

COUNCIL POLICY RESOLUTION

POLICY NUMBER: I-1160

DATE: FEBRUARY 28, 2002

POLICY TYPE: LAND USE PLANNING

SUBJECT: TREE MANAGEMENT POLICY

POLICY CONTENT:

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1.0 COUNCIL RESOLUTIONS

That the Council of the Corporation of the City of Kitchener at its meeting held September 26, 1994 passed resolutions numbered 1 through 7, and at its meeting held February 6, 1995 passed resolution number 8 and at its meeting held February 25, 2002 passed revised resolutions 3, 4, & 5 and new resolutions 9 through 18.

1. That in cases where tree cover exists on lands being subdivided, applicants shall submit a General Vegetation Overview to the Department of Planning and Development at the time application is made to the Regional Municipality of Waterloo for draft subdivision approval. The City of Kitchener shall not commence its local review process until such submission is made.
2. A General Vegetation Overview shall provide an environmental evaluation of the site, providing early identification of those areas with trees worth or not worth retaining. That in cases where isolated trees, single-species clusters or woodlands are indicated within the approved General Vegetation Overview as vegetation communities with no trees worth retaining, no further data analysis will be required to be undertaken for these vegetation communities.
3. A Detailed Vegetation Plan is required when the General Vegetation Overview indicates that there are vegetation communities with trees worth retaining. The Detailed Vegetation Plan shall be submitted for approval by the Development and Technical Services Department, prior to any area grading. Said Detailed Vegetation Plan shall provide information on those isolated trees, clusters or woodlands identified as vegetation communities with trees to be retained, in the approved General Vegetation Overview. This information shall include an analysis of impacts and overall tree management/Lot Grading Control Plan, an outline of protection measures to be implemented, site preparation recommendations and planting/thinning/transplanting recommendations if any.
4. a) That the Detailed Vegetation Plan readily identify those lots and blocks containing trees intended to be retained. Some of these lots and blocks will require a Tree Preservation/Enhancement Plan prior to the issuance of a building permit. As indicated in the Detailed Vegetation Plan, a Tree Preservation/Enhancement Plan will only be required for:
 - corner lots (where site service locations and building type has not been pre-determined)
 - interior lots greater than 13.7m (45 feet) of street frontage

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1.0 COUNCIL RESOLUTIONS, CONT'D

- lots on which the Subdivider/Builder requests to build a structure that is deeper on the lot than that approved on the Detailed Vegetation Plan and/or the revised grading and drainage will have an adverse effect on the Detailed Vegetation Plan
- site development of lots/blocks within the subdivision under Section 41 of the Planning Act
- lots containing trees created by consent under Section 52 of the Planning Act

The Tree Preservation/Enhancement Plan shall show all ecological data and tree protection measures as specifically transferred from the approved Detailed Vegetation Plan, together with the location and dimensions of all site development features including grading, cut and fill areas, drainage and proposed stock pile locations.

- b) A Tree Preservation/Enhancement Plan will also be required for treed lots/blocks:
- undergoing site plan approval under Section 41 of the Planning Act
 - created by consent under Section 52 of the Planning Act.

5. That the Standard Residential Subdivision Agreement, as approved by City Council, be amended by the City Solicitor in consultation with the Development and Technical Services Department to revise existing Tree Management conditions to implement the changes to the Tree Management Policy as recommended herein.
6. That the maximization of tree preservation is a valuable and reasonable goal in itself, however, this goal cannot be looked at in isolation and it must be recognized, that in many instances, other planning and engineering concerns may take precedence over the tree preservation goal where relevant constraints exist.
7. That the policy represents the intended achievement of the City of Kitchener, however, there may be unusual, impractical and special circumstances where the policy can only represent guidelines for both staff and developers to use, and discretionary exceptions may have to be made.

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1.0 COUNCIL RESOLUTIONS, CONT'D

8. That the Development and Technical Services Department monitor the effectiveness of the approved Tree Management Policy. The monitoring is to review the necessity of securities for Lot Grading and Tree Management. The period of monitoring is to be for two years and subsequently submit a report to council on the findings of the monitoring with a recommendation on whether or not financial securities are truly required.
9. That no financial securities be required to ensure lot grading and tree management and, instead, the Development and Technical Services Department implement measures directed towards improved communication with and among the Subdivider's consultants providing grading and tree management services, and educational initiatives for property owners who own, or are adjacent to, areas containing trees to ensure their long term protection.
10. That for Plans of Subdivision, the Subdivider will ensure that:
 - a) the grading consultant will certify that the Detailed Vegetation Plan and/or the Tree Preservation/Enhancement Plan conform(s) to the Lot Grading Control Plans; and
 - b) the environmental consultant will certify that the Lot Grading Control Plan conforms to the Detailed Vegetation Plan and/or the Tree Preservation/Enhancement Plan;prior to approval of said plans by the Development and Technical Services Department.
11. That the Grading and Environmental Consultant confirm in writing to the Directors of Planning and Building that for each particular lot/block, the grading and tree management plans have been implemented in accordance with the approved plans prior to the City issuing the Final Grading Certificate.
12. That the Subdivider confirm in writing to the Director of Planning that;
 - a) the first time home or building owner has received a copy of the approved grading and tree management plans along with written instructions on proper tree stewardship for tree(s) on their Lot/Block or;

1.0 COUNCIL RESOLUTIONS, CONT'D

- b) the Subdivider has provided the builder with the approved grading and tree management plans along with written instructions on proper tree stewardship for tree(s) regarding the Lot/Block noted above, and advised the builder that the builder is obligated to provide this material to the first time home or building owner in accordance with Clause 1.22 of the Standard Residential Subdivision Agreement prior to occupancy.
- 13. That all lands to be conveyed to the City as Park are to be free of any dead or hazardous trees (in locations where there is a safety issue), dump sites, litter, debris, remnant fences, barbed wire, wells, trees forts and any unnatural material/disturbances that are considered dangerous to the public or would be an inherited liability. The above noted items are to be removed or properly treated to the satisfaction of the Department of Community Services in consultation with the Director of Planning prior to final approval of the Plan to be registered. Such lands will continue to be free of construction debris for a period of two years from the date of registration of the subdivision.
- 14. That all lands to be conveyed to the City as Open Space or Hazard Lands are to be free of any dead or hazardous trees (in locations where there is a safety issue), dump sites, litter, debris, remnant fences, barbed wire, wells, tree forts and any unnatural material/disturbances that are considered dangerous to the public or would be an inherited liability. The above noted items are to be removed or properly treated for a distance of 30 metres from any lot/block line and 10 metres on either side of a proposed or existing Community Trail to the satisfaction of the Department of Community Services in consultation with the Director of Planning prior to final approval of the Plan, or appropriate stage of the Plan, to be registered which contain the lands to be conveyed to the City. In the event of winter conditions the above noted requirements shall be completed by June 1, immediately following such transfer of title.
- 15. Where vegetation communities are identified as requiring a maintenance access for forestry management practices, land to accommodate a maintenance access is to be identified and a provided with an appropriate width to the satisfaction of the Department of Community Services. If additional lands are required to provide a maintenance access, these lands would have to be considered as part of the park dedication or would be at a cost to the City to acquire.

1.0 COUNCIL RESOLUTIONS, CONT'D

16. For all wooded wetlands which are to be conveyed to the City, the Subdivider will direct the Environmental Consultant to monitor the wooded wetlands as required by the City to ensure compliance with the approved Subwatershed Master Plan, Environmental Impact Statement, Environmental Implementation Report, General Vegetation Overview, and/or the Detailed Vegetation Plan. If, as a result of the proposed development, alteration of the quantity, quality, timing (hydroperiod), or direction of flow of surface or groundwater within or contiguous to the wooded wetland results in an adverse environmental impact requiring any ecological restoration, any such ecological restoration activities will be the responsibility of the Subdivider. It is intended that this monitoring and maintenance period will be coordinated with the monitoring and acceptance on to maintenance, of the stormwater management facilities by the Development and Technical Services Department, or at a time acceptable to the General Manager of Development and Technical Services.
17. That the Subdivider is to install signage in accordance with the PARK BOUNDARY MARKER AND CITY BOUNDARY MARKER LOCATION drawings. Such signage is to be supplied by the Department of Community Services at no cost to the Subdivider. Signage is to be installed by the Subdivider prior to final approval of the Plan to be registered Temporary signage installed on protective fencing must remain in good order until replaced by permanent markers and signage.
18. The Subdivider shall be responsible for the recommended location and construction of the Community Trails as identified in the review of the Draft Plan of Subdivision, to the satisfaction of the General Manager of Community Services. These Community Trails will be consistent with Community Plans, Subwatershed Master Plans (Greenspace Management Plans), Environmental Implementation Reports, General Vegetation Overviews, Leisure Facilities Strategic Plan, and Urban Design Standards for Community Trails. These trails are to be shown on the Lot Grading Control Plan(s), and located and analyzed for environmental impact in the Detailed Vegetation Plan. It is recognized that, in some instances, to eliminate or reduce unacceptable impacts to treed areas, alternative construction methods and/or locations may be required for trails.

2.0 INTRODUCTION

The attitude towards the importance of trees has changed to where they are now appreciated not only because of their aesthetics, but also because of the functions they perform such as atmosphere purification, acoustical control, privacy control, recreational use and historical features. They add to the quality of life within the community and, in some cases, represent the attempt to save the environment.

The purpose of this policy is to formalize and revise existing procedures resulting in the adoption and implementation of a Tree Management Policy. Implementation should prove beneficial to both the City of Kitchener and the Development Industry in that a formal policy will eliminate many problems experienced in the past, also minimizing unnecessary delays, changes and expense incurred in the subdivision and site development approval process.

A consistent tree management process will ensure that:

1. An inventory and analysis of existing natural characteristics of a site are undertaken, so that both opportunities and constraints for tree management in the natural environment are identified.
2. An assessment of proposed development impact on trees and vegetation communities is undertaken, so that adverse impacts are minimized while potential benefits of remaining tree and vegetation communities are optimized.
3. Tree removal and tree protection responsibilities are implemented prior to the grading and construction stages of development.
4. Initial and continual compliance with approved tree protection measures including tree replacement are achieved.
5. Rationale is presented to justify tree removal i.e. layout, grading, servicing constraints. Section 51(2)(g) of the Planning Act requires the location of natural features to be shown on any Draft Plan of Subdivision. The lack of specific information at an early stage often results in poor tree management. This policy requires a General Vegetation Overview be submitted by the Subdivider and approved by the Development and Technical Services Department and the Department of Community Services prior to draft approval to optimize tree management potential.

The Strategic Plan for the Environment proposed "a review of existing tree saving policies in order to monitor whether acceptable results are being achieved."

2.0 INTRODUCTION, CONT'D

The conclusions are that:

- a) There is no existing "tree saving policy" in place, thus the quality of information within submissions by different environmental consultants can vary greatly. Quite often, the environmental consultant is hired after the draft plan has been drawn up by the planner and the site servicing/grading engineer. Thus, a cursory environmental examination is undertaken resulting in a minimal tree management approach. Potential attributes of trees have not been considered in some development proposals. Many valuable, healthy and aesthetically pleasing trees are planned to be cut down, where a more thorough examination of road and lot line layout and grading could have ensured their retention.
- b) The location of trees has been interpreted through aerial photographs. The degree of accuracy in locating existing driplines can vary by more than 6 m and, in the past, these locations have not been verified in the field, resulting in the loss of trees that show on the Detailed Vegetation Plan as being retained.
- c) As in b) above the existing elevations around tree locations have been done through aerial photograph interpretation. The degree of accuracy on these elevations can vary by as much as 1 m +/- . These elevations around trees in the past have not been verified in the field, again resulting in the loss of the trees that show on the Detailed Vegetation Plan to be saved.
- d) The protective measure for the retention of trees in the past has usually been the erection of snow fencing at the dripline. Due to the temporary nature of snow fencing, ease of relocation without City permission, and vandalism, it has not been effective. It has led to dumping and grading changes beyond the limits approved.
- e) The number of inspections by City staff is at a minimum. Between inspections a great deal of damage can be done to the existing trees and be covered up with new sodding prior to the final inspection. Most builders are not interested in preparing a Tree Preservation/Enhancement Plan. Their attempts at this, for the most part, have been minimal and the degree of accuracy in the location of trees is again questionable. The builder's main concern is having a lot that is sufficiently cleared of existing trees that he can build on. The

2.0 INTRODUCTION, CONT'D

builder is not interested in submitting new plans for tree saving and re-establishing protective fencing. This part of the review process has lead to agitation between the builders and City staff.

- f) There has been no mechanism to calculate the value of destroyed trees and, in some cases, it has been beneficial to the builder to remove trees of high value and replace them with smaller, cheaper trees.
- g) There have been no maintenance requirements to ensure the longevity of the tree(s), thus leaving the homeowner with a dead or dying tree to remove at their expense several years after the purchase of the home.

To address these problems, the Tree Management Policy requires:

- a) The hiring of a qualified consultant by the Subdivider to evaluate the vegetation communities prior to developing the Draft Plan of Subdivision. The consultant will work with the planner and the site servicing/grading engineer as a team member in laying out the proposed Draft Plan of Subdivision, so that the final plan results in a optimization of tree management.
- b) The location and elevation (trunk & dripline) of trees to be saved will be located accurately relative to the surveyed boundaries to ensure the accuracy of the General Vegetation Overview and the Detailed Vegetation Plan.
- c) New protective measures as outlined in Appendix E - Temporary Protection Fencing, Signage and Erosion Control. Snow fencing at the dripline of trees will no longer be an acceptable protective measure. The new proposed standard will be paige wire farm fencing. Are general observations with the installation of this type of fencing has been that the builders do not attempt to relocate this fence without the City's permission, the fence is rarely vandalised, the material cost of the fence is as inexpensive as snow fencing and that the fence erection itself provides adequate support for erosion control measures. The required signage identifies the fence, its purpose, and provides a contact telephone number when problems arise.

2.0 INTRODUCTION, CONT'D

- d) The release of building permits without the need of a Tree Preservation/Enhancement Plan for the majority of interior lots. The proposed Building Clearance Area as described in Appendix D will accomplish this. We believe that this is one of the major advantages of this policy over the past practices of tree management and acknowledges the realities of tree management and the needs of the builders.
- e) The release of building permits without the need of a Tree Preservation/Enhancement Plan for the majority of interior lots. The proposed Building Clearance Area as described in Appendix D will accomplish this. We believe that this is one of the major advantages of this policy over the past practices of tree management and acknowledges the realities of tree management and the needs of the builders.
- f) The City to have a mechanism to replace trees in a fair manner where they have been inadvertently destroyed.

In summary, there was a real need to formulate definite and specific requirements if tree management is to be ensured. A standard Tree Management Policy was established by which plans submitted by the Subdivider would be more consistent, more effectively assessed and upon which staging of approval scheme and specific responsibilities could be formally addressed. It is felt that the development industry, departmental staff and the City of Kitchener as a whole would benefit from the elimination of vagueness, misunderstanding and wasted time with the present tree management practices with the establishment of a specific Tree Management Policy.

3.0 TREE MANAGEMENT POLICY

The Tree Management Policy is designed to encourage the provision of relevant environmental information and tree data early in the planning process. This approach is critical to ensure that areas containing trees worth retaining are identified. This evaluation will then be used to assist and guide the design of the Draft Plan of Subdivision and subsequent stages of site development.

The Policy framework is schematically summarized and attached as Figures 1 and 2.

Figure 1 outlines the Tree Management Policy; the information requirements, approvals to be given, and gives direction to varying situations encountered. It is emphasized that Figure 1 looks at the Policy as isolated from other design determinants that are part of the normal subdivision and site plan review process.

3.0 TREE MANAGEMENT POLICY, CONT'D

For example, review and approval of matters other than the implementation of tree removal and tree protection measures are required in the normal building permit examination prior to a building permit being issued. As well, the Subdivision and Section 41 Development Agreements will contain numerous other conditions besides those relating to the environment.

The Tree Management Policy consists of three key steps within which data collection and analysis is to be sequentially undertaken. These are:

- 1) A General Vegetation Overview (part of the subdivision approval process)
- 2) A Detailed Vegetation Plan (part of the subdivision registration process)
- 3) A Tree Preservation/Enhancement Plan

The General Vegetation Overview will be required for all lots or blocks within a Draft Plan of Subdivision while the Detailed Vegetation Plan will be required for all lots and blocks containing vegetation communities requiring further data and analysis as set out in a previously approved General Vegetation Overview.

The Tree Preservation/Enhancement Plan will be required for:

Subdivisions (where the Detailed Vegetation Plan has identified that there are trees to be retained)

- corner lots (where site service locations and building type has not been pre-determined)
- interior lots greater than 13.7 m (45 feet) of street frontage
- lots on which the Subdivider/Builder requests to build a structure that is to be located deeper on the lot than that approved on the Detailed Vegetation Plan and/or the revised grading will have an adverse effect on the Detailed Vegetation Plan.

Site Plan Approval

- site development under Section 41 of the Planning Act

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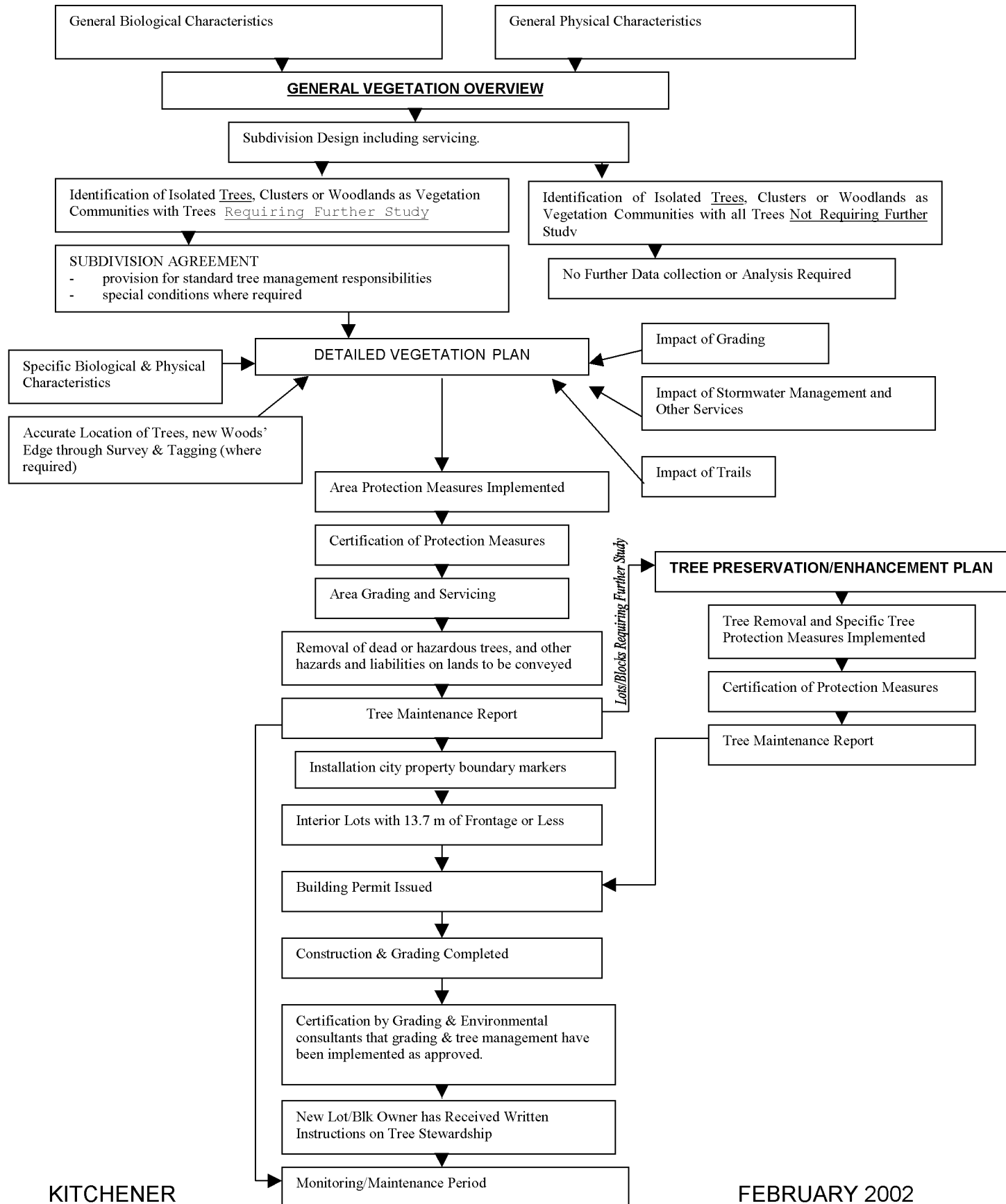
3.0 TREE MANAGEMENT POLICY, CONT'D

Lots Containing Trees Created by Consent under Section 52 of the Planning Act

Figure 2 outlines the subdivision and site development approval process as it relates to the City of Kitchener, and places the Tree Management Policy in context with the timing of other approvals. It is noted that Figure 2 is general in nature. However, an attempt has been made to give perspective to the entire process from the Community Plan to occupancy stages.

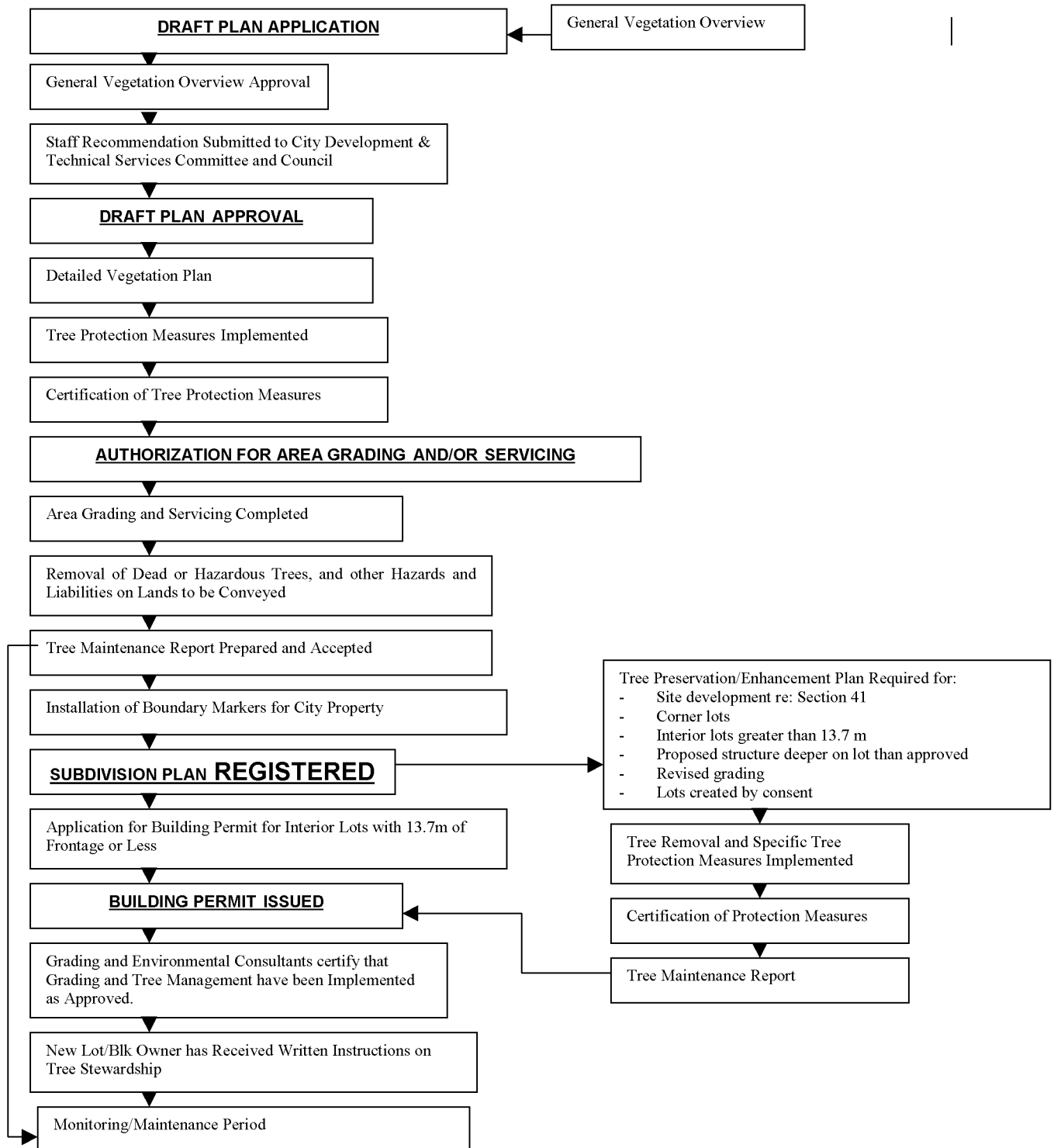
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FIGURE 1- SUMMARY OF TREE MANAGEMENT POLICY



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Figure 2
SUMMARY OF SUBDIVISION APPROVAL PROCESS



3.0 TREE MANAGEMENT POLICY, CONT'D

3.1 Policy Implementation

In order to achieve any policy goals, it is important that a successful implementation plan be adopted. Various plans can be submitted, reviewed, revised and approved, however, in order to transfer the approval objective to tangible results in the field, requirements must be set.

The Tree Management Policy requires that the Standard Residential Subdivision Agreement make provision for the following:

1. That the Subdivider agrees that all trees designated as "Remove" on the approved Detailed Vegetation Plan are removed, and that all trees designated as "Save" are retained.
2. That no area grading shall occur on the lands until all approved measures for protection of trees affected by such grading have been satisfactorily implemented.
3. That the Subdivider agrees to be responsible for providing all information contained in the approved Detailed Vegetation Plan and Tree Preservation/ Enhancement Plan to all of his heirs, executors, administrators, successors and assigns in order to ensure that the requirements outlined in said plan are carried out as specified.
4. That building permits will not be issued for any lots or blocks containing existing trees to be saved, until a Detailed Vegetation Plan and where required a Tree Preservation/Enhancement Plan is approved and all site-specific tree protection measures have been satisfactorily implemented.

Secondly, the Tree Management Policy places responsibility with the City and the Subdivider through its Environmental Consultant and Consulting Engineer in order to confirm implementation as outlined in the approved plans. Regular site inspections by the City and the Subdivider's Environmental Consultant must be carried out to ensure that the Subdivider and builders fulfil any ecological obligations.

During the development stages, the Subdivider's Environmental Consultant will inspect the lands:

1. prior to rough grading being commenced, to ensure that area tree protection measures are in place, and provide the City with written certification of such installation;

3.0 TREE MANAGEMENT POLICY, CONT'D

3.1 Policy Implementation, cont'd

2. prior to registration of the subdivision, a Tree Maintenance Report will be submitted to the City, to ensure that all approved tree removals are carried out, specific tree protection measures are in place and, if necessary, that remedial/replacement measures are carried out;
3. at the time of the approval of the final grading, by the Chief Building Official, written certification will be provided to the City to ensure that tree damage has not occurred and, if necessary, that remedial/replacement measures are carried out;
4. at a time requested by the City and for all woodlands to be conveyed to the City to ensure compliance with all approved environmental studies. Monitoring will be coordinated with that required for the stormwater management facilities to ensure no adverse effects.

The major concerns reflected in the development of the Tree Management Policy include:

- The preservation of quality trees.
- The removal of trees not worth retaining or trees which could become unsafe.
- The formulation of specific tree management requirements.
- The integration of the policy within the planning process.

It is felt that the Tree Management Policy is consistent with the goals of the City's Municipal Plan and that specific municipal controls are needed to overcome weaknesses in previous procedures and to ultimately optimise tree preservation potential.

During the normal draft approval process, opportunities to review the feasibility of cutting of trees or development in woodlands will be available at both the Municipal and Regional levels. The implementation of tree preservation/enhancement measures is required by both levels of government to ensure appropriate development and preservation of quality treed areas.

Implementation of the Tree Management Policy will not guarantee that every tree intended to be saved will live. However, an attempt to optimize tree conservation is implicit in the policy. It is felt that the Subdivider's/builder's responsibility in respect to tree preservation on private property should not

3.0 TREE MANAGEMENT POLICY, CONT'D

3.1 Policy Implementation, cont'd

continue past the approval of the final site grading by the Chief Building Official. This final site grading approval requires written certification from the Subdivider's Environmental Consultant and Consulting Engineer certifying that the approved Site Grading Plan and Detailed Vegetation Plan and/or the Tree Preservation/Enhancement Plan has been implemented. Further, the Subdivider shall be responsible for confirming in writing that the lot or block owner has received a copy of the approved grading and tree management plans along with written instructions on proper tree stewardship for tree(s) on their lot/block.

By requiring detailed ecological data and analysis and by ensuring that all available tree protection measures are carried out, the risk of undesirable effects should be minimized to a point where the individual homeowners should accept certain risks once final approval of the grading has been given by the Chief Building Official.

3.2 General Vegetation Overview

A General Vegetation Overview will typically be included as part of the formal submission of a Draft Plan of Subdivision to the City of Kitchener.

The purpose of a General Vegetation Overview is to provide an inventory and mapping of biological and physical characteristics for each vegetation community and determine:

- which vegetation community will require further data and analysis; and
- criteria to evaluate the future submission of a Draft Plan of Subdivision.

Essentially, the General Vegetation Overview contains an inventory of the biophysical information including an examination and mapping of topography, soils, drainage, vegetation and other significant natural and physical features. This inventory provides a general description of an area, an environmental appreciation for the site and consequently facilitates the division of a site into relatively homogeneous vegetation communities.

An analysis is prepared based upon the above referenced information. This analysis is to identify and provide rationale for vegetation communities requiring and not requiring further data and analysis in the Detailed Vegetation Plan. The analysis is to evaluate the proposed Draft Plan of Subdivision in its

3.0 TREE MANAGEMENT POLICY, CONT'D

3.2 General Vegetation Overview

attempt to optimize the retention of the highest quality vegetation communities.

All applicants will be required to submit a General Vegetation Overview (GVO) to the Development and Technical Services Department in conjunction with other local review submissions such as a developer's report, Environmental Implementation Report (EIR) as required under any applicable approved Subwatershed Master Plan (formerly the stormwater management concept consistent with the requirements of the relevant Master Drainage Plan) and an Environmental Impact Statement (EIS) when required. Inventories and analyses in respect of environmental issues (GVO, EIR, EIS) should be combined into one document addressing the complete policy framework. The General Vegetation Overview will be approved by the Development and Technical Services Department after consultation with other appropriate departments.

3.2.1 Submission Requirements

The following information is generally required for the General Vegetation Overview (some items may not be pertinent to a particular project; other projects may require additional information).

Initially submit only five (5) copies to the planner assigned the Draft Plan circulation who will distribute the copies for review and comment. As issues are addressed through the Draft Plan review process, changes to the General Vegetation Overview may be required. Comments will be provided to the planner handling the circulation. When all issues have been adequately addressed, seven to ten (7-10) copies of the final General Vegetation Overview and one digital copy will be submitted for approval and distribution within the City and to the applicant (and agents).

3.2.1.1 Completed Form #1 (see Appendix A)

This form shall include the date(s) when the Inventory was conducted and the following:

- A. Biological characteristics for each vegetation community indicating:
 - species association or plant community
 - dominant species

3.0 TREE MANAGEMENT POLICY, CONT'D

3.2 General Vegetation Overview, cont'd

3.2.1 Submission Requirements, cont'd

3.2.1.1 Completed Form #1 (see Appendix A), cont'd

- significant species
- number of trees (relative abundance)
- canopy closure (%)
- community and tree health
- community age
- DBH and height (averages or categorized)
- location number on map or air photo

B. Biological characteristics for isolated trees greater than 10 cm in caliper indicating:

- species
- condition rating
- DBH
- location number on map or air photo

3.2.1.2 Air Photo

The scale should be one that clearly shows relevant features of the subject property. Site boundaries to be delineated on air photo and the air photo shall encompass features intercepting or outside the development area that may affect the site vegetation or the adjoining site(s) vegetation. Air photos shall show existing land use and shall be dated.

3.2.1.3 Maps

The scale should be appropriate to the subject property and development application. Site boundaries to be delineated on maps and maps shall include features intercepting or outside the development area that may affect the site vegetation or the adjoining site(s) vegetation.

Maps 1 & 2 (below) are to include the proposed Draft Plan of Subdivision.

3.0 TREE MANAGEMENT POLICY, CONT'D

3.2 General Vegetation Overview, cont'd

3.2.1 Submission Requirements, cont'd

3.2.1.3 Maps

Map 1: Physical Features

- topography and slope (locate accurately relative to the property boundaries)
- drainage
- surface water
- ground water
- soils

Map 2: Vegetation Communities

- showing the vegetation communities defined through resolution and analysis of functional associations in the subject environment
- vegetation communities (woodlands, hedgerows, isolated clusters, single species) to be accurately located relative to property boundaries indicating driplines and trunk locations and elevations

Example: maple-beech woods, ash-maple woods on irregular topography, red pine woods having near-surface ground water, isolated rare species tree, hedgerow, Norway Maple cluster, marsh, old field.

3.2.1.4 Analysis

To include:

- A. Conclusions of Inventory and Analysis, this report will identify and locate on Maps 1 and 2:
- problems

3.0 TREE MANAGEMENT POLICY, CONT'D

3.2 General Vegetation Overview, cont'd

3.2.1 Submission Requirements, cont'd

3.2.1.4 Analysis, cont'd

- priorities
- needs of vegetation communities
- where vegetation communities or isolated trees are identified as being worthy of preservation because of their significance, and existing stable condition, but do not have the ability to tolerate major changes to their surrounding environment a buffer zone is to be identified and a recommended width provided
- forestry maintenance access location(s) and widths where required
- community trail location(s) guided by the Urban Design Manual (DS-C-4)
- opportunities
- objectives
- recommendations that will shape plan of subdivision.
- the rationale for the following decisions:
 - vegetation communities not requiring further data and analysis in the Detailed Vegetation Plan
 - vegetation communities requiring further data and analysis in the Detailed Vegetation PlanThe above recommendations should also be symbolically shown on Map #2 (Vegetation Communities)

If there is an approved Subwatershed Master Plan for lands contained within the proposed subdivision, the required Environmental Implementation Report (and Environmental Impact Statement if required) is to be coordinated with the analysis and recommendations of that required by the General Vegetation Overview. This will permit the integration of the findings of the General Vegetation Overview with the pertinent hydrological/hydrogeological information.

3.0 TREE MANAGEMENT POLICY, CONT'D

3.2 General Vegetation Overview, cont'd

3.2.1 Submission Requirements, cont'd

3.2.1.4 Analysis, cont'd

Where a Subwatershed Master Plan provides no such direction the analysis must address the impact of changed hydraulics, hydrology, and/or hydrogeology on specific vegetation communities.

- B. Name, address, telephone number of Subdivider, and Consultant(s) who completed the submission.

3.3 Detailed Vegetation Plan

The submission of the Detailed Vegetation Plan to the City will occur in concert with the submission of the Lot Grading Control Plan.

The only exception to the above would be in the case of a General Vegetation Overview indicating that all vegetation communities contained within a site, are areas with all trees not worth retaining and thus, a Detailed Vegetation Plan would not be required.

It is emphasised that the detailed inventory and analysis are to be undertaken for only those vegetation communities requiring it, as identified in the approved General Vegetation Overview. The policy permits exemptions or deferrals for certain situations in respect to the requirements of providing detailed data and analysis. These are:

1. Where lands are to be conveyed for public purposes, detailed data collection or analysis is not required except where edge cutting is necessary, in which case, up to 15m width of such ecological detail is to be incorporated within the Detailed Vegetation Plan.
2. Where blocks of land are intended to be registered and the exact use of the lands is not immediately known, or corner lots and interior lots greater than 13.7 m (45 feet) of street frontage; information and analysis required in the Detailed Vegetation Plan will be submitted at the time of application for a building permit in conjunction with the approval of the Tree Preservation/ Enhancement Plan.

3.0 TREE MANAGEMENT POLICY, CONT'D

3.3 Detailed Vegetation Plan, cont'd

Whereas the General Vegetation Overview identifies vegetation communities with trees worth retaining, the Detailed Vegetation Plan identifies exactly which trees will be retained and what protection and tree maintenance measures will be implemented to ensure their survival.

In determining which trees are to be retained, both tree quality and development constraints are considered and the finer details of subdivision design (e.g. lot lines and building envelopes, types and siting) should be reviewed as to optimize the preservation of as many high quality trees as possible.

The Detailed Vegetation Plan involves assessment on an individual tree basis. The quality of individual trees in a vegetation community is determined based on criteria reflecting viability, aesthetics and adaptability to development constraints. From this information, decisions about which trees should be retained (or removed) are made. Additionally, this information serves as baseline data to which the post-development situation can be compared to pre-development and from this, tree damage and planting requirements can be assessed.

The amount of data required for the Detailed Vegetation Plan will vary from development to development. In cases of isolated trees or single species clusters greater than 10 cm DBH (diameter at breast height), a quality assessment is required for each tree. If a portion of a woodland is to be retained, then it is important to examine each tree (greater than 10 cm DBH) in the approximate location of the new edge (up to 15 m wide strip). Clearly there would be no need to assess the quality of every tree in the woodland. The consultant shall visually assess the capabilities of trees less than 10 cm DBH along the new edge that have the potential to develop into viable edge trees. Where in the opinion of the consultant, the new edge requires additional planting or thinning of existing tree stock it is to be illustrated on the Detailed Vegetation Plan.

A map accurately showing the location of the new edges, treed areas to be thinned and recommendations (save/not save/transplant) for each isolated tree or single species cluster, accompanied by a report describing the necessary protection and tree maintenance measures will be required for approval. As well, location and species of recommended plantings should be shown (e.g. regeneration of new woodland edge).

3.0 TREE MANAGEMENT POLICY, CONT'D

3.3 Detailed Vegetation Plan, cont'd

If it is determined that special conditions in respect to the approved Detailed Vegetation Plan are warranted, these will be specified in Staff's recommendation to the Development and Technical Services Committee and subsequently included in the Subdivision Agreement.

It is noted that Environmentally Sensitive Policy Areas are governed through the Regional Official Policies Plan. Any development proposed within or contiguous to these areas will be subject to special policies, procedures and approval as required by the Regional Municipality of Waterloo, the City of Kitchener and other interested agencies.

3.3.1 Submission Requirements

Where trees are to be retained and impacts are anticipated, a detailed inventory of all trees greater than 10 cm DBH in potentially affected residual areas must be carried out. This will include trees occurring on lots or blocks as isolated individuals, hedgerows, small clusters or up to 15 m of any new forest edges for those trees impacted by the creation of a new edge. All trees found in these areas are to be tagged or otherwise marked in the field and accurately mapped and described to determine:

- the impacts that the proposed subdivision layout, grading and servicing will have on the remaining vegetation
- proposed protection measures, erosion control, prestressing of trees
- remedial measures and their timing.

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

Initially submit two (2) copies to the Director of Planning in order to determine the submission's adequacy. As issues are addressed through the review of engineering (Lot Grading Control Plan, Stormwater Management Plans, other servicing, Erosion and Sedimentation Control Plans etc.), changes to the Detailed Vegetation Plan may be required. Comments will be provided directly to the applicant / agents. When all issues have been adequately addressed,

3.0 TREE MANAGEMENT POLICY, CONT'D

3.3 Detailed Vegetation Plan, cont'd

3.3.1 Submission Requirements, cont'd

seven to ten (7-10) copies of the final Detailed Vegetation Plan and one digital copy (showing approved grading) will be submitted for approval and distribution within the City and to the applicant (and agents).

3.3.1.1 Completed Form #2

Data collection for this form would be completed only for those vegetation communities requiring further detailed study, as outlined on the approved General Vegetation Overview.

A Detailed Vegetation Plan requires providing data for each isolated tree or single species cluster (trees of the same species, size and condition) greater than 10 cm DBH up to 15 m of a new woods edge for those trees impacted by the creation of a new edge. Required information for such units is recorded in the field on a separate data sheet, Form #2 found in Appendix B.

3.3.1.2 Detailed Vegetation Plan

This plan should be derived concurrently with the Lot Grading Control Plan (and all other servicing etc. plans) and the scale should be approximately 1:500. The following information is required:

- accurate location of all trees (10 cm DBH or greater to be retained) and their driplines (truthed in field)
- functional buffer zones around vegetation communities and/or isolated trees
- proposed lotting, street pattern, building envelopes and building type (see Appendix D, Building Clearance Area)
- location of services (type, width and depth of trench)
- location(s) of Community Trail(s) consistent with all guiding documents (Community Plans, Subwatershed Master Plans (Greenspace Management Plans), Environmental Implementation Reports, General Vegetation Overviews, Leisure Facilities Strategic Plan, and Urban Design Manual, DS-C-4)
- locations of Forestry Maintenance Accesses (if required)

3.0 TREE MANAGEMENT POLICY, CONT'D

3.3 Detailed Vegetation Plan, cont'd

3.3.1 Submission Requirements, cont'd

3.3.1.2 Detailed Vegetation Plan, cont'd

- grading information
 - original grades (surveyed) and proposed grades
 - cut and fill areas
 - potential disruption to ground water and surface drainage
- symbolized recommendations showing the accurate location of the dripline for, each isolated tree or single species cluster identifying them as 'save', 'remove', 'transplant'
- symbolized recommendations showing the accurate location of the dripline for treed areas to be selectively thinned or transplanted
- accurate location of new woodland edges (truthed in field) and location and species of recommended plantings (if required) or transplantings
- location and nature of recommended protection measures (see Appendix E -Temporary Protection Fencing, Signage and Erosion Control)

3.3.1.3 Analysis

To include:

- Conclusion of inventory and analysis, including summary of impacts
- Impact analysis for Community Trail(s) and Forestry Maintenance Access(es)
- Description of mitigation and protection measures
 - discussion of functional buffer zone(s) where required to ensure ecological stability of woodland edge or isolated tree(s)
 - construction details: fence erection, hoarding, signage
 - erosion control
 - pre-stressing treatments - i.e. crown thinning

3.0 TREE MANAGEMENT POLICY, CONT'D

3.3 Detailed Vegetation Plan, cont'd

3.3.1 Submission Requirements, cont'd

3.3.1.3 Analysis, cont'd

- post construction - i.e. pruning, fertilizer program, irrigation program
- tree transplants -i.e. timing, locations, moving procedure, maintenance program

- Tree Stewardship

Written instructions in a standard format to be developed by the Development and Technical Services Department on site-specific tree stewardship are to be prepared by the Environmental Consultant and made available to the first time home or building owner/occupant of a treed property. Examples of the types of information to be provided are given in Appendix I. However, these are only examples and stewardship guidelines must be specific to the site.

- Management Strategy

Prepare a Management Strategy in consultation with the City for all natural areas within the Draft Plan of Subdivision. Where applicable, such strategy will include recommendations for:

- ongoing conservation of vegetation communities;
- ongoing conservation of watercourses/wetlands;
- location of ecologically appropriate public access points;
- compatible recreational uses including trail locations (where appropriate); and
- ongoing conservation of wildlife habitat.

3.3.1.4 Certification of Plans

For Draft Plans of Subdivision, the grading consultant will certify that the Detailed Vegetation Plan conforms to the Lot Grading Control Plan. The environmental consultant will

3.0 TREE MANAGEMENT POLICY, CONT'D

3.3 Detailed Vegetation Plan, cont'd

3.3.1 Submission Requirements, cont'd

3.3.1.4 Certification of Plans, cont'd

certify that the Lot Grading Control Plan conforms to the Detailed Vegetation Plan prior to approval of said plans by the Development and Technical Services Department.

These certifications are to be completed in accordance with Appendix G.

3.3.1.5 Certification of Protection Measures

Written certification is required from a qualified professional that protection measures have been installed as approved by the Development and Technical Services Department.

3.3.1.6 Treatment of Lands to be Conveyed

All lands to be conveyed to the City as Park are to be free of any dead or hazardous trees (in locations where there is a safety issue), dump sites, litter, debris, remnant fences, barbed wire, wells, trees forts and any unnatural material/disturbances that are considered dangerous to the public or would be an inherited liability. The above noted items are to be removed or properly treated to the satisfaction of the Department of Community Services in consultation with the Director of Planning prior to final approval of the Plan to be registered. Actions taken should be documented in the Tree Maintenance report. Such lands will continue to be free of construction debris for a period of two years from the date of registration of the subdivision.

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All lands to be conveyed to the City as Open Space or Hazard Lands are to be free of any dead or hazardous trees (in locations where there is a safety issue), dump sites, litter, debris, remnant fences, barbed wire, wells, tree forts and any unnatural material/disturbances that are considered dangerous to the public or would be an inherited liability. The above noted items are to be removed or properly

3.0 TREE MANAGEMENT POLICY, CONT'D

3.3 Detailed Vegetation Plan, cont'd

3.3.1 Submission Requirements, cont'd

3.3.1.6 Treatment of Lands to be Conveyed, cont'd

treated for a distance of 30 metres from any lot/block line and 10 metres on either side of a proposed or existing community trail. Such removals are to be to the satisfaction of the Department of Community Services in consultation with the Director of Planning prior to final approval of the Plan to be registered.

3.3.1.7 Tree Maintenance Report

The purpose of this report is to ensure initial and continued compliance with the tree protection measures as described in the approved Detailed Vegetation Plan. This report is to be prepared by a qualified professional (arborist, forester, environmental consultant, or landscape architect), who has been contracted by the Subdivider to provide direction and supervision during grading and construction on the subject lands.

The timing of the Tree Maintenance Report is to coincide with the implementation of all tree protection measures, and the completion of initial site grading. All needs of trees to be maintained shall be assessed immediately and a Tree Maintenance Report detailing all recommended tree maintenance measures shall be submitted to, and approved by, the Development and Technical Services Department, prior to registration.

The following information is generally required in the Tree Maintenance Report (some items may not be pertinent to a particular project; other projects may require additional information):

- assessment of damage to trees to be retained during initial site grading and clearing
- provide remedial recommendations for any damaged trees that are to be retained using current and accepted arboricultural practices

3.0 TREE MANAGEMENT POLICY, CONT'D

3.3 Detailed Vegetation Plan, cont'd

3.3.1 Submission Requirements, cont'd

3.3.1.7 Tree Maintenance Report, cont'd

- timing of remedial measures:
 - before / during / after further construction
- identify and provide value (\$) of trees (Guide for Plant Appraisal, Council of Tree and Landscape Appraisers, Latest Edition) that were to be saved according to the Detailed Vegetation Plan and/or Tree Preservation/Enhancement Plan but have been removed or damaged
- using this value of trees destroyed or damaged, propose a plan indicating replacement trees of equal or greater value (\$) and proposed tree planting locations (native species) for rehabilitation of the disturbed area(s)
- identify planned tree removal not conducted
- recommendation of further trees to be removed or transplanted.

Note: In general, sources of information should be identified and measurements should be in metric units.

3.3.1.8 Permanent Signage

Install signage in accordance with the "BOUNDARY MARKER" and "CITY BOUNDARY MARKER LOCATIONS" drawings found in Appendix F. Such signage is to be supplied by the Department of Community Services (741-2557) at no cost to the Subdivider. Signage is to be installed by the Subdivider prior to final approval of the Plan to be registered in which the conveyed lands are located. However, temporary signage installed on protective fencing must remain in good order until replaced by permanent markers and signage.

3.0 TREE MANAGEMENT POLICY, CONT'D

3.3 Detailed Vegetation Plan, cont'd

3.3.1 Submission Requirements, cont'd

3.3.1.9 Certification of Completed Site Work

Prior to the City issuing the Final Grading Certificate certification by both the grading consultant and the environmental consultant must be received by the City certifying that the Site Grading Plan and Detailed Vegetation Plan have been implemented in accordance with the approved plans,

The above noted certification is to be completed in accordance with Appendix H.

3.3.1.10 Confirmation of Receipt of Site Grading Plan, Detailed Vegetation Plans and Tree Stewardship

The Subdivider must confirm in writing that the first-time home or building owner has received a copy of the approved Site Grading and Detailed Vegetation Plans along with written instructions on proper stewardship for tree(s) on their Lot/Block or that the Subdivider has provided the builder with the approved grading and tree management plans along with written instructions on proper tree stewardship for tree(s) regarding the Lot/Block noted above, and advised the builder that the builder is obligated to provide this material to the first-time home or building owner in accordance with Clause 1.22 of the Standard Residential Subdivision Agreement prior to occupancy.

The above noted confirmation is to be completed in accordance with Appendix I.

An example of written instructions on proper tree stewardship is given in Appendix J. This is the type of information that is to be provided to the new home/building owner of a treed property.

3.0 TREE MANAGEMENT POLICY, CONT'D

3.3 Detailed Vegetation Plan, cont'd

3.3.1 Submission Requirements, cont'd

3.3.1.10 Confirmation of Receipt of Site Grading Plan, Detailed Vegetation Plans and Tree Stewardship

As an alternative to the above noted generic examples, the Environmental Consultant can also obtain brochures on many areas of tree stewardship from the International Society of Arboriculture (I.S.A.). The I.S.A. provides a series of published brochures as part of its consumers information program. Information on obtaining these brochures can also be found in Appendix I.

The City encourages personal delivery to, and discussion of such written instructions with, the first time home owner/occupant as a means of educating them on proper tree stewardship.

3.3.1.11 Monitoring and Maintenance Period

For all wooded wetlands which are to be conveyed to the City, the Environmental Consultant will monitor the wooded wetlands as required by the City to ensure compliance with the approved Subwatershed Master Plan, Environmental Implementation Report, the General Vegetation Overview, and/or the Detailed Vegetation Plan.

If alteration of the quantity, quality, timing (hydroperiod), or direction of flow of surface or groundwater within or contiguous to the wooded wetlands results in an adverse environmental impact requiring any ecological restoration, any such ecological restoration activities will be the responsibility of the Subdivider to the satisfaction of the City.

3.0 TREE MANAGEMENT POLICY, CONT'D

3.4 Tree Preservation / Enhancement Plan

The Tree Preservation/Enhancement Plan will be required for:

Subdivisions

(where the Detailed Vegetation Plan has identified that there are trees to be retained)

- corner lots (where site service locations and building type has not been pre-determined)
- interior lots greater than 13.7 m (45 feet) of street frontage
- lots on which the Subdivider/Builder requests to build a structure that is to be located deeper on the lot than that approved on the Detailed Vegetation Plan and/or the revised grading will have an adverse effect on the Detailed Vegetation Plan.

Site Plan Approval

- site development under Section 41 of the Planning Act

Lots Containing Trees Created by Consent under Section 52 of the Planning Act

No building permit will be issued for such lot or block until applicants for such a building permit have submitted a Tree Preservation/Enhancement Plan to the approval of the Development and Technical Services Department. In the case of lots or blocks which contain only trees to be removed, all such trees shall be removed prior to the issuance of a building permit for these lots or blocks.

It is important that the location of trees, driplines, location of new edges and plantings and specific recommendations for each isolated tree/single species cluster be transferred from and specifically reflect the approved Detailed Vegetation Plan.

3.0 TREE MANAGEMENT POLICY, CONT'D

3.4 Tree Preservation / Enhancement Plan, cont'd

By entering into the Subdivision Agreement, the Subdivider will be responsible for providing builders with the information contained in the previously approved 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 Development and Technical 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 Plan must be maintained in every instance.

3.4.1 Submission Requirements

The purpose of a Tree Preservation/Enhancement Plan is to identify all remaining vegetation on site and determine what can be preserved within the proposed site development and recommend tree maintenance measures.

3.4.1.1 Tree Preservation / Enhancement Plan

The information outlined in Appendix C is generally required for the Tree Preservation/Enhancement Plan (some items may not be pertinent to a particular project; other projects may required additional information).

The scale should be a maximum of 1:500 for Blocks and 1:300 for Lots.

NOTE: All existing trees allocated for preservation will be properly tagged/marked on site in accordance with the Tree Preservation/Enhancement Plan and protected with fencing/hoardings beyond their dripline prior to issuance of building permit(s). Signs are to be posted along the paige-wire fencing prohibiting any dumping or cutting in the tree saving area. The sign is to be placed at a maximum spacing of 45 m.

3.0 TREE MANAGEMENT POLICY, CONT'D

3.4 Tree Preservation / Enhancement Plan, cont'd

3.4.1 Submission Requirements, cont'd

3.4.1.2 Certification of Plans

Where a Tree Preservation/Enhancement Plan is required the grading consultant will certify that such plan conforms to the Grading Plan. The environmental consultant will certify the Grading Plan conform to the Tree Preservation/Enhancement Plan prior to approval of said plans by the Development and Technical Services Department. The above noted certifications are to be completed in accordance with Appendix G. This plan review and coordination will ensure that both tree management and site engineering issues are addressed before building commences. Such a process will maximize the opportunity for the proper implementation of all prior tree management recommendations, and permit the Subdivider another occasion to monitor the builders.

3.4.1.3 Certification of Completed Site Work

Prior to the City issuing the Final Grading Certificate; certification by both the Grading Consultant and the Environmental Consultant must be received by the City certifying that the Site Grading and Tree Preservation / Enhancement Plans have been implemented in accordance with the approved plans,

The above noted certification is to be completed in accordance with Appendix H.

3.0 TREE MANAGEMENT POLICY, CONT'D

3.4 Tree Preservation / Enhancement Plan, cont'd

3.4.1 Submission Requirements, cont'd

3.4.1.4 Confirmation of Receipt of Site Grading Plan, Tree Preservation/Enhancement Plan and Tree Stewardship

The Subdivider must confirm in writing that the first-time home or building owner has received a copy of the approved Site Grading and Tree Preservation/Enhancement Plans along with written instructions on proper stewardship for tree(s) on their Lot/Block or that the Subdivider has provided the builder with the approved grading and tree management plans along with written instructions on proper tree stewardship for tree(s) regarding the Lot/Block noted above, and advised the builder that the builder is obligated to provide this material to the first-time home or building owner in accordance with Clause 1.22 of the Standard Subdivision Agreement prior to occupancy.

The above noted confirmation is to be completed in accordance with Appendix I.

An example of written instructions on proper tree stewardship is given in Appendix J. This is the type of information that is to be provided to the new home or building owner of a treed property.

As an alternative to the above noted generic examples, the environmental consultant can also obtain brochures on many areas of tree stewardship from the International Society of Arboriculture (I.S.A.). The I.S.A. provides a series of published brochures as part of its consumers information program. Information on obtaining these brochures can also be found in Appendix I.

3.0 TREE MANAGEMENT POLICY, CONT'D

3.4 Tree Preservation / Enhancement Plan, cont'd

3.4.1 Submission Requirements, cont'd

3.4.1.4 Confirmation of Receipt of Site Grading Plan,
Tree Preservation/Enhancement Plan and Tree
Stewardship, cont'd

The City encourages personal delivery to, and discussion of such written instructions with, the new property owner as a means of educating them on proper tree stewardship.

POLICY NUMBER: I-1160

SUBJECT: TREE MANAGEMENT POLICY – APPENDIX A

Appendix A
GENERAL VEGETATION OVERVIEW
DATA COLLECTION FORM #1

Form #1 is used to record the data on vegetation communities of the study area. These vegetation communities are numbered and described based on aerial photography, interpretation and field observation.

Additional data of the site can be acquired from the soils mapping available from the Regional Municipality of Waterloo, ground water data is available from previous studies in the vicinity and/or the Ministry of Environment well records.

Based on an analysis of the site's physical characteristics relative to the vegetation, vegetation communities are delineated. For each vegetation community defined, a data sheet (Form #1) is to be completed.

For consistency in the long term, it is recommended that a standardized form, such as the one appended, be used for all General Vegetation Overviews. These forms shall be filed with the study report submitted to the City and retained for future information purposes.

CRITERIA USED TO COMPLETE FORM #1

A. BIOLOGICAL CHARACTERISTICS

VEGETATION TYPE - Classify each vegetation community under a general vegetation type.

The following classification of natural communities is adapted from A Classification of the Natural Communities Occurring in Ontario (Kavanagh and McKay-Kuja, August 1992, Working Draft prepared for the Nature Conservancy of Canada). This system highlights the communities that may possibly be encountered in the City of Kitchener by persons preparing General Environmental Overviews.

Wetland

Marsh -

Occur on flooded substrates not subject to violent wave action. Substrates vary with water depth. The water level usually fluctuates seasonally, sometimes drying out at the surface in late summer but having standing water once again in the fall. Dominated by obligate and facultative emergent aquatic species.

Appendix A
GENERAL VEGETATION OVERVIEW
DATA COLLECTION FORM #1, cont'd

A. BIOLOGICAL CHARACTERISTICS, CONT'D

- Meadow Marsh - Occur mainly on mineral soil or muck substrates that are permanently saturated and may be seasonally flooded. Water levels often drop considerably as the season progresses and much of the surface substrate is exposed. Vegetation is primarily herbaceous.
- Swamp - Flooded area where woody species form an overhead canopy cover in excess of 25% (often closer to 100%). Generally, there are four main types: thicket swamp (carr), conifer swamp, broadleaf swamp, and mixed conifer-broadleaf swamp.
- Thicket Swamp (Carr)- Areas that are permanently or frequently flooded where shrubs cover more than 25% of the surface area. herbaceous species often dominate adjacent openings but the herbaceous layer is generally not well developed below the shrub canopy.
- Conifer Forest Swamp - Areas that are permanently or frequently flooded where coniferous tree species comprise more than 75% of the overhead canopy cover.
- Broadleaf Forest Swamp - Areas that are permanently or frequently flooded where broadleaf tree species comprise more than 75% of the overhead canopy cover.
- Mixed Conifer-Broadleaf Forest Swamp - Areas that are permanently or frequently flooded where coniferous and broadleaf tree species both form significant components of the canopy cover. Both coniferous and broadleaf components exceed 25% canopy cover and do not exceed 75% canopy cover.

Note: less frequently occurring wetland types such as bogs and fens are not described here.

Appendix A
GENERAL VEGETATION OVERVIEW
DATA COLLECTION FORM #1, cont'd

A. BIOLOGICAL CHARACTERISTICS, CONT'D

Terrestrial

Forest - Areas where tree cover is extensive and canopy closure exceeds 60%. Forests form on a wide range of soil types and moisture regimes. Where soil moisture is high, forests may grade into forested swamps. Where soil moisture is low, forests may grade into savannas. Forests are divided below into three main types: coniferous, broadleaf and mixed coniferous-broadleaf.

Coniferous Forest - Forests where coniferous tree species account for more than 75% of the overhead canopy cover. Typical coniferous trees of upland habitats in the Kitchener area include: eastern white cedar (*Thuja occidentalis*), eastern hemlock (*Tsuga canadensis*), white pine (*Pinus strobus*).

Broadleaf Forest - Forests where broadleaf tree species account for more than 75% of the overhead canopy cover. Typical broadleaf trees of upland habitats in the Kitchener area include: sugar maple (*Acer saccharum*), basswood (*Tilia americana*), red oak (*Quercus rubra*), American beech (*Fagus grandifolia*), white ash (*Fraxinus americana*), white birch (*Betula papyrifera*), yellow birch (*Betula allegheniensis*), poplars (*Populus* spp.), Black Cherry (*Prunus serotina*), shagbark hickory (*Carya ovata*), bitternut hickory (*Carya cordiformis*), and white elm (*Ulmus americana*).

Mixed Conifer-Broadleaf Forest - Forests where coniferous and broadleaf tree species both form significant components of the canopy cover. Both coniferous and broadleaf components exceed 25% canopy cover and do not exceed 75% canopy cover.

Appendix A
GENERAL VEGETATION OVERVIEW
DATA COLLECTION FORM #1, cont'd

A. BIOLOGICAL CHARACTERISTICS, CONT'D

Terrestrial, cont'd

Savanna -

Areas where the tree canopy cover represents less than 60%. Savannas differ from shrub thickets by having less than 25% tall shrub cover and a herbaceous flora dominated by species with prairie affinities (e.g. big bluestem [*Andropogon gerardii*], little bluestem [*Schizachyrium scoparium*], indian grass [*Sorghastrum nutans*], azure aster [*Aster oolentangiensis*]). Widely spaced, open-grown oaks (*Quercus alba*, *Q. macrocarpa*, *Q. velutina*), and shagbark hickory (*Carya ovata*) are typical of these habitats.

Appendix A

Shrub Thicket -

These communities often form on abandoned agricultural lands and in heavily cut over woodlands. Shrub cover exceeds 25%. Typical species include hawthorns (*Crataegus* spp.), common buckthorn (*Rhamnus cathartica* - an invasive exotic species), dogwoods (*Cornus* spp.) and staghorn sumac (*Rhus typhina*).

Hedgerow -

Narrow linear bands of vegetation usually associated with laneways and farm fence lines. An array of native and non-native tree and shrub species may occur in these habitats.

Residential Tree
Clusters -

Small clusters of trees and shrubs around existing or former residences and farmsteads. These clusters often include a mix of native and ornamental species.

Appendix A
GENERAL VEGETATION OVERVIEW
DATA COLLECTION FORM #1, cont'd

A. BIOLOGICAL CHARACTERISTICS, CONT'D

NUMBER OF SHRUB AND TREE SPECIES

This gives an indication of species diversity. Aesthetically, a diverse cluster of trees (and associated herbs and shrubs) is more appealing. The number of tree species is easily recorded, however, qualitative measures such as high, moderate and low may be used for shrubs.

SPECIES COMPOSITION

The three most abundant tree species in each Vegetation Community are determined and their relative abundances (% occurrence) are estimated.

SIGNIFICANT SPECIES

Each community should be searched for species which are significant in the Region, Ontario, or Canada. The location of these species is shown on the map depicting the Vegetation Communities of the subject property.

The following references or most current version should be used.

- Regional Municipality of Waterloo. 1999. Significant Species List: Native Vascular Plant Component 1999. Appendix A to Planning and Culture Committee Report PC-99-028.1. Regional Municipality of Waterloo, Ontario. 18pp.
- Oldham, M.J. 1999. Natural Heritage Resources of Ontario: Rare Vascular Plants. Natural Heritage Information Centre, Ontario Ministry of Natural Resources, Peterborough, Ontario. 56pp.
- Argus, G.W. and K.M. Pryer. 1990. Rare Vascular Plants in Canada: Our Natural Heritage. Canadian Museum of Nature, Botany Division,,Rare and Endangered Plants Project, Ottawa.

NUMBER OF TREES

The approximate number of trees in a subunit is estimated (i.e., less than 10, 10-100, more than 100 or 250/ha).

Appendix A
GENERAL VEGETATION OVERVIEW
DATA COLLECTION FORM #1, CONT'D

A. BIOLOGICAL CHARACTERISTICS, CONT'D

CANOPY CLOSURE

This refers to the degree to which the tree canopy prevents light from reaching the ground under a cluster of trees. Canopy closure is estimated as a percentage (i.e., less than 25%, 25-50%, 50-75%, 75-100%).

COMMUNITY AND TREE HEALTH

The health of a stand is ranked as excellent, good, fair or poor based on a composite consideration of several characteristics reflecting tree condition for all the trees in the stand. For example, the following characteristics should be included:

- Evidence of insect attack (other than on leaves)
- Disease, rotting
- Bark damage – natural, by vandals
- Root exposure
- % upper branches dead

Ranking should be done as follows:

Excellent Good growth, no dead wood, no pruning required, good life expectancy 15 years or more

Good No trees damaged in any way
Pruning may be required, 10-15 year life expectancy
Very few damaged, only slightly

Fair Intermediate (new growth and dead limbs or dead trunk wood)
Pruning and fertilizing required to retain tree, poor life expectancy 1-10 years

Poor A majority of the trees are damaged slightly or several are badly damaged (mature in a declining state, more dead than alive)

For natural vegetation communities, an assessment of ecological stability should also be made.

Appendix A
GENERAL VEGETATION OVERVIEW
DATA COLLECTION FORM #1, cont'd

A. BIOLOGICAL CHARACTERISTICS, CONT'D

An unstable vegetation community or an unhealthy stand of trees is not worth retaining. A stable vegetation community or a healthy stand of trees is aesthetically pleasing, more resilient and is more likely to survive the impacts of development.

Stable: communities that exhibit natural structural characteristics and successional pathways. This includes communities showing natural tree mortality and regeneration that is dominated by native species, typical of the community.

Unstable: communities that are not exhibiting natural structural characteristics and successional pathways. This includes communities with above normal levels of natural tree mortality and/or regeneration that is dominated by non-native species. Unstable communities have been impacted by current or previous adverse environmental impacts (that are leading to widespread, long-term and irreversible degradation of the community).

For cultural or anthropogenic vegetation communities, clusters or single trees, tree health should be assessed as above (i.e. excellent, good, fair, poor). The type of damage observed should be described.

COMMUNITY AGE (from Ecological Land Classification for Southern Ontario, Lee et al 1998)

The ecological age of the vegetation community gives an indication of its persistence, replaceability and, therefore, value.

Pioneer: A community that has invaded disturbed or newly created sites and represents the early stages of either primary or secondary succession.

Young: A community that has not yet undergone a series of natural thinnings and replacements. Plants are essentially growing as independent individuals rather than as members of a phytosociological community.

Appendix A
GENERAL VEGETATION OVERVIEW
DATA COLLECTION FORM #1, cont'd

A. BIOLOGICAL CHARACTERISTICS, CONT'D

Mid-Age: A community that has undergone natural thinning and replacement as a result of species interaction and often contains examples of both early successional and late successional species.

Mature: A community dominated primarily by species that are replacing themselves and are likely to remain an important component of the community if it is not disturbed again. Significant remnants of early seral stages may still be present.

Old Growth: A self-perpetuating community composed primarily of late successional species that usually show uneven age distribution, including large old trees (generally older than 120 years) without open-grown characteristics.

HEIGHT and DIAMETER

For isolated trees; height and diameter are estimated. For cluster trees, mean height and diameter are estimated. This gives some indication of the age of the tree or cluster of trees.

ASSOCIATED VEGETATION COMMUNITIES

The vegetation of one community may depend on conditions in an adjacent community (i.e. a wetland may function to retain water without which trees in the adjacent subunit could not exist). Subunits functionally connected to the community being inventoried are recorded, and the functional association is described.

B. PHYSICAL CHARACTERISTICS

TOPOGRAPHY AND SLOPE

The degree of terrain undulation and the range of slopes encountered can be determined using detailed topographic maps. Ground-truthing is done in the field. The information can be used to interpret soil moisture and the potential for erosion.

Appendix A
GENERAL VEGETATION OVERVIEW
DATA COLLECTION FORM #1, cont'd

B. PHYSICAL CHARACTERISTICS. CONT'D

SURFACE WATER

The presence or absence and type of surface water (lakes, ponds, streams) is noted. For streams, the flow volume is approximated (i.e. small stream -1 m wide, river - 6 m wide). The approximate area of each lake, or pond and obvious water entry and exit points (i.e. enters southwest corner) are noted.

GROUNDWATER

The approximate position of the water table is determined (near/not near surface).

SOIL TYPE

This can be determined from soil maps of Waterloo County. Soil type gives an indication of the drainage properties of the soil. In the field, soil properties such as surface texture (loam, sand, gravel, etc.) and moisture (dry, moist, wet) can be ground-truthed.

EXISTING LAND USE

Present land use is determined for all communities (i.e., gravel pit, agriculture). For agricultural land, the crop grown is noted.

POLICY NUMBER: I-1160
SUBJECT: TREE MANAGEMENT POLICY

FORM NUMBER 1 VEGETATION COMMUNITY NO.
GENERAL VEGETATION OVERVIEW – DATA SHEET

BIOLOGICAL CHARACTERISTICS		PHYSICAL CHARACTERISTICS	
VEGETATION TYPE		TOPOGRAPHY	
NUMBER OF SPECIES Tree - Shrub - Herb -		SLOPE	
SPECIES COMPOSITION SPECIES %ABUNDANCE 1. 2. 3. 4.		SURFACE WATER TYPE - NAME - (SKETCH SHOWING SIZE, DIRECTION OF FLOW, ENTRY AND EXIT POINTS)	
SIGNIFICANT SPECIES			
NUMBER OF TREES			
CANOPY CLOSURE			
COMMUNITY AND TREE HEALTH		EXISTING LAND USE	
COMMUNITY AGE			
HEIGHT and DIAMETER		GROUNDWATER	
ASSOCIATED VEGETATION COMMUNITIES		SOILS: TYPE - TEXTURE - MOISTURE -	

PROJECT NAME: _____

DATE: _____

Appendix B
DETAILED VEGETATION PLAN
DATA COLLECTION FORM #2

This form shall include the date(s) when the inventory was conducted and the following:

(1) TREE TAG NUMBER

LOCATION, LOT OR BLOCK NUMBER

SPECIES

DIAMETER AT BREAST HEIGHT (DBH IN CMS)

(2) CROWN CLASS

Dominant	-	Emergent canopy	(receives full sunlight)
Co-dominant	-	Not fully emergent	(top of canopy receiving sunlight)
Intermediate	-	Sub-canopy tree	(receiving partial sunlight)
Suppressed	-	Completely overtopped	(receiving very limited sunlight)

(3) TREE CONDITION

Trees that are unhealthy or unsafe are not worth retaining. Tree condition is rated as: Excellent; Good; Fair; Poor; Very Poor; or Dead. Tree condition must consider the health and structural integrity of the tree. Consider the following criteria in determining Tree Condition:

Crown Vigour - provides a good indicator of a tree's condition. The presence of dead branches, poor leaf colour, small leaves and thin crowns are signs of stress. The presence of these factors along with annual growth provide an indication of the tree's vigour.

Structural Integrity - is an important factor when determining the potential hazard of a tree. This is of particular concern where trees will be located adjacent to developed or active recreational areas. When determining the potential of a tree or a part of a tree to fail, a number of factors must be considered including: cracks (including bark, split stems), dead limbs and the presence of fruiting bodies. For a tree to be hazardous there must be a target and consideration must be given to the length of time that the target is present (e.g. pedestrians vs. houses).

Appendix B
DETAILED VEGETATION PLAN
DATA COLLECTION FORM #2, CONT'D

(3) TREE CONDITION, CONT'D

Tree Wounds - of all sizes provide openings for insects any decay organisms. The number of wounds, their size, location and the presence/spread of decay must be considered. These factors can affect a tree's vigour and its structural integrity. Through evolution, trees have developed ways of protecting themselves from the spread of decay, a tree with good vigour can usually resist the spread of decay. The model of compartmentalization explains this process.

Insect/Disease - generally attacks trees with poor vigour. Knowledge of common insects and diseases is necessary to determine the impact that these factors are having on trees.

Excellent Condition (No Risk Trees)

Sound, thrifty, full-crowned trees of natural shape with no dead limbs in the top of the crown and no significant evidence of decline.

Good Condition (Low Risk Trees)

Full-to-medium crowned tree of natural shape with a live crown ratio > 40% that exhibit no more than minor dead wood (e.g. up to 10% secondary branches only and mainly in the lower crown) and no more than one moderate trunk defect or indicator of decline.

Fair Condition (Medium Risk Trees)

Full-to-small crowned trees with a live crown ratio > 25% that exhibit no more than moderate dead wood (e.g. 11 to 35 % secondary branches mostly) and no more than two moderate trunk defects or indicators of decline.

Poor Condition (High Risk Trees)

Medium-to-very small crowned trees (e.g. live crown ratio < 25%) that exhibit one or more of the following conditions:

- a) Trees with significant foliage of poor colour and less than normal size
- b) Trees with significant crown dieback (e.g. > 35% dead wood in primary limbs)
- c) Trees with major trunk defects or decay (e.g. one extensive problem, or 3 or more distinct but moderate decline indicators).

Appendix B
DETAILED VEGETATION PLAN
DATA COLLECTION FORM #2, CONT'D

(3) TREE CONDITION, CONT'D

Very Poor Condition (Very High Risk Trees)

Dying trees with very little live crown.

Dead Tree

No live foliage present.

(4) TREE VALUE AND PHYSICAL CONSTRAINTS

Tree Value (aesthetic)

Shape - The shape of the trunk(s) and of the canopy are combined to determine the shape of the tree from an aesthetic perspective.

Status - A native species is considered regionally, provincially and/or nationally significant if it is referenced in:

- Regional Municipality of Waterloo. 1999. Significant Species List: Native Vascular Plant Component 1999. Appendix A to Planning and Culture Committee Report PC-99-028.1. Regional Municipality of Waterloo, Ontario. 18pp.
-
- Oldham, M.J. 1999. Natural Heritage Resources of Ontario: Rare Vascular Plants. Natural Heritage Information Centre, Ontario Ministry of Natural Resources, Peterborough, Ontario. 56pp. Argus, G.W. and K.M. Pryer. 1990. Rare Vascular Plants in Canada: Our Natural Heritage. Canadian Museum of Nature, Botany Division, Rare and Endangered Plants Project, Ottawa. Non-native species that are not commonly planted are referred to as unusual or infrequent exotic or ornamental plantings.

Appendix B
DETAILED VEGETATION PLAN
DATA COLLECTION FORM #2, CONT'D

4) TREE VALUE AND PHYSICAL CONSTRAINTS, CONT'D

Native Value - A native tree possesses intrinsic value as part of the natural heritage of the region. While exotic trees may be interesting aesthetically and botanically and may even be less common than native trees, the value of native trees is considered separately.

Biological Value - Every tree maintains a certain set of biological interactions that are considered to be of value to the local environment (i.e. respiration, transpiration, shade, perching material, etc.). When using the Biological Value criteria, only interactions that are distinctly different from the standard set are noted. These may include nests, food sources (seeds, buds or bark), soil and water retention, etc.

Age – The age of an individual tree should also be considered. Similarly, the relative successional stage of a woodland is a measure of its ecological age. The extent to which a tree or woodland ecosystem may be replaced is generally related to its value to society. Simply put, mature trees and climax woodlands would take longer than immature trees and pioneer associations to re-establish if removed or disturbed.

Regeneration - The presence of trees that have seeded from other trees in the area is considered important to maintaining a viable population of that tree species. Young trees are noted wherever obvious.

Existing Physical Constraints

Location - Locational criteria are intended to show the individual tree's position relative to other trees close to or adjacent to it. Location may be one of several types including: isolated; orchard; grove; hedgerow; woodland; etc.

The proximity of a tree to a road or building is also noted since this may affect tree growth. If the canopy visibly overhangs a building, road, driveway or parking lot, a tree is considered to be near these facilities and the development of its roots probably affected.

Appendix B
DETAILED VEGETATION PLAN
DATA COLLECTION FORM #2, CONT'D

- Slope - The amount of incline and direction of slope face may affect the tree's growth. An estimate of the incline in degrees and direction of slope face should be given. In some cases where the slope is gradual or insignificant in size, relative to the size of the tree in consideration, direction of slope face may not be important.
- Soil Moisture - Soil moisture rating is coarsely divided into dry, moist, and wet soil types. It is not intended to provide a precise measure of moisture content but it does indicate whether the soil around a tree is dry and exposed to direct sun, moist (supports a weedy grass and shrub understorey) or wet (supports wetland understorey vegetation or standing water).

(5) IMPACTS OF PROPOSED DEVELOPMENT

Discuss / summarize the types of activities associated with the proposed development that will potentially affect trees and/or vegetation communities (see Sections 3.3.1.2 and 3.3.1.3).

(6) RECOMMENDATION

Save
Remove
Transplant

- Name, Address, Telephone Number of Consultant who undertook inventory.

POLICY NUMBER: I-1160

SUBJECT: TREE MANAGEMENT POLICY – APPENDIX B

FORM NUMBER 2

DETAILED VEGETATION PLAN

TREE NO. (1)	LOT / BLK NO.	SPECIES	DBH (cm)	CROWN CLASS (2)	TREE CONDITION (3)	TREE VALUE & PHYSICAL CONSTRAINTS (4)	IMPACTS OF DEVELOPMENT (5)	RECOMMENDATION (6)

(1) Trees recommended for saving shown in **BOLD** type

(2) Dominant – (D) – Emergent canopy (receives full sunlight)

Co-dominant – (C) – Not fully emergent (top of canopy receives su

Intermediate – (I) – Sub-canopy tree (receives partial sunlight)

Suppressed – (S) – Completely overtopped (receives very limited s

(3) Excellent – (E), Good – (G), Fair –(F), Poor – (P),
Very Poor – (V), or Dead – (D)

(4) Comments based on tree value and existing physical constrai

(5) See Sections 3.3.1.2 and 3.3.1.3

(6) Recommendation: Save – (S), Remove – (R), Transplant – (T).

PROJECT NAME: _____

DATE: _____

Appendix C
TREE PRESERVATION/ENHANCEMENT PLAN

It is required that the following information be shown:

- a) the true dimensions and bearings of the property
- b) the location of isolated trees or single species clusters showing driplines and the species, size, condition (excellent, good, fair, poor, very poor, dead), and sensitivity of tree to development is to be noted
- c) the location of woodland areas and showing:
 - i) location of tree(s) to be removed for selective thinning (marked in field)
 - ii) location of new woods' edges (marked in the field), edge driplines (ground truthed) and new plantings if required
 - iii) the locations, dimensions and setbacks of all proposed buildings and structures
 - iv) the location of paving and driveway areas
 - v) walkway locations
 - vi) existing and proposed grades (contours and spot elevations)
 - vii) cut and fill areas
 - viii) indication of ground-water and surface drainage
 - ix) location and type of services and utilities (provide required width and depth of trench including offsets dependent on soil conditions or nature of installation/equipment)
 - x) the location of proposed stockpiles of topsoil and backfill
 - xi) work zone requirements (area around the proposed buildings required for excavation of foundations and access during construction).
 - xii) an outline of tree protection measures including:
 - recommended buffers
 - construction details and location of fencing and/or hoarding
 - erosion control measures
 - pre-stressing of trees
 - xiii) name, address and telephone number of:
 - Subdivider
 - builder
 - consultant who provided tree data and recommendations

Appendix D
BUILDING CLEARANCE AREA

Interior Lots - Due to the number of site services entering a residential lot, the preservation of trees within the front yard may be extremely difficult. It is especially unlikely that any tree(s) found within the interior of a woodland could be singled out and saved on a narrow width lot of 13.7 metres (45 feet) or less. However, isolated trees, and edge trees of a woodland have some chance of survival in a front yard. Only if the tree(s) in the opinion of the Arborist etc. in co-ordination with the Grading and Servicing Engineer, is worthy of saving should any attempt be made in preserving front yard trees otherwise, the following will apply regarding the removal of trees on an interior building lot:

For all lots 13.7 metres in width or less of frontage, the allowable area to clear of trees within this lot will be:

From Property Line to Building Line plus the depth of the building type plus 3 metres (construction work zone).

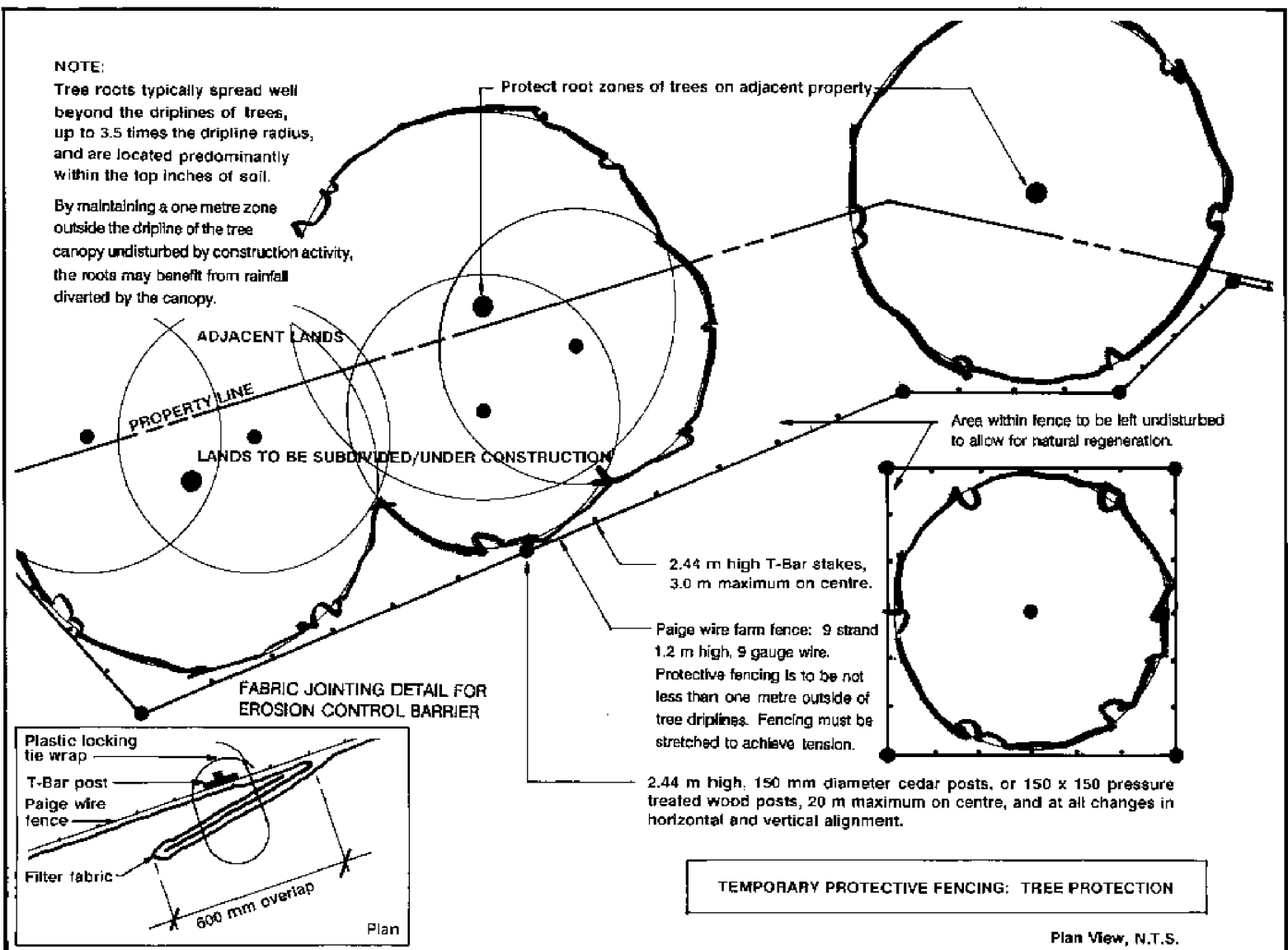
DEPTH OF BUILDING TYPE	
Building Type	Depth Metres (Feet)
Bungalow (Back or Raised)	13.7 (45)
Back Split	15.24 (50)
Two Storey	9.75 (32)
Free Hold Town House	13.7 (45)

Corner Lots - No trees that are worthy of further study are to be removed from corner lots. This requirement is based on the assumption that there are many possibilities for location of services within a corner lot, and the different types of buildings that can be built on a corner lot.

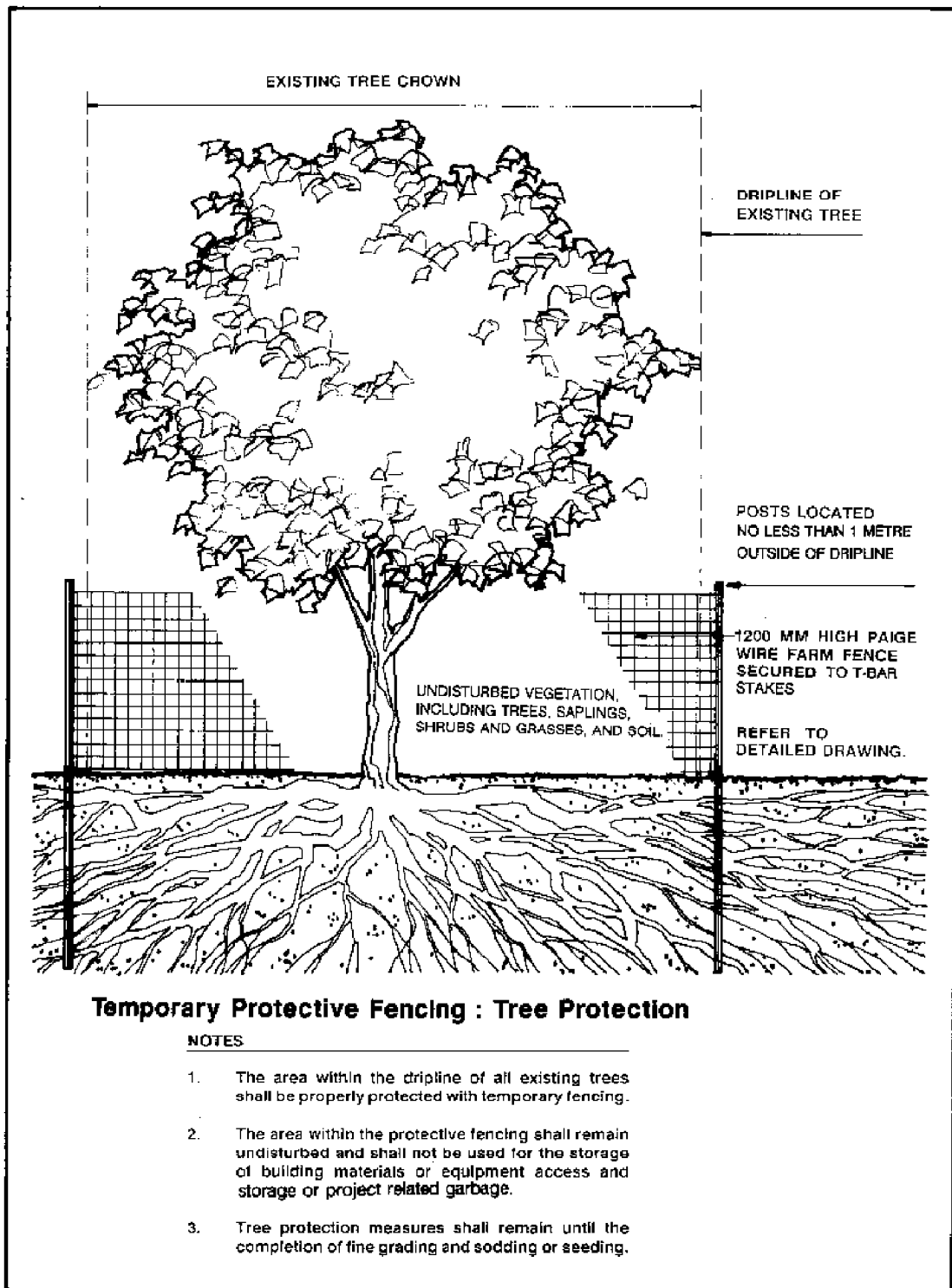
Corner lots may qualify for exemption to this requirement from the City if the site services location and building type are determined at the time of submission of the Detailed Vegetation Plan.

Blocks - No trees that are worthy of further study are to be removed from blocks. Tree removal from blocks will not occur until a Tree Preservation/Enhancement Plan and a Tree Maintenance Report is approved by the Development and Technical Services Department as part of a Section 41 Development Agreement.

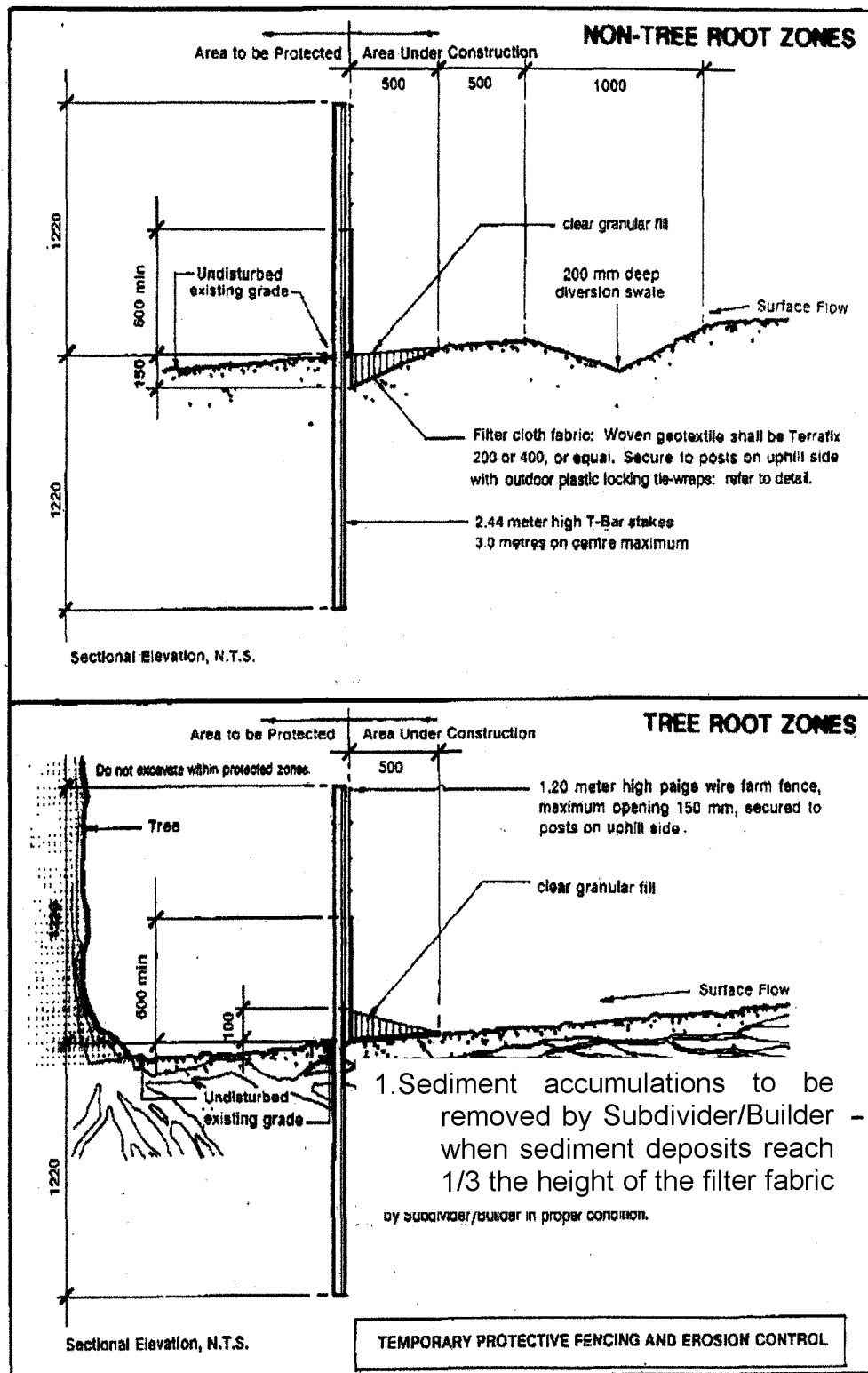
Appendix E - TEMPORARY PROTECTION FENCING, SIGNAGE AND EROSION CONTROL



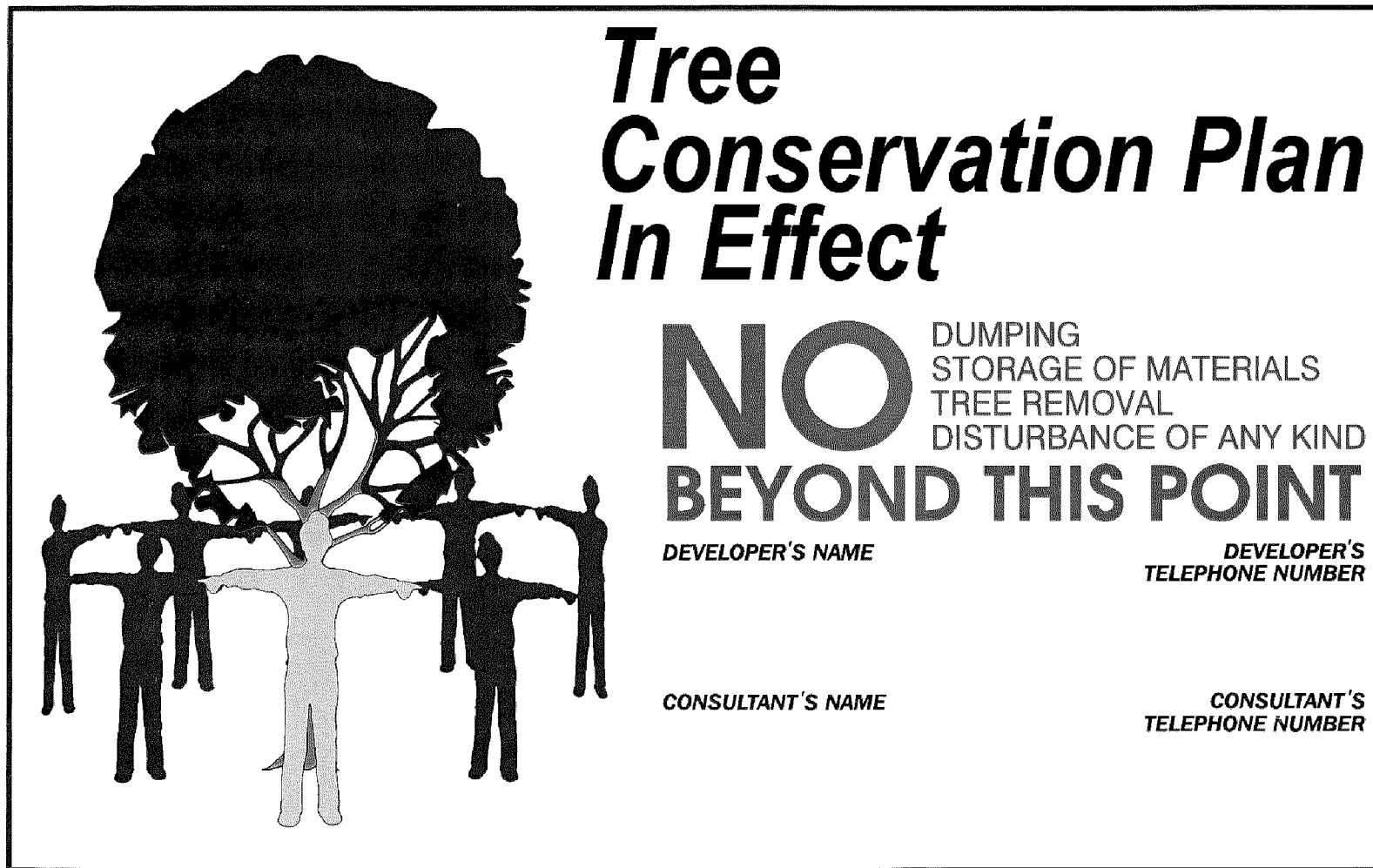
Appendix E - TEMPORARY PROTECTION FENCING, SIGNAGE AND EROSION CONTROL, CONT'D



Appendix E - TEMPORARY PROTECTION FENCING, SIGNAGE AND EROSION CONTROL, CONT'D



CONCEPT SIGNAGE

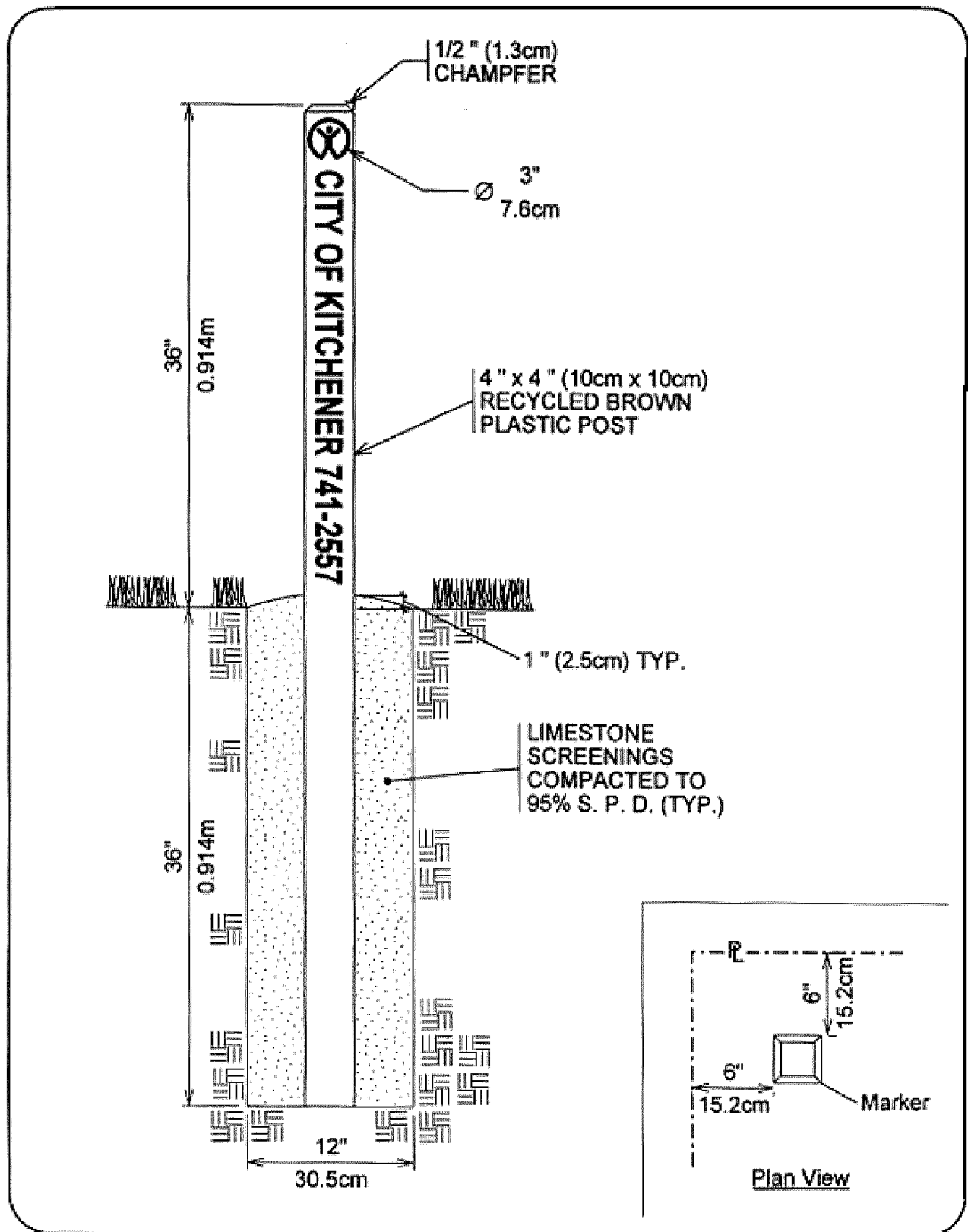


MOUNTED ON GATOR BOARD

MINIMUM SIZE 11" x 17"

SIGN TO BE PLACED 45M O.C. ALONG FENCE

SECURED WITH OUTDOOR PLASTIC LOCKING TIE-WRAPPS



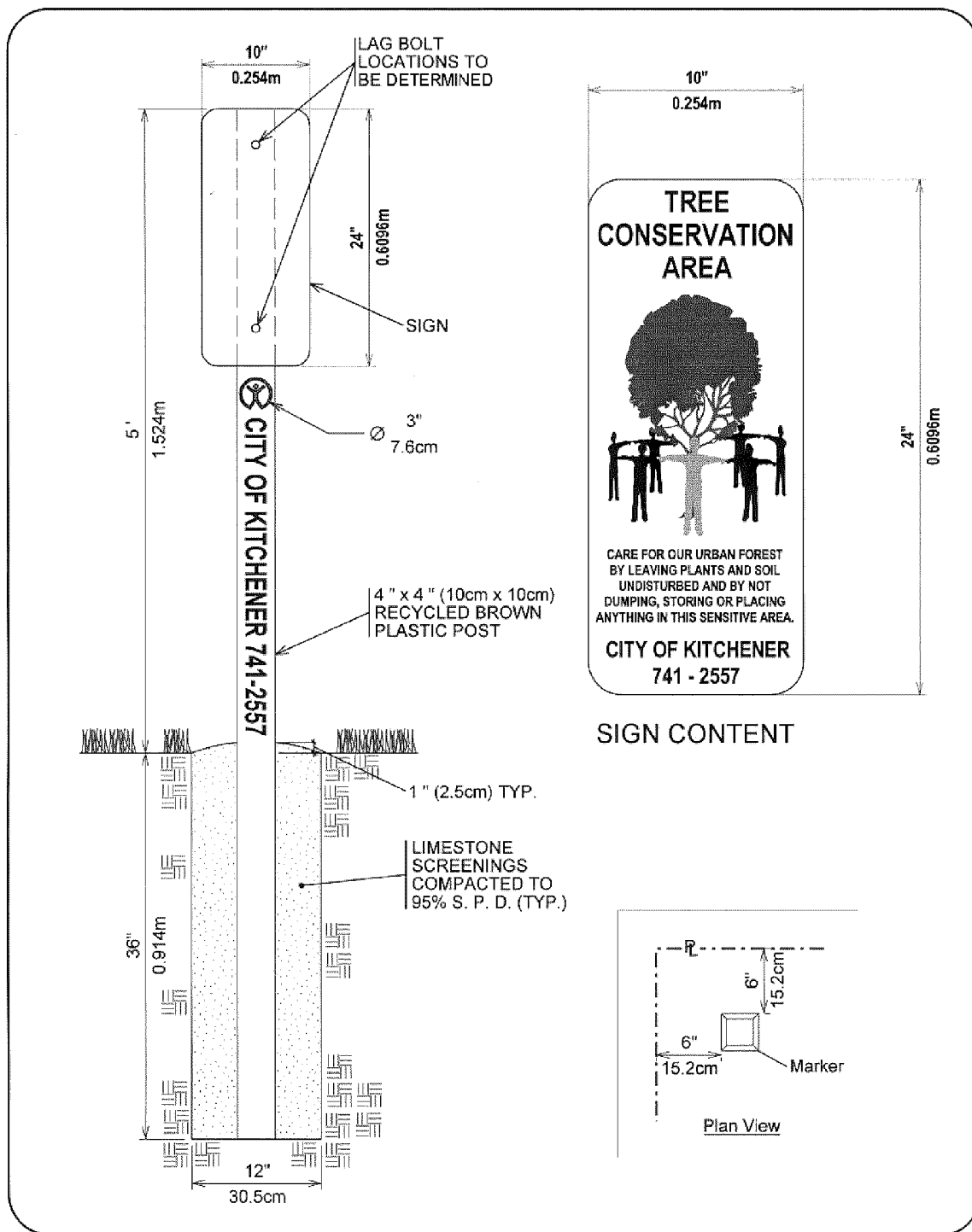
TITLE: **PARK BOUNDARY MARKER**

3 ft (1m) MARKER (Recycled Plastic)

KITCHENER PARKS & RECREATION
DESIGN AND DEVELOPMENT SECTION

DATE: _____
DRAWN: A. McDONALD

SCALE: AS SHOWN
SHEET NO. _____

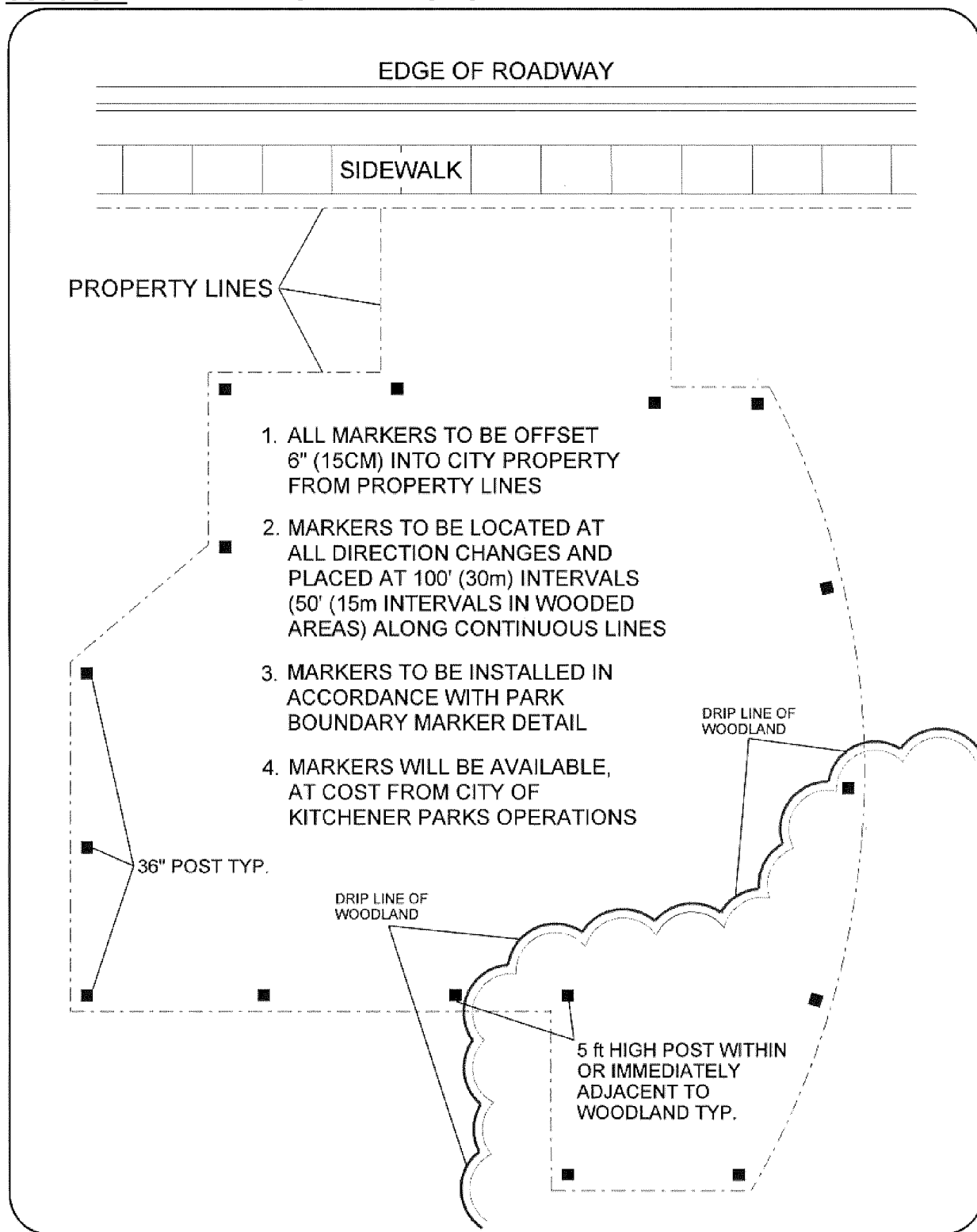
TITLE: **PARK BOUNDARY MARKER (Recycled Plastic)****5 ft (1.52m) TREE CONSERVATION AREA MARKER**KITCHENER PARKS & RECREATION
DESIGN AND DEVELOPMENT SECTION

DATE: _____

DRAWN: A. McDONALD

SCALE: AS SHOWN

SHEET NO. _____



TITLE: CITY BOUNDARY MARKER LOCATION

SHOWING TREE CONSERVATION AREA LOCATIONS

KITCHENER PARKS & RECREATION
DESIGN AND DEVELOPMENT SECTIONDATE: _____
DRAWN: A. McDONALDSCALE: N.T.S.
SHEET NO. _____

Appendix G

GRADING AND TREE MANAGEMENT NOTES
DETAILED VEGETATION PLAN / LOT GRADING CONTROL PLAN STAGE

The following note is to be included on the Lot Grading Control Plan.

I hereby certify that this Lot Grading Control Plan conforms to the Detailed Vegetation Plan for this subdivision

Name (printed)

Signature and stamp (if applicable) of the Environmental Consultant

Date

The following note is to be included on the Detailed Vegetation Plan.

I hereby certify that this Detailed Vegetation Plan conforms to the Lot Grading Control Plan for this subdivision.

Name (printed)

Signature and stamp (if applicable) of the Grading Consultant

Date

POLICY NUMBER: I-1160

SUBJECT: TREE MANAGEMENT POLICY – APPENDIX G

GRADING AND TREE MANAGEMENT NOTES
TREE PRESERVATION / ENHANCEMENT PLAN AT INDIVIDUAL LOT / BLOCK
STAGE

The following note is to be included on the Site Grading Plan.

I hereby certify that this Site Grading Plan conforms to the Tree Preservation / Enhancement Plan for this Lot / Block. Name (printed) Signature and stamp (if applicable) of the Environmental Consultant Date
--

The following note is to be included on the Tree Preservation/Enhancement Plan.

I hereby certify that this Tree Preservation/Enhancement Plan conforms to the Site Grading Plan for this Lot / Block. Name (printed) Signature and stamp (if applicable) of the Grading Consultant Date
--

POLICY NUMBER: I-1160

SUBJECT: TREE MANAGEMENT POLICY – APPENDIX H

Appendix H

LOT/BLOCK GRADING AND TREE MANAGEMENT CERTIFICATION

Date_____

Lot #_____

Block #_____

58M-_____

I, _____ of _____, being the
Grading Consultant for the above noted Subdivision and I,
_____ of _____, being the
Environmental Consultant for the above noted subdivision certify to the City of Kitchener that
the approved Site Grading Plan and the Detailed Vegetation Plan and/or the Tree
Preservation/Enhancement Plan have been implemented in accordance with the City-
approved plans.

Please note all deviations from the approved drawings below (additional tree removal, tree
replacements, grading changes, or any other item that has not been implemented in
accordance with the City-approved plans. Additional details may be required prior to the City
accepting the certification.

Grading Consultant

Environmental Consultant

SIGNATURE

SIGNATURE

AFFIX SEAL
(if applicable)

AFFIX SEAL
(if applicable)

DATE

DATE

c. Lot/Block Owner
Subdivider

Appendix I

CONFIRMATION OF RECEIPT

Date _____

Lot # _____

Block # _____

58M- _____

I, _____ of _____, being the Subdivider for the above noted Subdivision confirm to the City of Kitchener that the first time home or building owner has received a copy of the approved grading and tree management plans along with written instructions on proper tree stewardship for tree(s) on their Lot/Block

OR

I, _____ of _____, being the Subdivider for the above noted Subdivision confirm to the City of Kitchener that I have provided the builder with the approved grading and tree management plans along with written instructions on proper tree stewardship for tree(s) regarding the Lot/Block noted above, and advised the builder that the builder is obligated to provide this material to the first time home or building owner in accordance with Clause 1.22 of the Standard Subdivision Agreement prior to occupancy..

Subdivider

SIGNATURE

DATE

c. Lot/Block Owner
 Builder

Appendix J

TREE STEWARDSHIP

Following are examples of the types of information on proper tree stewardship to be provided to the new home or building owner of a treed Lot / Block. They are only examples.

The City encourages personal delivery and discussion of such written instructions with the new property owner as a means of educating them on proper tree stewardship.

1. Published Brochures

The environmental consultant can obtain brochures on many areas of tree stewardship from the International Society of Arboriculture. The I.S.A. provides a series of published brochures as part of its consumers information program. The following titles can be obtained from the I.S.A..

- *Treatment of Trees Damaged by Construction*
- *Avoiding Tree Damage During Construction*
- *New Tree Planting*
- *Pruning Young Trees*
- *Pruning Mature Trees*
- *Tree Selection*
- *Recognizing Tree Hazards*
- *Buying High Quality Trees*
- *Insect and Disease Problems*
- *Benefits of Trees*
- *Why Topping Hurts Trees*
- *Trees and Turf*
- *Mature Tree Care*
- *Tree Selection*
- *Why Hire an Arborist*
- *Plant Health Care*
- *Avoiding Tree and Utility Conflicts*
- *Tree Values*

The I.S.A. can be reached at :

International Society of Arboriculture – Ontario Chapter
P.O. Box 711
Owen Sound, ON
N4K 5R4
519-376-1882

or

The content of the Tree Care Brochures can be viewed at **www2.champaign.isa-arbor.com** by clicking *Tree Care Consumer Guides* and can be ordered at the same website by clicking *Online Catalog*, then *Consumer Information Centre*.

2. Site-Specific Woodland Management Brochures

Homeowner's Woodland Management Manual

1.0 INTRODUCTION

The developer and house builder for your new home have worked under the policies established by the City of Kitchener to make every reasonable effort to leave trees on your property a safe assets, to be enjoyed for years to come by you.

One of the key guiding principles used in the planning of NAME OF SUBDIVISION was the protection and integration of natural environment features such as (GIVE EXAMPLES). A strong emphasis was also placed on encouraging development of a community stewardship program to protect these natural heritage features.

The woodland or trees within and/or adjacent to your property (ie. is an isolated species, or part of a large, linked Open Space system of woodlands and valleylands). These natural environment features provide habitat for a diverse assemblage of plants and wildlife. The NAME OF SUBDIVISION Woodland, in particular, provides habitat for rare plant species and area sensitive forest interior birds that require undisturbed conditions for their survival.

The NAME OF SUBDIVISION Woodland is comprised of the following vegetation communities:

Vegetation Community	Species Association
Broadleaf Upland Forest – mature	Sugar Maple, American Beech, White Ash, Red Oak
Broadleaf Forest – wet-mesic	Green Ash, Bitternut/Shagbark Hickory, Bur Oak, Basswood, White Elm, Red Maple, American Beech
Tall Shrub Thicket/Broadleaf Successional Wood	Green Ash, White Elm, Black Walnut, Shagbark Hickory, Bass Wood, Hawthorn, Buckthorn, Raspberry
Wet Meadow	Grasses, Sedges, Asters, Goldenrod's
Broadleaf Slope and Floodplain Woods – Sheldor Creek Valley	Green Ash, White Elm, Crack Willow, Manitoba Maple, Bur Oak, Tatarian Honeysuckle, Buckthorn, Hawthorn

A tributary of XYZ Creek (warmwater fishery) flows in a southerly direction through the central portion of the woodland. In order to protect and enhance fish and aquatic habitat, “naturalized” stormwater management ponds has been provided to store, polish and filter runoff before releasing it to the creek. Sections of the tributary have been rehabilitated to create a natural setting and improve overall aquatic habitat conditions.

The rear of your lot contains a portion of the woodland edge that provided an important

buffer function to the more sensitive and significant portions of the woodland interior. For this reason, extreme care has been taken to protect/enhance, in creating the new woodland edge during construction.

The purpose of this homeowner's manual is to provide you with the following information:

- 1) *A brief outline of the ecological function and value of the buffer and the woodland as a whole;*

- 2) *Recommended guidelines for the environmental stewardship of the rear lot wooded buffer and examples of undesirable activities; and*
- 3) *Homeowner obligations as defined by the subdivision agreement and the Restrictive Covenant, which is registered on title.*

This information is intended to assist homeowner's in recognizing and understanding the value of the woodland as a community asset and to identify ways in which it can be enjoyed and protected for future generations.

2.0 WOODLAND FUNCTIONS AND VALUES

In addition to their socio-economic, recreational and aesthetic value, woodlands perform a variety of important ecological functions. These include the following:

- *Filtering of pollutants from air and water;*
- *Production of life sustaining oxygen;*
- *Climate modification*
 - *Solar radiation*
 - *Air temperature*
 - *Humidity*
 - *Wind speed*
- *Maintenance of bio-diversity;*
- *Woodlands provide habitat for a variety of plants and animals including rare species*
- *Connecting linkage function between other natural areas necessary for the maintenance of bio-diversity and movement of wildlife;*

- *Buffer function between urban land uses and sensitive ecological features/functions;*
- *The woodland edge (buffer) provides protection to the woodland interior from negative edge effects such as blowdown of trees, sunscald of tree trunks, invasion of weedy plant species, altered micro-climate (changes in air temperature, humidity, wind speed), nest parasitism, and predation*
- *Maintenance of stream baseflow and temperatures;*
- *Maintenance of groundwater levels; and,*
- *Reduced soil erosion and runoff.*

The NAME OF SUBDIVISION Woodland is part of the Natural Heritage Resource framework of the Neighbourhood Community and is a key element in the overall maintenance of bio-diversity at the local level and the larger regional level.

3.0 RECOMMENDED EDGE MANAGEMENT PRACTICES

3.1 Management Guidelines

Residents are encouraged to follow these basic woodland management guidelines (do's & don'ts) to protect the ecological integrity/function of the rear lot wooded buffer and the NAME OF SUBDIVISION Woodland as a whole:

1. *Please use marked trails only within the publicly owned portion of the woodland.*
2. *Removal of dead trees and branches is*

- encouraged only along the edge of the buffer where necessary to avoid potential damage to property and personal injury on private property only. Dead trees and branches on public property should be reported to the Department at Community Services at 741-2557. Trees within the balance of the buffer that do not pose a hazard are to be left alone as they provide habitat for a variety of mammals, cavity nesting birds and insects. Tree removal or branch pruning should be completed following good arboricultural practices. In order to minimize impacts to the buffer, tree removal/pruning should be completed during the winter months when the vegetation is dormant. Trees should be felled in a direction that minimizes impact to adjacent vegetation.*
- 3. Please use fertilizer, herbicides and pesticides wisely and sparingly to minimize direct and indirect impacts on natural vegetation, wildlife and aquatic habitat. Fertilize your trees - at least those within a 3 - 5 metre band adjacent any clearing area (provide timing). Apply fertilizer (Describe location where fertilizer is to be applied).*
 - 4. If you own a pool, you are encouraged to drain it to the front of the lot to avoid impacts to the woodland.*
 - 5. Please keep your dogs and cats under control. In non-controlled settings, both dogs and cats can range far from home (600 m $\pm$) and can have a significant impact on wildlife.*
 - 6. A variety of wildlife species such as (NAME OF LOCAL WILDLIFE, e.g. red fox, coyote and white-tailed deer) are part of the Natural Heritage System of the Community. Following the recommendations contained in this homeowner's manual will ensure a harmonious co-existence with nature.*
 - 7. Water (describe how often, and how much). That means leave your sprinkler on any given area for at least (provide length of time) (when Regional guidelines permit) to assure deep root watering occurs. Light hand held sprinkling actually causes more damage to trees/lawns, etc. in hot spells than no water at all because it tends to encourage shallow rooting conditions.*
 - 8. Watch for disease. Consult experts if you suspect a problem (provide name & phone #).*
 - 9. Avoid driving spikes, screws or making unnecessary cuts into your trees. These can set up sites for air/water/insect borne infestations.*
 - 10. Do allow the understorey that exists in your woodland (both herbaceous i.e.: such soft-tissue plants as trilliums, dogtoothed violet, columbines, wild ginger, etc. and woody species including secondary growths of maples, beech, etc.) to remain undisturbed and regenerate. Removal of this understorey takes away vital nutrients required by the tree(s). Replacement of the understorey with topsoil and sod/seed is not encouraged. This action can bring about the slow death of your tree(s) by suffocation of the tree roots.*
 - 11. Native/non-invasive species are recommended for landscaping of the useable rear yard area. Planting seed and fruit bearing trees and shrubs will provide additional food, cover and shelter for a variety of birds and mammals. A list of trees and shrubs that are suitable for landscaping purposes is provided below. Consult your local nursery/landscape experts if you need more direction.*

12.

List of Suitable Native Species for Landscaping Purposes
along the Woodland Edge

Trees

(Provide Appropriate List)

Shrubs

(Provide Appropriate List)

General Notes:

Residents are kindly encouraged not to plant aggressive groundcover species such as (GIVE EXAMPLE), or shrubs such as (GIVE EXAMPLE). These types of plants have the capacity to displace native flora and negatively impact the ecology of the buffer and the woodland as a whole.

If you are in doubt when selecting plants for landscaping purposes, please check with a reputable nursery to confirm that the species you are considering planting will not spread into the adjacent woodland. Your cooperation will ensure that the woodland will continue to thrive and be an asset to the community.

Most of all enjoy the beauty and wonderful aspects of owning your own piece of Southern Ontario Woodland.

3.2 Unacceptable Activities

In order to maintain the ecological function and value of the wooded area as an asset to the community, the collective cooperation of all homeowners is required. Examples of undesirable homeowner activities which can negatively affect the function of the wooded area include:

- 1. Tree cutting within the wooded area of the lot is not allowed (except for removal of hazard trees or invasive weedy species*

and other good arboricultural practices) other than those trees which may be specifically designated for removal under the approved Detailed Vegetation Plan/Tree Preservation Enhancement Plan. If further work is required or requested within the woodland area, the City must be consulted and approve such work,

- 2. Any physical alteration to the wooded area of the lot such as grade changes or removal of vegetation (other than good arboricultural practices) is prohibited.*
- 3. Extending the grassed area on an individual lot and introducing exotic landscape material is unacceptable.*

This action results in the displacement of native plant species and can alter the natural forest succession and regeneration process.

- 4. Cutting trees to improve sight lines and clearing groundcover and understorey vegetation to “tidy up” the appearance of the woodland is prohibited.*

The protection and maintenance of the existing vegetation is essential for maintaining the ecological integrity and function of the wooded area.

- 5. The creation of private trails is prohibited.*

Intensive pedestrian use of the wooded area buffer can result in severe trampling of vegetation, destruction of wildlife habitat, soil compaction, soil erosion, and tree root exposure. These impacts can ultimately lead to declining health of existing trees and inhibit regeneration of the woodland. This in turn could lead to the introduction of negative “edge” effects to the sensitive wood land interior (i.e. altered micro-climate, weedy plant invasion, nest parasitism, increased predation, tree blowdown, sunscald).

6. *Dumping of garbage, debris, yard refuse (e.g. grass clippings) or fill is prohibited.*

This action is detrimental to groundcover and understorey vegetation, inhibits regeneration, promotes establishment of aggressive weed species and is aesthetically unpleasant.

7. *Erecting structures (i.e. fences, sheds, play equipment, treehouses, backyard composters, kennels, pools, woodpiles, etc.).*

These encroachments are discouraged because they result in the physical removal of vegetation and alter the appearance of the woodland area.

8. *Careless breaking of tree branches or wounding of tree trunks.*

These injuries can lead to pest infestation, disease, and ultimately tree mortality.

9. *Storage of domestic waste (garbage) adjacent to or within the wooded area.*

This action has the potential to attract raccoons and skunks, which could create conflicts with people and pets.

3.3 Fencing

A paige wire farm fence has been installed in your rear yard to protect the existing trees and ground cover. This fence should not be taken down until all grading and sodding / seeding of your lot is completed. It is very important that you leave all existing groundcover vegetation, and leaves in place after the removal of the fence. Changes in the area behind the fence such as removal of leaves, installation of topsoil, grass, grading, storage sheds, playgrounds, vegetable gardens, etc. can lead to the decline of the trees in your rear yard.

If you wish to make changes or disturb the area behind the fence, seek professional advice to ensure the longevity of the trees and safety of your family

4.0 Summary

By following the above guidelines, you will ensure that the ecological integrity and function of the buffer, and ultimately the woodland, is maintained for the enjoyment and education of your family, the community, and future generations.

Homeowners are encouraged to work collectively in the protection and management of the rear lot buffer through regular inspection and monitoring of environmental conditions.

NOTE: The TREE MANAGEMENT POLICY is contained in 11 documents. The first is the policy itself (I-1160) and the other 10 are Appendices A-J inclusive, each appendix is a separate document.