

13.0

LANDSCAPE AND NATURAL FEATURES

TREE MANAGEMENT POLICY

The complete City of Kitchener Tree Management Policy may be obtained from the Community Services Department. The following is a brief of the policy.

Definitions

General Vegetation Overview (GVO) – A complete inventory, together with suitable mapping, of the biological and physical characteristics of each Vegetation Community submitted in support of the draft plan of subdivision. This overview will identify features which may require further analysis and will establish the criteria used to evaluate a development proposal.

Detailed Vegetation Plan – A detailed plan submitted at the time of grading plan submission and prior to registration. It is to be completed where the GVO has determined that there are trees worth retaining and development impacts are anticipated. A detailed inventory of all trees greater than 10 cm DBH in potentially affected residual areas must be carried out.

Tree Preservation Enhancement Plan – A detailed plan used to identify all vegetation to remain on a site after development and establish methods whereby this vegetation can be protected and enhanced.

Standards

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.

Data Collection Form #1 - this form shall include the date(s) when the Inventory was conducted and the following:

- Biological characteristics for each vegetation community indicating:
 - Species association or plant community

- Dominant species
- 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
- Biological characteristics for isolated trees greater than 10 cm in caliper indicating:
 - Species
 - Condition rating
 - DBH
 - Location number on map or air photo

Air Photo:

The scale should be one that clearly shows relevant features of the subject property. Site boundaries to be delineated on 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.

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 are to include the proposed Draft Plan of Subdivision

- 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.

Analysis:

To include:

- Conclusions of Inventory and Analysis, this report will identify and locate on Maps 1 and 2:
 - Problems
 - 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
 - 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 and vegetation communities requiring further data and analysis in the Detailed Vegetation Plan.

Note: The 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. 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.

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

A complete description and explanation of the criteria used to complete Data Collection Form #1 is included in the City of Kitchener's Tree Management Policy and may be obtained from the Department of Development & Technical Services.

Please see form on next page.

DATA COLLECTION FORM # 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 <u>SPECIES</u> <u>% ABUNDANCE</u> 1. 2. 3. 4.		SURFACE WATER TYPE – NAME – (SKETCH SHOWING SIZE, DIRECTION OF FLOW, ENTRY AND EXIT POINTS)	
SIGNIFICANT SPECIES		EXISTING LAND USE	
NUMBER OF TREES		GROUND WATER	
CANOPY CLOSURE			
COMMUNITY AND TREE HEALTH			
COMMUNITY AGE		SOILS:	
HEIGHT and DIAMETER		TYPE –	
		TEXTURE –	
		MOISTURE –	
ASSOCIATED VEGETATION COMMUNITIES			

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 Building Clearance Area below and Appendix D, City of Kitchener Tree Management Policy).
- 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).
- Locations of Forestry Maintenance Accesses (if required).
- 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 Figures 13.1 – 13.4 of this document and the City of Kitchener Tree Management Policy).

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

Data Collection Form #2 shall be completed and include the date(s) when the inventory was conducted and the following:

- Tree tag number
- Location, lot or block number
- Species
- Diameter at breast height (DBH in cm)
- Crown class
- Tree condition
- Tree value and physical constraints
- Impacts of proposed development
- Recommendation
- Name, address, telephone number of consultant who undertook inventory

Please see form on next page.

DATA COLLECTION FORM #2							
DETAILED VEGETATION PLAN							
LOT/ BLK NO.	SPECIES (1)	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 sunlight)
 Intermediate – (I) – Sub-canopy tree (receives partial sunlight)
 Suppressed – (S) Completely overtopped (receives very limited sunlight)
 Transplant – (T)

(3) Excellent – (E), Good – (G), Fair – (F), Poor – (P),
 Very Poor – (V), or Dead (D)
 (4) Comments based on tree value and existing physical
 (5) From submission requirements and analysis of the DVP
 (6) Recommendation: Save – (S), Remove – (R),

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:

- 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.
 - 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 & Technical Services Department on site-specification 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 found in the complete Tree Management Policy available from Development & Technical Services.
- 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).
- Ongoing conservation of wildlife habitat.

Certification of Plans:

For Draft Plans of Subdivision, the grading consultant will certify that the Detailed Vegetation Plan conforms to the Lot Grading Plan. The environmental consultant will certify that the Lot Grading Control Plan conforms to the Detailed Vegetation Plan prior to approval of said plans by the Development & Technical Services Department.

Certification of Protection Measures:

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

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, 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 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.

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. 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.

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 Community 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.
- 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.

Permanent Signage:

Install signage in accordance with the “BOUNDARY MARKER” and “CITY BOUNDARY MARKER LOCATIONS” drawings found in Appendix F of the City of Kitchener Tree Management Policy. Such signage is to be supplied by the Department of Community Services (741-2600) 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.

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.

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. An example of written instructions on proper tree stewardship is given in the City of Kitchener’s Tree Management Policy. This is the type of information

that is to be provided to the new home/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.

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.

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.

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 / Plan Approval:

- Any 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 for the approval of the Community 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.

Submission Requirements:

The following information is required to be shown:

- The true dimensions and bearings of the property.
- 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.
- The location of woodland areas and showing:
 - Location of tree(s) to be removed for selective thinning (marked in field).
 - Location of new woods' edges (marked in the field), edge driplines (ground truthed) and new plantings if required.
- The locations, dimensions and setbacks of all proposed buildings and structures.
- The location of paving and driveway areas.
- Walkway locations.
- Existing and proposed grades (contours and spot elevations).
- Cut and fill areas.
- Indication of ground-water and surface drainage.

- 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).
- The location of proposed stockpiles of topsoil and backfill.
- Work zone requirements (area around the proposed buildings required for excavation of foundations and access during construction).
- 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.
- Name, address and telephone number of:
 - Subdivider.
 - Builder.
 - Consultant who provided tree data and recommendations.

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 conforms to the Tree Preservation/Enhancement Plan prior to approval of said plans by the Community Services Department. 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.

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 the form provided below and also in

Appendix H of the City of Kitchener Tree Management Policy.

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.

This confirmation is to be completed using the form provided below and also in Appendix I of the Tree Management Policy.

An example of written instructions on proper tree stewardship is provided in the City of Kitchener's Tree Management Policy. 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. 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.

BUILDING CLEARANCE AREA

(from Tree Management Policy Appendix D)

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 Community Services Department as part of a Section 41 Development Agreement.

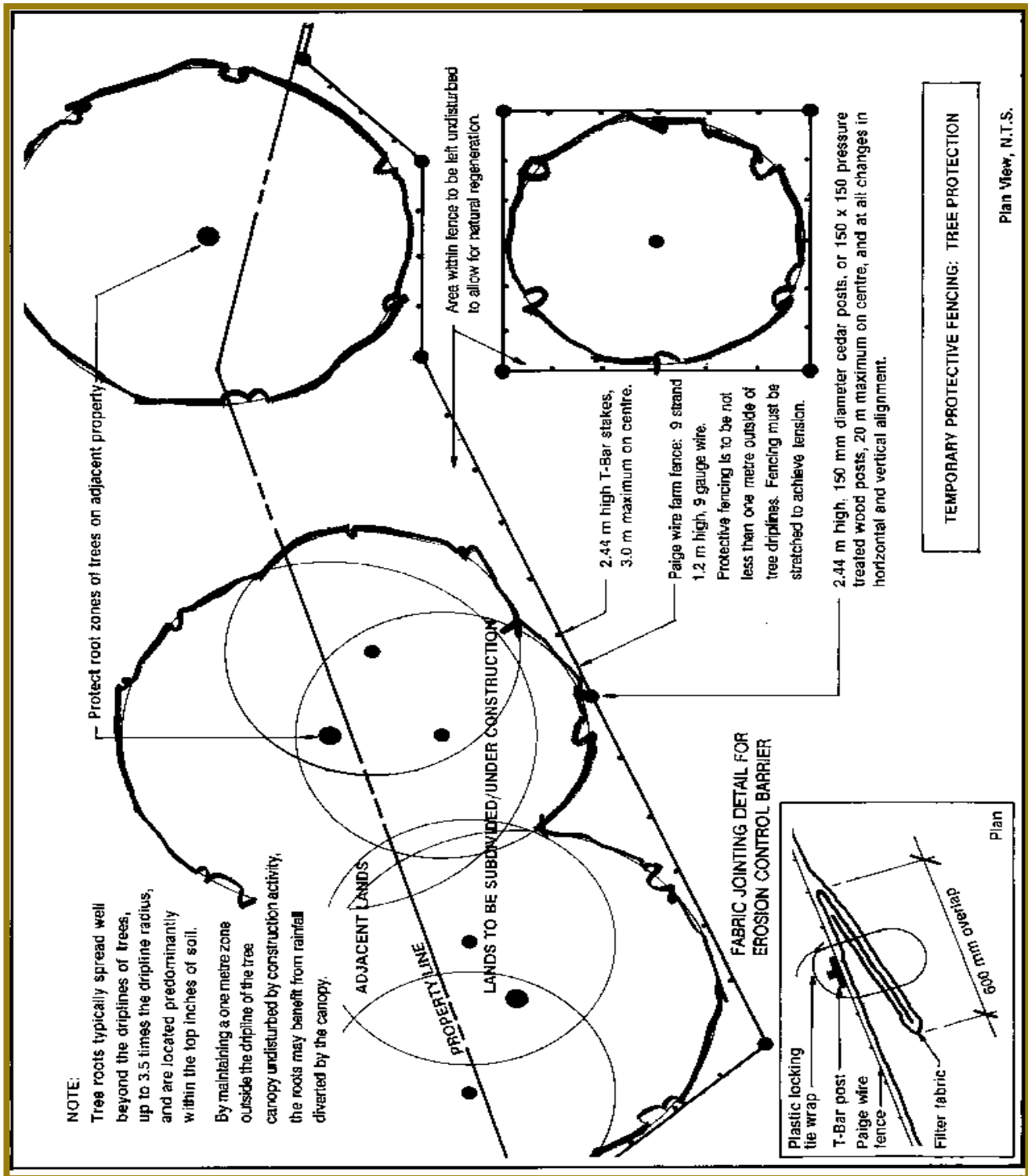


Figure 13.1: Signage and Erosion Control

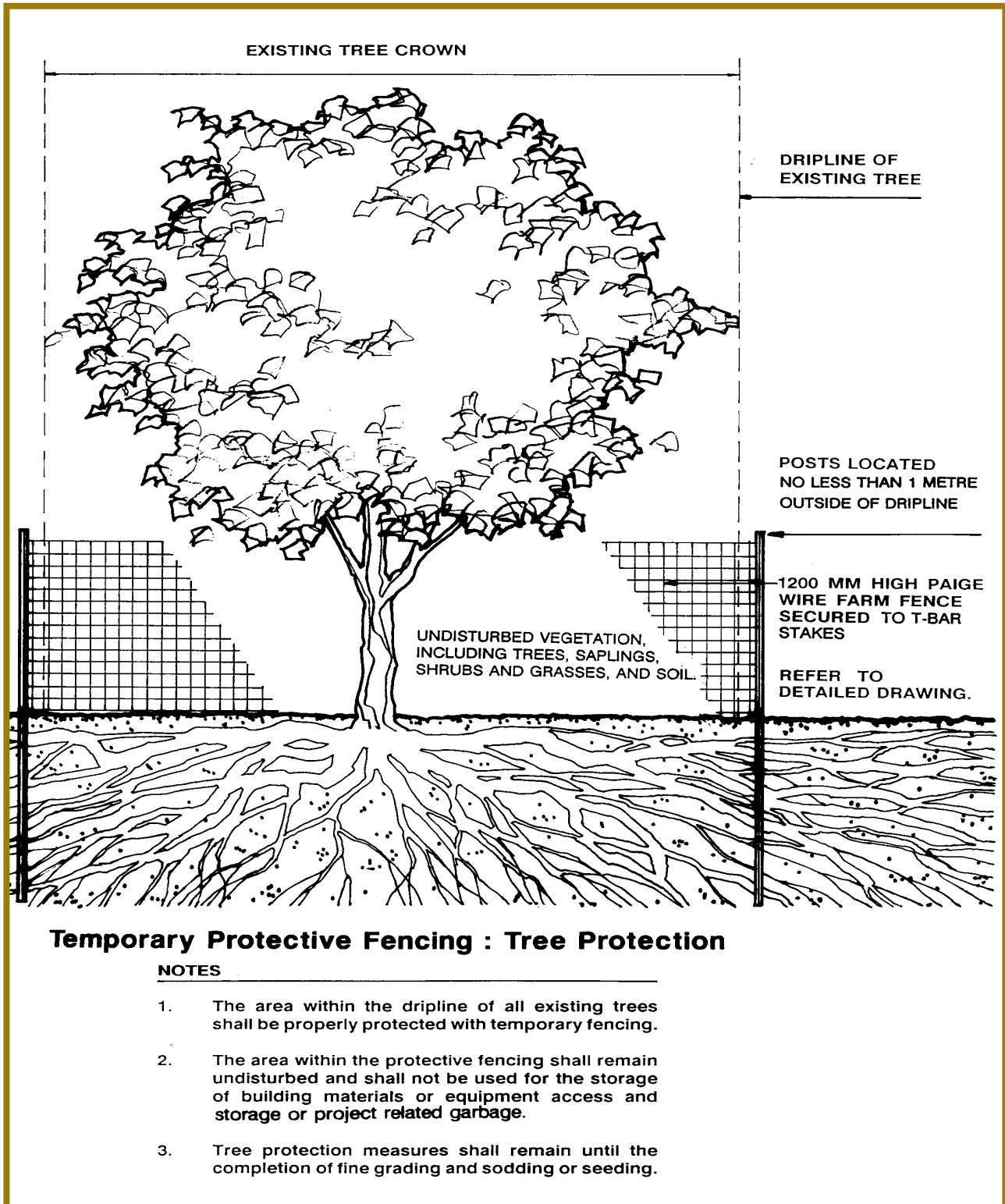


Figure 13.2: Temporary Tree Protection Fencing

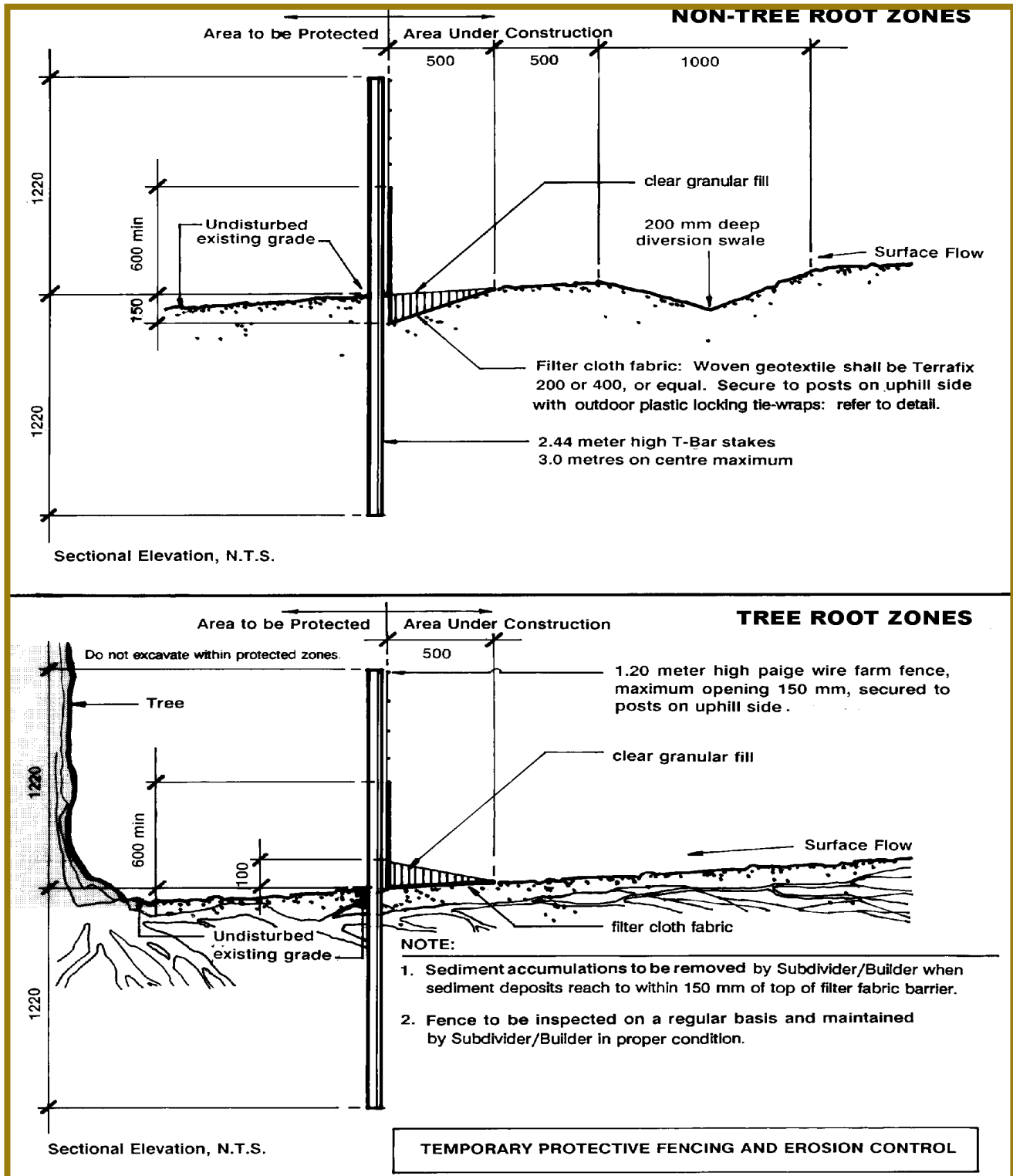


Figure 13.3: Temporary Tree Protection Fencing and Erosion Control

CONCEPT SIGNAGE

**Tree Preservation Plan
In Effect**

NO BEYOND THIS POINT

DUMPING
STORAGE OF MATERIALS
TREE REMOVAL
DISTURBANCE OF ANY KIND

DEVELOPERS NAME
DEVELOPERS TELEPHONE NUMBER

CONSULTANTS NAME
CONSULTANTS TELEPHONE NUMBER

**MOUNTED ON GATOR BOARD
MINIMUM SIZE 11" X 17"**

**SIGN TO BE PLACED 45M O.C. ALONG FENCE
SECURED WITH OUTDOOR PLASTIC LOCKING TIE-WRAPS**

Figure 13.4: Required Tree Protection Signage

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 _____

cc. Lot/Block Owner
Subdivider

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

cc. Lot/Block Owner
Builder