

**§ 525 Landscaping.**

A. General Provisions. The following general provisions shall apply to the installation and design of landscapes:

1. All land areas not covered with buildings, parking, or other impervious surfaces shall be landscaped with suitable materials. Landscaping shall consist of trees, shrubs, ground cover, perennials, and annuals singly or in common as well as other inanimate materials such as rocks, water, sculpture, art, walls, fences, and paving materials.
2. A landscape design shall be provided as part of site plan and subdivision submissions in accordance with Article VIII. Every applicant for subdivision or site plan approval shall comply with the minimum standards as set forth in this section.
3. The Board of Jurisdiction may require additional landscaping to create an appropriate landscaping scheme for the site given the nature of the site and the proposed development.
4. Where subdivisions only are applied for, the minimum standards shall apply only to street trees and to common open space and areas proposed to be dedicated to the public.
5. All landscape plants shall be typical in size and weight for their species and shall conform to the standards of the American Association of Nurserymen for quality and installation.
6. Plants with pervasive root systems shall not be located where they may cause damage to drainage pipes or other underground utilities and storm water management facilities and should generally be no closer than 10 feet measured horizontally.
7. All plants shall be tolerant of specific site conditions. The use of indigenous species is strongly encouraged. Exotic, non-native invasive plant species shall not be permitted.
8. Visual screening is required to buffer all trash enclosures, above ground propane tanks and other similar structures as identified by the Zoning Officer. [Ord.1585-99, 9/7/1999]

B. Landscape Design Guidelines.

1. Landscaping shall be conceived holistically and be designed to achieve a thorough integration of the various elements of site design, including building and parking placement, the natural features of the site and the preservation of pleasing or aesthetic views. Landscaping shall be used to accent and complement the form and type of building proposed.
2. In the landscape design of sites, areas shall be designated for retaining existing trees and the replacement of trees cleared from the site in accordance with §541.
3. Landscaping shall be located to provide effective climatic control. The east and west walls of a building should be the most heavily vegetated to shade for summer sun and the north to northwest area for winter prevailing winds. The southerly

facing side of a building should be shaded from summer sun but open for solar gain during the winter.

4. Plant's susceptibility to disease, their colors, textures, shapes, blossoms, and foliage characteristics shall be considered in the overall design of a landscape plan.
5. Local soil conditions and water availability shall be considered in the choice of landscaping.
6. In the design process, the eventual maturity of the plant shall be considered for its effect on circulation patterns, solar access, site lighting, drainage, emergency access and relationship to buildings and the streetscape.

C. Street Trees.

1. Location. Street trees shall be installed on both sides of all streets in accordance with an approved landscape plan. Trees shall be spaced evenly along the street between the curb and sidewalk. Where the distance between the curb and sidewalk is less than 5 feet, sidewalks should be placed in a public access easement outside of the right-of-way to create a planting strip at least 5 feet wide to facilitate street tree growth. In commercial areas with wider sidewalks that extend to the curb, trees shall be placed in tree wells with root guard systems. Such tree wells shall have sufficient soil volume to support tree growth as follows:

<u>Tree Size at Maturity (Height in feet)</u>	<u>Soil Volume (in cubic feet)</u>
Large trees (45'+)	200
Medium-sized trees (30'-45')	150
Small trees (to 30')	100

Areas under sidewalks may be used to meet the soil volume requirement provided no more than 50% of the volume is located under such hard paving.

2. Spacing. When trees are planted at predetermined intervals along streets, spacing shall depend on tree size.

<u>Tree Size at Maturity (Height in feet)</u>	<u>Planting Interval (in feet)</u>
Large trees (45'+)	40
Medium-sized trees (30'-45')	30
Small trees (to 30')	20

Trees may be planted closer together in order to avoid interference with utilities, roadways, sidewalks, sight easements, and street lights.

3. Street tree type. Tree type may vary depending on overall effect desired but as a general rule, all trees shall be large deciduous trees except as needed to achieve special effects. Tree selection shall be approved by the Board in accordance with Tables 5.4, 5.5 and 5.6. Alternate selections may be approved at the discretion of the Board.

**Table 5.4 Recommended Small Street Trees.**

<b>Botanical Name</b>	<b>Common Name</b>	<b>Minimum Planting Size</b>
<i>Acer campestre</i>	Hedge Maple	2½ -3" cal.
<i>Acer ginnala</i>	Amur Maple	2½ -3" cal.
<i>Amelanchier x hydrida 'Cumulus'</i>	Shadblow 'Cumulus'	2-2½" cal.
<i>Acer buergeranum</i>	Trident Maple	2½ -3" cal.
<i>Crataegus phaenopyrum x. fastigiata</i>	Washington Hawthorne	2½ -3" cal.
<i>Crataegus viridis</i>	Green Hawthorne	2½ -3" cal.
<i>Magnolia x lobneri 'Merrill'</i>	Merrill Magnolia	10'-12'
<i>Malus baccata</i>	Siberian Crabapple	3"-3½" cal.
<i>Malus x zumi 'Calocarpa'</i>	Zumi Crabapple	3"-3½" cal.
<i>Syringa reticulata</i>	Japanese Tree Lilac	10'-12'

**Table 5.5 Recommended Medium Street Trees.**

<b>Botanical Name</b>	<b>Common Name</b>	<b>Minimum Planting Size</b>
<i>Acer rubrum 'Northwood'</i>	Northwood Red Maple	2½ -3" cal.
<i>Acer rubrum 'Scanlon'</i>	Scanlon Red Maple	3"-3½" cal.
<i>Acer saccharum 'Goldspire'</i>	Goldspire Sugar Maple	3"-3½" cal.
<i>Celtis bungeana</i>	Bunge Hackberry	2½ -3" cal.
<i>Cladratis lutea</i>	Yellowwood	2-2½" cal.
<i>Carpinus caroliniana</i>	American Hornbeam	2½ -3" cal.
<i>Malus baccata 'Manchurian'</i>	Manchurian Crabapple	3"-3½" cal.
<i>Phellodendron amurense</i>	Amur Corktree	2½ -3 ½" cal.
<i>Tilia cordata x. 'Whitehouse'</i>	Whitehouse Linden	3"-3½" cal.

**Table 5.6 Recommended Large Street Trees.**

<b>Botanical Name</b>	<b>Common Name</b>	<b>Minimum Planting Size</b>
<i>Acer rubrum</i> 'October Glory'	October Glory red maple	3"-3½" cal.
<i>Acer rubrum</i> 'Red Sunset'	Red Sunset red maple	3"-3½" cal.
<i>Celtis occidentalis</i> 'Magnifica'	Hackberry	3"-3½" cal.
<i>Fraxinus americana</i> 'Autumn Purple'	Autumn purple ash	3"-3½" cal.
<i>Ginkgo biloba</i> (male only)	Ginkgo	3"-3½" cal.
<i>Platanus acerifolia</i>	London Planetree	3"-3½" cal.
<i>Platanus occidentalis</i>	Sycamore	3"-3½" cal.
<i>Quercus coccinea</i>	Scarlet Oak	3"-3½" cal.
<i>Quercus marcocarpa</i>	Bur Oak	3"-3½" cal.
<i>Quercus phellos</i>	Willow Oak	3"-3½" cal.
<i>Quercus rubra</i>	Red Oak	3"-3½" cal.
<i>Sophora japonica</i> 'Regent'	Scholar tree	3"-3½" cal.
<i>Tilia x euchlora</i>	Crimean linden	3"-3½" cal.
<i>Tilia tomentosa</i> 'Green Mountain'	Silver linden	3"-3½" cal.
<i>Ulmus parvifolia</i>	Chinese elm	3"-3½" cal.
<i>Zelkova serrata</i> 'Village Green'	Japanese zelkova	3"-3½" cal.

4. **Planting Specifications.** All trees shall have a minimum caliper as noted in the appropriate table in this section unless otherwise exempted. Street trees shall be substantially uniform in size and shape, and have straight trunks. Trees shall be properly planted and staked in accordance with the Lawrence Township Engineering Standards. Provision shall be made by the developer for regular watering and maintenance until they are established. Dead or dying trees shall be replaced by the developer during the next suitable planting season.

D. **Additional Recommended Trees.** Any of the trees noted in Tables 5.4, 5.5 and 5.6 may be used in the design of landscapes as well as their use as street trees. The following trees are recommended for site development purposes:

**Table 5.7 Additional Recommended Trees.**

<b>Botanical Name</b>	<b>Common Name</b>	<b>Minimum Planting Size</b>
<i>Acer palmatum</i>	Japanese Maple	6'-7'
<i>Acer saccharum</i>	Sugar Maple	3"-3 ½" cal.
<i>Betula pendula</i>	Weeping Birch	12'-14'
<i>Cedrus atlantica glauca</i>	Blue Atlas Cedar	6'-8'
<i>Cercidiphyllum japonicum</i>	Katsura-tree	3"-3 ½" cal.
<i>Cercis canadensis</i>	Eastern Redbud	6'-8'
<i>Cornus kousa</i>	Chinese Dogwood	2"-2 ½" cal.
<i>Crataegus crusgalli inermis</i>	Thornless Cockspur Hawthorn	2"-2 ½" cal.
<i>Cryptomeria japonica</i>	Cryptomeria	5'-6'
<i>Fagus grandifolia</i>	American Beech	3"-3 ½" cal.
<i>Fagus atropinicea</i>	Copper Beech	3"-3 ½" cal.
<i>Gleditsia triacanthos inermis</i>	Thornless Honeylocust	3"-3 ½" cal.
<i>Ilex opaca</i>	American Holly	6'-7'
<i>Koelreuteria paniculata</i>	Golden Rain Tree	2"-2 ½" cal.
<i>Liquidambar styraciflua</i>	Sweetgum	3"-3 ½" cal.
<i>Liriodendron tulipifera</i>	Tulip Poplar	2"-2 ½" cal.
<i>Metasequoia glyptostroboides</i>	Dawn Redwood	8'-10'
<i>Oxydendrum arboreum</i>	Sourwood	6'-8'
<i>Picea abies (excelsa)</i>	Norway Spruce	5'-6'
<i>Picea omorika</i>	Serbian Spruce	5'-6'
<i>Pinus strobus</i>	White Pine	5'-6'
<i>Pinus thunbergiana</i>	Japanese Black Pine	5'-6'
<i>Pinus virginiana</i>	Virginia Pine	5'-6'
<i>Populus balsamifera</i>	Balsam Poplar	2 ½"-3" cal.
<i>Prunus cerasifera</i>	Flowering Plum	2 ½"-3" cal.
<i>Prunus serrulata</i>	White Cherry	2 ½"-3" cal.
<i>Pseudolarix kaempferi</i>	Golden Larch	8'-10'
<i>Pseudotsuga menziesii</i>	Douglas Fir	5'-6'

Botanical Name	Common Name	Minimum Planting Size
<i>Quercus acutissima</i>	Sawtooth Oak	3" -3 ½" cal.
<i>Quercus palustris</i>	Pin Oak	3" -3 ½" cal.
<i>Tilia cordata 'Greenspire'</i>	Greenspire Linden	3" -3 ½" cal..
<i>Tilia tomentosa 'Green Mountain'</i>	Silver Linden	3" -3 ½" cal.
<i>Tsuga canadensis</i>	Canadian Hemlock	5'-6'
<i>Ulmus americana 'Delaware'</i>	American Elm, 'Delaware'	3" -3 ½" cal.

E. Fall Planting Hazard. Certain trees have been identified as having a high degree of transplantation failure if planted during the Fall season. These should be noted on landscape plans as Spring planting season only. The Fall planting hazard trees include the following genus and in some cases particular species:

<i>Betula</i>	<i>Pyrus</i>
<i>Carpinus</i>	<i>Quercus, excluding Q. palustris</i>
<i>Crataegus Salix</i>	<i>Salix babylonica</i>
<i>Ilex opaca</i>	<i>Tilia tomentosa</i>
<i>Liquidambar styraciflua</i>	<i>Zelkova</i>
<i>Liriodendron tulipifera</i>	

F. Recommended Shrubs. The following shrubs are recommended for use in the Township:

**Table 5.8 Recommended Shrubs.**

Botanical Name	Common Name	Minimum Planting Size
<i>Abelia grandiflora</i>	Glossy Abelia	18"-24"
<i>Aronia arbutifolia brilliantissim</i>	Red Chokeberry	2'-3'
<i>Azalea delaware valley</i>	Delaware Valley Azalea	18"-24"
<i>Azalea exbury</i>	Exbury Azalea	18"-24"
<i>Azalea hino-crimson</i>	Hino-Crimson Azalea	18"-24"
<i>Azalea stewartsonia</i>	Stewartson Azalea	18"-24"
<i>Berberis julianae</i>	Wintergreen Barberry	18"-24"

**§ 541 Tree Removal and Tree Cutting.**

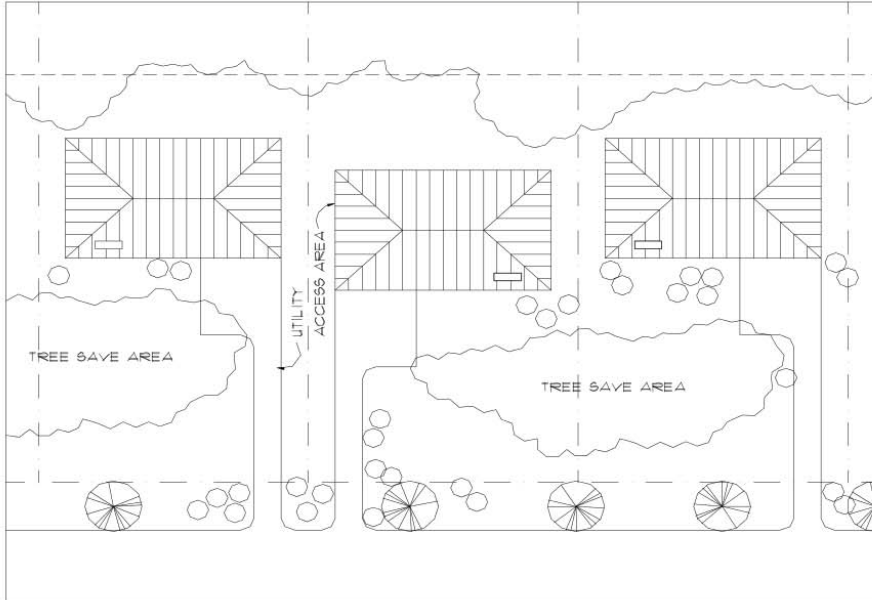
- A. Purpose. The purpose of this section is to control and regulate indiscriminate or excessive removal, cutting, and destruction of trees, and to control, regulate, and prevent conditions which cause an increase in storm water runoff, sedimentation, soil erosion, reflected heat, air or noise pollution, or inhibit aquifer recharge. The regulations which follow are designed to limit such adverse impacts.
- B. Permit or Board Approval Required. No person directly or indirectly shall, without either first obtaining a zoning permit or an approval in the site plan or subdivision application process, remove or relocate to another site any tree within a tree save area; or, remove any specimen tree regardless of location. "Removal" shall include, but not be limited to, damage inflicted to the root system by machinery, storage of materials and soil compaction, change of natural grade above or below the root system or around the trunk; damage inflicted on the tree permitting fungus, pest, or other infestation; excessive pruning or thinning leading to a failure to thrive; and paving over the root system with an impervious material within such proximity as to be fatally harmful to the tree.
- C. Exemptions. The following tree cutting and tree removal activities shall be exempt, unless it is a specimen tree, from the provisions of this section:
1. Individual lot owners may remove up to 5 trees of 8" or more in caliper in any one year period. There is no restriction on the number of trees removed less than 8" in caliper. [Ord. 1585-99, 9/7/1999]
  2. Any tree growing on property approved to operate as a nursery or garden center.
  3. Any tree growing on property actively operated as a farm, which is removed to create fields for crops or forage and not sold for profit.
  4. Trees which, in the opinion of the Township, its employees or agents, constitute an immediate threat to the health, safety or welfare of the general public.
  5. Public or local utilities maintaining easements or rights-of-way in the normal course of business.
  6. Communications companies regulated by the Federal Communications Commission maintaining communications lines and equipment.
  7. Approved game management practice, as recommended by the State of New Jersey, Department of Environmental Protection, Division of Fish, Game and Wildlife.
  8. Properties devoted to the practice of silviculture for which farmland assessment has been approved.
- D. Application Procedures. Any person wishing to cut and remove trees within the municipality, unless exempted, shall file with the Township a tree protection plan prior to soil disturbance, the issuance of a building permit, or as part of the site plan and subdivision submittal process pursuant to Article VIII. The tree protection plan shall include the following information:
1. Tax map, lot and block number.

2. Area of tract.
  3. Location upon the lot of trees or wooded area.
  4. The location upon the lot where tree removal is to take place.
  5. A survey of the size (8" caliper or larger), species and quantity of trees which are to be removed. Where the area to be surveyed is greater than 10,000 square feet, a representative wooded rectangular area 100' x 100' may be surveyed and its results extrapolated to the remaining wooded area. A minimum of one sample plot per five (5) acres of total wooded area identified for the tree removal project shall be surveyed. The location of the sample plots shall be subject to the approval of the Board engineer, who may seek recommendations from the Board's planning consultant and/or the Township Shade Tree Advisory Committee. Notwithstanding the above, the tree survey shall individually locate each specimen tree on the entire site. [Ord. 1585-99, 9/7/1999]
  6. A description of the type of tree removal project, that is:
    - a. Thinning;
    - b. Selective cutting;
    - c. Clear cutting; or
    - d. Aesthetic improvement cut.
  7. General slope and topography taken from either a survey of the property or official Township mapping.
  8. Location of streams and wetlands, as depicted on Township mapping.
  9. Specific proposals for replanting or reforestation, if applicable, including a list of trees to be planted, selected from the recommended trees lists pursuant to 525.
  10. The tree removal or tree replacement plan shall be overlaid on a map or survey depicting existing conditions of the site.
  11. Location of buildings.
  12. Location of roads, driveways, parking lots, staging areas, recreation areas, and garden areas.
  13. Grading plan.
  14. Schedule for tree removal and planting.
  15. Provision for removal of excess stumps and branches from the property.
- E. Tree Protection Zone. Tree protection zones shall be established on all areas of a site contemplated for development; or, tree removal in the absence of an application for development. The tree protection zone shall be that area exclusive of buildings, parking, driveways, streets, storm water management facilities including swales, and utilities plus an additional width at the perimeter of such uses of land of 15 feet for a building and 10 feet for all other classes to permit appropriate grading. The intent is to create an area or areas in which trees shall be retained, planted initially, or are to be planted with replacement trees for areas that have been cleared for site development. Special attention should be given to



placing old growth woodland into the tree protection zone. Utilities should be grouped into common easements to maximum tree save areas as illustrated in Figure 5.1.

**Figure 5.1 Schematic Tree Save Areas and Location of Utilities.**



1. Trees within tree protection zones shall be grouped into tree save areas wherein retention is required unless waived by the Board of Jurisdiction or by the Administrative Officer, as the case may be. For permits that do not require an application for major subdivision or major site plan, the Administrative Officer shall determine the adequacy of the management plan. The Administrative Officer may consult with the Environmental Resources Committee, Shade Tree Commission or appropriate professional staff in his or her decision.
  2. Tree protection zones and any tree save area within such zone for individual single family detached lots not subject to major subdivision approval shall be delineated on a plot plan or lot grading plan pursuant to §1202.C in order to determine compliance with this section.
- F. Standards for Tree Retention. The following standards shall apply to all trees regardless of location:
1. Existing trees on a site contemplated for development shall be retained to the greatest feasible extent.

2. In off-street parking areas and storm water management facilities, islands of trees shall be retained. These requirements shall not pertain to individual single family detached and two-family dwellings.
  3. No paving of any impervious nature shall be placed within the dripline of any tree, and the grade shall be such that drainage of rainwater will water the root area without pooling or exceeding the requirements of the species. Excess water shall be admitted to storm sewers in the parking lot or drained by other means acceptable to the Municipal Engineer.
  4. Any live tree which is substantially damaged as a result of grading or general construction shall be replaced with another tree. A tree shall be substantially damaged when one-half ( ) or more of the tree bark is destroyed below 4 feet or the trunk is girdled.
  5. Any tree used in a required planting, or to replace a damaged tree, shall have a trunk or main stem which is at least 2.5 inches in caliper, unless the tree is used for storm water management facility plantings, and shall meet the specifications of the American Nurserymen's Association standards.
  6. Existing trees are encouraged to be used for the required buffer zone of trees and shrubs to be established in accordance with §525.H.
  7. Trees in the area between the street line and the setback line of the building shall be preserved to the greatest extent possible (see Figure 5.1).
  8. Specimen trees shall not be removed unless diseased or constitute a hazard to the general public.
  9. No trees on public rights-of-way, parks, or public areas are to be removed by private individuals except as approved by the Administrative Officer or other officer designated by the governing body. The removal of trees shall not be permitted from a Master Plan right-of-way unless trees are dead, diseased, or endanger life or property, or a letter of approval is obtained from the governing body or Administrative Officer. Conversely, no trees are to be planted on public rights-of-way without express approval granted as part of a site plan or subdivision application or by the Administrative Officer.
- G. Methods of Tree Protection. All persons shall exercise due care to protect trees which are to be retained from damage during construction. Critical root zones shall be protected by the use of fencing located at the dripline in accordance with the Lawrence Township Engineering Standards. The procedures in this subsection shall be observed in order to protect retained trees, as follows:
1. Protection from mechanical injury.
    - a. Prior to any grubbing or clearing, all trees in the tree protection zone from its edge to a depth of 25 feet into the zone shall be protected from equipment damage by enclosing the area at the dripline. Individual trees to be retained shall be completely encircled as required herein. All exposed roots, trunks, and low lying branches shall be equally protected. Groups of trees in a tree save area may be protected by fencing the entire area where

- they are located. Compaction of the ground by mechanical, vehicular, storage of materials, or other means within the dripline shall not be permitted.
- b. Feeder roots shall not be cut within the dripline; however, if feeder root cutting is waived in order to further other objectives of this section, such cuts shall be made by hand with pruning shears to produce sharp, clean cuts. Removal of feeder roots by mechanized equipment shall not be permitted.
  - c. Tree trunks and exposed roots shall not be damaged. However, accidental damage shall be addressed and action taken to avoid further injury to the tree. Damaged branches shall be sawed off at the branch collar. No shellac or pruning paint shall be used. When the portion of the tree that is damaged is diseased, pruning equipment shall be dipped in alcohol to prevent further spread of disease.
  - d. Deciduous trees shall be given a liquid, slow-release, low-nitrogen, all-purpose fertilizer to aid in their recovery from potential damage from construction activities. Such application shall be made at a distance of 1 foot from the trunk extending out in concentric circles to the dripline. The fertilizer shall be injected into the ground at the time of the cease of construction and one year thereafter.
  - e. Trees shall not be used for roping, cabling, signs, or fencing. Nails and other fastening devices shall not be driven or attached to the tree.
  - f. The area in the critical root zone under the dripline shall be left open to provide access for water and nutrients. No impervious cover, storage of equipment, materials, debris or fill shall be allowed within this area except as specifically approved by the Board of Jurisdiction or Administrative Officer.
  - g. Trees being removed under the allowances in this section shall not be felled, pushed, or pulled into a tree protection or tree save area.
2. Protection from grade change.
- a. Increase in grade. If an increase in the grade of the land is proposed, the applicant shall install either:
    - (1) A system of gravel and drains at the old soil level which opens into a dry well built around the trunk and individually designed for the contour of the land to provide aeration and drainage in accordance with the Lawrence Township Engineering Standards.
    - (2) A retaining wall between the existing grade and higher grade to the satisfaction of the Municipal Engineer.
  - b. Lowering the grade. If a lowering of the grade is proposed one of the following methods to protect the tree shall be followed:
    - (1) Terracing the grade at the dripline and out from the tree in accordance with the Lawrence Township Engineering Standards.

- (2) A retaining wall between the existing grade and lower grade to the satisfaction of the Municipal Engineer.
3. Protection from excavation. Trenches for utility lines or other similar uses shall adhere to the following, listed in descending order of preference:
  - a. Trenches shall bypass the critical root area unless the approving authority determines that no other practical alternative exists; in which case
  - b. Trenches should be tunneled under the feeder roots a minimum of two feet from existing grade, in accordance with the Lawrence Township Engineering Standards, unless the approving authority determines that no other practical alternative exists; in which case
  - c. Trenches may be dug within the dripline of the tree, provided that the following provisions shall be observed:
    - (1) Trenches shall be no closer to the trunk than half the distance to the dripline.
    - (2) Roots shall be cut with sharp hand tools to reduce feeder root damage.
    - (3) The trench shall be backfilled within the shortest amount of time possible and the soil shall not be compacted.
  - d. Protection during cleanup.
    - (1) All construction debris shall be hauled to an approved landfill and shall not be buried or burned.
    - (2) Snow fences, barriers or other tree protection devices shall be the final item to be removed from the site prior to occupancy.

H. Required Tree Density and Replacement From Development.

1. Each lot for which a major site plan application and approval pursuant to Article VIII is required shall have, after development, a minimum density of trees per acre of the gross area of the tract. The number of trees required to achieve the minimum density required shall be as set forth in this subsection. If a site initially lacks the sufficient density of trees required or if site clearing reduces the tree density to below the minimum required, the developer shall plant additional trees to meet the minimum. These trees are termed "replacement" trees regardless of whether they are for initial planting to meet minimum requirements or for replanting after site clearing has occurred. Trees otherwise required to be planted for landscape buffer areas or parking lots pursuant to §525, as the case may be, may be counted towards the required tree density. The planting of replacement trees shall be required under the following conditions:
  - a. To establish the minimum tree density requirements for the site;
  - b. Where grading occurs in the tree protection zone;
  - c. If areas permitted to be cleared leave no tree protection zone;
  - d. If no trees are present within the tree protection zone.

- e. Where specimen trees outside the tree protection zone are to be removed;
  - f. Where trees are illegally removed or irreparably damaged during the construction process.
2. The quantity of replacement trees shall be sufficient to produce a total Required Tree Density (RDS) of at least 15 units per acre as described herein. Units shall be determined based on the conversion factors in Tables 5.19, 5.20 and 5.21.
  3. The spacing of replacement trees shall be compatible with areal limitations and the characteristics of the species that are planted.
  4. When the Administrative Officer or his designee has determined that areal constraints result in an absolute inability to provide the required tree density, as many trees as possible shall be planted on the site. The remaining balance of trees shall be provided in the form of payment of 80% of the Uniform Unit Prices for Bond Estimates as prepared by the Division of Engineering and shall be placed in a shade tree account.

I. Calculations for RTD. Calculations for determining the Required Tree Density (RTD) are as follows:

1. Step 1. Required Tree Density shall be calculated by multiplying the factor of 15 by the gross tract area.  
EXAMPLE: 2 acre site has a RTD of 30 (2 x 15 = 30)
2. Step 2. The Existing Tree Density (ETD) of the trees that are to remain within the tree save area of the tree protection zone shall be calculated by converting the caliper from the tree survey (see paragraph -D.4 and -D.6 above) to tree density units as indicated in Table 5.19.

EXAMPLE: The tree survey identifies 15 trees that will remain on the site in the Step 1 example after development, as follows:

- 7 - 12" locusts
- 3 - 14" maples
- 3 - 18" oaks
- 1 - 20" oak
- 1 - 30" sycamore

Converting the caliper to tree density units yields the following values:

<u>Caliper</u>	<u>Density Units</u>		<u>No. Trees</u>	=	<u>ETD</u>
12"	.8	x	7	=	5.6
14"	1.1	x	3	=	3.3
18"	1.8	x	3	=	5.4
20"	2.2	x	1	=	2.2
30"	4.9	x	1	=	4.9
			Total	=	21.4

This total represents the Existing Tree Density on site.

3. Step 3. Calculation of the replacement trees is determined by subtracting the Existing Tree Density from the Required Tree Density.

EXAMPLE:  $RTD - ETD =$  replacement tree units

or

$$30 - 21.4 = 8.6 \text{ replacement tree units}$$

**Table 5.19 Conversion of Caliper to Tree Density Units for Existing Trees.**

[Ord. 1585-99, 9/7/1999]

Caliper (inches)	Density Units	Caliper (inches)	Density Units	Caliper (inches)	Density Units
8-9	.5	27	4.0	45	11.0
10	.6	28	4.3	46	11.5
11	.7	29	4.6	47	12.0
12	.8	30	4.9	48	12.6
13	.9	31	5.2	49	13.2
14	1.1	32	5.6	50	13.8
15	1.2	33	5.9	51	14.4
16	1.4	34	6.3	52	15.1
17	1.6	35	6.7	53	15.8
18	1.8	36	7.1	54	16.5
19	2.0	37	7.5	55	17.2
20	2.2	38	7.9	56	18.0
21	2.4	39	8.3	57	18.8
22	2.6	40	8.7	58	19.6
23	2.9	41	9.1	59	20.2
24	3.1	42	9.5	60+	21.0
25	3.4	43	10.0		
26	3.7	44	10.5		

4. Step 4. The number of replacement trees that would need to be planted, if any, is determined by converting the replacement tree units to caliper inches or tree height based on Tables 5.20 and 5.21. Any number or combination of trees that meets the minimum required for replacement may be used; however, coniferous evergreens shall be limited to no more than 40% of the total required replacement trees.

EXAMPLE: 10 – 3” red oaks = 6.0 tree units; 2 – 4” sycamores = 1.4 tree units; and 3 – 2” river birch = 1.5 tree units for a total of 8.9. Since 8.9 is greater than 8.6, the minimum replacement trees requirement has been met.

**Table 5.20 Conversion from Caliper to Tree Density Units for Deciduous Replacement Trees.**

Caliper (Inches)	Density Units	Caliper (Inches)	Density Units
1*	.4	8	1.3
2*	.5	9	1.5
3	.6	10	1.7
4	.7	11	1.9
5	.9	12	2.1
6	1.0	13	2.3
7	1.2	14	2.5

\* - Permitted only when approved as an exception or for storm water management basin plantings.

**Table 5.21 Conversion from Height to Tree Density Units for Coniferous Replacement Trees.**

Height (Feet)	Density Units	Height (Feet)	Density Units
3-4*	.6	6-8	1.0
4-5*	.7	8-10	1.3
5-6	.8	10-12	1.7

\* - Permitted only when approved as an exception or for storm water management basin plantings.

- J. Plan Review and Enforcement. All applications for a tree removal permit not a part of a site plan or subdivision application are to be submitted to the Department of Community Development. The Department shall review all applications to insure compliance with the requirements of this section. Applications will be approved or denied within 20 days of receipt of a complete application.
- K. Revocation. The Administrative Officer may revoke the approval where there has been false or misleading application or there is a noncompliance with the approved management plan.
- L. Fees. The application and escrow fees for tree cutting and tree removal shall be in accordance with Article IX.
- M. Appeals. Any person aggrieved by the decision of any officer, pursuant to the provisions of this section, may appeal to the Zoning Board of Adjustment within 10 days of receipt of such decision. Such appeal shall follow the procedures as set forth in *N.J.S.A. 40:55D-70a*.
- N. Violations and Penalties. In addition to any other penalties that may be assessed for violation of this Ord., any person violating any provisions of this section shall be liable to a fine not to

exceed \$500.00 or to imprisonment for a term not to exceed 90 days, or both, for each offense. The destruction or substantial damage/destruction of an individual tree shall be construed to be a separate offense. In addition, any tree(s) removed without a permit shall be replaced by the violator with nursery stock, equal, whenever possible, to the caliper of the tree(s) unlawfully removed. Replanting shall be completed in one year of the non-permitted removal if the land is not to be lawfully developed. In addition to the foregoing, the municipality may institute and maintain a civil action for injunctive relief restraining the continuance of any unlawful tree removal project.