



# TERMS OF REFERENCE

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## Line of Excavation and Root Mapping Report

### Introduction

Under the [Tree Protection and Management Bylaw No. 8045-2026](#), where protected trees are located on or off a lot proposed for development, a Line of Excavation and Root Mapping Report, by the Project Arborist, may be required as part of the Tree Management Plan prior to construction.

The report provides a detailed assessment of the potential impacts of proposed construction on protected trees, including impacts to roots and tree protection zones.

Applicants should ensure that the Arborist they retain has experience preparing Line of Excavation and Root Mapping Reports that meet these Terms of Reference and applicable City requirements. Engaging a qualified and experienced Arborist with professional liability insurance may help avoid application delays, required revisions, and additional costs.

Line of Excavation and Root Mapping Reports must be submitted either as part of a revised Tree Management Plan, a separate document to [Trees@MapleRidge.ca](mailto:Trees@MapleRidge.ca), or included with the applicable development application submission.

For the purposes of these Terms of Reference, the following definitions apply:

- **"Arborist"** means a person certified by the International Society of Arboriculture with a valid City business licence.
- **Condition of Tree:**
  - **Excellent** - No noticeable problems, branching is regular and even, normal sized leaved, normal color.



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- **Good** – Full grown with no tip dieback, minor bark wounds, thinner crown, slightly smaller leaf size or minor infestations.
- **Fair** – One or more of the following: (a) minor tip or crown die back (less the 10%), (b) small yellowed or disfigured leaves, thinner crown, (c) significant limb wounds, (d) recent large branch removed that minimally affects shape, (e) large insect infestation, (f) any problem that should be repaired without long-term effect on the plant's health.
- **Poor** – Any of the following: (a) crown dieback from 10-25%, (b) significantly smaller, yellowed, or disfigured leaves, (c) branch removal that affects the crown shape in a significant way, (d) wounding to the bark that will affect the tree's health.
- **Very Poor** – Any problem that is so significant it grossly affects the shape or the health of the tree. Tree that has little hope of survival.
- **Replace** – Some green may be seen, but the tree is not going to survive.
- **Dead** – No noticeable signs of active growth, no live foliage, decomposition present.
- **"Damage"** means any action which causes, or reasonably likely to cause, a Protected Tree or any part of a Protected Tree to die or decline in health, including but not limited to Cutting, stripping bark, gouging, girdling, nailing, denting, ringing, poisoning, burning, Topping, root compaction, root cutting, excessive pruning of more than 1/4 of a tree canopy. "Damaging" shall have the same corresponding meaning.
- **"Line of Excavation"** means the surveyed, staked, painted, or otherwise clearly marked limit of proposed soil disturbance associated with construction, including but not limited to excavation for foundations, footings, basements, retaining walls, servicing, utilities, drainage works, driveways, grading, or other below-ground works. For tree protection purposes, the Line of Excavation identifies the closest proposed extent of soil disturbance in relation to protected trees and their tree protection zones.



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- **"Retained Tree"** means a tree that has not been permitted for removal. "Tree to be retained" shall have the same corresponding meaning.
- **"Root Mapping"** means the careful investigation and documentation of the location, size, depth, condition, and extent of tree roots within or adjacent to a Tree Protection Zone to determine potential impacts from proposed construction or excavation and to guide tree protection requirements.
- **"Standard Arboricultural Practices"** means the standards and guidelines established by the International Society of Arboriculture on pruning techniques, tree health assessments, and tree care practices.
- **"Tree Protection Barrier"** means a barrier constructed around a tree in accordance with Schedule B.
- **"Tree Protection Zone"** means the ground area enclosed by a Tree Protection Barrier installed in accordance with this bylaw. If a required barrier has not been installed, the Tree Protection Zone is deemed to be the area that would be enclosed by a barrier installed in accordance with this bylaw.

## Purpose

The purpose of these Terms of Reference is to establish the minimum requirements for a Project Arborist's Line of Excavation and Root Mapping Report submitted to the City, where such a report has been required by the Urban Forestry team.

A Line of Excavation and Root Mapping Report is intended to confirm the location of proposed construction-related soil disturbance in relation to protected trees and their Tree Protection Zones, and to assess the potential impacts of the proposed works on protected tree roots.



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The report is intended to:

- Identify and document the Line of Excavation, including the closest proposed extent of excavation, grading, servicing, or other soil disturbance in relation to protected trees;
- Confirm the location of proposed building corners, where applicable, through surveyed pins, stakes, or equivalent layout markers;
- Determine the location, size, depth, condition, and extent of roots within or adjacent to Tree Protection Zones that may be affected by proposed construction;
- Assess whether proposed works can proceed without unacceptable impacts to protected trees;
- Identify required tree protection, excavation, construction, and mitigation measures; and
- Support City review of the Tree Management Plan and related development or building permit applications.

## Expectations

Line of Excavation and Root Mapping Reports are expected to be complete, accurate, and prepared to a professional standard that enables the City to efficiently assess whether protected trees can be retained without unacceptable damage, and to determine whether special tree protection measures are required or whether removal is recommended.

The City relies on the professional expertise, observations, and opinions of the Project Arborist when reviewing Line of Excavation and Root Mapping Reports to determine whether proposed works can be completed safely in proximity to retained trees.

The Project Arborist must use root investigation and excavation methods that avoid damage to protected trees and their roots. Acceptable methods may include hand digging, air spade



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excavation, hydrovac excavation, or hand-dug sample trenches, as appropriate to site conditions and the scope of assessment. Roots must not be cut, torn, broken, stripped, compacted, or otherwise damaged during the assessment unless otherwise authorized by the City and specifically recommended by the Project Arborist.

Consultants are responsible for ensuring that all required information is included, site conditions are clearly documented, and conclusions and recommendations are supported by the Project Arborist's observations and professional opinion. The Line of Excavation and Root Mapping Report requirements should be used as a **checklist** to confirm that the submission is complete before it is provided to the City.

The City may require revisions, additional information, or supporting documentation where a submission is incomplete, unclear, inconsistent with City requirements, or does not adequately address bylaw or permit requirements. Incomplete submissions may not be reviewed until the complete Arborist Follow-Up Reports and all required supporting materials have been received.

Where a submission remains incomplete, unclear, or inconsistent with bylaw requirements after repeated submissions, the City may decline to continue reviewing the report and require the applicant to submit a revised report prepared by another qualified Arborist. Generally, this may occur after the original submission and two subsequent opportunities to provide revisions.

## Line of Excavation and Root Mapping Report Requirements

The Line of Excavation and Root Mapping Report must be submitted as one complete digital document, or as a revision of the Tree Management Plan, and must include the sections and information outlined below.



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## Cover Page

- ☐ Name of arborist and consulting firm, address, email, and phone number
- ☐ ISA Certification #, TRAQ, RPF, other credentials.
- ☐ Maple Ridge Business Licence #
- ☐ Name and contact information for the applicant and owner
- ☐ Project address and project number, if applicable
- ☐ Report date, which is to be updated with each revision and include previous version dates.

## Introduction

- ☐ Purpose of the report, including a description of the specific assessment.
- ☐ Date, time, and weather conditions for each site visit.

## Content

A Line of Excavation and Root Mapping Report must include sufficient information to allow the City to assess the location of proposed excavation or construction-related soil disturbance in relation to protected trees, their Tree Protection Zones, and any roots encountered during the assessment.

At a minimum, the report must include the following:

- ☐ **Site Plan**

The report must include a site plan showing protected trees, Tree Protection Zones, required Tree Protection Barriers to scale, proposed building footprint, surveyed building corner pins where applicable, proposed Line of Excavation, root mapping



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locations, and relevant site features such as structures, utilities, driveways, retaining walls ([see format section](#))

## ☐ Root investigation method

The report must describe the root investigation method used, such as hand digging, air spade, hydrovac, hand-dug sample trenching, or another non-destructive or low-impact method acceptable to the City.

## ☐ Root Protection During Assessment

The report must confirm that roots were not cut, torn, broken, stripped, compacted, or otherwise damaged during the assessment, unless specifically authorized by the City and documented by the Project Arborist.

## ☐ Findings Table

The report must include a findings table for each excavation line, trench, test pit, or root investigation area. The table must include the excavation ID, related tree ID where known, total excavation length, root location along the excavation, root depth, root diameter, root condition, other materials encountered, and recommended protection or mitigation measures.

## ☐ Trench Section Drawing

The report must include a section drawing of each completed trench or representative investigation area, showing trench length, depth, roots encountered, other materials found, and labels that correspond with the site plan, photographs, and findings table.

## ☐ Arborist Assessment and Recommendations

The report must include an assessment of potential impacts to protected trees and recommendations for retention, removal, tree protection, excavation methods, mitigation, construction changes, and Arborist supervision, as applicable.



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## Summary

The report must include a concise summary of the Project Arborist's findings, conclusions, and recommendations.

- ☐ **Findings**

Summarize the roots encountered, including their location, size, depth, and condition in relation to the proposed Line of Excavation and Tree Protection Zones Potential Tree Impacts.

- ☐ **Impacts**

Identify potential impacts to protected trees, including tree health, stability, and long-term viability.

- ☐ **Recommendations**

Summarize required tree protection, mitigation, construction changes, Arborist supervision, and whether each protected tree is recommended for retention or removal.

## Photographs

The Report must include clear, date and GPS stamped photographs documenting the root mapping assessment and relevant site conditions.

At a minimum, photographs must include:

- ☐ **Site Overview Photographs**

Date and GPS stamped photographs showing the general site conditions, protected trees, proposed work area, and the relationship between the trees, Tree Protection Zones, building footprint, and proposed Line of Excavation.





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- ☐ **Excavation Line and Root Mapping Photographs**

Photographs of each completed excavation line, trench, test pit, hydrovac area, air spade investigation area, or hand-dug sample trench.

- ☐ **Root Detail Photographs**

Photographs clearly showing roots encountered during the assessment, including measuring tapes, rulers, spray paint, stakes, or other reference markers to document root location, depth, diameter, and orientation.

- ☐ **Photo Labelling**

Photographs must be clearly labelled or cross-referenced with the applicable Tree ID or tag number, where applicable, and must include enough context to allow the City to understand the location and subject of each photograph.

## Arborist Certification & Sign-Off

This section must include a signed certification by the Project Arborist confirming that the Line of Excavation and Root Mapping Report has been prepared in accordance with these Terms of Reference, the Tree Protection and Management Bylaw No. 8045-2026, current standard arboricultural practices, and applicable City tree management requirements.

The certification must be based on the Project Arborist's site inspection, professional observations, and opinion, and must confirm whether the Tree Protection Barriers are appropriately located, constructed, and maintained to protect the Retained Trees before construction or site disturbance continues.

The certification must include:

- ☐ Arborist's full name
- ☐ Arborist's certification number and credentials



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- ☐ Arborist's signature
- ☐ Date of certification
- ☐ If the report author is not a Certified Arborist, the report must also include the full name, credentials, certification number, and signature of the Certified Arborist who supervised the work and reviewed the report. The report author's full name, credentials, and signature must also be provided.

## Format

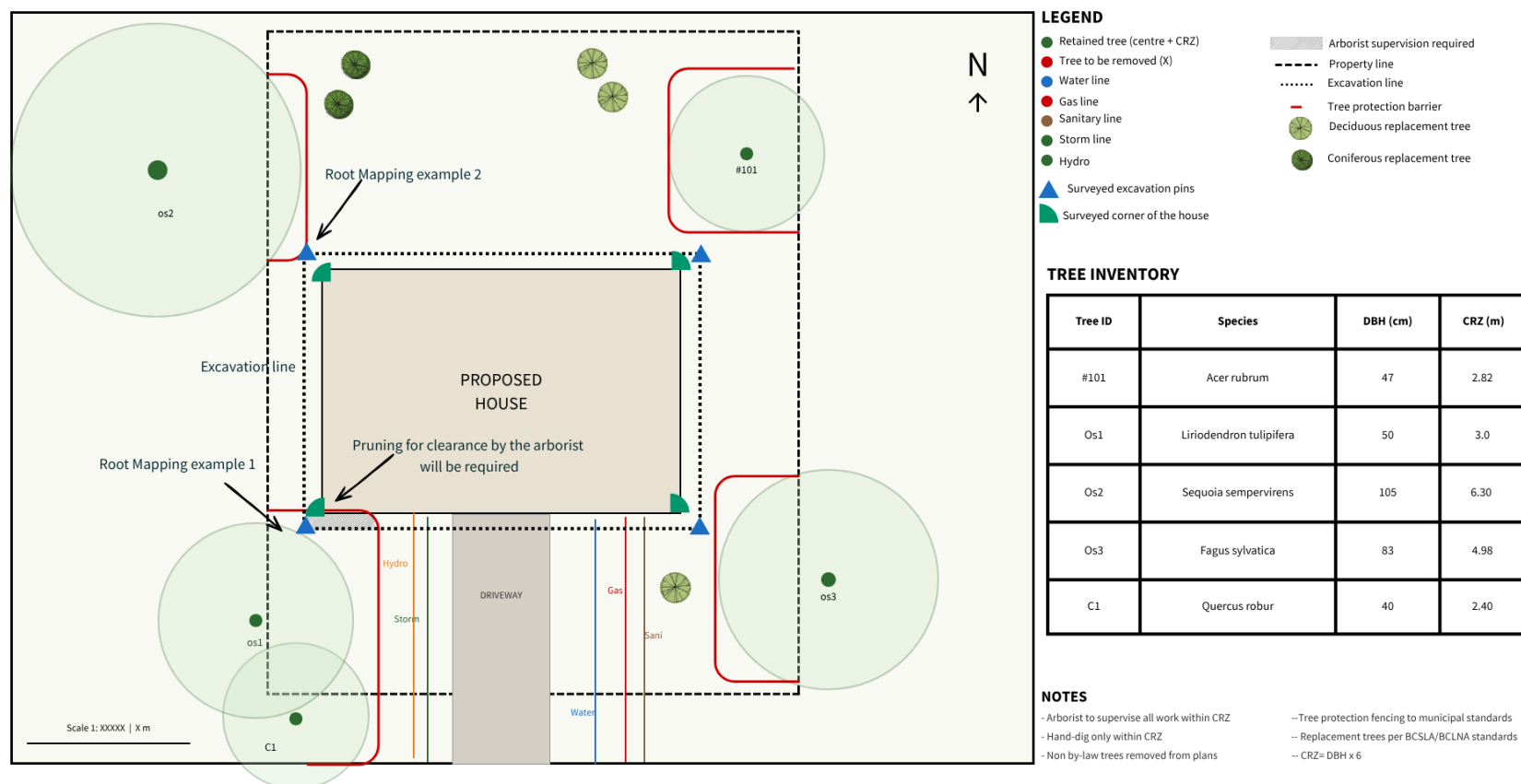
### Report layout

- ☐ All submissions must include all the items listed in the [Line of Excavation and Root Mapping Report Requirements](#)
- ☐ Each page shall include a header with the name of the firm or consulting arborist and contact information
- ☐ Each page shall include a footer with the project address/project number, client name and contact information
- ☐ Each page shall include the page number
- ☐ Other relevant information

Created August 2026

## Example Plan

### TREE PROTECTION & REPLACEMENT PLAN



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## Findings table

| Excavation /trench ID | Tree ID or Tag # | Total excavation length (m) | Distance of excavation line from tree (m) | Root location along excavation | Root depth (cm) | Root diameter (cm) | Root condition (use specific language descriptors for condition of trees defined in the introduction) | Other materials found | Recommendation                                                                                                                                          |
|-----------------------|------------------|-----------------------------|-------------------------------------------|--------------------------------|-----------------|--------------------|-------------------------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Example 1             | Tree Os1         | 2                           | 3                                         | 1.2m from north end            | 25              | 10                 | Good                                                                                                  | Gravel                | Retain, do not cut, maintain hand excavation under arborist supervision within 1m; corner of house pins indicate pruning for clearance will be required |
| Example 2             | Tree Os2         | 3                           | 6                                         | 0.9 m from east end            | 18              | 75                 | Excellent                                                                                             | none                  | Large structural root; Do not cut; revise construction method or excavation limit; if changes are not viable, removal of the tree may be required       |