



The Corporation
of the City
of Cambridge



TREE MANAGEMENT POLICIES AND GUIDELINES FOR NEW DEVELOPMENTS

(April, 1999 – Revised February, 2002)

EXECUTIVE SUMMARY

Urban development is preceded by site clearing and grading which results in removal of trees and vegetation from the urban forest. Through the use of Tree Management Policies and Guidelines for New Developments, the City of Cambridge aims to reduce the amount of removal of vegetative cover that occurs during development. This is done by requiring that developers of subdivisions and site plans consider opportunities to maintain and enhance on-site vegetation in conjunction with site development. A three phase approach to tree management during development is outlined, with the use of security deposits to ensure planned approaches are undertaken.

TREE MANAGEMENT POLICIES AND GUIDELINES FOR NEW DEVELOPMENTS

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1. **TREE MANAGEMENT PLAN POLICY**

It is the policy of Cambridge Council that, where warranted by the presence of existing trees and other vegetative cover, proponents of draft plans of subdivision, consents and site plans are required to complete a General Vegetation Inventory and Analysis as part of the development application. This will ensure that areas of significant vegetation in development proposals are identified and accurately located in the early stages of the planning and design process. In order to identify and effectively manage vegetation communities throughout the planning process, the following system of data collection and analysis will be utilized.

- General Vegetation Inventory and Analysis - required for all lots and blocks within a subdivision
- Detailed Vegetation Management Plan - only required for lots or blocks containing existing vegetation that requires further study as defined in the General Vegetation Inventory and Analysis.
- Tree Preservation/Compensation Plan - only required for lots on which the developer/builder requests to build a structure that is to be located deeper on the lot than that approved on the Detailed Vegetation Management Plan and/or the revised grading will have an adverse effect on the Detailed Vegetation Management Plan where it has identified that there are trees to be retained.

2. **TREE MANAGEMENT PLAN GUIDELINES**

2.1 **General Approach to Tree Management**

The owner/developer will employ a recognized professional in tree management who will assess and evaluate vegetation on a proposed development site prior to designing the draft plan of subdivision or site plan. The evaluation will consist of an inventory and map of existing trees, shrubs and other vegetation. The initial evaluation will assess the site vegetation as it relates to its condition, health and susceptibility to development impacts, aesthetics, contribution to ecosystem, contribution to wildlife diversity, birds, and stormwater management, etc. This evaluation will result in a tree management plan that optimizes existing quality vegetation. Overlay of the proposed development will:

- i) Identify what measures will be taken when designing grading, road pattern layout, lot layout, building location, etc. to maximize tree saving potential.
- ii) Provide a clear outline of how tree management relates to the engineering drawings for servicing, grading, drainage and stormwater management. In locations that necessitate total clear cutting, there will be an assessment to determine if there is a potential to transplant trees. Compensation plantings will be incorporated into lot street frontages, parks and stormwater management areas.
- iii) Identify opportunities where there could be/should be tree management with fairly major measures (i.e. revisions to draft plan, retaining walls, site plan review, defined building envelopes, changes to grading plans, tree wells, modifications to building designs. etc.).

- iv) Identify opportunities where there could be/should be tree management with minor measures and reasonable care (i.e. careful grading, fencing of driplines, signage, identification tags, letters of credit, monitoring and reporting regularly during construction).
- v) Identify opportunities to restore some of the integrity of the trees or woodlot (i.e. pruning, treatment of diseased trees, woodlot improvements, transplanting, replanting, enhanced planting and landscaping, etc.).

To summarize, the implementation of these Tree Management Policies and Guidelines for New Developments will ensure that tree management for new developments will be optimized. Providing standards through the Tree Management Policies and Guidelines for New Developments ensures that plans and reports submitted by the owner/developer are more uniform; the approval process is more efficient; and the responsibilities of those involved are formally addressed.

2.2 General Vegetation Inventory And Analysis

2.2.1 Overview

The General Vegetation Inventory and Analysis shall be included as part of the formal submission of a draft plan of a subdivision or site plan to the City of Cambridge. It will be submitted to the Planning Services Department and in turn forwarded to the Community Services Department and approved by the Forestry Technician in conjunction with appropriate Departments (i.e. Planning Services). Upon review, a decision will be made if there is a requirement for a Detailed Vegetation Management Plan and further involvement of the Forestry Technician in development plan review.

This report will contain an inventory, documentation and analysis of vegetation, site topography, soils and drainage and any other significant natural and physical features present on the site. This inventory will provide a general overview evaluation of the area proposed for development and the relationship of natural features with surrounding natural areas.

The analysis is to be conducted based on an environmental appreciation of the above features. It will identify and provide reasons for vegetation units which require or do not require further data analysis and a detailed vegetation management plan. Based on the analysis prepared by the recognized professional in tree management, areas of quality vegetation will be incorporated into tree management areas. This will optimize the retention of high quality vegetation.

2.2.2 Requirements For Submission

The following information is required for the General Vegetation and Analysis. Some items may not be pertinent to a particular project, while other projects may require additional information. The Cambridge Natural Areas Inventory as well as watershed studies, where they have been completed, may provide some of the required inventory information.

2.2.2.1 Assessment/Inventory Form

Biological characteristics for each vegetation unit indicating:

- vegetation type (eg. hedgerow, deciduous forest, marsh, etc.)
- species association or plant community
- number of trees (relative species abundance)
- canopy closure (percentage)
- dominant tree species
- rare or unusual tree species, including those with heritage value
- tree condition rating (biological health and structural condition)
- sensitivity to disturbance
- diameter at breast height (D.B.H.) measured averages
- location number on map

2.2.2.2 Mapping

The recognized professional in tree management will ensure that an appropriate scale (generally 1:500) is utilized to properly convey all the required information on submissions. Site boundaries are to be outlined on all maps and shall include features intersecting or outside the development area that may affect the site vegetation or the adjacent site vegetation. In some instances air photos may also be required for submission.

Map 1: Vegetation Units

- illustrate the vegetation units defined through resolution and analysis of functional associations in the subject environment
- vegetation units accurately located relative to the property boundaries
- dripline/bushline locations and elevations that define the edge of a vegetation unit accurately located relative to the property boundaries

Map 2: Physical Features

- topography and slope located accurately relative to the property boundaries
- existing drainage patterns
- surface water
- ground water discharge areas
- soil type and location

2.2.2.3 Analysis

The analysis is to be prepared by the recognized professional in tree management and is to contain the following:

- priority areas for tree management
- opportunities/benefit of priority areas
- potential problems
- rare or unusual trees, including those with heritage value
- contribution to local biodiversity

- vital physical requirements of the vegetation units
- recommendations regarding future layout/grading of the draft plan of subdivision or site plan

NOTE: High quality vegetation units are best preserved as part of large blocks either private or public (i.e. multiple unit dwelling block, park block, edge of stormwater management block, etc.). Also, consideration should be given to relocating existing trees on-site to perpetuate the local seed source.

The analysis will provide valid rationale for:

- vegetation units not requiring further data collection and analysis
- vegetation units requiring further data collection and analysis in the detailed vegetation management plan

2.3 Detailed Vegetation Management Plan

2.3.1 Overview

The Detailed Vegetation Management Plan will be submitted in conjunction with stormwater management, grading and servicing plans as a condition of draft approval. The Detailed Vegetation Management Plan is to be undertaken for only those lots and/or blocks requiring it, as identified in the previously described General Vegetation Inventory and Analysis. If pre-grading is requested, the Detailed Vegetation Management Plan must be approved prior to issuance of the grading permit. If tree management will affect final design, the Detailed Vegetation Management Plan may be required prior to draft approval.

While the General Vegetation Inventory and Analysis identifies vegetation units worthy of preservation, the Detailed Vegetation Management Plan identifies exactly which trees will be preserved and what protection and tree maintenance measures will be implemented to ensure their survival. The Detailed Vegetation Management Plan requires an assessment on an individual tree basis. The quality of individual trees within a vegetation unit is determined based upon criteria reflecting vigour, aesthetics, and ability to survive construction impacts. With this information, decisions about the status of the trees can be made. Detailed information at this time will allow for a comparison of the pre-construction and post-construction situation and will be beneficial when assessing the tree damage and future compensation requirements.

A map accurately defining the location of the new woodlot driplines and appropriate recommendations to either retain, remove, or transplant for each individual tree or groups of trees is required. This will be accompanied by an analysis which outlines the necessary protection and tree maintenance measures required.

2.3.2 Requirements For Submission

The detailed inventory is to consist of all trees having a minimum D.B.H. of 10 cm in residual areas that may be potentially affected by site clearing, grading or any other construction operation. This will include, but is not limited to trees within 15 m of any newly proposed woodlot edge; trees occurring on lots or blocks as individual specimens; hedgerows; or small groups of trees. Rare or unusual trees must also be identified.

All such trees are to be tagged using proper forestry tags as a means of identification in the field and be accurately located and assessed to determine:

- potential impacts that the proposed development layout, stormwater management systems, grading and servicing will have on the remaining vegetation
- the need for suitable protection measures
- possible preservation techniques to enhance the condition of residual trees

The following information is generally required for the Detailed Vegetation Management Plan (some items may not be pertinent to a particular project, or other projects may require additional information).

1. Tree Data Sheet

Biological data for each tree greater than or equal to 10 cm D.B.H. is to be structured in an organized chart form (using Appendix A). This form shall include the consultant's name, address, telephone number, and date of inventory, as well as the following:

- tree tag number
- location (lot or block number)
- tree species
- diameter at breast height (D.B.H.)
- tree condition (vigour)
 - *good*, dead branches less than 10%, signs of good compartmentalization on any wounds, no structural defects;
 - *fair* - 10 - 30% dead branches, size or occurrence of wounds presents some concerns, minor structural defects
 - *poor* - more than 30% dead branches, weak compartmentalization, early leaf drop, presence of insects/disease, major structural defects
 - *dead* - tree exhibits no signs of life
- proposed action (remain, relocate, remove)
- reasons for removal/relocation if proposed

2. Mapping

An appropriate scale is to be utilized which properly conveys all of the required information. It should be at a scale of approximately 1:500. The following information is required to be included:

- accurate location and ground level elevation of all trees (10 cm D.B.H. or greater) and their dripline surveyed relative to property boundaries
- symbolized recommendations for each individual tree (i.e. retain, remove)
- proposed lot locations, street pattern, building envelopes, driveway locations and building types
- location of all services (type, width and depth of trench)
- grading information (i.e. existing and proposed grades; cut and fill areas/limits; potential disruption of water and surface drainage)
- location, size, and depth of stormwater management facilities including pumping stations and access roads
- accurate location of all new woodlot edges and location and species of recommended plantings (if required) or transplantings
- symbolized recommendations of trees to be transplanted and their proposed new location
- location and nature of recommended tree protection measures

3. Analytical Report (may be incorporated on mapping if appropriate)

The analytical report is to contain but is not limited to the following:

- conclusion of inventory and analysis including summary of the anticipated grading and construction impacts
- identification of any trees or stands of trees that are of significance to the local community and should be preserved for this reason (eg. local landmarks, visual screens, heritage trees, etc.)
- description of protective measures:
 - construction details - fencing, signage
 - erosion control
 - pre-construction, during construction and post-construction recommendations to increase the likelihood of tree survival
 - tree transplants and enhancements plans - i.e. timing, locations, moving procedures and maintenance program

The analytical report will provide sound rationale for the removal of every individual tree.

2.3.3 Verification of Protection Measures

Written verification from the recognized professional in tree management that all of the recommended tree protection measures have been installed in accordance with the Detailed Vegetation Management Plan as approved by the City of Cambridge, Community Services Department. This letter of verification is to be submitted prior to any rough grading.

Owners/developers shall be required on an ongoing basis to undertake measures to prevent damage to existing site vegetation that has been designated for retention. These measures may take place prior, during or following the physical development of the subdivision or site plan and may include, but are not limited to:

- selective removal of trees that are in poor condition and may pose safety concerns along with the new proposed edge of a woodlot;
- planting of trees to create/protect a new woodlot edge;
- the installation of temporary protective barriers prior to the stripping of topsoil, grading, or any other construction activity on the site. This fencing will provide adequate protection of the trees to be retained (minimum 1 m beyond the dripline of the tree). The fencing will be monitored regularly and will be kept in good repair and remain in place until all construction work is completed. The standard will be Paige Wire Farm Fencing. Snow fencing is not acceptable;
- areas delineated and protected by the temporary protection barrier shall remain undisturbed and shall not be used for temporary storage, placement or excavation of fill or top soil, the storage of construction materials or equipment, the storage of debris;
- information signs shall be posted on fences of protected areas at a maximum 45 m intervals; an example of concept signage is included in this report as Appendix B;
- where the root system of the trees to be retained are exposed or damaged by grading or other construction activity, they shall be pruned in accordance with proper arboriculture techniques (such as standard horticulture practices set out by Landscape Ontario) and the areas surrounding the root system shall be backfilled with native material immediately after damage occurs to prevent drying die back;
- construction contaminants such as fuels, oils, etc. shall be kept clear of tree preservation areas; note that the feeder root system of a tree often extends well beyond the dripline of the tree (outside the protected area); and
- the existing grades within the tree retention areas shall not be disturbed; if it is necessary to change the grades around tree retention areas the developer may be required to undertake preservation techniques such as dry welling and root feeding; all filling and grading that is approved within a tree retention area will be undertaken manually.

2.3.4 Tree Maintenance Reporting

The recognized professional in tree management shall be on site with a copy of the approved Detailed Vegetation Management Plan during critical stages of grading and construction to ensure strict adherence to the recommendations of the plan. During this timeframe, weekly inspection sheets pertaining to tree removals/maintenance, grading adjacent to protective areas (i.e. problems identified, progression, successes) should be forwarded to the Community Services Department, Forestry Technician for review.

This Post-Grading Tree Maintenance Report is to be prepared by the recognized professional in tree management and is intended to document compliance with the tree protection measures as described in the approved Detailed Vegetation Management Plan. The timing of the Post-Grading Tree Maintenance Report is to coincide with the implementation of all tree protection measures and the completion of the initial site grading. All of the needs of the retained trees will be assessed immediately and the Post-Grading Tree Maintenance Report detailing all recommended tree maintenance measures shall be submitted to and approved by the Community Services Department, Forestry Technician.

The following information will generally be required in the Post-Grading Tree Maintenance Report:

- assess damage to trees that are to be retained caused by initial site grading and clearing
- identify and provide a dollar value of trees that were to be retained but have been inadvertently damaged or removed
- utilizing this dollar value of trees inadvertently damaged or removed, propose a compensation/enhancement plan indicating replacement trees of equal or greater dollar value and proposed tree planting locations for the rehabilitation of the disturbed areas
- identify areas designated for removal or where removals have not been conducted
- recommend additional trees to be removed or transplanted
- recommend scheduled preservation methods such as: pruning (crown and root); fertilization/watering; welling; and structural surgery.

Release of the tree management security deposit for the subdivision may be delayed until such time as these recommendations and requirements have been satisfied and detailed in the final Tree Maintenance Report.

2.4 Tree Preservation/Compensation Plan

2.4.1 Overview

A Tree Preservation/Compensation Plan will only be required for lots on which the developer/builder requests to build a structure that is deeper on the lot than that approved on the Detailed Vegetation Plan and/or revised grading will have an adverse effect on the Detailed Vegetation Plan where the Detailed Vegetation Plan has identified that there are trees to be retained.

2.4.2 Requirements for Submission

The following information is generally required for the Tree Preservation/Compensation Plan:

- the tree dimensions and bearings of the property;
- the locations, dimensions and set backs of all proposed buildings and structures;
- the location of paving and driveway areas;
- walkway locations;
- existing and proposed grades;
- cut and fill areas;
- indication of ground water and surface drainage (existing and proposed);
- location and type of services and utilities;
- location of proposed stock piles of top soil and backfill material;
- work zone requirements;
- location of isolated trees or single species clusters showing driplines and the species size, condition and sensitivity of tree to development is to be noted;
- location of woodland areas showing:
 - location of tree or trees to be removed for selective thinning
(these are to be marked in the field)

- location of new woodlot edges (marked in the field)
- edge driplines and new plantings if required
- an outline of tree protection measures including:
 - construction details and location of fencing
 - erosion control measures
 - pre-stressing of trees
- name, address and telephone number of:
 - developer
 - builder
 - consultant who provided tree data and recommendations.

3. SECURITY DEPOSITS

A security deposit in the form cash or acceptable letter of credit to a maximum of \$50,000.00 will be required for the Detailed Vegetation Management Plan on lots or blocks that are to come into public ownership. The value of the trees to be retained through the Detailed Vegetation Management Plan will be determined through consultation with the Forestry Technician. Factors used in the valuation include: quality of trees, quantity of trees, potential risk to trees and species. It will be collected through the subdivision agreement. Seventy-five percent of the deposit will be released upon certification by the consultant who prepared the Detailed Vegetation Management Plan that it has been implemented as shown. If trees have been removed or irreparably damaged during the construction process, the owner/developer must replace them to the satisfaction of the Forestry Technician, or the deposit fee or portion thereof will not be refunded. Twenty-five percent of the deposit will be held back for a three year maintenance period. The amount returned at the end of three years may be reduced based on survival of the trees to be retained.

For private lots and blocks, the security for vegetation management will be included in the lot grading deposit (currently \$1000 per lot or \$4000 per acre on a block). Ninety percent of the deposit is released when the lot grading certificate is submitted. Ten percent of the deposit is held back for a one year maintenance period. The amount returned at the end of one year may be reduced based on survival of the trees to be retained. For site plans, vegetation management will be included in the \$50,000 (maximum) for all site works.

By entering into the Subdivision Agreement, the subdivider will be responsible for providing builders with the information contained in the approved Detailed Vegetation Management Plan. However, it is recognized that information may have to be supplemented by the building permit applicant where necessary, and such applicant will be responsible for consolidating all information to reflect a specific site development. It is also recognized that Planning and Community Services staff may have to be somewhat flexible when reviewing specific building designs and preference of the builders and home purchasers. However, the basic intent of the approved Detailed Vegetation Management Plan must be maintained in every instance.

4. APPROVAL PROCESS

The recognized professional in tree management should contact the City of Cambridge, Community Services Department and the Planning Services Department, prior to undertaking vegetation assessments. City staff will help to clarify what is required and the information that is already available, thereby reducing the possibility of delays or unnecessary expenses. Contact with other government agencies such as the Ministry of Natural Resources and the Grand River Conservation Authority may also be appropriate. It is noted that Environmentally Sensitive Policy Areas are governed through the Regional Official Policies Plan. Any development proposed within or contiguous to those areas will be subject to special policies, procedures and approvals as required by the Regional Municipality of Waterloo and the City of Cambridge. The Cambridge Official Plan identifies Locally Significant Natural Areas which are also subject to special policies, procedures and approvals as required by the City of Cambridge.

Should the applicant not submit the General Vegetation Inventory and Analysis in conjunction with the draft plan of subdivision or site plan, a recommendation will be submitted to the Planning and Development Committee that the application be deferred until such time as the requirement is satisfied. The Community Services Department and the Planning Services Department will make resources available to undertake the following tasks related to subdivision development:

- provide examples of similar studies
- provide technical assistance as appropriate
- arrange meetings with other agencies or groups
- review the draft version of the assessments

Six (6) copies of the General Vegetation Inventory and Analysis should be submitted to the Planning Services Department, Planning Operations Division, for review. A reasonable amount of time is permitted for review and comments of the documents. The applicant is encouraged to participate in this review process. For example: a site visit with the applicant, recognized professional in tree management and City of Cambridge staff is usually appropriate during this period. The comments of any reviewing departments are copied and provided to the recognized professional tree management through the City's Planning Services Staff. The recognized professional in tree management will be advised of any changes to the proposed plan of subdivision or site plan that will be recommended, as well as draft conditions that will be included in the reports submitted to the Planning and Development Committee.

As a condition of draft approval of the plan of subdivision or site plan approval, the Detailed Vegetation Management Plan is required to be submitted to the Planning Services Department to be distributed to and approved by the Community Services Department, Forestry Technician, Forestry Division, prior to any grading, site servicing or construction on the property. Again, six (6) copies are required for submission. Once approved, the tree management areas should be identified on all the grading plans and servicing drawings to ensure co-ordination between tree management and site development. The subdivision agreement or development agreement will require the approved Detailed Vegetation Management Plan to be implemented. Securities will be required to be deposited in this regard. Prior to any grading, site servicing or construction on the property, a verification of protection letter is to be received by the Community Services Department, Forestry Technician. This will ensure on-site compliance with the recommendations contained within the Detailed Vegetation Management Plan. If pre-grading approval is requested, the securities will be required at that time. The owner/developer is responsible for engaging a recognized professional in tree management to monitor construction and provide timely reports to ensure that all tree management areas are properly defined and protected.

Joint inspections between a representative of the Community Services Department, the recognized professional in tree management and the excavation consultant should be held:

- prior to any stripping of top soil , grading or any other construction activity;
- prior to construction commencing near tree management areas with the location of the temporary protective barrier approved;
- prior to rough grading of any lots/blocks that contain trees to be retained; and
- prior to assumption of the plan of subdivision.

At this time, consultation and site inspections with representatives from other Departments such as the Transportation and Public Works Department may be appropriate. Prior to release of the tree management security deposit, the final Tree Maintenance Report is to be completed by the recognized professional in tree management to determine any necessary remedial action to be undertaken by the owner/developer. The above process outlined in this section is summarized by a flow chart included as Appendix C.

5. CONCLUSION

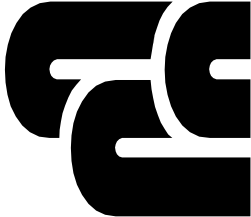
The Tree Management Policies and Guidelines for New Developments will be a benefit to both the City of Cambridge and the development industry, however, some constraints must be recognized. These constraints include:

- some trees by reason of their species or health may not warrant protection;
- tree management cannot be regarded as an isolated entity and in some instances other necessary design considerations may take precedence; and
- the long term success of tree management strategies on privately held lands within a development will be dependent on the education and co-operation of future property owners.

Due to the fact that trees are living entities, there can be no guarantee of their sustained viability. However, serious, thoughtful, careful tree preservation efforts will greatly enhance the tree's survivability prospects in a development situation. Whether or not trees should be preserved does not seem to be an issue, and most developers realize the benefits of having developments with mature trees. The challenge is to identify and ensure that quality vegetation is being preserved without causing undue hardship to the developer, builder, the City of Cambridge and ultimately the homeowner.

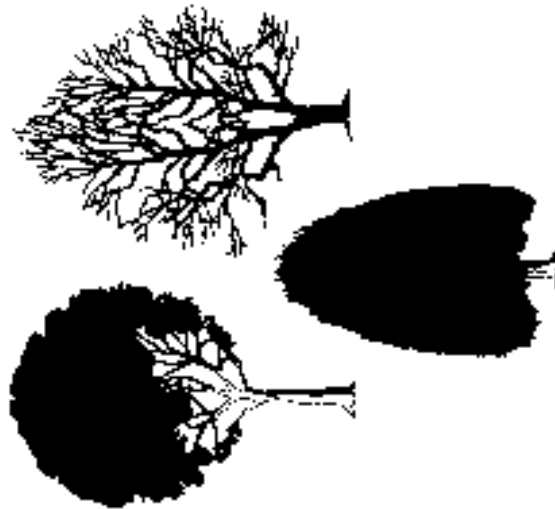
APPENDICES

TREE DATA SHEET					
TREE #'S ARE REFERENCED TO #'S ON LOT DEVELOPMENT PLAN					
TREE #	SPECIES (botanical name)	CALIPER (D.B.H.)(cm)	TREE CONDITION	ACTION	IF REMOVED - REASONS
1.	SUGAR MAPLE (Acer saccharum)	25.0	GOOD	REMAIN	
2.	BEECH (Fagus grandifolia)	25.0	FAIR	REMAIN	
3.	SUGAR MAPLE (Acer Saccharum)	15.0	GOOD	RELOCATE	TO BE RELOCATED CONFLICT WITH BLDG.
4.	CHERRY (Prunus serotina)	35.0	POOR	REMOVE	CONFLICT WITH BLDG.
5.	WHITE ASH (Fraxinus americana)	25.0	FAIR	REMOVE	CONFLICT WITH BLDG.
6.	BEECH (Fagus grandifolia)	45.0	FAIR	REMAIN	
7.	MIXED BUSH (see additional data sheet for species mix)	2.0-5.0	POOR - GOOD	REMAIN	
8.					
9.					
10.					
11.					
12.					

 <p>The Corporation of the City of Cambridge</p> <p>TREE DATA SHEET</p>	CONSULTANT: _____ ADDRESS: _____ _____ TELEPHONE #: _____	FAX #: _____ DATE OF INVENTORY: _____ SIGNATURE: _____
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Appendix B

CONCEPT SIGNAGE



TREE PRESERVATION AREA

DUMPING
STORAGE OF MATERIALS
TREE REMOVAL
DISTURBANCE OF ANY KIND

NO

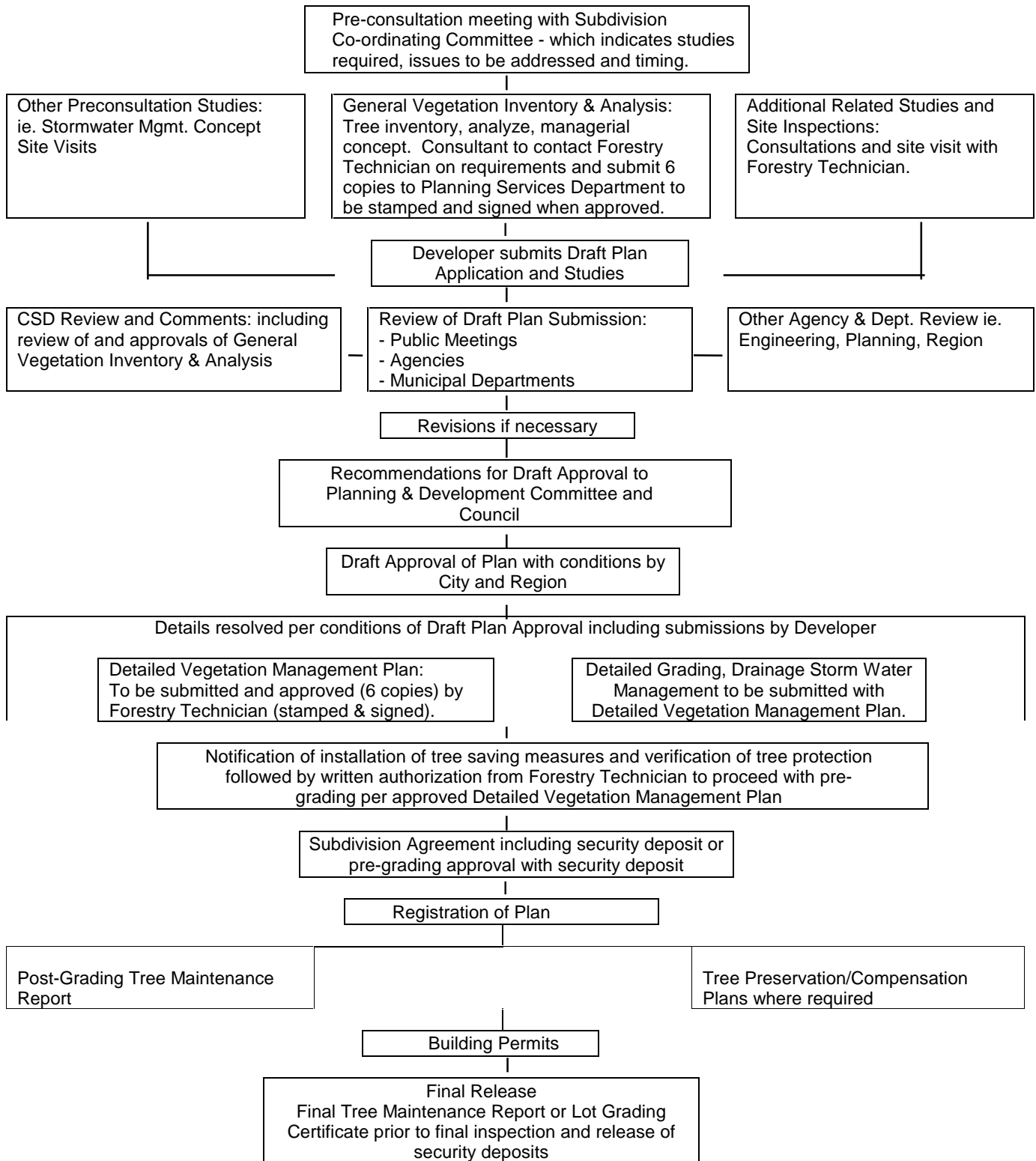
BEYOND THIS POINT

DEVELOPERS NAME	DEVELOPERS TELEPHONE NUMBER
CONSULTANTS NAME	CONSULTANTS TELEPHONE NUMBER
CITY CONTACT NAME	CITY CONTACT TELEPHONE NUMBER

MOUNTED ON GATOR BOARD
MINIMUM SIZE: 11" x 17"

SIGN TO BE PLACED 43M O.C. ALONG FENCE
SECURED WITH OUTDOOR PLASTIC LOCKING TIE-WRAPS

Appendix C: Tree Management Plan Subdivision Planning Process
& Requirements

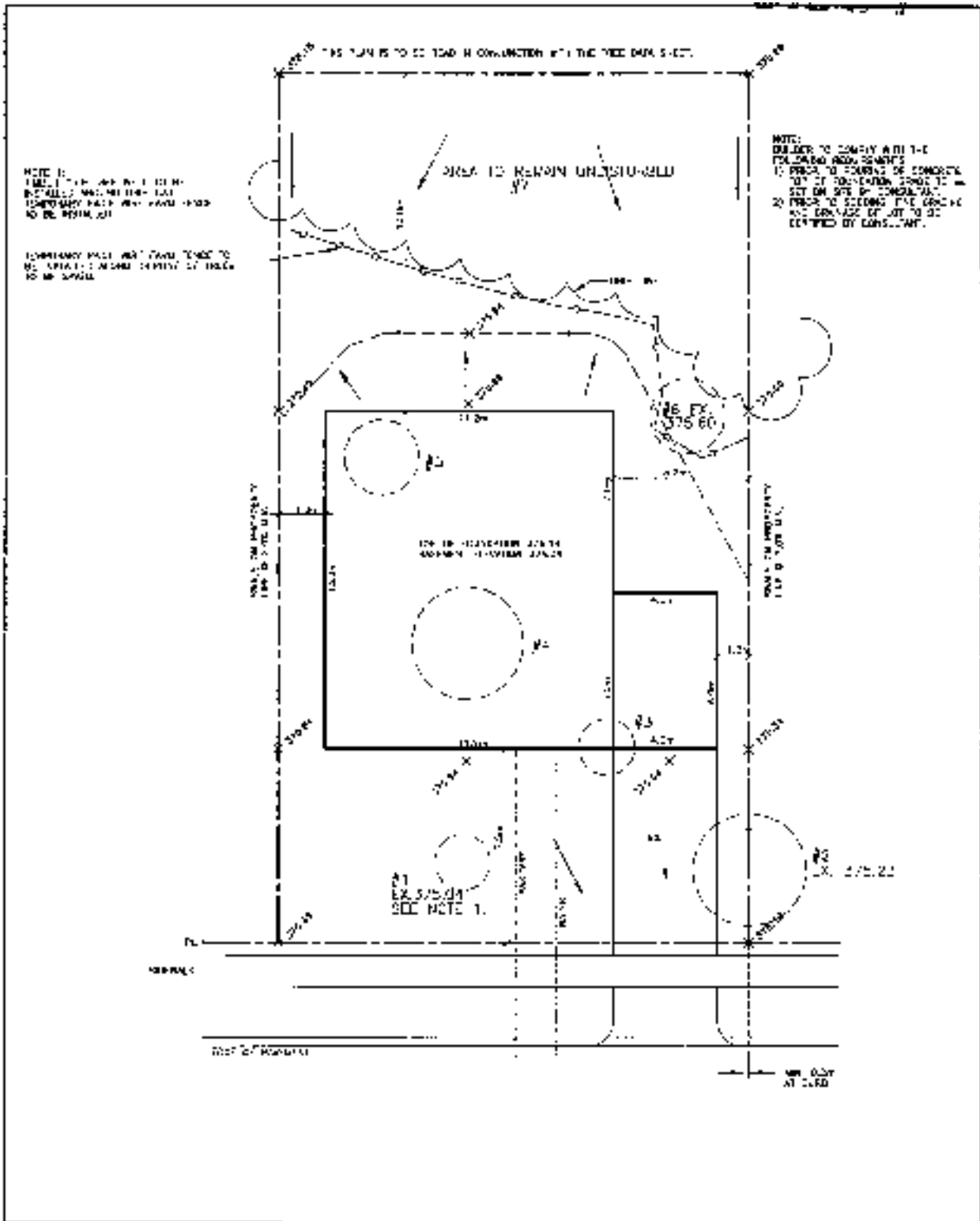


STANDARD TREE MANAGEMENT CLAUSE FOR SUBDIVISION AGREEMENT

That in consideration of the wooded character of the subdivision lands and the City's desire to minimize the impact of development on treed areas worth retaining, the Owner agrees to comply with the following process in the development of the subdivision in accordance with the City's approved Tree Management Policies and Guidelines for New Developments.

- a) That a security deposit fee in the amount of \$_____ (maximum \$50,000.00) be deposited with the City of Cambridge to ensure implementation of the approved Detailed Vegetation Management Plan on lands to come into public ownership.
- b) That no area/rough grading shall occur on the lands until such time as all approved measures for protection of isolated trees, tree clusters and woodlands affected by such grading have been satisfactorily implemented, and the City has inspected these measures, or received written verification of same.
- c) The Owner is to implement and be responsible for providing all information contained in the approved Detailed Vegetation Management Plan to all heirs, executors, administrators, successors and assigns in order to ensure the requirements outlined in said plan are carried out as specified.
- d) A Tree Preservation/Compensation Plan will be required for those lots or blocks, prior to applying for or having issued any building permits, where the proposed building/structure is located deeper on the lot than that approved on the Detailed Vegetation Management Plan and/or revised grading will have an adverse effect on the Detailed Vegetation Plan.
- e) In the event of construction causing minor tree damage, remedial measures such as trimming, dressing, or bark doctoring shall be implemented at the Owner's cost and as directed by the Consultant who prepared the approved plan. In cases where major irreparable tree damage is done, liability is questionable, or the tree is judged to be unsafe in the opinion of the Subdivider's Environmental Consultant and /or the City, each such tree shall be removed and replaced with at least one tree of equal value based on the tree value formula as set out in "Guide for Plant Appraisal" International Society of Arboriculture, Latest Edition. Tree replacements are to be located on the same lot or block as the tree requiring removal or to a location within the subdivision requiring enhancement. Furthermore, such remedial measures or tree replacement shall be approved by the Community Services Department and shall be satisfactorily implemented prior to occupancy of the unit or, due to weather conditions, by the next planting season.

Appendix E: Tree Preservation Compensation Plan



CITY OF CAMBRIDGE COMMUNITY SERVICES DEPARTMENT		Scale 1/2" = 1'-0"
EXAMPLE LOT-TREE PRESERVATION/COMPENSATION PLAN		Signature No.
Drawn by: J. Oster	Design: J. Gray	ST-27
Date: 1/16/85	Date: JUNE 1986	Revised:

Appendix F: Glossary of Terms

canopy closure – percentage of ground included in a vertical projection of imaginary polygons drawn around the total natural spread of foliage of an individual species.

D.B.H. – tree diameter at breast height, 1.4 m above ground, measured in centimetres.

dripline – imagined line from a tree or plants outer foliage to the ground.

ecosystem functions – examples include energy fixation, chemical cycling (oxygen production by rainforests), soil generation and maintenance, groundwater recharge, water purification, flood protection.

recognized professional in tree management – examples include: International Society of Arboriculture Certified Arborist, a botanist with a science degree, a landscape architect certified by the Ontario Association of Landscape Architects, a professional forester, or as determined by the Commissioner of the Community Services Department of the City of Cambridge.

root zones – typically well beyond driplines of trees (up to 3.5 times the dripline radius) and are located predominantly within the top twelve inches of soil.

structural integrity – related to defects in a tree's structure (eg. lean, co-dominant trunks, etc.)