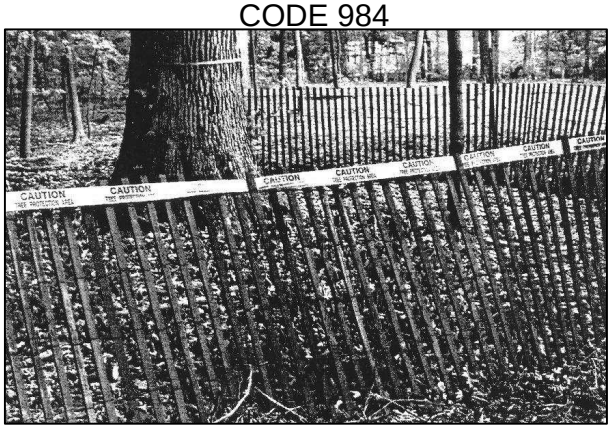
ILLINOIS URBAN MANUAL
PRACTICE STANDARD

TREE AND FOREST ECOSYSTEM PRESERVATION

(acre or sq. ft.)
CODE 984



(Source: IN Drainage Handbook)

DEFINITION

The preservation of contiguous stands of trees from damage during construction operations.

PURPOSE

The purpose of this practice is to preserve contiguous forested areas and stands of trees that have present and future value for erosion protection, wildlife habitat, landscape aesthetics and other economic and environmental benefits.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies on development sites containing stands of trees.

CRITERIA

JULIE Before any work has begun, call JULIE- (Joint Utility Locating Information for Excavators) at 800-892-0123 at least 48 hours prior to any work being done. Equivalent local authorities shall also be contacted, where applicable.

DETERMINE THE CRITICAL FOREST EDGE ZONE The Critical Forest Edge Zone (CFEZ) is three foot outside the perimeter of the dripline and/or leaf canopy of the stand of trees to be protected. The area within the CFEZ shall be protected from damage during construction operations.

WHEN TO START PRACTICE All required protection measures shall be installed prior to the commencement of any site development activity and shall remain in place and in working, functional order until all site development activities have ceased or the surrounding area has been stabilized and the site has been inspected.

FENCING Per IUM Standard Drawing IUM-690-A – TREE PROTECTION– FENCING, trees to be protected per the approved construction plan or by local ordinance shall be protected with fencing placed at the CFEZ. This area shall be protected from damage during construction operations.

Significant or historical trees to be protected shall require chain link tree protection fencing to be set at the CFEZ. For projects without highly significant or historical trees that will last for less than a six-month duration, a non-treated wood lath or wire-mesh fencing shall be used and the fence securely anchored to the posts.

For projects over a six-month duration or trees that are considered significant or historical trees, a chain link fence with IUM Construction Specification 91 CHAIN LINK FENCE or better (as approved by the local Forester per local ordinances singularly or in tandem with the project Engineer) shall be used. IUM Standard Drawing IUM-690-A TREE PROTECTION – FENCING. Fencing shall be a minimum of 4 feet in height. For chain link fencing, metal posts shall be placed 6 feet maximum spacing on center (OC) and fencing securely anchored to the posts.

No construction activities shall be permitted within the CFEZ. In addition, all roadways, parking areas, and storage areas shall be located 10 feet outside the CFEZ. Fences shall be maintained to prevent clearing, grading and development activities from encroaching within the CFEZ.

SIGNAGE Notices shall be posted on the fences prohibiting dumping and disposal of waste near protected trees. Signs shall be posted that identify the fenced areas as CFEZ.

SOIL EROSION CONCERNS Soil erosion and sediment control measures shall be installed outside the CFEZ to prevent sediment from reaching the CFEZ. Per IUM Standard Drawing IUM-690-A, these measures shall extend out from the fence 10 feet and shall be continuous around the perimeter of the fence. These erosion control measures include, but are not limited to vegetative filter strip, rolled excelsior blankets or woodchip mulch with a minimum of 3 inches to a maximum of 5 inches deep. Other methods may be used if approved by the Professional Forester, Certified Arborist or equivalent professional. Installation shall cause no disturbance to soils.

All foot or vehicular traffic or construction activities shall be kept outside of the CFEZ for the entire duration of the construction.

As a precautionary measure, actions shall be taken to disperse the load, minimizing soil compaction and mechanical root damage around the CFEZ. These soil protection strategies to be implemented by non-mechanical methods such as:

- Applying and maintaining 10 to 12 inches of woodchip mulch to the area
- Laying three-quarter inch minimum thick plywood, beams, commercial logging or road mats over a four inch or greater layer of woodchip mulch

All methods and measures to be installed shall be approved by the Professional Forester or Certified Arborist or equivalent.

Stone and woodchip mulch exceeding four inches thick must be removed from the CFEZ once the threat of soil or root damage is passed. Any removal of vegetation or spreading of woodchip mulch materials within the CFEZ shall

be performed manually, and all efforts should be made to protect the soil.

When utilities or other development features necessitate underground movement or excavation of the soil within the CFEZ, follow criteria in IUM Practice Standard Code 991 TREE PROTECTION - AUGERING. There shall be no trenching of any tree within the protected area of the CFEZ. For trees on the edge of the CFEZ that are considered to be historic or significant, it shall be required to provide additional tree trunk protection per IUM Standard Drawing IUM-690-C TREE TRUNK PROTECTION.

NO CHANGES IN CONTOUR Special care shall be taken to follow the natural drainage patterns to avoid unnatural flow to protected trees. Any changes to topography can cause the tree to get reduced or increased moisture over time thus eventually killing the tree. Water drainage patterns shall remain the same.

Removal of topsoil around the tree is not allowed. The original grade shall be maintained. Any woody vegetation to be removed around the trees to remain shall be cut and not pulled out by equipment to avoid root injury to the remaining tree(s).

Note: Measures must be installed according to a site-specific plan and in accordance with all applicable local, state, and federal laws and regulations.

CONSIDERATIONS

Preserving and protecting trees and other natural plant groups often result in more stable soil and aesthetically pleasing development.

When working within the boundary of a municipality, local authorities such as the Urban Forester, City Arborist, Municipal Forester, or Public Works/Streets Department officials should be contacted to determine locally enforced tree protection/preservation standards.

Tree surveys should be required for all parcels that contain mature woodlands, groves, young woodlands or significant trees. Tree surveys should identify the location, size (caliper), dripline/leaf canopy, species, and condition health rating of all trees having a diameter at breast height (DBH) of 12 inches or more or as designated in the local ordinance. Property line and hedgerow trees should be included in the tree survey. Required tree surveys and inventories should be conducted by a Professional Forester or Certified Arborist.

It is recommended that a Professional Forester review the pre-construction plan; supervise/inspect the on-site tree protection operation; and review the site for compliance during the post-construction phase.

The CFEZ shall be shown on the plan sheet to scale to provide a better basis for site development evaluation.

It is recommended that a Professional Forester, or Certified Arborist, Licensed Landscape Architect or an agency designee with biological, natural resource or environmental credentials select the trees to be preserved before siting roads, buildings or other structures.

If trees are to be removed, it is recommended that a Professional

Forester or Certified Arborist should be present to supervise the tree removals to make recommendations to ensure the dropped trees minimize damage to protected trees.

All trees to be removed will be recorded by stem diameter so the responsible party can conduct natural area mitigation by planting enough trees to replace the trees on at least one for one replacement schedule. A mitigation plan for damaged trees should be prepared in consultation with a Professional Forester or Certified Arborist and included with construction plans and contract documents.

Complete removal of all the trees on site followed by total site compaction well beyond the project perimeter/footprint is not recommended since it negatively impacts the ability of current and future trees to grow.

For sites greater than 15 acres in size, that are unique examples of biodiversity, (as identified by authorized agencies/ commissions) or where the area will be greatly impacted by the project and no other viable option exists, a natural resources team consisting of a Forester, Soil Scientist, and Botanist should be formed to determine the alternative that least damages the resource.

The following features should be considered when developing sites in and around wooded areas:

1. Rare and endangered species
2. Historical or archeological significance
3. Quantity and quality of forested area in the county or local governmental area and the potential for forest fragmentation
4. Frailty of resources without existing trees
5. Potential for soil erosion with the absence of the forest cover
6. The loss of aesthetic quality of the site; existence of critical areas (such as flood plains, steep slopes, and wet lands)
7. Unique flora and fauna
8. Health and condition of the individual trees and the forest ecosystem
9. Loss of habitat and flora and fauna species diversity
10. Groups of trees to be saved on the erosion control plan
11. Alteration of drainage patterns and ground water tables.

For areas with mixed forest with moderately or highly developed areas, multiple standards may need to be used.

PLANS AND SPECIFICATIONS

Plans and specifications for tree and forest ecosystem preservation shall be in keeping with this standard and will describe the requirements for applying the practice. At a minimum include the following items:

1. Forested areas to be preserved.
2. Location and type of fencing to be used to protect the trees.
3. Locations of construction areas, traffic patterns and roadways, storage areas and parking pads, and the construction project in relationship to the CFEZ to be preserved.
4. Indicate verbiage on signs to be attached to the fence and their types and locations.
5. Identify soil sediment control measures outside the CFEZ.

All plans shall include the installation, inspection and maintenance schedules with the responsible person clearly identified.
IUM Standard Drawing IUM-690-A- B TREE PROTECTION – FENCING; IUM Standard Drawing IUM-690-C TREE TRUNK PROTECTION and IUM Standard Drawing IUM-690-D TREE ROOT PROTECTION FOR AUGERING PRACTICES (Highly Urbanized Areas). and other tree protection measures may be used as the plan sheet.

OPERATION AND MAINTENANCE

On active construction sites protected areas should be inspected at least every 7 days for compliance and any repairs made as needed.

The protective signs and fences shall be removed only after all construction work has been finished, including final grading and shaping of the site, and the site has been inspected by a professional forester for damages to the trees.

Inspections shall include a listing of trees with damage to trunks, mounding of soil around the trunk, evidence of root damage, and evidence of improper pruning.

REFERENCES

Websites

International Society of Arboriculture
http://www.isa-arbor.com/store/category.aspx?cid=91

USDA FS How to Prune Trees
http://na.fs.fed.us/pubs/detail.cfm?id=2602

Illinois Department of Natural Resources – Urban and Community Forestry Web Page Technical Resources
http://www.dnr.illinois.gov/conservation/Forestry/UrbanForestry/Pages/default.aspx

Morton Arboretum. 2015. Selecting and Planting Trees. The Morton Arboretum, Lisle, IL
http://www.mortonarb.org/trees-plants/tree-and-plant-selection-0
Publications

American National Standards for Tree Care Operations – Trees, Shrubs, and Other Woody Plant Maintenance - Standard Practice (Pruning) ANSI A300 (Part 1)

American National Standards for Institute, Inc. Safety Requirements for Tree care Operations, Z133.1 most current version.

American Association of Nurserymen, 2014. American Standards for Nursery Stock. ANSI Z60.1. American National Standards Institute, Inc., Washington D.C.

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Pirone's Tree Maintenance. 7th Edition

Smiley, E. Thomas and Kelby Fite. October 2016. Preserving Trees During Construction Arborist News Volume 25 Number 5. International Society of Arboriculture, Champaign, IL

Standard Specifications for Road and bridge Construction, 2012. Illinois Department of Transportation.

Tree Care Industry Association. 2015. ANSI A300 Pruning Standards – Part 1. Tree Care Industry Association. American National Standards Institute, Inc.

Tree Care Industry Association. 2012. ANSI A300 Construction Management – Part 5. Tree Care Industry Association.

Watson, G. and E.B. Himelick, 1997. Principles and Practices of Planting Trees and Shrubs. International Society of Arboriculture, Champaign, IL

Wenger, K, 1996. The Forestry Handbook. Society of American Foresters, Bethesda, MD

Videos

Root Injury and Tree Health. Illinois Arborists, the Morton Arboretum, the USDA Forest Service and the International Society of Arboriculture.

Trenching and Tunneling: A Video Guide for Excavating Around Trees. The Davey Resource Group. The International Society of Arboriculture and the Utility Arborist Association.

Effects of Construction Damage to Trees in Wooded Areas. Mark Timmons and John Hartman. International Society of Arboriculture.

Avoidance of Construction Damage to Trees on Wooded Lots. Mark Timmons and John Hartman. University of Kentucky Agricultural Communications.

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