

Landscape Preservation During Development: General Specification

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I. Summary

- A. This report provides the very general specifications for protection and preservation of trees and all aspects of the landscape during the demolition and construction period for work performed by a contractor from painting to fences, landscape installation, roofing, renovation and so on. It is important that the contractors, project manager, clients and arborist work closely together to assure the plants are protected and remain healthy and that good environmental practices are followed to keep the soil clean of any construction materials. The tree protection regulations are intended to guide a construction project to ensure that appropriate practices will be implemented in the field to eliminate undesirable consequences that may result from uninformed or careless acts, and preserve both trees and property values.

I share this with you as a general specification, but a more specific document should be drafted for each individual project and discussed with the architect, contractor and parties involved and the final document attached to your contract. I receive phone calls from clients heartbroken over damaged plants and landscape. This includes everything from concrete washouts into their oak woodland, broken limbs on trees and shrubs, paint residue dumped in tree basins and roots needlessly and incorrectly cut.

II. Introduction

A. Purpose and Use of Report

1. Provide assessment and recommendations to keep trees and supporting landscape healthy and void of injury during construction/development/painting.
2. Avoid soil compaction and effect of heavy equipment
3. Avoid disturbance to wildlife
4. Protect individual tree loss and loss of critical mat forming roots
5. Avoid mechanical *injury* to roots, trunk or branches
6. Avoid changes in existing grade which can cut or suffocate roots
7. Mitigate microclimate change due to changes in the garden including sun, shadowing, light and wind changes.
8. Avoid disruption of water patterns and Alteration of the water table - either raising or lowering

B. General Observations

1. Zones for protection and access are essential to protect the existing landscape.

2. Whenever there is construction in the proximity of established trees there is a risk of loss, but that risk can be minimized with careful considerations and precautions.

III. Site Specifications for Trees and Site Protection During Development

- A. Before beginning work, the contractor is required to meet with the consultant at the site to review all work procedures, access routes, storage areas, and tree and plant protection measures.
- B. General Care & Protection During Contractor Work
 1. Protection during demolition, house construction, painting, sewer, and other contractor work
 - a. All vegetation and soil shall be covered with tarps and protected from scrapings and wet paint.
 - b. No materials, paint, liquid, spoil, ashes, debris waste or washout shall be disposed of in the soil or buried in the soil; all waste shall be removed from site and recycled or transferred to proper facility.
 - c. No tools or equipment shall be leaned against trees or shrubs.
 - d. Care must be taken not to scrape or damage the trunk, branches or foliage.
 - e. Care shall be taken not to damage the roots of any plants.
 - f. Contractors shall not clip, top, trim, or break any tree or shrub.
 - (1) Pruning of plants for access shall be performed by a professional aesthetic pruner or Certified Arborist
 - g. Branches may be carefully tied back from the building structure. Take care to move smaller branches only and tie carefully with tree tie to avoid breaking the branch mid way or worse at the junction with the parent branch.
 - h. Loss and disturbance to topsoil will occur during development.
 - (1) Save all topsoil that may be stripped prior to grading for reuse.
 - (a) Note: Approximate time to build up one inch of topsoil, 1,000 years.
 - (2) Disturbance to soil can result in erosion, loss of trees, change in water percolation
 - (3) Minimize impact by using small, non motorized rubber tired equipment or by hand for hauling
 - i. All underground utilities and drain lines shall be routed outside the tree protection zone. If lines must traverse the protection zone, they shall be tunneled or bored under the tree.

- j. Additional tree pruning both canopy and roots required for clearance shall be performed by a qualified arborist and not by construction personnel.
- k. Any herbicides placed under paving materials must be safe for use around trees and labeled for that use. Any pesticide use on site must be tree safe and not easily transported by water.
- l. If any injury occurs to a tree on site, arborist consultant should be contacted immediately so appropriate treatments can be applied.
- m. Any grading, construction, demolition or other work that is expected to encounter tree roots must be monitored by consulting arborist.
- n. Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly by the consulting arborist.
- o. Spoils from trenches, basements or other excavations shall not be placed within the tree protection zone, either temporarily or permanently.
- p. Maintain fire-safe areas around fenced areas. Also, no heat sources, flames, ignition sources, or smoking is allowed near mulch of trees.
- q. Construction trailers, traffic and storage areas must remain outside the fenced areas at all times.
- r. Pertaining to street trees or trees within the public right of way, no cutting of tree roots by utility *trenching*, foundation digging, placement of curbs and trenches and other excavation without prior approval of the *City Arborist*.
- s. No smoking of any kind in the garden or on site.
- t. Protective Tree Fencing: temporary enclosure erected around a tree to be protected at the boundary of the *tree protection zone*. Trees should be fenced off within the root protection zone, (RPZ). This is a semi permanent fence which stays in place throughout the duration of development. Established trees often have roots that extend out three times the height of the tree. The fence serves three primary functions:
 - (1) Keep the foliage crown, branch structure and trunk clear from direct contact and damage by equipment, materials or *disturbances*.
 - (2) Preserve roots and soil in an intact and non-compacted state.
 - (3) Identify the tree protection zone in which no soil *disturbance* is permitted and activities are restricted unless otherwise approved.
- u. Deep water trees weekly during the construction period. Each irrigation shall wet the soil within the tree protection zone to a depth of 30 inches.
 - (1) Established trees often have roots that extend out three times the height of the tree and beyond the drip line.

C. Trenching, Piers, concrete slabs

1. This is another area of concern during construction and renovation. Again, these are only general specifications.
 - a. Trenching or concrete slabs within the RPZ (root protection zone) will cause serious health risks to established and mature trees. Use alternate methodologies that do not impact the roots and allow aeration and water to percolate into the soil.

D. Fencing of trees and other landscape

1. Fences should be erected to protect trees and landscape and to establish a Root Protection Zone (RPZ). This semi permanent fence stays in place throughout the duration of development. Fences may not be removed or relocated without written permission of the consultant arborist.
2. Construction trailers and traffic and storage areas must remain outside the fenced areas at all times.
3. There shall be no access to the fenced off area throughout the duration of development for work, social or recreational use.
4. Any landscape areas impacted by construction or storage of materials should have a 5-6" layer of wood chips over the entire area. Apply these after a deep watering unless the plants are established and drought tolerant then apply chips only. Keep chips 4-5" from trunks of trees. This is especially important within the drip line of the trees.
5. The route of access shall be designated prior to the project start date. It is essential that this route be followed to avoid damage to both the hardscape and softscape of the garden as well as undue compaction to the tree

E. Monitoring during construction

1. The Certified Arborist working with the project manager / architect / engineer routinely monitors the development process and maintains the tree protection zone. The contractor should be aware that the arborist is part of the development team and they will be working together to ensure the health and safety of the trees and project. Also, unforeseen changes or problems may occur and decisions and changes can be made that ensure the health and survival for the trees and other landscape plants.

F. Other specifications and suggestions

1. Posting a Bond for value of trees
 - a. Helps insure specifications for tree preservation are followed. The bond becomes a tool for compliance, not a penalty.
 - b. A Tree Preservation Bond typically ensures one of two things.

- (1) It guarantees that specific trees considered to be protected will not be harmed by the construction project and if harmed the developer will reimburse the jurisdiction for their loss.
- (2) It guarantees that the developer will plant replacement trees for protected trees that must be torn down for the construction project. Once the project is complete and the jurisdiction verifies protected trees are unharmed and replacement trees are in place, the bond can be released.

2. Irrigation

- a. If the water is shut off for more than 3 days the property owner shall be notified to make alternate arrangements for watering. The landscape plants can survive longer without water but not those in planters planters.
3. Spraying foliage with water may also minimize stress to the plants from construction dust and other residues.
 4. No smoking of any kind in the landscape.
 5. Loss and disturbance to topsoil during development
 - a. Avoid disturbing or removing topsoil in and around trees.
 6. The areas that are being disturbed and possibility of plants injured can be mitigated with appropriate care and alternative construction methodologies. Sometimes this merely involves a little extra time or thought.

G. Conclusion

1. With these guidelines, careful specifications, good communication with the contractors and workers, risk of harm to trees can definitely be reduced. Increasing the water to trees per above specifications may help invigorate trees. However, careful monitoring during and after construction are also essential in mitigating the risk of injury or harm.

