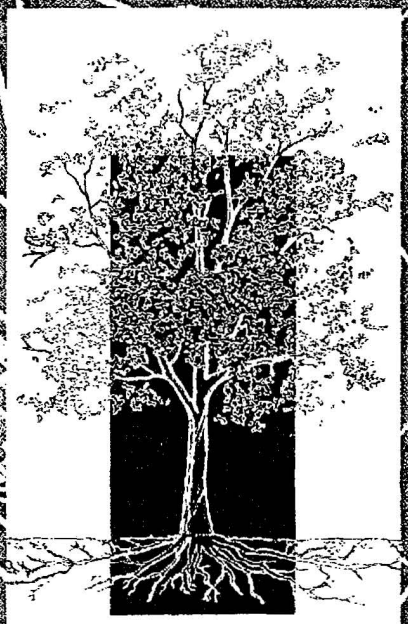
Trees and Development

A Technical Guide to Preservation of Trees During Land Development



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Exhibit No.
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guideline is trunk diameter because the size of the tree protection zone is adjusted for the size of the tree, independent of canopy conformation. Coder (1995) suggests that a minimum of 6 feet should be protected around a tree, regardless of its diameter.

The British Standards Institute (1991) developed tree protection guidelines, based on ranges in trunk diameter, that considered the age and vigor of the tree. That system acknowledges that old trees and those of low vigor are less tolerant of construction impacts and, therefore, need a larger protection zone. We adapted the BSI method to include species tolerance to impacts (see Appendix B for species list). The optimum tree protection zone is calculated based on the species tolerance to impacts (good, moderate, or poor) and the age of the tree (young, mature, overmature) (Table 6.2). This system acknowledges that a mature walnut can tolerate less disturbance than a young ash. The protection zone should be increased by 25 to 50 percent for low vigor trees, although retention of low vigor trees is discouraged.

This approach is intended to be a guide for planning adequate space around trees, not an absolute rule. It is a tool to help the design team. There certainly will be times when it is not possible to retain the optimum tree protection zone around each tree to be preserved. The consultant then must evaluate the minimum tree protection zone that would prevent the death, decline, or instability of the specific tree (see Chapter 8).

When young trees are retained, consideration should be given to the future needs of those trees for rooting space as they mature. Coder's (1995) site occupancy method described above can be used to estimate future space requirements.

Design Guidelines

The consultant further helps the design team by providing

Calculating the Optimal Tree Protection Zone

1. Evaluate the species tolerance of the tree: good, moderate, or poor (refer to Appendix B).
2. Identify tree age: young, mature, or overmature.
3. Using Table 6.2, find the distance from the trunk that should be protected per inch of trunk diameter.
4. Multiply the distance by the trunk diameter to calculate the optimum radius (in feet) for the tree protection zone.

Examples

A healthy 60-year-old, 30" diameter California black walnut (*Juglans hindsii*) (poor tolerance, mature age):

1.25' x 30" = 37.5' radius tree protection zone

A 15-year-old, healthy, 13" diameter Raywood ash (*Fraxinus* 'Raywood') (good tolerance, young age):

0.5' x 13" = 6.5' radius tree protection zone

Table 6.2 Guidelines for optimal tree preservation zones for trees of average to excellent vigor (modified from the British Standards Institute 1991). Refer to Appendix B for species tolerance.

Species tolerance	Tree age	Distance from trunk feet (per inch trunk diameter)
Good	Young (<20% life expectancy)	0.5'
	Mature (20–80% life expectancy)	0.75'
	Overmature (>80% life expectancy)	1.0'
Moderate	Young	0.75'
	Mature	1.0'
	Overmature	1.25'
Poor	Young	1.0'
	Mature	1.25'
	Overmature	1.5'