.pdf

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1-800-668-9938

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Or on-line: <http://www.gov.on.ca/MBS/english/publications/>

Oak Ridges Moraine Conservation Plan

<http://www.e-laws.gov.on.ca:81/ISYSquery/IRL8E2A.tmp/7/doc>

Permit to Take Water

<http://www.e-laws.gov.on.ca:81/ISYSquery/IRL8E47.tmp/2/doc>

Source Water Protection Act

http://www.ene.gov.on.ca/envision/env_reg/er/documents/2004/aa04e0002.pdf or

<http://cela.ca/uploads/f8e04c51a8e04041f6f7faa046b03a7c/479dwspa2004.pdf>

MUNICIPAL BY-LAW(S) AND CONSERVATION AUTHORITIES ACT

Conservation Authorities Act

http://www.e-laws.gov.on.ca/DBLaws/Statutes/English/90c27_e.htm

Development, Interference with Wetlands and Alterations to Shorelines and Watercourses

Regulation

<http://www.svca.on.ca/ro6169.htm>

Section 142 of the Ontario Municipal Act, 2001

http://www.e-laws.gov.on.ca/DBLaws/Statutes/English/01m25_e.htm#BK164

The municipality should be contacted for by-laws they may have regarding, but not limited to: erosion and sediment control; top-soil removal; tree removal; and, site alteration and servicing agreement.

The website links listed above are valid as of December 2006 and may be updated in the future.

Prohibited Activities Within a TPZ

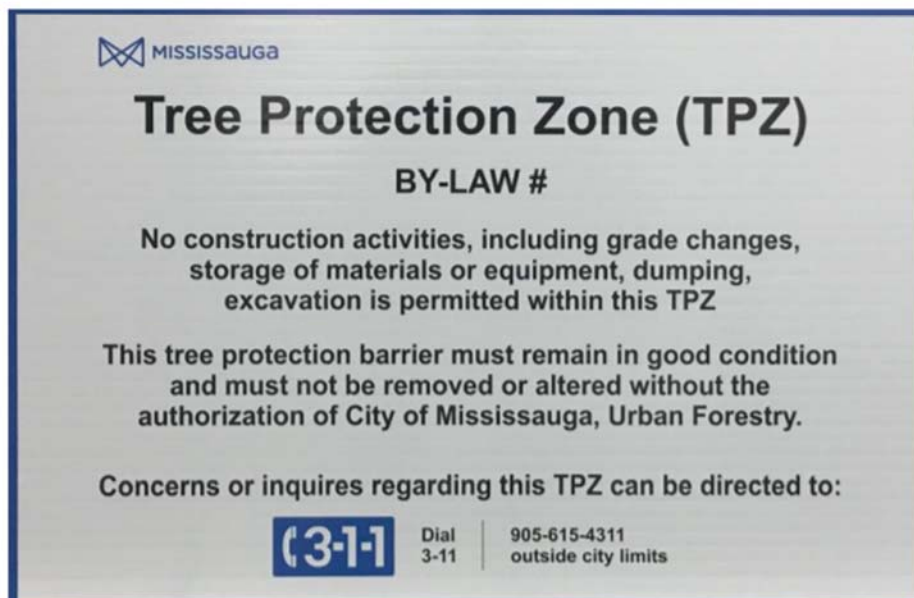
Except where authorized by Urban Forestry, any activity which could result in injury or destruction of a protected tree or natural feature, or alteration of grade within a Ravine and Natural Feature Protection (RNFP) area, is prohibited within a TPZ, including, but not limited to, any of the following examples:

- demolition, construction, replacement or alteration of permanent or temporary buildings or structures, parking pads, driveways, sidewalks, walkways, paths, trails, dog runs, pools, retaining walls, patios, decks, terraces, sheds or raised gardens
- installation of large stones or boulders
- altering grade by adding or removing soil or fill, excavating, trenching, topsoil or fill scraping, compacting soil or fill, dumping or disturbance of any kind
- storage of construction materials, equipment, wood, branches, leaves, soil or fill, construction waste or debris of any sort
- application, discharge or disposal of any substance or chemical that may adversely affect the health of a tree e.g. concrete sluice, gas, oil, paint, pool water or backwash water from a swimming pool
- causing or allowing water or discharge, to flow over slopes or through natural areas
- access, parking or movement of vehicles, equipment or pedestrians
- cutting, breaking, tearing, crushing, exposing or stripping tree's roots, trunk and branches.
- nailing or stapling into a tree, including attachment of fences, electrical wires or signs
- stringing of cables or installing lights on trees
- soil remediation, removal of contaminated fill
- excavating for directional or micro-tunnelling and boring entering shafts

The above mentioned prohibitions are for area(s) designated as a TPZ. If possible, these prohibitions should also be implemented outside the TPZ in areas where tree roots are located. The roots of a tree can extend from the trunk to approximately 2-3 times the distance of the dripline.

Approved Tree Preservation Sign Specification

Below is the approved tree preservation sign template. Tree preservation signs are to be 16 inches by 24 inches or 40.64 cm by 60.96 cm and on a waterproof material. Installation of the signs is mandatory, and all associated costs of the signage are the sole responsibility of the applicant. No other signage is permitted to be fixed onto any tree protection hoarding.



Above image: TPZ signage board to place on TPZ hoarding.

PROHIBITED ACTIVITIES WITHIN TREE PROTECTION ZONES Except where authorized by Mississauga Forestry the following activities, including, but not limited to, are prohibited within the TPZ: • Construction activities • Storage of materials • Storage of equipment • Excavation • Grade changes • Cutting, tearing, breaking tree's roots, branches and trunk • Dumping • Parking • Stringing Cables/Wires

Excavation

When excavation is necessary within Tree Protection Zone proper care must be taken when performing such activities. Excavation methods must be pre-approved and documented with the City of Mississauga Forestry. The following methods are acceptable and must be either conducted or supervised by a Certified Arborist during the activity.

- Hand Digging
 - ◆ No Mechanical advantage such as excavator, backhoe, or skid steers
- Air Assist Machinery
 - ◆ Air Spade/Air Knife using 185 cfm portable air compressor
 - ◆ Air vacuum unit
- Hydro Vac
 - ◆ Maximum water psi of 500 or less
 - ◆ Oscillating nozzle

- Root Pruning
 - ◆ Any exposed roots which are frayed or damaged shall be pruned in accordance with good arboriculture practices
 - ◆ Prolonged exposed roots shall be kept moist and covered with mulch or moistened burlap
- Directional Boring / Micro Tunnelling
 - ◆ All efforts should be made to route all underground utilities around the TPZ; if this cannot be achieved, utilities should be bored or tunnelled with a minimum depth of 1.2m under the TPZ. Boring/tunnels should not go directly beneath the trunk; instead the boring/tunnels should be offset based on the tree diameter

Site Accessibility

When site accessibility is necessary within or through Tree Protection Zone proper care must be taken when performing such activities. Site accessibility methods must be pre-approved and documented with Mississauga Forestry. The following methods are acceptable but must be recommended by a Certified Arborist and documented within the Tree Preservation Report and Plan. Mitigating measures such as horizontal hoarding/compaction alleviation measures must be under taken when such activities occur within the Tree Protection Zone. Below are some approved mitigating options for working within Tree Protection Zone.

- Multiple Layered Approach
 - ◆ Bottom Layer must consist of a pre-approved synthetic geotextile material
 - ◆ Middle Layer must consist of 8 – 12 inches of course wood chips
 - ◆ Top Layer must consist of ¾ inch hard wood plywood
- Two Layer Approach
 - ◆ Bottom Layer must consist of ¾ inch hard wood plywood laid in one direction of orientation
 - ◆ Top Layer must consist of ¾ inch hard wood plywood laid in opposite direction of orientation
 - ◆ Both layers must then be screwed together at 12 inch spacing
- Steel Plate
 - ◆ ¾ inch steel plate smooth finish on ground side no checker plate on ground side

Onsite Arborist Requirements

Whenever work is required within the Tree Protection Zone an arborist must be present and either performing or supervising the work at hand. Below are the qualifications required to be recognized as a competent arborist by Mississauga Forestry.

- Have a current certification in good standing from the International Society of Arboriculture, Certified Arborist or Board Certified Master Arborist; or,

- Have completed an apprenticeship in Arboriculture and completed the required hours/written exam to be a Qualified Arborist in the eyes of the Ontario Provincial Government; or,
- Have completed the qualifications and are a Registered Professional Forester (RPF); or,
- Have the verifiable skills and experience to perform or supervise said work within the Tree Protection Zone.

Hoarding Removal

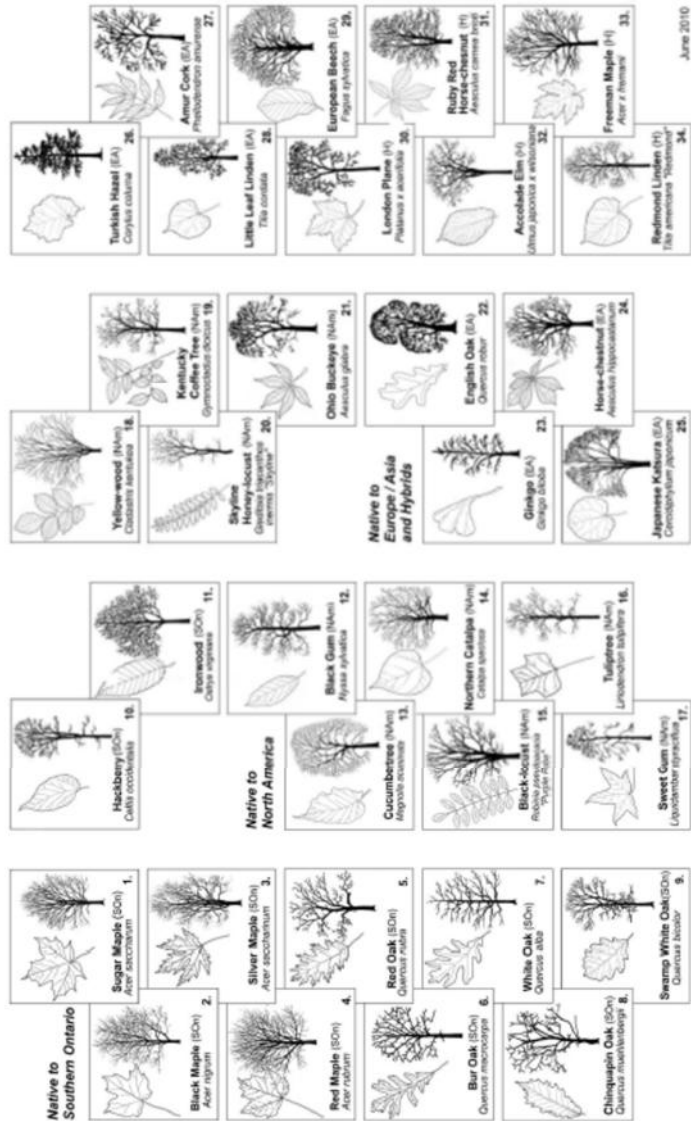
The City of Mississauga must inspect all tree preservation hoarding prior to removal from the site.

Public Tree Replacement

PUBLIC TREE REPLACEMENT CHART	
Min. 60mm Diameter Deciduous/1.8m Height Coniferous	
Diameter at Breast Height (DBH) in cm	Number of Replacement Trees
6-15	1
16-30	2
31-45	3
46-60	4
61-75	5
76-90	6
91-105	7
106-120	8
>120	9

Tree Protection Zone Table

Trunk Diameter (cm)	Minimum Tree Protection Zone (TPZ) Distance from Trunk (m)	Minimum Tree Protection Zone (TPZ) Distance from Trunk (m) for trees in Open Spaces and Woodlands
<10 cm	1.2	2.4
10-20	1.5	2.4
21-30	1.8	3.6
31-40	2.4	4.8
41-50	3.0	6.0
51-60	3.6	7.2
61-70	4.2	8.4
71-80	4.8	9.6
81-90	5.4	10.8
91-100	6.0	12.0
>100	6 cm per 1 cm DBH	12 cm per 1 cm DBH



Above and next images: Replantable trees the city of Toronto prefers, which also work for Mississauga.

1. BLACK HAWK <i>Araucarioxylon arizonicum</i>	2. RED MAPLE <i>Acer rubrum</i>	3. WHITE MAPLE <i>Acer spicatum</i>	4. GREEN MAPLE <i>Acer glabrum</i>	5. WHITE BACATE <i>Asplenium platyneuron</i>	6. BLACKBERRY <i>Cornus canadensis</i>	7. WHITE CLOVER <i>Trifolium repens</i>	8. RED PINE <i>Pinus strobus</i>	9. SCOTCH PINE <i>Pinus sylvestris</i>	10. BLACK PINE <i>Pinus nigra</i>	11. WHITE PINE <i>Pinus strobus</i>	12. WHITE PINE <i>Pinus strobus</i>
Large Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Large Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Large Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit
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Large Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit
25. WHITE PINE <i>Pinus strobus</i>	26. WHITE PINE <i>Pinus strobus</i>	27. WHITE PINE <i>Pinus strobus</i>	28. WHITE PINE <i>Pinus strobus</i>	29. WHITE PINE <i>Pinus strobus</i>	30. WHITE PINE <i>Pinus strobus</i>	31. WHITE PINE <i>Pinus strobus</i>	32. WHITE PINE <i>Pinus strobus</i>	33. WHITE PINE <i>Pinus strobus</i>	34. WHITE PINE <i>Pinus strobus</i>	35. WHITE PINE <i>Pinus strobus</i>	36. WHITE PINE <i>Pinus strobus</i>
Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit	Medium Hardy Showy white flowers conical deep red fruit

GLOSSARY

ANSI	American National Standards Institute. Provides best management practices, guidelines, standards and policy practices and standards.
Certified arborist	Certified by the International Society of Arboriculture, ISA. Gained from experience and passing a test.
Exemption tree	A tree that is an imminent hazard or terminally diseased, or dead.
DBH	Tree measurement. Diameter at breast height. 1.4 m height tree trunk measurement
Hardscapes	Driveways, walkways, porches. Usually concrete or asphalt.
Horizontal hoarding TPZ	Plywood or metal sheets placed on the TPZ area to protect area subject to TPZ entrance by foot traffic or machinery etc.
ISA	International Society of Arboriculture. Certification and continuing education company head for development, information, standards, and best management practices involving arboriculture.
Tree	A plant that grows over 12 m in height.
Tree failure	Collapse of the structural integrity of a tree. Tree death, from standing to collapse.
TPZ	Tree protection zone. Hoarding of trees to protect them. Both horizontal and vertical TPZ.
RPF	Registered Professional Forester, R.P.F. Gained by means of passing university forestry degree, sometimes Forestry technician diploma. After a passing a higher education program a test must be taken at province level to attain.
Shall	A mandatory requirement. This action must be taken.
Should	A recommendation that is a general practice or standard.
Shrub	A plant that qualifies as large growing that is under 12 m in height.
Site plan	The construction plans in 2D site diagram. Print at minimum 11 x 17 inches.
Site survey	The current site survey of the property
UFS	Urban Forestry Staff – City of Toronto. Such as arborist inspectors, planners, assistant planners, forestry data collectors, arborists etc...
Vertical hoarding TPZ	The fencing that is placed vertical for the tree protection zones. This is placed at set out limits by the city of Toronto best practices.

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the trees are dormant, so that a site inspection can be arranged to confirm the trees are acceptable. The City will not release security deposits where trees are not in good condition, or if there are encroachments.

Financial securities must be in the form of a certified cheque, letter of credit or an alternative acceptable to Urban Forestry, with amounts payable to the Treasurer, City of Toronto.

11. Tree Species that are Intolerant of Construction Disturbance

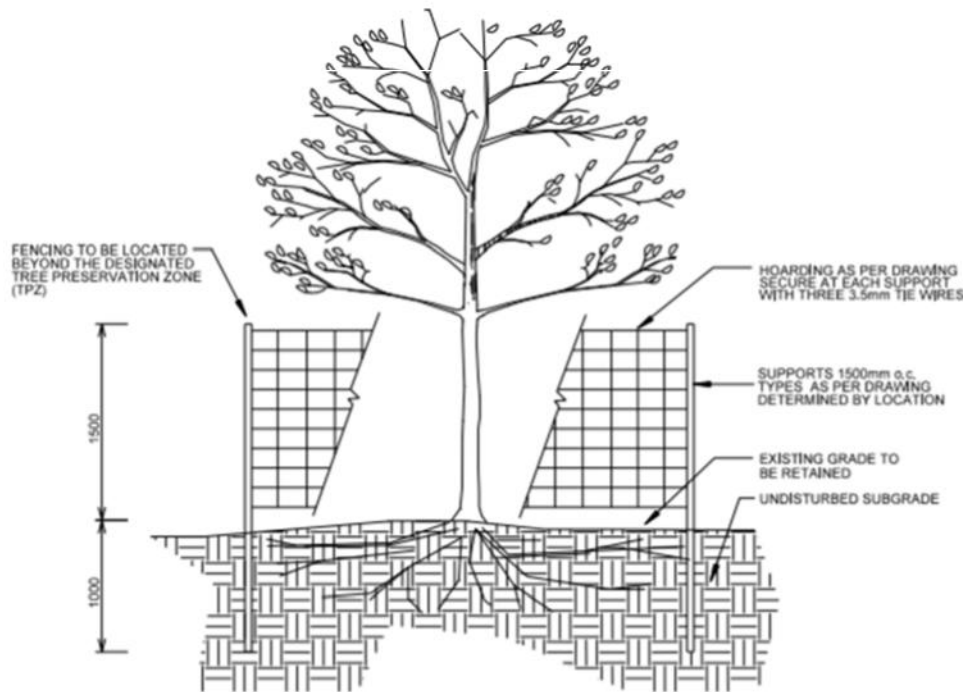
The following tree species are intolerant of construction disturbance, and tree protection plans must take this into account. The tree protection zones required by these species may need to be quite extensive to avoid damage to the roots and crown associated with compaction, excavation or construction above grade that will impact the branches.

Acer rubrum (red maple)
Acer saccharum (sugar maple)
Betula papyrifera (paper birch)
Carya glabra (pignut hickory)
Fagus grandifolia (American beech)
Liriodendron tulipifera (tulip tree)
Ostrya virginiana (ironwood)
Pinus resinosa (red pine)
Pinus strobus (white pine)
Prunus serotina (black cherry)
Quercus alba (white oak)
Quercus velutina (black oak)
Tsuga canadensis (eastern hemlock)
Tilia americana (basswood)

02830-1

Hoarding Tree Preservation Hoarding Guideline

NOTE:
TO BE USED AS A GUIDELINE ONLY.
NOT TO SCALE. REMOVE CITY TITLE BLOCK
AND REDRAW TO REPRESENT SITE SPECIFIC
CONDITIONS. ALL SITE SPECIFIC CONDITIONS
ARE TO BE CONFIRMED BY THE PROJECT
CONSULTANT.



NOTES:

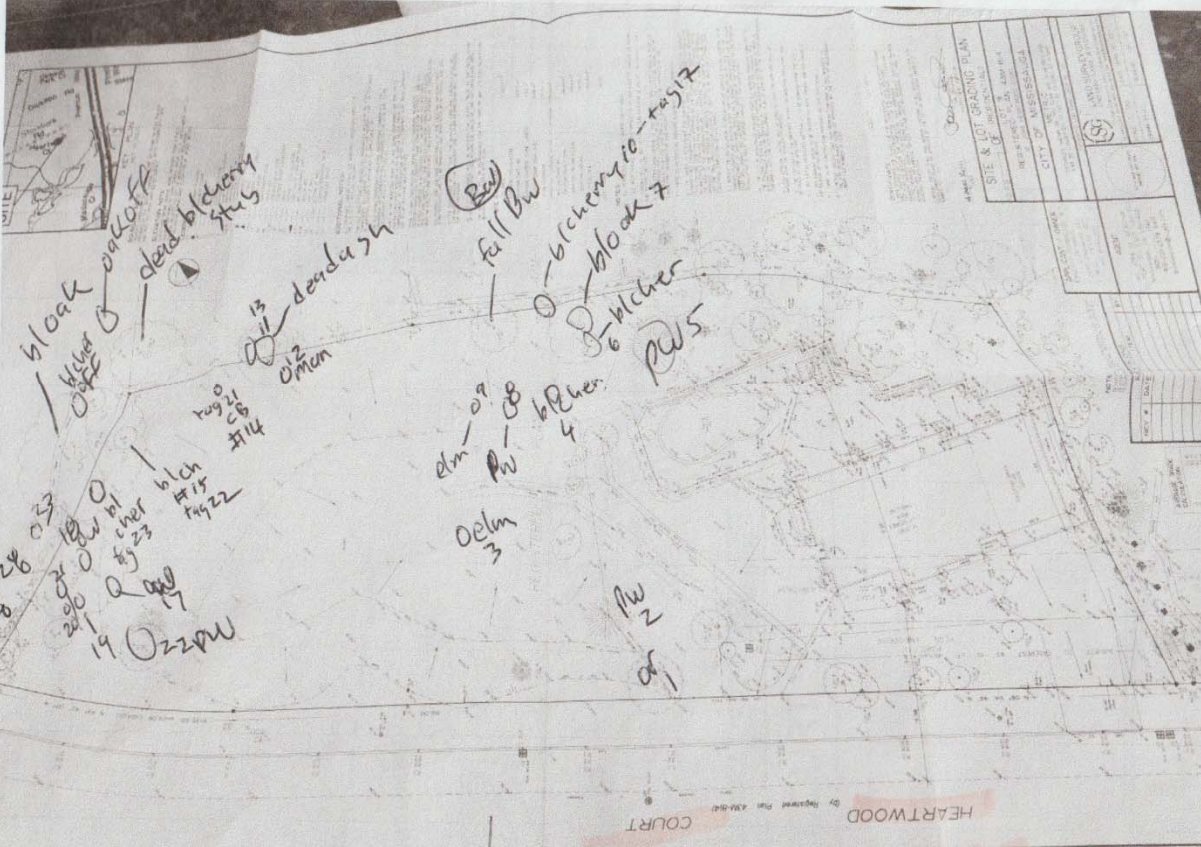
1. THE AREA WITHIN DESIGNATED TREE PRESERVATION ZONE OF ALL EXISTING TREES SHALL BE PROTECTED WITH HOARDING AS PER DETAIL.
2. THE AREA WITHIN THE TREE PRESERVATION ZONE HOARDING SHALL REMAIN UNDISTURBED AND SHALL NOT BE USED FOR THE STORAGE OF MATERIALS, EQUIPMENT OR VEHICLES.
3. PRUNE BRANCHES TO REMOVE DAMAGED LIMBS. DO NOT DAMAGE LEADERS. ALL CUTS OVER 25mm SHALL BE TREATED IN ACCORDANCE WITH APPROPRIATE HORTICULTURAL PRACTICES AS APPROVED BY THE COMMUNITY SERVICES DEPARTMENT.
4. CUTTING OF ROOTS OR CHANGING OF GRADES AROUND EXISTING TREES WITHIN THE TREE PRESERVATION ZONE WILL NOT BE PERMITTED WITHOUT THE APPROVAL OF THE COMMUNITY SERVICES DEPARTMENT.
5. IF TREES ARE BEING ADVERSELY AFFECTED BY CONSTRUCTION, A WATERING AND FERTILIZING PROGRAM IS TO BE IMPLEMENTED TO THE SATISFACTION OF THE COMMUNITY SERVICES DEPARTMENT.
6. TREE PROTECTION HOARDING MAY BE REQUIRED AROUND INDIVIDUAL TREES TO REMAIN AND/OR AROUND TREE PRESERVATION ZONES AS IDENTIFIED ON THE APPROVED TREE PRESERVATION PLANS.
7. TREES IDENTIFIED FOR PRESERVATION BUT WHICH DIE, OR ARE DAMAGED BEYOND REPAIR, SHALL BE REPLACED AT THE DEVELOPERS' EXPENSE WITH A SIZE AND SPECIES OF TREE APPROVED BY THE COMMUNITY SERVICES DEPARTMENT.
8. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

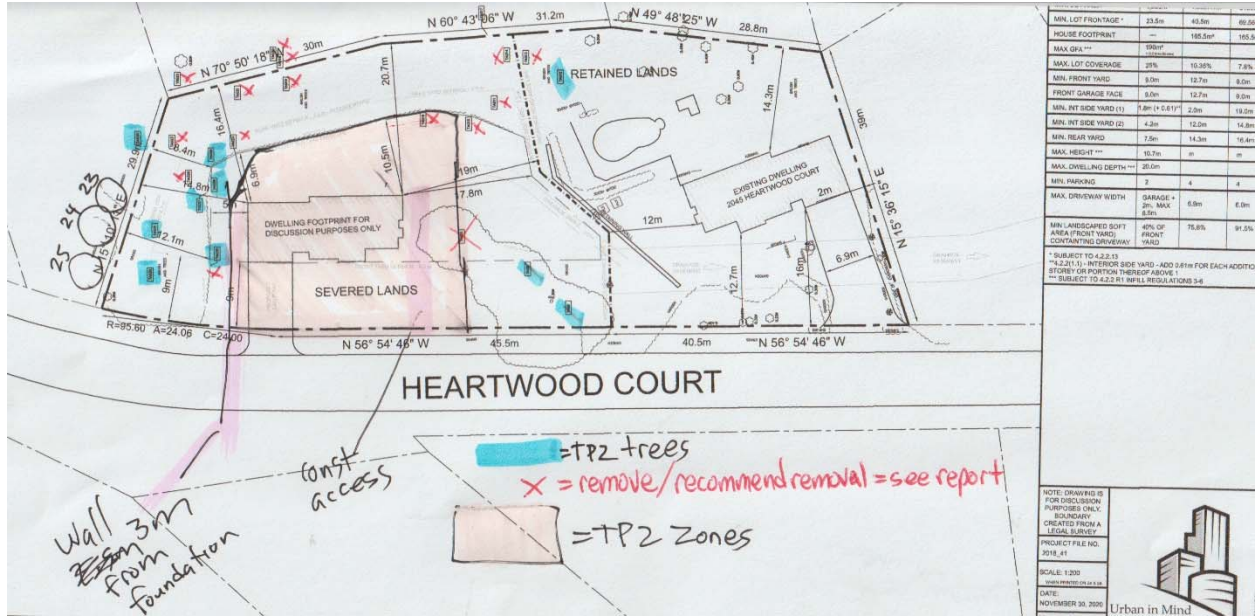
Detail: 02830-1

ORIGINAL DATE: Oct 09/15
REVISION DATE: month xx/1x



December 6th, 2020





Left image:
Trees 1 and 2.



Right image: dead and dying elms and black cherry trees.



Above image: East side of the property, dead ash above fire hydrant.



Above image: North side of the property, front Eastern white pine for removal or possible root pruning, as per Mississauga discretion.