

35-523 Tree Preservation

[NOTE: A CITIZEN COMMITTEE IS CURRENTLY REVISING THE TREE PRESERVATION ORDINANCE. MINIMAL REVISIONS HAVE BEEN MADE TO THIS DRAFT PENDING COMPLETION OF THE CITIZEN COMMITTEE'S RECOMMENDATIONS]

While allowing the reasonable improvement of land within the city and city's ETJ, it is stated public policy of the city to maintain, to the greatest extent possible, existing trees within the city and the ETJ, and to add to the tree population within the city and the ETJ. The planting of additional trees and preservation of existing trees in the city and the ETJ is intended to accomplish, where possible, the following objectives:

- To preserve trees as an important public resource enhancing the quality of life and the general welfare of the city and enhancing its unique character and physical, historical and aesthetic environment.
- To encourage the preservation of trees for the enjoyment of
- To encourage the preservation of trees to provide health benefits by the cleansing and cooling of the air and contributing to psychological wellness.
- To encourage the preservation of trees to provide environmental elements by adding value to property, and reduction of energy costs through passive solar design utilizing trees.
- To encourage the preservation of trees to provide environmental elements necessary to reduce the amount of pollutants entering streams and to provide elements crucial to establishment of the local ecosystem.
- To provide tree preservation requirements and incentives to exceed those requirements that encourage the maximum preservation of trees.
- To promote and protect the health, safety and welfare of the public by creating an urban environment that is aesthetically pleasing and that promotes economic development through an enhanced quality of life.

This Section implements the following provisions of the Master Plan:

- Neighborhoods, Policy 3c: Continue to implement the tree preservation ordinance and strengthen as needed.

(a) Applicability

(1) Generally

- A. The regulations contained in this division shall apply to any private property located within the city limits of the city and the ETJ of the city that is not the subject of a Permit as of the effective date of this provision.
- B. The regulations contained in this division shall apply to all public property held by or for the benefit of the city or any agency, board or commission thereof in accordance with the provisions of subsection (m) of this division.
- C. The regulations contained in this division shall regulate all activities that result or may result in the removal of protected or heritage tree(s) as defined herein. Said

activities include any of the following conducted on property to which the division applies:

1. Industrial, commercial, office, multifamily, residential and institutional development, including all new construction and any additions that increase the total floor area of a structure by more than two thousand five hundred (2,500) square feet.
2. Construction of a new parking lot larger than two thousand five hundred (2,500) square feet or expansion of an existing parking lot by more two thousand five hundred (2,500) square feet.
3. Any grading, filling or clearing of land.
4. Any clear, selective or individual cutting or removal of any protected or heritage tree(s) as defined.
5. Chemical or biological treatment of tree(s) that may result in the death or destruction of any protected or heritage tree(s) as defined.
6. Trenching or excavation that may damage or destroy protected or heritage tree(s) as defined.

(2) Activities Exempt

The regulations in this division shall not apply to the clearing of understory necessary to perform boundary surveying of real property or the clearing of underbrush required to conduct tree surveys or inventories. Clearing for surveying may not exceed a width of two (2) feet for general survey (i.e. of easement boundary, etc.) and eight (8) feet for survey of property boundary lines. Except for surveys done in connection with residential development, no tree(s) ten (10) inches or larger may be removed in any manner during such boundary or general surveying.

(3) Categories of Development Exempt

The provisions of this Section shall not apply to any Conservation Subdivision.

(4) Trees Exempt

This division shall not apply to:

- A. Any protected or heritage tree determined to be diseased, dying or dead, by the city arborist.
- B. Any protected or heritage tree determined to be causing a danger or be in hazardous condition as a result of a natural event such as tornado, storm, flood or other act of God that endangers the public health, welfare or safety and requires immediate removal.
- C. Trees located on property on which construction of single-family, two-family or three-family residential dwelling units has been completed.
- D. Trees located in the clear vision area, as defined in the Street Improvement Standards.

The provisions contained in this division shall control in the event and to the extent they may conflict with other provisions contained in this Chapter that do not related to health and safety.

(b) Administration

The provisions of this division shall be implemented by a city arborist under the direction of the director of building inspections. The city arborist shall oversee regulation of the maintenance and removal of protected and heritage tree(s) that are required to be preserved in the city and the ETJ and shall enforce and administer the provisions of this division. The city arborist shall work closely with all city departments and governmental entities and licensees, and franchisees thereof in order to promote and ensure the maximum protection of trees by the implementation and administration of this division. City departments with which the city arborist is authorized to interact pursuant to subsection (m) of this section include, but are not limited to the following:

- A. Planning department. Coordination of tree preservation in the review of preliminary overall area development plans (for phase development) and any grading, fillings and spoil activities when applicable.
- B. Building inspections department. Coordinate and maximize the preservation of trees through the implementation of the city landscape ordinance and through the building permit application and approval process.
- C. Public works department. Maximize the preservation of trees during public works projects for public improvements such as, but not limited to utility installation, Street construction and maintenance, drainage construction and maintenance, grading, filling, placement of soil, etc. and coordinate any projects hat modify natural drainage areas in a way that negatively affects trees on private property or public property.
- D. San Antonio Water System. The arborist shall review any policies related to trees.
- E. City public service board. The arborist shall review any policies related to trees.
- F. Parks and recreation. Maximize the preservation of trees during parks and recreation capital improvement projects and programming the use of the tree mitigation and replacement fund.
- G. Any other entities which may require easements or rights-of-way. The arborist shall review any policies related to trees.

The director of parks and recreation shall be responsible for administering the tree mitigation and replacement fund as established by subsection (e) of this division.

(c) Violation, enforcement and penalties

The provisions of this Section shall be enforced as provided in Article 4 of this Chapter.

(d) Minimum tree preservation requirements

(1) Generally

A minimum of all protected trees within the surveyed area must be preserved in the following manner:

Use	10 inches or larger	8 inches or larger
Single Family	50% ⁽¹⁾	45%
Multifamily residential:	30% ⁽²⁾	25%
Commercial/all other building types	30% ⁽²⁾	25%

Notes to table:

¹ Refers to trees shown according to the survey criteria for contiguous lot construction according to Appendix B, § 35-B121 of this division.

² Refers to diameter inches within the area included in the tree survey.

(2) Trees Excluded from Calculation

Trees located within the permitted building area, easements, public roads, public alleys and rights-of-way will not be included in calculating the percentage of protected trees (ten (10) inches or larger) that must be preserved. For uses other than Single-Family, trees located within the building footprint (dwelling, administration, office, laundry and postal buildings only), easements, and parking garages (excluding stand alone canopies), will not be included in calculating the percentage of protected trees that must be preserved. No heritage tree may be removed or destroyed within the surveyed area unless it is mitigated at a ratio of two (2) inches of mitigation for every one (1) inch of heritage tree removed.

(3) Mitigation

Protected trees that are required to be preserved are to be mitigated at a ratio of one (1) inch of mitigation for any one (1) inch of removed tree.

(4) Diversity

As the particular site conditions warrant, the applicant shall make a reasonable effort to preserve a diversity of species of trees as determined by the arborist.

(5) Site Design

The location of all proposed buildings and improvements shall be oriented by the applicant, to the extent the applicant determines possible, in a manner which allows for the saving of the greatest number of trees. However, all trees located in the proposed footprint of a building, and other exclusions, are not required to be counted toward the total number of on-site trees for the purpose of calculating the minimum preservation percentage required in subparagraph (1) above. Trees located within the existing right-of-way and public easements shall not be counted as it pertains to the minimum preservation percentage. Applicants are encouraged however, to preserve trees and place mitigated trees and any trees needed to meet the landscape ordinance requirements in rights-of-way adjacent to public roads if deemed appropriate by the arborist and any other agencies having jurisdiction over said easements and rights-of-way.

(6) Right-of-Way

Unless otherwise allowed by this division, trees of a protected size or larger located within existing rights-of-way or easements may be removed only if prior approval is granted by the city arborist.

(7) Corridor Trees

Where possible a minimum of one (1) tree shall be provided for each fifty (50) feet of Street frontage. These trees shall be located within thirty (30) feet of the projected Street curb. The trees may be located in the public right-of-way. For purposes of this paragraph, "projected Street curb" means the future location of the Street curb consistent with the city major thoroughfare plan as determined by the Director of Public Works. As an incentive to preserve trees in the parkway, the applicant may receive either landscape credits (at a ratio of one (1) point per diameter inch) and/or may use the total diameter inches of parkway trees saved to go towards meeting the minimum tree preservation requirements.

(8) Historic Trees

In order to protect historic trees, as defined, the city arborist shall defer the approval of tree preservation plans to review by the director of building inspections who shall seek the advice of the historic design and review commission, in instances where a historic tree(s) is proposed to be removed. The commission may recommend additional replacement standards, recommend a cash payment to be deposited to the tree replacement fund to offset the cost of future tree planting on public property, or recommend that the application for permit and tree preservation plan be denied. Provided, however that no later than thirty (30) days after the final application for removal of the heritage tree was received, the director of building inspection shall advise the applicant by certified mail, return requested, or hand delivery of his decision. The final application will be deemed approved if not acted upon by the director before the expiration of the thirty-day time period herein established. Such action may be appealed pursuant to subsection (k)(4) and (k)(5) of this section.

All percentages relating to preservation stated within this section shall be based the initial tree survey. Any subsequent redevelopment of property must minimally preserve the applicable percentage of the total diameter inches of protected trees as indicated by the initial tree survey.

(e) Mitigation/alternative mitigation methods

Protected trees may be removed in excess of the minimum preservation requirement contained in subsection (d) provided the excess removal is properly mitigated. However, at least ten (10) percent of the total diameter inches within the surveyed area may not be mitigated, and must actually be preserved.

(1) Mitigation Rate

If mitigation is required to compensate for removing trees in excess of the number of diameter inches allowed to be removed within the surveyed area to be calculated for tree preservation under the minimum preservation requirements, the mitigation may be achieved in one of the following ways:

- A. Establishment and maintenance of new trees at the required ratio on-site under the following guidelines: (See subsection (d) for minimum preservation requirements)
- B. Protected trees shall be mitigated at a ratio of one (1) caliper inch per one (1) diameter inch removed.

- C. Heritage trees shall be mitigated at a ratio of two (2) caliper inches per one (1) diameter inch removed.
- D. Whenever protected and heritage trees are mitigated, no more than twenty-five (25) percent of the replacement trees shall be of the same species.
- E. In considering recommending a replacement tree, the city arborist may weigh the value of smaller trees, clumps of trees, and natural vegetation that is to be retained on the site and/or added according to a landscape plan in compliance with the landscape ordinance, with greater weight going to retention of existing trees and vegetation. Agreement by the applicant to retain or add such trees and vegetation may satisfy the arborist's concern to the extent that he would agree not to recommend a replacement tree as a condition for approval. For these reasons, indiscriminate clearing of sites where protected trees are located shall be discouraged; or

(2) Tree Mitigation Fund

Payment to the tree mitigation and replacement fund as provided in this Code;

(3) Tree Preservation Credits

Use of tree preservation credits (in inches) according to the required ratio, provided the credits have been issued pursuant to subsection (f)(1) of this Section (Note: Tree preservation credits issued pursuant to this division may be used to satisfy no more than eighty (80) percent of the minimum preservation requirements of subsection (d) as applied to the subject development); or

(4) Protection and Maintenance within Surveyed Area

Protection and maintenance of existing trees within the surveyed area that are smaller than the size requirements for a protected tree but at least two and one-half (2 1/2) inches in diameter measured four and one-half (4 1/2) feet from the ground.

(f) Tree preservation incentives

An individual may apply for, and subject to verification, shall receive incentives for tree preservation as follows:

(1) Tree preservation credits

Upon application, and payment of applicable fees, and after verification, the city arborist shall provide a certificate of credit for the number of diameter inches of trees preserved by an individual in excess of the minimum preservation requirements of subsection (d), or for trees that are permanently established or protected on property that is located within the city limits or within the city's ETJ, but that is not subject to regulation by this division. The certificate of credit may be used to meet tree preservation requirements on site or may be assigned to another site for the purpose of meeting minimum tree preservation requirements. Credits issued under this provision are assignable by the holder thereof. However, the city arborist may not issue a certificate of tree credits until the applicant for tree credits submits to the arborist a duly executed conservation easement meeting the requirements of and enforceable in accordance with V.T.C.A., Natural Resources Code § 183.001 et seq., that:

- A. Restrict the removal of and provide protection of the trees that are the subject of the applicant's request for credits;

- B. Identify the trees that have been protected by use of a plat, drawing, tree survey or other document that provides sufficient identification of the location, size and species of the protected trees.
- C. Require the trees protected by the easements to be mitigated if intentionally removed at a ratio of two (2) inches of mitigation for one (1) inch of protected tree removed.

Each certificate of credit issued will be sequentially numbered and will be issued on a type of paper of unique nature. The city arborist will retain a log of each certificate issued, to whom it was given, the date of issuance, the number of inches credited, and other relevant information.

(2) Parking space reduction

Upon application and verification by the city arborist, an individual shall be entitled to a reduction in the minimum parking requirements of § 35-526 of this Code to help meet the minimum tree preservation requirements. For the purpose of providing an incentive, the said minimum parking requirements of § 35-526 of this Code may be reduced by one (1) parking space for every four (4) caliper inches of trees that have been protected or mitigated on a site. The city arborist shall issue a certificate to the appropriate city department(s) confirming that a reduction has been earned under this section. Up to fifteen (15) percent of the required spaces may be waived, however, a waiver in excess of fifteen (15) percent of the required spaces must be approved by the Director of Public Works or his designee, and no waiver may exceed thirty (30) percent of the required spaces. If used, the incentive provided by this subsection shall control over any other conflicting provision of this Code. In order to promote placing trees in the parking field to provide additional cooling and shade benefits it is suggested that the developer attempt to place a portion of the preserved and/or mitigation trees in the interior of the parking areas at a ratio of one (1) tree for every fifteen (15) parking spaces, and attempt to have no parking space further than eighty (80) feet from any tree (this sentence is intended to provide guidance only, compliance with this sentence is not mandatory).

(3) Landscape credits

Landscape credits may be awarded as provided in § 35-511, above.

(4) Understory

With approval of the city arborist, preservation of native understory plants together with trees grouped in significant stands may result in a reduction of the landscape requirements by the number of points determined by the arborist. Emphasis is on the preservation of said significant stands and accompanying native understory plants and therefore, the smaller tree diameters may be counted one for one in terms of meeting the minimum tree preservation requirements. It is at the discretion of the arborist as to the maximum number of trees, less than the protected tree size, that may be allowed to be used for obtaining additional landscape points under this incentive.

(5) State Certification in Lieu of Compliance

The city arborist shall assist those who wish a site certified under the Texas Parks and Wildlife, Texas Wildscape Program in lieu of meeting city requirements in this division as long as twenty (20) percent of existing trees on site are preserved.

(g) Root protection requirements

(1) Root Protection Zone

Unless a developer or property owner chooses to provide the warranty required in subsection (2) of this section, a root protection zone must be established around the trunk of each tree preserved or mitigation tree planted pursuant to this division. The root protection zone shall be an area defined by an average radius extending outward from the trunk of the tree a distance of one-half (1/2) linear foot for each inch (DBH) of the subject tree. The maximum size of a root protection zone required by this division shall not exceed one thousand (1,000) square feet for any tree or trees located within the same root protection zone. The area contained within a root protection zone required under this subsection must be left in a previous condition after construction and development are completed. The root protection zone for each preserved tree must remain unpaved unless approval has been given by the city arborist. The arborist shall establish a written set of technical criteria on which such approval shall be based. During construction activity on the site, at least six-inch layer of a coarse mulch shall be placed and maintained over the root protection zone. The impervious cover may encroach within the root protection zone if said encroachment is approved by the city arborist.

(2) Warranty

In the event a developer or property owner provides a letter of warranty to the city arborist warranting the life of a tree or tree(s) for a period of three (3) years from the date a tree preservation permit was issued pursuant to this division, the property owner or developer may utilize a root protection zone smaller than the root protection zone smaller than the size required by subsection (1) of this subsection. In the event the tree(s) warranted under this section die within the warranty period, the applicant will be required to replace the dead tree(s) within ninety (90) days from being notified by the city arborist that the tree has died.

(3) Exemption

The requirements contained in subsection (a) and (b) of this section shall not apply to single-family residential developments. The root protection area for single-family residential lots shall be the same area contained in the front and rear yard set backs of such lots.

(h) Tree protection

(1) Protection Barrier

A protection barrier shall be erected at the edge of the root protection zone, however, at a minimum, the barrier shall be erected a distance of sixty (60) inches around the trunk(s) of individual protected, heritage or mitigation trees or islands of such trees and understory and maintained until construction is completed. This protective barrier may be comprised of snow fencing, vinyl construction fencing, chain link, geotextile material or other similar sturdy material. During construction, no excess soil, additional fill, equipment, liquids or construction debris shall be placed inside the protective barrier nor shall any soil be removed within the barrier.

(2) Grading

Except for single-family residential development, the proposed finished grade within the root protection zone of any tree to be preserved shall not be raised or lowered more than three (3) inches, but welling and retaining methods may be used to protect and/or provide lateral support to the area outside the root protection zone.

(3) Wounded Trees

All broken branches and exposed roots of a mitigation, protected or heritage tree(s) shall be cut cleanly. In the case of oak species, in order to prevent infection by oak welt spores, wounds must

be painted with an acceptable wound dressing within reasonable time as determined by the city arborist.

(i) General maintenance

Heritage, protected or mitigation trees must be maintained in a healthy condition at all times. The property owner is responsible for irrigating, fertilizing, pruning and other maintenance of all trees as needed. Except for residential development, mitigation trees that are planted on the property and that die within twelve (12) months of final inspection are subject to the mitigation requirements set forth in subsection (e) at a ratio of one (1) inch mitigation for every one (1) inch of protected or heritage tree that dies. However, a heritage tree that dies from other than natural causes shall be mitigated at a ratio of two (2) inches mitigation for every one (1) inch of heritage tree. Any tree that dies must be replaced with another living tree of the same category type or better within ninety (90) days after notification by the city. The building official may extend this time period up to an additional ninety (90) days due to weather considerations. If the plants have not been replaced after appropriate notification and/or extension, the property owner shall be in violation of this division. If a public utility disturbs trees, it shall make every reasonable effort to preserve the trees and return them to their prior location and condition after the utility work is completed. If nonetheless, trees die, replacement is not the responsibility of the property owner if the death or destruction of the tree(s) is due to the action of a public utility.

(j) General planting standards

- A. No artificial plant materials may be used to satisfy requirements of this section.
- B. Plant materials required by this section must comply with the following minimum size requirements at the time of installation.
 - 1. In satisfying the requirements of this section, the use of mulch material shall be provided at the time of planting.
 - 2. Each replacement tree must be planted at least thirty (30) inches away from any impervious surface.
 - 3. Plant areas must be protected from vehicular traffic through the use of concrete curbs, wheels stops or other permanent barriers.

Mitigation or replacement trees required by this division; must have a minimum diameter of two and one-half (21/2) inches measured six (6) inches above grade at the time of installation and, shall be planted in a pervious area of at least one hundred (100) square feet.

(k) Variance procedure

(1) Variances

Variances to the terms and requirements of this division may be granted by the city arborist where a literal enforcement of the provisions of this division will result in an unnecessary hardship. No variance may be granted unless:

- A. Such variance will not be contrary to public interest;
- B. Such variance will be in harmony with the spirit and purpose of this division;
- C. The variance will not substantially weaken the general purposes of this division or the regulations herein established for the protection of trees; and

- D. The variance granted is limited in scope of relief to only that which is necessary to relieve the hardship condition.

(2) Request for variance

A person who feels they qualify for a variance, under the conditions outlined in subsection (a) above, from the literal application of this division to their property may request a variance from such application of one (1) or more of the provisions of this division. All requests for variances shall be made in writing to the city arborist, and shall include:

- A. The subject of the requested variance; and
- B. The justification for granting a variance.

(3) Burden

- A. The party requesting a variance has the burden of demonstrating that sufficient evidence exists for the granting of a variance to application of this division. The city arborist shall consider and provide a written response to all such requests for variances as quickly as possible but not more than fifteen (15) working days from the date a valid request for variance is received. The response shall be served by certified mail, return receipt requested, or by hand delivery.
- B. *If granted.* If a variance is granted as requested, or with modification, the recipient of the variance may develop their property according to all applicable provisions of this division, to the extent such provisions have not been waived or modified by the variance.

(4) Appeal

Any person who properly requests a variance pursuant to this section, and objects to the decision of the city arborist which denies all or part of the relief requested may appeal such denial to the director of building inspections or his designee by filing a request for appeal within ten (10) working days from the date notice of denial is received by the requesting party. All such appeals shall be made in writing to the office of the director of building inspections and shall include all pertinent information which the person requesting the appeal wishes to be considered. The director of building inspections may require additional information from or request a meeting with the person making the appeal. The written decision of the director of building inspections, or authorized designee, on the appeal shall be rendered within fifteen (15) working days and shall be delivered to the appealing party by certified mail, return requested, or by hand delivery. If the director of building inspections or authorized designee fails to render an opinion on the appeal within the fifteen-day period, the relief requested in the appeal shall be granted.

(5) Planning commission

- A. If the director of building inspections denies all or part of the relief requested in an appeal, the aggrieved party may appeal to planning commission by filing a notice of appeal with the office of the city clerk no later than the tenth working day following the party's receipt of the written decision of the director of building inspections. A true and correct copy of the notice of final appeal must also be filed with the office of the director of building inspections who upon receipt of such notice, shall immediately transfer copies of all documents and information relevant to the appeal to the executive secretary to the planning commission. The executive secretary of the planning commission shall schedule the hearing of the

appeal at the earliest available regularly scheduled meeting of the planning commission which will allow compliance with the requirements of the Texas Open Meetings Act.

- B. A decision of the planning commission that is adverse to the applicant shall be appealable by the applicant to the city council for final action by filing a notice of final appeal with the office of the city clerk no later than the tenth working day following the party's receipt of the written decision of the planning commission. The city clerk shall schedule the hearing of final appeal at the next available regularly scheduled meeting of the city council which will allow compliance with the requirements of the Texas Open Meetings Act.
- C. Where this division requires either the city or applicant to respond, or take other action, within a specific number of days, such calculation shall begin on the first working day after the date of receipt of the information that necessitated response or action.

(l) Tree mitigation/replacement fund

(1) Fund Established

The director of finance is hereby directed to establish a dedicated account to be entitled tree mitigation and replacement fund (hereinafter the "fund").

(2) Penalties

§ 35-493 of this Chapter provides for sections imposing civil penalties in addition to criminal penalties. Civil penalties collected pursuant to such section shall be recorded in the fund created pursuant to this section, unless expressly prohibited by law. Likewise, all funds received from the payment of mitigation fees pursuant to subsection (e) shall be recorded in the fund.

(3) Use of funds

The funds collected from civil penalties and mitigation fees in the fund shall be utilized to pay for the planting and maintenance of trees, the funding of tree preservation and planting programs to be administered by the parks and recreation department. The parks and recreation director shall seek the advice of the open space advisory board in regard to the selection of projects to be funded. A portion of the fund may be used, on an annual basis, to fund activities directed towards educating school age children on the importance of trees in the environment, ecological issues and pollution prevention.

(4) Funds to be kept separate

The balance within the fund shall be recorded and accounted for in a manner that distinguishes them from other general funds of the city and shall be disbursed in a manner which is consistent with the purposes for which this fund has been established. The balance of this fund shall not be transferred to the general fund at the end of each budget year, but rather, the balance remaining in the fund at the close of the city's fiscal year shall roll over and become the beginning balance for the next fiscal year.

(m) Public property

The Director of Public Works, in coordination with the city arborist, shall approve an application for the removal of a protected tree in connection with construction, maintenance or repair of

public facilities in or above a public Street, alley, right-of-way, easement or other public land under one (1) or more of the following conditions:

- (1) The location of the tree prevents the opening of reasonable and necessary vehicular traffic lanes in a Street or alley.
- (2) The location of the tree prevents the construction or maintenance of utility lines or drainage facilities which may not be reasonably rerouted.
- (3) The location of the tree prevents all reasonable access to the property.
- (4) Denial of the application would deny the affected governmental entity the reasonable use of public property for the achievement of its public purpose.
- (5) The city arborist shall not later than twelve (12) months after the effective date of this division report to the planning commission in regard to compliance with applicable provisions of this division by governmental entities subject to its provisions.

It is understood that although local governmental entities and utility companies are not under the auspices of the tree preservation ordinance per se, every effort will be made by the above mentioned organizations to consult with the city arborist before any such construction activity takes place. Special attention will be given to the preservation of trees in rights-of-way that are along public roads so as to help in satisfying the objectives of the corridor tree section of this division. For above ground utility poles adjacent to public roads and alleys and sides of property which abut adjacent residential areas, the easement below will be carefully studied so as to allow for the maximum preservation of trees.