
CITY OF LAFAYETTE
**Construction Policies and Guidelines for
Tree Preservation and Protection**

The City of Lafayette desires to maintain and enhance its 'semi-rural' character through the preservation and protection of trees. The goal is to preserve woodland groupings of trees as well as individual specimen trees. Although all trees provide benefits, it may not be possible to save all trees impacted by construction. Priority will be given to healthy and appropriate native species such as, but not limited to: Oak, Buckeye, Madrone and Bay.

Preservation and protection of the existing trees requires a clear understanding of the environmental requirements and necessary protection measures by the architect, landscape architect, civil engineer, homeowner, contractor, and construction crew. The following policies and guidelines are ways to help minimize the impacts of construction on trees caused by earth-moving, compaction, trenching, impervious surfaces, loss of aeration and positive drainage.

In general, no construction including grading, paving, trenching or compaction is to take place under the drip line of the existing trees. Development within the dripline will be considered only when there are no viable alternatives.

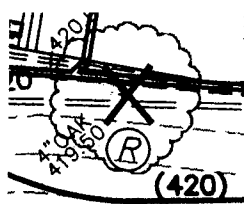
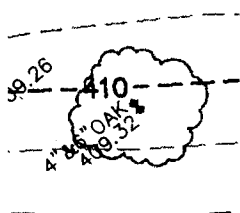
It should be noted that trees are living changing elements. Their native habitat is being disturbed by the proposed construction. There is no way to guarantee that a tree will survive this change. Protective measures to help preserve as many trees as possible are required, as outlined below.

PLAN REVIEW REQUIREMENTS

All Projects which require City review must submit a Site Plan with accurate survey and contours. The plan must accurately include:

- The location of all existing trees over 4 inch caliper as measured at the diameter at breast height (DBH). Show trunk diameter (DBH - include on the plan) and accurate dripline (canopy) sizes.
- Number all of the trees on site. Maintain this numbering on all project plan sheets. Numbering should coincide with an Arborist Report if your project requires this.
- Spot elevations at the base of each trunk.
- Genus and species for each tree.
- Trees proposed for removal.

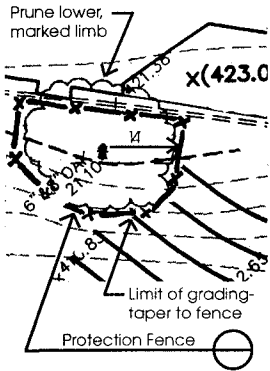
In addition to the Site Plan, all other drawings within the drawing set (preliminary, design development or construction documents - plans,



Tree to be removed

elevations and sections) must show existing trees accurately, to scale and noting the tree number referencing the Site Plan. All Grading and/or Drainage Plans must show tree protection measures for all trees to remain.

The plan must include:



- All tree requirements as stated on page 1 of this document.
- A measurable symbol indicating the length and exact location of the protection fencing and/or hay bales for each tree to remain. Dimensions from the tree trunk are recommended.
- Call-out notes for trees requiring special pruning or limb protection. Pruning shall be by a Certified Arborist Tree Care Professional.
- Tree protection fence detail.
- Tree protection notes (designer can use or modify the *Specific Condition Guidelines* in this document as they pertain to the project).

Review is required by the City Landscape Architect/Arborist with recommendations forwarded to staff and the appropriate City decision making body. The initial City review will assess the accuracy of the plan, the health and value of the trees to the landscape, the effectiveness of the proposed protection measures, any additional recommendations for preservation or improving the health and vigor of impacted trees, and the adequacy of proposed mitigation. The application has the option to retain a second review from another City approved certified arborist at their expense.

TREE PROTECTION REQUIREMENTS

- Install protective measures at all trees to remain as identified on the Site Plan. Show all protective measures on the Grading and/or Drainage Plan as stated above. *All tree protection measures must be approved, installed and inspected by the City before any construction may begin.* All existing trees to remain are to be protected with the appropriate following measures during construction:
 - A substantial six-foot high fence installed at a minimum distance of the dripline of the tree. The length, spacing, depth and material of the posts securing the fencing are to be designed to remain solidly in place until the final City inspection is made. Two protection fence detail options are provided for your use. The City may require modifications to these details depending on your particular site conditions.
 - Hay bales at the base of the trunk for trunk protection at critical trees in addition to the fencing, if required.
 - Tie 2' x 4's or other approved material to protect overhanging limbs that are not recommended for removal.

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- Appropriate retaining walls shall be constructed along and outside of the drip line area if grade changes approach the fence line and a 2:1 return slope cannot be constructed.
 - Direct all drain water away from the drip line area.
 - Trees which are excessively damaged due to inadequate protection or negligence by the Contractor are to be replaced at Contractor's expense. Replacement will be determined in the same manner as Mitigation Plantings.
 - No equipment or materials shall be stored inside the fence.

CONSTRUCTION INSPECTION

At a minimum, on-site inspection by the City Landscape Architect/Arborist is required when construction occurs within the dripline and when trees are:

- Within 10 feet of a building;
- Within 5 feet of a road edge;
- Within 1-3 feet beyond the toe of the slope;
- On repaired slopes;
- Throughout the depth of a fill plus 6 inches;
- Impacted by utility trenches; and
- Impacted by footing for structures or walls.

(Note: Exception to this can only be approved in the field by the City Landscape Architect/Arborist).

MITIGATION PLANTING

All healthy trees which are removed for construction or are damaged during construction shall require mitigation either through replacement planting or cash deposit in the City Tree Fund. The size, quantity and species of replacement shall be determined by the value of the tree lost. The City will use one of the two ISA standard tree appraisals: *Replacement Cost Method* or *Trunk Formula Method* in determining this value. Mitigation plan recommendations of replacement plantings could be on or off site, cash deposit in the City Tree Fund, or a combination of all three. Trees removed which are unhealthy or inappropriate for the site will not require mitigation.

SPECIFIC CONDITIONS

Additional Requirement for Native Oak Trees

Cut and Fill

Use extreme care when cutting and filling. Tree roots quickly dry out when a soil cut is made. Promptly apply a 4 to 6 inch layer of mulch to preserve soil moisture. Remove excess soil immediately when fill is added because roots are otherwise suffocated. No fill may be placed near the base of a tree at any time. If an oak tree lacks natural flair at the trunk, promptly remove any fill material to expose the trunk's natural flair at original grade.

Trenching

Design utilities to minimize disturbance to trees. The first rule is to reposition the trench further from trees whenever feasible. No utility lines should traverse any portion of a dripline unless the trenches are hand dug and roots are treated as they are exposed. Sensitive trenching areas may require that the Landscape Architect be present to monitor root damage and repair measures. Review with inspector before beginning any work within dripline of trees.

Root Protection

Root system protection is essential. Most absorbing roots are found near the outer edge of the dripline. any construction within this zone should be carefully considered and avoided whenever possible. Never pull roots when contacted by construction equipment. This breaks off the rootlets and root hairs which are needed for the tree to acquire nutrients and water. This must be explained to the backhoe operator before beginning the work. A laborer should be present for hand excavation as needed. Also, a couple yards of shredded mulch and wet burlap sacks should be on hand for covering damaged roots. Trim, clean, and immediately cover cut roots so they do not dry out. If major roots (over 2" in diameter) are encountered, assess them for structural impacts.

Impervious Paving and Aeration

Roots need air to grow and survive. The compaction required to install most paving (90-95%) will kill the roots. At a minimum, paving should be kept outside the dripline of the tree. If paving is allowed, maximum allowable cut or fill is 6 inches. Realize that this maximum will severely impact the tree. In addition, paving modifications including gap graded gravel, pier and grade beam footings, steel reinforcement, or aeration breaks in the paving may be required.

Compaction

Do not compact soil within the dripline of any tree because vibration from heavy equipment damages the roots. If equipment access is absolutely necessary, a mulch layer (4-12 inches, depending upon the weight of the equipment) of tree chips or cocoa hulls is to be placed over the impacted area prior to allowing the equipment to cross over the root zone area. Schedule work so that the equipment is only required to cross the root zone once to enter and once to exit. Leave chips or hulls on the site as mulch since removal may cause damage to surface feeder roots.

Watering

Watering during construction to minimize tree stress is crucial. Water when 1/4 or more of a tree's roots have been disturbed. Slowly apply water to irrigate down to a minimum depth of 12 inches for the full outer half of the canopy/dripline area. Don't soak area immediately adjacent to a tree trunk. Water once a month during the dry season (May, June, July, August, September). Give all trees near asphalt additional watering because asphalt paving absorbs heat which in turn raises nearby soil temperature and increases moisture loss.

Drainage/Erosion Control

Do not alter drainage patterns. Keep the natural flow on the site, if possible. If it is altered, keep water directed away from the trunks of the trees to prevent fungal infections.

CITY OF LAFAYETTE

Tree Removal and Pruning Guidelines

General Tree Removal:

No 'felling' of trees. Cut and lower in sections by rope so as not to injure adjacent trees and vegetation to remain.

Stump Grinding:

In general, remove stumps after tree removal to a minimum depth of 18" by grinding according to current arboriculture standards. Where stumps or root masses are greater than 48" in volume or where the area will be covered by building slabs, remove to a minimum depth of 36".

General Pruning:

- 1) Perform all pruning in a professional manner.
- 2) Per WC/ISA standards, no 'topping' or flush cuts are allowed.
- 3) Before final cutting of any larger limbs that are to be removed, pre-undercut 6 to 12 inches to prevent ripping.
- 4) Make final cuts just outside the growth collar.
- 5) Climbing spurs are not allowed under any circumstances.
- 6) Pruning paints are highly discouraged. If ever used, a lightweight paint is preferable. No heavy tar paint is allowed.

Pruning Deadwood

Pruning consists of the removal of all deadwood over 3/8" diameter x 4" long on the inner 2/3 of branches. Remove any deadwood over 3/8" diameter x 12" long (or longer) from the outer 1/3 of branches.

Lighten Canopy and Limb Pruning

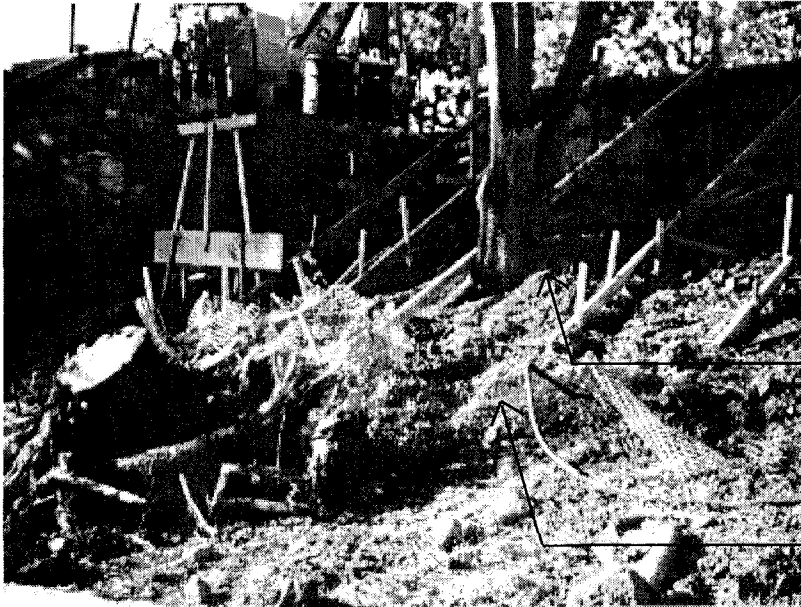
1. to thin, uniform remove the smaller limbs throughout the tree. This includes the ends of the limbs as well as the interior. The trees should not have a stripped look. In general, do not thin more than 25% to 30%.
2. Certain trees may need light reduction. To lightly reduce, use the 'heading back' method. When heading back to reduce height of trees, always cut to strong lateral branch (i.e., not less than 1/2 the size of the leader being removed). Reduce the lateral, or new dominant leader to prevent rapid elongation or future breakage.
3. The minimum height for clearance pruning is eight feet for pedestrians and thirteen for vehicles.

Sucker Growth

Remove all water sprouts except as needed to prevent sun scald.

Disposal

To the greatest extent possible, all debris is to be chipped and used as mulch or cut and used for firewood. The goal is to keep from disposing landscape waste in landfills.



Fence the perimeter of the tree's dripline on all sides exposed to construction. Avoid equipment, materials, and foot traffic within the dripline of the tree. If this is not possible, provide a sensitive design solution for City approval.
 (this example is not a sensitive design solution to building a wall).

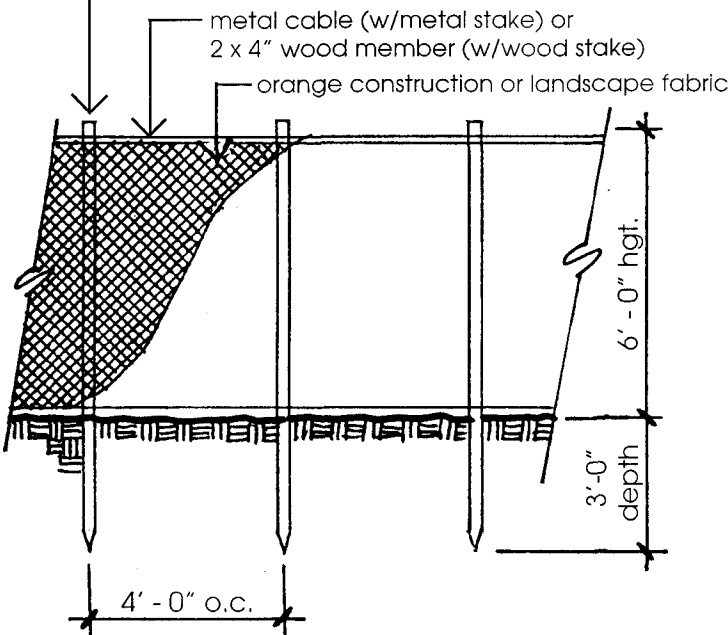
The original grade was disturbed - fill was placed within the dripline which will likely lead to the tree's decline.

Notice the downed orange fencing. Without proper installation, tree protection is often rendered useless.

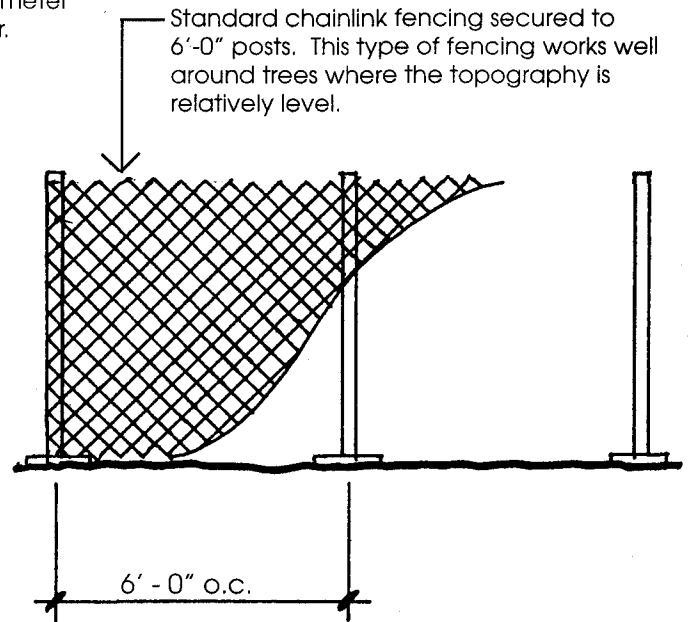
Tree Protection Fencing - What not to do

Metal stakes with orange construction fencing: Thread a heavy metal cable through the top stake holes. Weave orange fabric every other opening along the vertical stake and wire the fabric 12" on center (o.c) along the horizontal cable.

Wood stakes with orange construction fencing or landscape fabric: Staple either fabric, every 6" vertically to 2" diameter lodgepole pine stakes and horizontally to a 2x4 top bar.



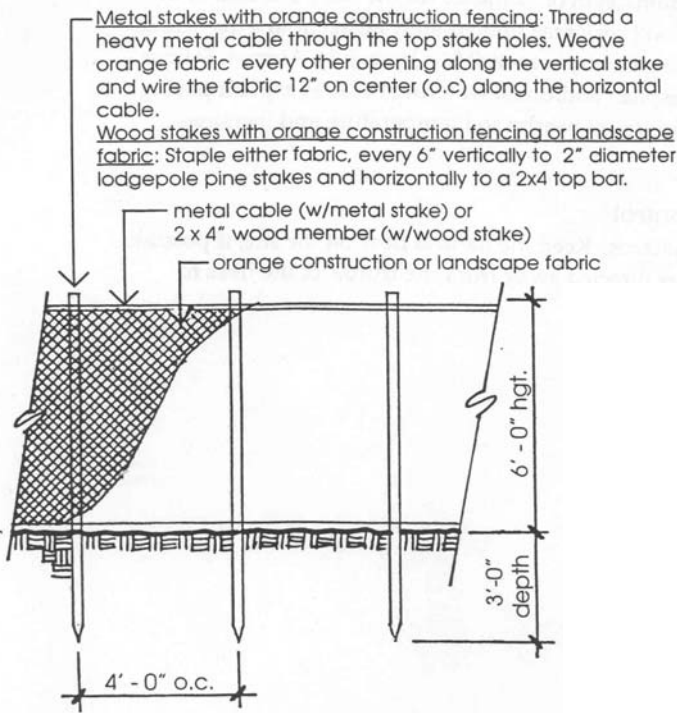
Post and Fabric Fence Options



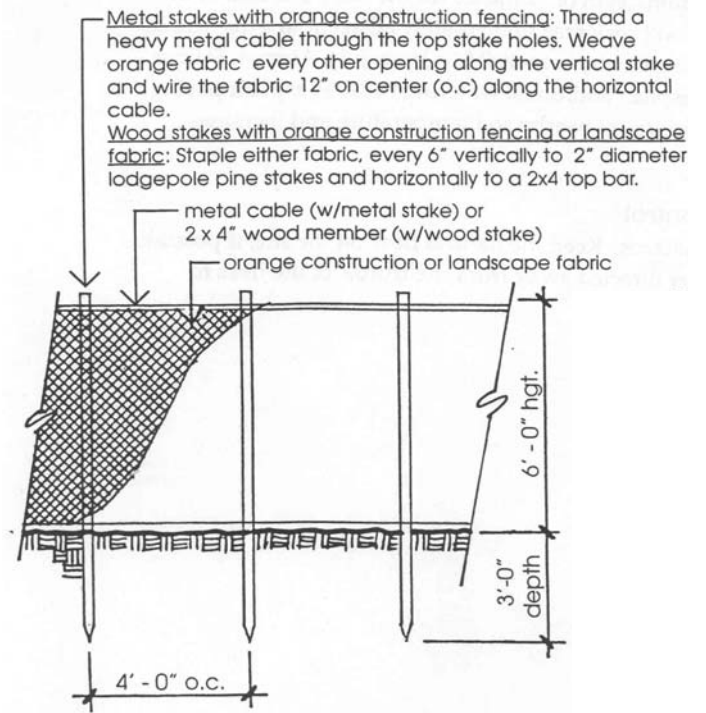
Chain Link Fence

Tree Protection Fence Options

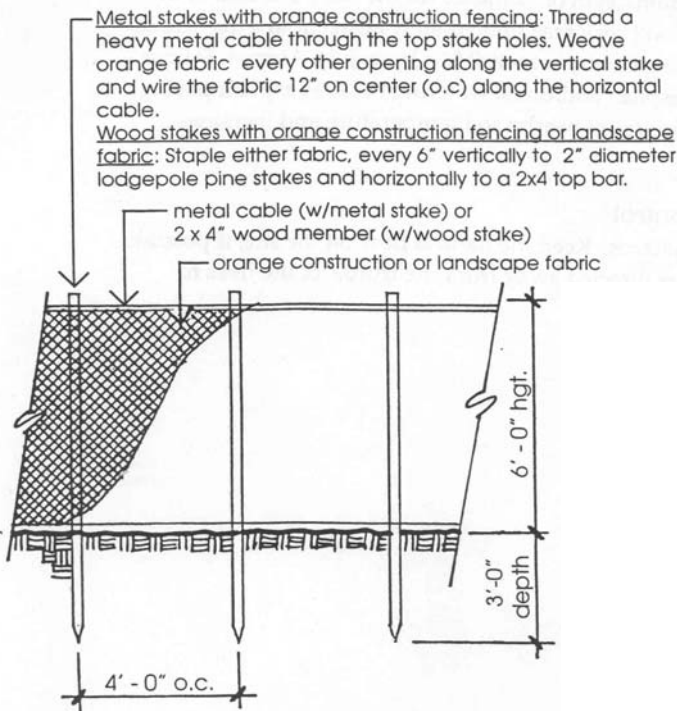
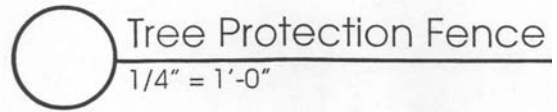
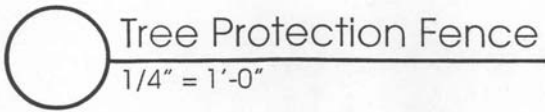
1/4" = 1'-0"



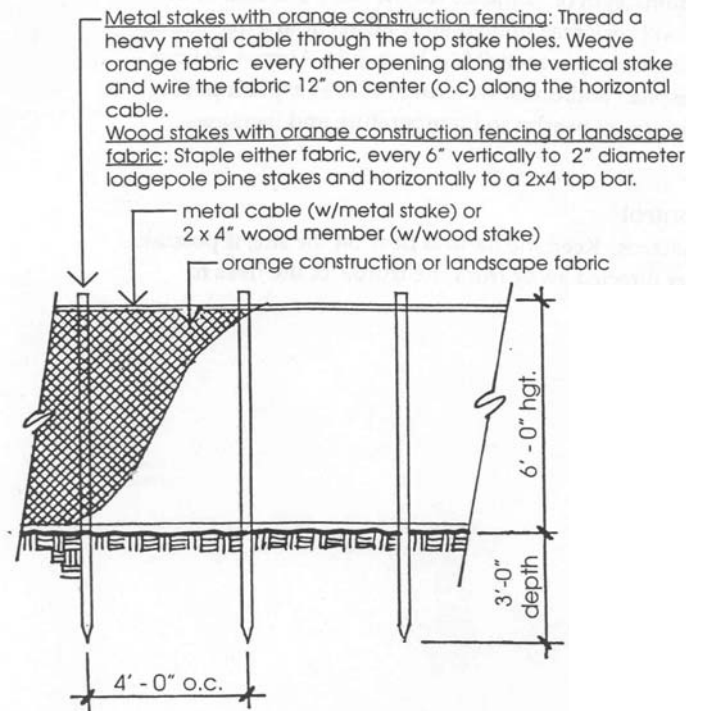
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