

THE CORPORATION OF THE CITY OF WATERLOO

BY-LAW NUMBER 2010- 066

Being a by-law for prohibiting and regulating the placing or dumping of fill, the removal of topsoil and the alteration of the grade of lands within the City of Waterloo

WHEREAS section 142 of the *Municipal Act, 2001*, S.O. 2001, c.25, as amended (the "Act"), authorizes local municipalities to pass by-laws prohibiting or regulating the placing or dumping of fill, the removal of topsoil and the alteration of the grade of land;

AND WHEREAS section 142 of the Act further authorizes local municipalities to pass by-laws requiring that a permit be obtained for the placing or dumping of fill, the removal of topsoil or the alteration of the grade of the land and imposing conditions to a permit, including requiring the preparation of plans acceptable to the municipality relating to grading, filling or dumping, the removal of topsoil and the rehabilitation of the site;

AND WHEREAS Council for The Corporation of the City of Waterloo (the "City"), at its meeting of May 17, 2010 approved the recommendations contained in Report DS2010-24 that the City enact a by-law to prohibit or regulate the placing or dumping of fill, the removal of topsoil and the alteration of the grade of land, among other things;

NOW THEREFORE THE COUNCIL OF THE CORPORATION OF THE CITY OF WATERLOO ENACTS AS FOLLOWS:

SHORT TITLE

1. This by-law may be cited as the "Site Alteration By-law".

DEFINITIONS

2. In this by-law:
 - (a) "**Application**" means an application for a Site Alteration Permit in the form prescribed by the General Manager.
 - (b) "**body of water**" includes any brook, channel, creek, stream, river, lake, pond, waterway, watercourse, canal, swale, wetland or other land area containing or capable of containing flowing or standing water;
 - (c) "**Boundary Tree**" means a tree, the trunk of which is located on or partially on adjacent property within 6 metres of a property line;
 - (d) "**City**" means The Corporation of the City of Waterloo;

- (e) **“control measures”** means those man-made features constructed on site for the purpose of controlling water, which include but are not limited to, dewatering, drain inlet protection and protection against site erosion;
- (f) **“Council”** means the Council of the City;
- (g) **“drainage”** means the movement of stormwater, whether by way of the natural characteristics of the ground surface or by artificial or man-made means;
- (h) **“dump”** means to deposit fill in a location other than the location from which the fill was obtained and includes moving or depositing fill from one location to another on the same property;
- (i) **“Engineer”** means a Professional Engineer currently licensed to practice in the Province of Ontario;
- (j) **“Environmentally Sensitive Area”** means an environmentally sensitive area, natural area, ravine, core supporting area, environmental constraint area, or other area as designated in the City’s Official Plan, as amended, including as set out in Schedules “B” and “B1” thereto, or the Regional Official Plan, as amended, used to define, describe or delineate an area of environmental importance;
- (k) **“erosion”** means the detachment and movement of soil, sediment or rock fragments by water, wind, ice or gravity;
- (l) **“existing grade”** means the grade as it exists at the time of filing an Application;
- (m) **“fill”** includes, but is not limited to, mineral or organic soil, earth, topsoil, stone, aggregate, asphalt, brick, sod turf or any combination thereof;
- (n) **“Fence By-Law”** means By-Law No. 05-88 of the City;
- (o) **“Fill Quality”** means soil quality based on analysis completed according to O. Reg. 153/04 or O. Reg. 347, Schedule 4 – Leachate quality criteria, both under the *Environmental Protection Act*, R.S.O. 1990, c. E.19, as amended,
- (p) **“Finished Grade”** means the actual grade after a Site Alteration;
- (q) **“General Manager”** means the General Manager of Development Services or his or her designate;

- (r) **“Geoscientist”** means a Professional Geoscientist registered to practice in the Province of Ontario;
- (s) **“grade”** means the elevation of the surface of the land; and,
- (t) **“Guidelines”** means the Site Alteration Guidelines set out in Schedule “C” to this by-law;
- (u) **“Inspector”** means an individual appointed by the City as a Municipal Law Enforcement Officer pursuant to s. 15 of the *Police Services Act*, R.S.O. 1990, c. P.15, as amended, or any other individual designated by the General Manager to enforce this by-law;
- (v) **“Ministry”** means the Ontario Ministry of the Environment;
- (w) **“municipal tree”** means a tree, the trunk of which is located entirely or substantially on City property including any road allowance, boulevard, park or natural area;
- (x) **“owner”** means the registered owner(s) of the land;
- (y) **“Ponding”** means the accumulation of surface water caused by the Site Alteration;
- (z) **“Proposed Grade”** means the grade proposed by an applicant for a Site Alteration Permit;
- (aa) **“Region”** means the Regional Municipality of Waterloo;
- (bb) **“retaining wall”** means a wall designed by an Engineer to contain and support fill which has a finished grade higher than that of adjacent lands;
- (cc) **“site”** means the lot or lots altered or proposed to be altered by means of a Site Alteration;
- (dd) **“Site Alteration”** means the placement or dumping of fill on land, the removal of topsoil from land or the alteration of the grade of land by any means including the removal of vegetation cover, the compaction of soil or the creation of impervious surfaces, or any combination of these activities;
- (z) **“Site Alteration Permit”** means the permit issued under this by-law to place or dump fill, to remove topsoil or to alter the grade of land;
- (aa) **“Site Alteration Plan”** means a plan consisting of the documentation set out in Schedule “B” to this by-law to support the proposed Site Alteration;

- (bb) **“submerged”** means under the surface of water;
- (cc) **“topsoil”** means those horizons in a soil profile, commonly known as the “O” and the “A” horizons, containing organic material and includes deposits of partially decomposed organic matter such as peat;
- (dd) **“tree”** means any species of wood perennial plant, including its root system, which has reached or can reach a height of at least 4.5 metres (15 feet) at physiological maturity;
- (ee) **“Tree Protection Zone”** means the area around a tree described in Schedule “D” attached to this by-law;
- (ff) **“watercourse”** means a natural or man-made channel or swale in which a flow of water occurs, either continuously or intermittently; and,
- (gg) **“Zoning By-Laws”** means those by-laws passed by the City pursuant to section 34 of the *Planning Act*, R.S.O. 1990, c. P.13, as amended.

GENERAL PROHIBITIONS

- 3. No person shall place or dump any fill, remove any topsoil or otherwise alter the grade of land, including a submerged site under watercourses or other bodies of water, by causing, permitting or performing a Site Alteration on land within the City unless authorized by a Site Alteration Permit issued under this by-law.

EXEMPTIONS

- 4. This by-law does not apply to:
 - (a) those matters listed as exemptions under s. 142 of the Act or where this by-law is legislated by the Act to have no applicability; and,
 - (b) those Site Alterations set out in Schedule “A” to this by-law.

APPLICATION FOR A SITE ALTERATION PERMIT

- 5. Subject to section 4 of this by-law, any person who wishes to undertake Site Alteration shall submit an Application to the General Manager.
- 6. An Application shall contain all information related to the Site Alteration prescribed or requested by the General Manager, but an Application must contain, at a minimum, the following information and documentation:

- (a) the full name and contact information of the person submitting the Application;
 - (b) the applicable fee, in accordance with the City's Fee and Charges By-Law;
 - (c) a Site Alteration Plan;
 - (d) security, in a form of a cash deposit, or a letter or credit from a Canadian chartered bank satisfactory to the City Treasurer and in an amount determined to be sufficient by the General Manager to secure compliance with the Site Alteration Permit, including any conditions imposed; and,
 - (e) proof of any other permit or consent required from the City, the Region or any external agency or person in relation to the Site Alteration.
7. Notwithstanding any other section of this by-law or schedule thereto, the General Manager may waive the requirement for an Application, or any part thereof, after considering:
- (a) the nature and scale of the proposed Site Alteration; and
 - (b) the anticipated impact on the site and the surrounding environment.

CRITERIA FOR ISSUING A SITE ALTERATION PERMIT

8. The General Manager shall review all Applications and shall issue a Site Alteration Permit if the General Manager is satisfied that:
- (a) the person has submitted a complete Application;
 - (b) the site which is subject to the Application for a permit is not located within an Environmentally Sensitive Area;
 - (c) all work performed shall be done in accordance with the Guidelines and proper engineering practice;
 - (d) the Site Alteration will likely not result in:
 - (i) uncontrolled soil erosion;
 - (ii) blockage of a watercourse;
 - (iii) siltation in a watercourse;
 - (iv) pollution of a watercourse;

- (v) flooding or ponding caused by a watercourse overflowing its banks;
 - (vi) a detrimental effect on the natural environment of the area;
 - (vii) unauthorized injury or destruction of municipal trees or other trees protected under by-laws of the City and the Region;
 - (viii) injury or destruction of any trees which, in the opinion of the General Manager, could reasonably be avoided;
 - (ix) flooding or ponding on neighbouring properties;
 - (x) public safety concerns;
 - (xi) negative drainage impacts on existing pool enclosures on abutting properties; or,
 - (xii) disruption to groundwater aquifers, water tables, or flows deemed to be unacceptable by the General Manager.
- (e) the Site Alteration is for a use or purpose permitted under the Zoning By-Laws;
 - (f) the proposed Site Alteration is consistent with any applicable Site Plan or Plan of Subdivision approvals;
 - (g) if the proposed Site Alteration is for the excavation of a pool, the provisions of the Fence By-Law have been or will be complied with;
 - (h) the General Manager is satisfied that the land will be restored to the same or better condition than it was prior to the Site Alteration;
 - (i) if the property is within any area designated as an area under study, review or evaluation in the Official Plan for either the City or the Region, the approval of the Site Alteration is not premature pending the results of the applicable study; and,
 - (j) the work proposed under the Site Alteration Permit will not result in the spread or migration of contamination in soil, groundwater, sediment or air to other areas of the site or to adjacent sites, municipal infrastructure, roads and sidewalks.

CONDITIONS AND REGULATIONS

9. A Site Alteration Permit may be subject to certain conditions imposed by the General Manager which may include, but are not limited to, requiring that a person:
- (a) construct a retaining wall;
 - (b) restrict the location of access routes or staging and storage areas;
 - (c) implement erosion, siltation or construction control measures beyond what is required in the Guidelines;
 - (d) implement tree protection measures beyond what is required in Schedule "D";
 - (e) enter into an agreement with the City, prior to the issuance of the Site Alteration Permit, containing such provisions, including, but not limited to, the provision of security satisfactory to the City Treasurer to secure compliance with this by-law, which agreement may be registered on title to the land;
 - (f) provide liability insurance coverage to the satisfaction of the General Manager;
 - (g) provide a Ministry Record of Site Condition and supporting documentation for a Phase 1 and 2 Environmental Site Assessment signed by a qualified Engineer or Geoscientist; or,
 - (h) provide test results from a certified lab that are signed or stamped by an Engineer or Geoscientist that demonstrate acceptable fill quality for the land use of the Site in accordance with O.Reg. 153/04 under the *Environmental Protection Act*, R.S.O. 1990, c. E.19, as amended, entitled "Records of Site Condition – Part XV.1 of the Act".
10. Every person who receives a Site Alteration Permit shall:
- (a) notify the General Manager within forty-eight (48) hours of commencing any work related to the Site Alteration;
 - (b) obtain the permission of the General Manager, in writing, before modifying the Site Alteration Plan;
 - (c) install, inspect and maintain all control measures imposed in accordance with this by-law, inspect such measures at least once per week and, after each rainfall of at least 25 mm, and make any necessary repairs;

- (d) install all tree protection measures pursuant to Schedule "D" or otherwise required by the General Manager, prior to commencing any work, and maintain those tree protection measures throughout the entire duration of the work;
- (e) maintain all road drainage systems, stormwater drainage systems, control measures and other facilities identified in the approved Site Alteration Plan;
- (f) repair any siltation or erosion damage to adjoining surfaces and drainage pathways resulting from the Site Alteration;
- (g) maintain a copy of any approved Site Alteration Plan on site;
- (h) ensure that the finished grade surface is protected by sod, turf, seeding for grass, greenery, asphalt, concrete or other means, either singly or in combination, in accordance with an approved Site Alteration Plan;
- (i) ensure that all fill is free of waste and debris;
- (j) ensure that all soil, fill, sediment, and groundwater quality meets:
 - (i) all applicable site condition standards prescribed by the Ministry for any current land use; and,
 - (ii) use for the site as designated under the Official Plan of the City or the Region, including any amendment to the Official Plan;
- (k) ensure that fill shall not be placed around the perimeter of any existing building to an elevation higher than 150 mm of the ground floor level of such a building;
- (l) ensure that no mud or debris is tracked onto municipal highways and that these highways are not fouled as a result of the Site Alteration; and,
- (m) ensure that the proposed Site Alteration is not contrary to the requirements of a well-head or drinking water source protection plan administered by the Regional.

11. Site Alteration Permits issued under this by-law shall be valid for a period of one (1) year from the date of issuance.

- (a) Notwithstanding section 11, permits issued under this by-law shall expire six (6) months after the date of issuance if no work has been commenced under the Site Alteration Permit during the six (6) preceding months.

12. The General Manager may renew a Site Alteration Permit for one an additional period of one (1) year upon the submission of a new Application and the payment of a renewal fee in accordance with the City's Fees and Charges By-Law.
13. Where a Site Alteration Permit is based on false, misleading or insufficient information or where the conditions of a Site Alteration Permit have not been met, the General Manager may revoke the Site Alteration Permit, and the owner shall ensure that all work in connection with the Site Alteration Permit immediately ceases.
14. If title to the land for which a Site Alteration Permit has been issued is transferred while the Site Alteration Permit remains in effect, the Site Alteration Permit shall be revoked by the General Manager unless the new owner of the lands, within thirty (30) days of the transfer:
 - (a) provides the General Manager with notice in writing stating a commitment to unconditionally comply with all the conditions under which the existing Site Alteration Permit was issued; or,
 - (b) applies for and obtains a new Site Alteration Permit in accordance with the provisions of this by-law.
15. If a Site Alteration Permit has expired or has been revoked after work commences and prior to the completion of the Site Alteration, the owner shall forthwith restore the site to its original condition or stabilize the site to the satisfaction of the General Manager in a manner that will prevent adverse impacts on abutting properties and the environment, as determined by the General Manager.

HINDRANCE OR OBSTRUCTION

16. No person shall hinder or obstruct, or attempt to hinder or obstruct, any person who is exercising a power or performing a duty under this by-law.

POWERS OF INSPECTION

17. An Inspector may enter on land at any reasonable time for the purpose of carrying out an inspection to determine whether or not the following are being complied with:
 - (a) this by-law;
 - (b) a direction or order of the City made under this by-law; or,
 - (c) an order made under s. 431 of the Act.

18. For the purposes of conducting an inspection pursuant to s. 17 of this by-law, an Inspector may, in accordance with the provisions of s. 436 of the Act:
- (a) require the production for inspection of documents or things relevant to the inspection;
 - (b) inspect and remove documents or things relevant to the inspection for the purpose of making copies or extracts;
 - (c) require information from any person concerning a matter related to the inspection; and,
 - (d) alone or in conjunction with a person possessing special or expert knowledge, make examinations or take tests, samples or photographs necessary for the purposes of the inspection.

ORDER TO DISCONTINUE ACTIVITY

19. Where an Inspector is satisfied that a contravention of this by-law has occurred, the Inspector may make an order requiring the person who contravened this by-law, or who caused or permitted the contravention, or the owner or occupier of the land on which the contravention occurred, to discontinue the contravening activity.
20. An order under s. 19 of this by-law shall set out:
- (a) reasonable particulars of the contravention adequate to identify the contravention and the location of the land on which the contravention occurred; and,
 - (b) the date by which there must be compliance with the order.
21. Any person who contravenes an order under s. 19 of this by-law is guilty of an offence.

WORK ORDER

22. Where an Inspector is satisfied that a contravention of this by-law has occurred, the Inspector may make an order requiring the person who contravened this by-law, or who caused or permitted the contravention, or the owner or occupier of the land on which the contravention occurred, to do work to correct the contravention.
23. An order under s. 22 of this by-law shall set out:

- (a) reasonable particulars of the contravention adequate to identify the contravention and the location of the land on which the contravention occurred; and,
 - (b) the work to be done and the date by which the work must be done.
- 24. An order under s. 22 may require work to be done even though the facts which constitute the contravention of this by-law were present before this by-law came into force.
- 25. Any person who contravenes an order under s. 22 of this by-law is guilty of an offence.

REMEDIAL ACTION

- 26. If a person fails to do a matter or thing, including comply with an order under this by-law, as directed or required by this by-law, the City may, in default of it being done by the person directed or required to do it, do the matter or thing at the person's expense. The City may recover the costs of doing a matter or thing from the person directed or required to do it by action or by adding the costs to the tax roll and collecting them in the same manner as municipal taxes.
- 27. The costs outlined in s. 26 of this by-law shall include interest calculated at a rate of 15 per cent per annum, calculated for the period commencing on the day the City incurs the costs and ending on the day the costs, including the interest, are paid in full.
- 28. The amount of the costs, including interest, constitutes a lien on the land upon the registration in the proper land registry office of a notice of lien. The lien is in respect of all costs that are payable at the time the notice is registered plus interest accrued to the date the payment is made. Upon receiving payment of all costs payable plus interest accrued to the date of payment, the City shall register a discharge of the lien in the proper land registry office.

ENFORCEMENT

- 29. This by-law may be enforced by Inspectors and Police Officers.

OFFENCE AND PENALTY

30. Every person who contravenes any of the provisions of this by-law is guilty of an offence and, pursuant to section 429 of the Act, all contraventions of this by-law are designated as continuing offences.
31. Every person, excluding a corporation, who is convicted of an offence is liable to a minimum fine of \$250.00 and a maximum fine of \$25,000.00 for a first offence and a maximum fine of \$50,000.00 for a subsequent offence.
32. Every corporation who is convicted of an offence is liable to a minimum fine of \$250.00 and a maximum fine of \$50,000.00 for a first offence and \$100,000.00 for a subsequent offence.
33. In addition to the fine amounts set out in sections 31 and 32, for each day or part of a day that an offence continues, the minimum fine shall be \$250.00 and the maximum fine shall be \$10,000.00. The total of all daily fines for the offence is not limited to \$100,000.00.

SEVERABILITY

34. If a Court of competent jurisdiction should declare any section or part of a section of this by-law to be invalid, such section or part of a section shall not be construed as having persuaded or influenced Council to pass the remainder of this by-law and it is hereby declared that the remainder of this by-law shall be valid and shall remain in full force and effect.

APPLICATION OF OTHER LAWS

35. The issuance of a Site Alteration Permit by the General Manager does not relieve the applicant of the responsibility of obtaining and complying with all other approvals that may be required by the City, or any other level of government or agencies thereof.

SCHEDULES

36. All Schedules to this by-law form a part of this by-law.

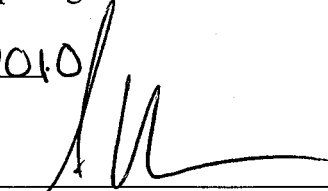
REPEAL

37. By-law 93-39 is hereby repealed.

COMING INTO FORCE

38. This by-law comes into force on the date of its passage.

PASSED by the Council this ^{7th} 17 day of May 2010


(Brenda Halloran - MAYOR)

Scott Witmer, Acting Mayor


(Susan Greatrix - CLERK)

Approval	Date	Authorized By	
DS	May 12/10	Ron Ormen	RLO
Legal	May 12/10	S. Davis	SD
Financial	May 12/10	Crin Gray	CG

SCHEDULE "A"

SITE ALTERATION EXEMPTIONS

Notwithstanding section 3 of this by-law, a Site Alteration Permit shall not be required for the following:

1. Emergency repair work performed in consultation with the City, subject to any requirement from the General Manager to obtain a Site Alteration Permit for the continuation of such work;
2. Top dressing of lawns with topsoil;
3. Cultivation or tilling of garden beds, so long as such work does not have an adverse effect on existing drainage patterns on neighbouring properties;
4. The placing, dumping or removal of fill involving an amount of soil of less than 20 cubic metres on a lot within any one (1) year period, unless the site includes or is adjacent to a body of water;
5. Excavation of soil involving an area of less than nine square metres and a depth of less than 0.5 metres having no significant impact on trees, ground cover, vegetation, watercourses or storm swales and not altering or creating a slope at greater than 10%;
6. The removal of topsoil incidental to a normal agricultural practice;
7. Minor landscaping works which are at least 0.3 metres from any property line and do not impact drainage patterns on neighbouring properties.
8. The construction of swimming pools regulated by other City by-law(s).

SCHEDULE "B"

SITE ALTERATION PLAN

All Site Alteration Plans shall:

1. use metric measurements;
2. be printed from original drawings with all information legible and clear; and,
3. be folded to 8 ½" x 11" size with title blocks visible.

All elevations in Site Alteration Plans shall be tied to existing City benchmarks and related to geodetic data.

Site Alteration Plans or accompanying documentation shall include the following information, if required by the General Manager:

1. a key map showing the location of the site and a north arrow;
2. the site boundaries;
4. the size of the site measured in hectares;
5. the use of the land and any adjacent land;
6. the location, dimensions and use of buildings or structures existing or proposed to be erected on the site;
7. the location and use of buildings or structures on adjacent property within thirty (30) metres beyond the site boundary;
8. the location of any easements over the property;
9. the location of any body of water or other natural heritage features on the site or within thirty (30) metres beyond the site boundary;
10. the Regional Storm Flood Plan and Conservation Authority Fill Regulation lines;
11. the location of the predominant soil types;
12. the location and type of vegetation cover on the site, including the variety and dbh (diameter at breast height) of every tree on the site;

13. such tree reports, plans, or studies prepared by qualified tree consultants as may be required by the General Manager or other Regional and City by-laws or policies;
14. the location and dimension of any existing and proposed storm water drainage systems, and natural drainage patterns on or within thirty (30) metres beyond the site boundary;
15. the location and dimensions of utilities, structures, roads, highways, paving, sidewalks, walkways, easements, catch basins;
16. the existing grade elevations at contour intervals not to exceed 50 centimeters and to extend a minimum of thirty (30) metres beyond the site boundary with spot elevations along the property line at sufficient intervals to clearly show the existing drainage patterns on the land and on abutting lands;
17. the proposed finished grade elevations of the site;
18. the location and dimensions of all land disturbing activities including any proposed temporary stockpiles for soil and other materials;
19. the location and dimensions of all proposed staging areas for equipment;
20. the location, dimensions, design details and design calculations of all construction site control measures necessary to meet the requirements of this by-law, including details of the proposed sediment and erosion control measures, and details of any drainage system to be used upon the completion of the Site Alteration;
21. a schedule of the anticipated starting and completion dates of each Site Alteration activity including the installation of site control measures needed to meet the requirements of this by-law;
22. provision for the maintenance of the construction site control measures during construction including a mud tracking prevention program which describes the procedures for mud tracking prevention and road clean up and designates a contact person for such a program throughout each land disturbing or land developing activity;
23. the scale of drawing;
24. details of the site rehabilitation including the type and location of all interim and permanent stabilization measures;
25. a certificate on the drawing, executed by an Engineer, Geoscientist, or a PEO qualified Certified Engineering Technologist, in the following form:

"I have reviewed plans for the construction of

located at

and have prepared this plan to indicate the compatibility of the proposal to existing adjacent properties and municipal services. It is my belief that adherence to the proposed grades as shown will produce adequate surface drainage without any detrimental effect to the existing drainage patterns or adjacent properties."

26. Such further and other information with respect to the site as may be required by the General Manager.

SCHEDULE "C"

SITE ALTERATION GUIDELINES

Site Alterations shall be performed in accordance with these Guidelines.

1. **Site Dewatering:** Water pumped from the site shall be treated by temporary sedimentation basins, grit chambers, sand filters, or other appropriate controls and treatment methods. If the water is demonstrated to have no particles greater than 40 microns in size, then dewatering operations may be conducted provided the water is not permitted to discharge directly into sewers, receiving any body of water. Proof of a valid Permit to Take Water (PTTW) issued by the Ministry shall be provided to the General Manager for sites involving the pumping of more than 50,000 litres of groundwater per day.
2. **Drain Inlet Protection:** All rear lot storm drain inlets or any other inlets as the General Manager considers necessary, shall be protected with filter fabric, or equivalent barriers meeting design criteria, standards and specifications accepted by the General Manager.
3. **Site Erosion Control:** The following criteria apply to land disturbing activities that result in runoff leaving the site:
 - (a) Run-off from adjacent areas passing through the site shall be diverted around disturbed areas, if practical. Otherwise the channel shall be protected by sediment control fences being placed along the channel edges to reduce sediment reaching the channel;
 - (b) All activities on the site shall be conducted in a logical sequence to minimize the area of bare soil exposed at any one time;
 - (c) Any fill storage piles containing more than one hundred cubic metres of material shall not be located within a down slope drainage length of less than ten (10) metres to a roadway or drainage channel. If remaining for more than thirty (30) days, said soil or dirt storage piles shall be stabilized by mulching, vegetative cover, tarps or other means. Erosion from fill storage piles which will be in existence for less than thirty (30) days shall be controlled by filter fence barriers around the pile;
 - (d) Runoff from the entire disturbed area on the site shall be controlled as follows:
 - (i) All disturbed ground left inactive shall be stabilized by seeding, sodding, mulching, covering, or equivalent control measures. The period of time of inactivity shall be at the discretion of the General

Manager but shall not exceed 30 days or such longer periods as deemed advisable at the discretion of the Commissioner.

- (ii) Notwithstanding paragraph 3(d)(i), a Site Alteration Permit holder or applicant for a Site Alteration Permit who has applied for but not yet received a building permit or any other necessary permit may be granted an extension to the permitted period of inactivity at the discretion of the General Manager, provided that said applicant or permit holder provides satisfactory proof that he/she has made best efforts to obtain the said building or other necessary permit.
- (iii) For sites with less than four (4) hectares disturbed at one time and with slopes less than twelve (12) percent grade, sediment control fences or equivalent measures shall be placed along all downslope sides of the site.
- (iv) For sites having drainage area of more than four (4) hectares disturbed at one time or with slopes greater than twelve (12) percent grade, one or more sediment basins should be constructed. The basins shall be designed to trap sediment particles greater than 40 microns in size and be constructed in accordance with any applicable City of Waterloo design standards and proper engineering principles.
- (v) For sites located adjacent to existing residential areas, a sediment control fence may be required around the entire perimeter of the site;
- (vi) A three (3) metre wide buffer strip or sediment control fence shall be required along the perimeter of the downslope sides of the site;
- (vii) For sites with extensive fill requirements the General Manager may waive the requirements for stabilization of disturbed land after thirty (30) days of inactivity provided that the sediment control measures have been implemented to the satisfaction of the General Manager.

4. **Reverse Driveways:** New driveways must be designed to avoid the use of reverse driveways (sloping downwards towards the house or building). For reconstruction work and Site Alterations involving modifications to reverse driveways that existed prior to the enactment of this by-law the owner must ensure that flood protection is provided. Reverse driveway drainage facilities must not be connected by gravity to the storm sewer system unless it can be demonstrated in a stormwater management report signed and sealed by an Engineer that surcharging by the sewer system during a 1:100 year storm will not cause flooding to the property.

SCHEDULE "D"

TREE PROTECTION MEASURES

The tree protection measures set out in this schedule shall be implemented during Site Alterations. The measures outlined below shall be the minimum standard for tree protection.

1. Application of Tree Protection Policies

Tree protection measures are required for all Municipal Trees. The injury or destruction of Municipal Trees is regulated or prohibited under separate by-laws or the City administered by the City Forester. Permits granted under this by-law do not exempt the permit holder from the provisions of those by-laws.

Tree protection measures apply to Boundary Trees except as may be authorized in writing by the General Manager in accordance with the provision of this Schedule.

Tree protection measures are required for all trees and may be required by the General Manager for trees other than Municipal Trees and Boundary Trees where the protection of the tree is required as a condition of any other City approval or by-law or where required to protect public safety.

2. Discretion of the General Manager

The General Manager shall exercise any discretion under this by-law in accordance with the provision of any by-law or policy for the protection of trees generally applicable throughout the City and the tree protection measures set out in this Schedule.

In the event of a conflict between the tree protection measures set out in this Schedule and other policies or by-laws for the protection of trees applicable within the City, the policy or by-law that is most protective of trees shall prevail for the purposes of this by-law.

Subject to the provisions of any other by-law, the General Manager, in consultation with the City Forester, may provide relief from the requirements of these tree protection policies or require tree protection measures above and beyond the tree protection measures prescribed in this policy having regard to the variety and location of the tree and any circumstances surrounding the Site Alteration that may pose a particular hazard to the tree.

3. Tree Protection Zones

A Tree Protection Zone or TPZ for any tree shall be determined as follows:

Table 1 – Tree Protection Zone

Trunk Diameter (DBH) ¹	Minimum Protection Distances Required ²
<10 cm	1.8 m
11 – 40 cm	2.4 m
41 – 50 cm	3.0 m
51 – 60 cm	3.6 m
61 – 70 cm	4.2 m
71 – 80 cm	4.8 m
81 – 90 cm	5.4 m
91 cm or above	6.0 m

4. Activities Prohibited or Restricted within Tree Protection Zone

The following activities are prohibited within a Tree Protection Zone for Municipal Trees and other trees protected as a condition of a Site Alteration Permit issued under this by-law:

- (a) No Site Alteration or land disturbance to existing grade through deposit of fill, trenching, excavating, scraping, or paving;
- (b) No storage of construction materials, soils, waste, debris or equipment;
- (c) No disposal of any liquid wastes; and,
- (d) No movement or parking of vehicles or equipment or other activities that may compact the soil.

Where the applicant proposes to conduct any of the above activities within the Tree Protection Zone, the applicant shall submit a report to the satisfaction of the General Manager, prepared by a qualified tree consultant:

- (a) Describing the adaptability of the tree to the proposed Site Alteration or work associated with the Site Alteration, including a “structural hazard rating” for all trees greater than 100 mm in dbh prepared in accordance with the methodology in Evaluation of Hazard Trees in Urban Areas, International Society of Arboriculture (SA), Second Edition or an equivalent method acceptable to the General Manager;

¹ Diameter at breast height (DBH) measurement of tree trunk taken at 1.4 meters above ground

² Tree Protection Zone distances are to be measured from the outside edge of the tree base towards the drip line and may be limited by an existing paved surface, provided that surface remains intact throughout the Site Alteration.

- (b) Outlining any tree protection measures recommended or required to protect the tree from injury or destruction;
- (c) Certifying whether the proposed work is expected to injure or destroy the tree.

Permission to conduct the prescribed activities shall be refused if granting permission is likely to cause the injury or destruction of a tree contrary to the provisions of a by-law of the City or Regional Municipality of Waterloo and may be refused in the case of other trees, if, in the opinion of the General Manager, there is a reasonable alternative, including modifications to the Site Alteration Plan, that would prevent or limit the injury or destruction of the tree.

5. Tree Protection Barriers

Tree protection barriers shall be erected along the perimeter of the Tree Protection Zone of any Municipal Tree, Boundary Tree, or row of any Trees or other tree protected as a condition of a Site Alteration Permit issued under this by-law prior to commencing any work related to the Site Alteration and shall remain in place throughout the entire duration of the work. All tree protection barriers will be approved by an Inspector prior to the commencement of any work related to the Site Alteration.

Tree protection barriers shall be erected in accordance with the following standards:

- a) The required barrier shall be a standard paige-wire fence with geotextile filter cloth attached to the base of the fence and keyed into surface soil in a manner that will prevent the migration of sediment into the Tree Protection Zone.
- b) Where fill has been temporarily positioned near a tree protection barrier, no such material will be permitted to enter the Tree Protection Zone.
- c) All supports and bracing for fencing shall be located outside the Tree Protection Zone in a manner that minimizes damage to roots within or outside the Tree Protection Zone.
- d) Signage, at least 40 cm x 60 cm in size of white gator board or equivalent shall be posted and maintained on the tree protection barrier, clearly identifying the area as a Tree Protection Zone in which grading, storage of materials or equipment is prohibited, and advising that the removal of the Tree Protection barrier is prohibited prior to completion of the Site Alteration.

6. Financial Security for Tree Protection

Financial securities for the protection of trees may be required by the General Manager in an amount to be determined by the valuation of the tree in accordance with the current edition of the International Society of Arboriculture's "Guide for Plant Appraisal" or an equivalent guide chosen by the General Manager.

Financial securities for tree protection shall be provided in a form satisfactory to the General Manager and will be held by the City for twenty-four (24) months after the date of final inspection of the Site Alteration or such longer or shorter time as the General Manager deems necessary to satisfy the General Manager that the tree has not been injured or destroyed as a result of the Site Alteration. Applicants applying for the early release of security of the Site Alteration shall produce a report of a qualified tree consultant certifying that the tree has not been injured or destroyed as a result of the Site Alteration.

The City reserves the right to draw on the securities to replace trees injured or destroyed as a result of the Site Alteration.