

Yale University

Office of Facilities Planning and Landscape and Grounds Management Guideline for Tree Protection and Preservation for Planners and PMs

A. INTRODUCTION

1.1 Review of the project site trees is to be coordinated with the Yale Tree Management Plan. Each tree on campus has been surveyed for maintenance practices and environmental benefit. Recommendations for maintenance include tree inspections, comprehensive pruning, pruning, cabling, and removals. Environmental benefits include air quality, stormwater retention, carbon sequestration and storage. These factors are to be reviewed and considered as the actions for each tree are developed. Specific data per tree is available through the ArcGIS application developed in the Yale Tree Management Plan, Critical Root zone (CRZ) map:

<https://yalemaps.maps.arcgis.com/apps/webappviewer/index.html?id=0a67085f32f8405887d29d37a73c5e31>).

1.2 Project team deliverables include:

- a. Predesign
 - i. AOI with CRZ - determine Project Area (Area of Interest (AOI)) showing Critical Root Zone (CRZ) of Trees within Area.
 - ii. Tree protection and preservation method – determine this using the Tree Protection Flow Chart.
- b. Schematic Design
 - i. Site plan - show tree locations with trees identified that require protection.
 - ii. Project Arborist - If determined, Owner to engage services of Project Arborist
 - iii. Tree Protection Action Key (TPAK) – provide list of trees within in Area of Interest conditions and recommendations.
- c. Design Development through Construction Documents
 - i. Tree Protection Action Key – coordinate with site conditions
 - ii. Tree Protection Zones (TPZ) - determine extent with reference to critical area at roots, CRZ.
- d. Pre-Construction
 - i. Tree Protection Kickoff Meeting with Owner, Project Arborist, design team, construction team and Contract Arborist.
 - ii. Tree Protection Barriers – install and coordinate prior to site activity.
- e. Construction
 - i. Project Arborist – prepare site visit and reports on tree protection and preservation as implemented by Contract Arborist.
- f. Post Construction
 - i. Final Inspection – perform site visit and prepare report by Project Arborist, outstanding items execute by Contract Arborist.
 - ii. Monitoring – for period as required for species planted, by construction Contract Arborist.

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B. GENERAL DESIGN REQUIREMENTS

I. Project Formulation / Pre Design:

1.1 Utilize the above-linked CRZ map from the campus-wide tree inventory to generate an Area of Interest report to determine what trees may be impacted by the project. The Area of Interest will include all locations where construction will occur and all potential access routes for transporting materials and equipment to the site.

1.2. Refer to the Tree Protection Flow Chart below for project requirements per identification of the critical root zones within Area of Interest, or project development area.

1.3. Only follow tree protection methods as determined using the flow chart throughout the project. Full description of each tree protection method is detailed in the Tree Protection and Preservation Specification and are to be followed. The specification is prepared as a template for the design team and is to be included within the project manual within standard Division 01 specifications that cover General Requirements. It should not be considered a standalone document for tree protection. The intention is for it to be used by the owner, design team and contractors to incorporate tree protection guidelines from design concept to a successfully completed project.

(<https://facilities.yale.edu/contractor-consultant-resources/design-guidelines/yale-university-design-standards-capital-project>, 01 56 40 Requirements for Tree Protection and Preservation Specification)

II. Schematic Design:

1.1. Once the project identifies the Area of Interest, the site boundaries are to be marked on plans and in the field to delineate which trees and stands of trees are to be protected. If it is determined that a Project Arborist is needed, the Owner is required to engage the services of a Project Arborist. The Project Arborist is an arboricultural consulting firm contracted to provide planning and design services, technical assistance and advice to the Owner and design team. Duties include but are not limited to the following: site investigation and documentation (design phase inventories, assessments, root investigations, etc.); develop tree preservation plans, methods, details and specifications; and provide final document review. The Project Arborist is contracted directly to the Owner and acts specifically on behalf of the Owner concerning tree related issues.

1.2. The Project Arborist shall be a qualified arborist experienced in tree preservation plan development to perform a tree inventory that includes the location, size, and health of each tree and delineates quality stands of trees. Scope of the inventory should be based on Area of Interest report and needs of the Owner, as well as city ordinances. Confer with the design team on conceptualizations for site design, so that long- term tree protection and health are integrated into the design.

1.3. Identify which trees are most suitable for preservation and those that should be removed due to condition or potential impacts from construction activities or structures and

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2. Prior to pre-construction activities, including tree removal, access roads, construction staging areas, and building layout, erect tree protection barriers to visually indicate Tree Protection Zones (TPZs). Be sure to:

- Coordinate with the Tree Protection and Preservation Specification.
- Use tree protection barriers that are highly visible, sturdy, and restrict entry into the TPZ.
- Install or erect signs along the tree protection barrier stating that no one can disturb or enter this area.
- Remove any branches or trees that pose an immediate risk to structures or people prior to any construction activities.

2. Communicate the intent of the tree protection barriers to the construction team to ensure that TPZs are not disturbed during construction activities. Have the construction team sign a contract of compliance.

3. Prohibit these activities in the TPZ:

- Stockpiling of any type, including construction material, debris, soil, and mulch
- Altering soils, including grade changes, surface treatment, and compaction due to vehicle, equipment, and foot traffic
- Trenching for utility installation or repair and irrigation system installation
- Attaching anything to trunks or use of equipment that causes injury to the tree

IV. Construction

1. Schedule Project Arborist site visits to ensure the contract is being met by the construction team and that tree health is not being compromised by construction activity. Inspect and monitor trees for any decline or damages.

- Project Arborist should coordinate visits with construction and design team to determine if there are any specific issues to address. Construction and design team do not need to be present at visit.
- Project Arborist shall provide a summary report following each visit that documents any violations or areas of concern that are identified.

2. Keep in place all tree protection barriers until the project is completed.

Considerations

- Apply at least 6" of mulch within the TPZ to prevent disturbance to tree roots and soil.
- Prior to any construction activity, consider taking photographs of the trees to be saved and surrounding areas to identify any construction damage caused to trees during construction.

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- Add a penalty clause in the contract of compliance that prevents moving or altering the tree protection barrier and entering the TPZ.

V. Post-construction

1. Project Arborist perform a final inspection and report. Contract Arborist to continue monitoring after construction for a period as determined necessary for species. Monitoring includes maintaining mulch, managing soil moisture, assessing tree damage, inspecting for insects and pests, and fertilization if needed.

Date	Description of Change	Pages / Sections Modified	ID
05/25/21	New document	-	KC, MW

