

Assessment of Nineteen (19) Protected and Non-Protected Size Trees at and adjacent to

**400 Carlton Avenue
Los Gatos, California**

Prepared for:
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Town of Los Gatos Community Development Department
110 E. Main Street
Los Gatos, CA 95030

Field Visit:
Walter Levison, Contract Town Arborist (CTA)
2/10/2017

Report by CTA
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1.0 Summary

- a. Matrix style overview of protected-size trees (non-exempt species, 4-inches diameter at 4.5 feet above grade). Below, the CTA has outlined expected impacts to each tree, along with suggestions for adjustments to the plan set (if applicable) that will optimize tree survival over the long term. Removal trees, if any, are noted as such in the matrix.

The CTA calculated the appraised value of each tree, which can be used as a tool for determining the proper security bond amount to have the applicant post with the Town as a hedge against site plan-related tree damages (if applicable). Appraised values can also be used to determine damage fees if trees are determined during or after construction to have been damaged such that mitigation is required.

Mitigation replacement rate and size is noted for each tree in the case that removal or damage to trees occurs.

Note: Only trees within relatively close proximity of proposed work as outlined in the applicant's set of plan sheets (e.g. trunks located between zero and 20 linear feet of proposed work) are included in this initial tree study.

Table 1.0(a) (REFER TO THE CTA'S TREE MAP MARKUP WHEN REVIEWING THIS MATRIX)

Line Number	Tree Tag Number	Common Name	Large Protected Tree (LPT)?	Appraised Value	Site plan changes or restrictions required to reduce impacts to "less than significant"	Replacement Rate Per Canopy Lost	Replacement Size Tree
1	1	European olive		(non-protected size tree)	n/a	n/a	n/a
2	2	European olive		\$1,230.	(To be removed per plan).	3	24" box
3	3	(non-protected size tree)		n/a	n/a	(non-protected size tree)	n/a
4	4	(non-protected size tree)		n/a	n/a	(non-protected size tree)	n/a
5	5	European olive		\$2,830.	Keep chain link RPZ fencing erected as far as possible Eastward offset from trunk. Irrigate weekly.	3	24" box

Line Number	Tree Tag Number	Common Name	Large Protected Tree (LPT)?	Appraised Value	Site plan changes or restrictions required to reduce impacts to "less than significant"	Replacement Rate Per Canopy Lost	Replacement Size Tree
6	6	European olive		\$3,010.	Keep chain link RPZ fencing erected as far as possible Eastward offset from trunk. Irrigate weekly.	3	24" box
7	7	European olive		\$1,270.	Fence per CTA's tree map in report. Irrigate weekly.	3	24" box
8	8	(non-protected size tree)		n/a	n/a	(non-protected size tree)	n/a
9	9	(non-protected size tree)		n/a	n/a	(non-protected size tree)	n/a
10	10	(non-protected size tree)		n/a	n/a	(non-protected size tree)	n/a
11	11	European olive		\$800.	(To be removed per plan).	3	24" box
12	12	European olive		\$1,990.	Limit depth of cut for new walkway base section excavation to max. 4 to 6 inches below existing soil grade. Maintain irrigation weekly.	3	24" box
13	13	(non-protected size tree)		n/a	n/a	(non-protected size tree)	n/a
14	14	Sweetgum (Street Tree)		\$2,130.	Limit depth of cut for new sidewalk surfacing to depth of existing older baserock. Work with a project arborist to avoid severing roots measuring 1-inch diameter or larger, within 10 feet of this tree, when replacing baserock and sidewalk surfacing.	3	24" box

Line Number	Tree Tag Number	Common Name	Large Protected Tree (LPT)?	Appraised Value	Site plan changes or restrictions required to reduce impacts to "less than significant"	Replacement Rate Per Canopy Lost	Replacement Size Tree
15	15	Sweetgum (Street Tree) (Possible removal tree based on current condition rating of 'very poor')		\$770.	Limit depth of cut for new sidewalk surfacing to depth of existing older baserock. Work with a project arborist to avoid severing roots measuring 1-inch diameter or larger, within 10 feet of this tree, when replacing baserock and sidewalk surfacing.	3	24" box
16	16	Sweetgum (Street Tree)		\$1,160.	Limit depth of cut for new sidewalk surfacing to depth of existing older baserock. Work with a project arborist to avoid severing roots measuring 1-inch diameter or larger, within 10 feet of this tree, when replacing baserock and sidewalk surfacing.	3	24" box
17	17	Sweetgum (Street Tree)		\$1,320.	Limit depth of cut for proposed new driveway apron to depth of existing older baserock and/or existing surfacing materials. Work with a project arborist to avoid severing roots measuring 1-inch diameter or larger, within 10 feet of this tree, when replacing baserock and sidewalk surfacing.	3	24" box
18	18	Sweetgum (Street Tree)		\$3,360.	Limit depth of cut for new sidewalk surfacing to depth of existing older baserock. Work with a project arborist to avoid severing roots measuring 1-inch diameter or larger, within 10 feet of this tree, when replacing baserock and sidewalk surfacing.	3	24" box
19	19	Deodar cedar		\$5,700.	Limit depth of scarification of existing asphalt parking lot to depth of surface asphalt only. Work with a project arborist if woody roots measuring 1 inch diameter or greater are encountered and require severing during scarification work within approximately 30 to 40 feet of this tree.	4	24" box

2017 Town of Los Gatos In-lieu fee equivalent = \$250 per each required 24" box mitigation tree planting not installed on the site.

Summary of tree disposition and tree issues, based on the grading and drainage plan sheet dated 1/17/2017 by Hanna-Brunetti Civil of Gilroy, California:

- REMOVALS (APPLICANT): Applicant proposes removal of **trees #1, 2, 3, 4, 8, 10, and 11**.

Only removal trees #2 and #11 are considered protected trees. The other five (5) removal trees are of non-protected size.

- REMOVALS (CTA): The CTA suggests removing **street tree #15** due to very poor overall condition rating.
- IMPACTED TREES: The CTA expects the following protected-size survey trees to be impacted by proposed work:
 - West Side of Building: **Olive specimens #5, 6, and 7** need to be fenced off as far as possible from trunks, and irrigated regularly, to avoid loss of vigor during proposed new building footprint work.
 - North Walkway: **Olive #12** may be damaged by proposed new walkway cuts running in an East-West orientation, unless base rock excavation depth is restricted to only a few inches beneath existing soil surface grade in the area just South of the trunk of this tree.
 - Sidewalk Carleton Avenue: Proposed sidewalk work along Carleton Avenue may cause significant root loss and damage to **sweetgum street trees #14, 15, and 16**. It is suggested that this demolition and renovation work be restricted to only surface material replacement, with no adulteration of the older baserock beneath the surface materials, within 10 feet of these trees.
 - Driveway Aprons: New driveway apron work at the Carlton entrance and the Jo Drive entrance may cause significant root loss to **sweetgum street trees #17 and #18** if depth of cut is not restricted. It is suggested that new apron work cut depths be restricted to the depth of existing base rock and/or existing surface materials.
 - Sidewalk Jo Drive: Although not shown on the proposed plans, sidewalk heave near **sweetgum #18** on Jo Drive may require removal and replacement of slabs in that vicinity. This work would necessarily have a severe negative impact on the tree, unless work is limited to replacement of the slab only. Use of rubber pavers may be a solution to this problem, as rubber can deform as roots continue to expand upward. See recommendations section for images of rubber slabs used as sidewalk surfacing near mature trees.
 - Parking Lot Scarification: The plans call for scarification and replacement of the existing asphalt parking lot area North of **cedar #19**. The CTA measured woody root extension damage to the asphalt running radially North of the tree as far as 40 to 50 feet radius. This means that the proposed scarification area may contain relatively large diameter woody roots connected to cedar #19. If scarification is limited to removal of the surface materials only, this is fine. If the scarification will include removal of base rock, then there is a high possibility that woody roots will be damaged or destroyed, which could result in loss of water uptake ability by cedar #19, and loss of vigor (decline in overall condition). The project team will need to work with a project arborist to determine a feasible course of action which allows for parking lot renovation to occur, without causing significant damage to tree #19.
 - Irrigation Laterals to Sidewalk Plantings: Any irrigation pipe laterals proposed to cut through the sidewalks along Jo Drive and Carleton Avenue to connect water supply to the proposed new sidewalk planting areas will need to be routed to at least **10 feet offset** from the trunks

of all street trees being retained. For pipe installations within 10 feet of a street tree, a compromise will need to be reached between the contractors and the project arborist whereby piping is routed just under grade, etc. to avoid severe root damage or root loss to the trees.

- **LANDSCAPE REPLACEMENT PLANTINGS VS. REMOVALS:** The current proposed plan shows replacement tree installations totaling six (6) trees. Per the Town's canopy replacement standards as shown above in Table 1.0(a), removal of the two (2) protected-size olives at this site will require at least six (6) replacement trees of minimum 24" box size. The CTA suggests that the proposed landscape plans be verified as meeting this requirement. Note also that applicants can provide payment of \$250 per each required new replacement tree that is not actually installed on site.

- **LANDSCAPE & IRRIGATION PLANS:**

The proposed irrigation pipe trenching plan was not available for review at the time of writing. However, a preliminary landscape plan sheet L-2.0 dated 1/17/2017 by David Fox, Landscape Architect, of Los Gatos, California, was available for the CTA's review.

Per above on page 6, in the item titled "irrigation laterals to sidewalk plantings", the CTA suggests that the laterals be kept to at least 10 feet offset from the trunk of any existing tree being retained, and that any piping required to be installed within 10 feet of a tree being retained will need to be specified as minimal burial to avoid causing severe tree root loss (**depths of burial and piping types to be determined at a later date**).

b. **Security Bonding:**

The new 2015 iteration of the Town tree ordinance section 29.10.1000 (c)3 includes wordage that requires that all trees being retained on a development site need to be appraised for dollar value at the applicant's expense prior to building or grading permits being issued by the Town. Part 'f' of this same tree ordinance section states that the Town may condition a security bond prior to issuance of a permit, in the sum of \$5,000 per each tree being preserved, or \$25,000, whichever is less. The ordinance does not contain wordage as to whether this includes neighbor-owned trees adjacent to construction. Therefore, the CTA will assume that neighbor-owned trees are included as trees "required to be preserved" (if applicable).

Note that the total appraised value of trees being retained at this site per the CTA's determination above in table 1.0(a) is approximately \$19,000. Therefore, if applicable, it would be reasonable, based on the actual appraised values of the ten (10) protected-size trees being retained at and adjacent to this site, for the Town to condition the project approval upon posting of a security bond in the amount of approximately 50% X \$19,000 = \$9,500. This would represent a reasonable fraction of the total value of protected-size trees being retained on site.

2.0 Assignment & Background

Walter Levison, Contract Town Arborist (CTA) was directed to tag and assess all Protected Size (4 inch diameter and greater) trees both on the property proposed for site plan work and (in some cases) adjacent to the site plan area within 10 linear feet of property lines, when proposed work is to occur within approximately 20 to 25 feet of the tree(s).

Note that "exception" trees not protected under the current Town tree ordinance (e.g. fruit and nut trees <18 inches diameter, and Tasmanian blue gum, red gum, blackwood acacia, tulip tree, tree of heaven, palms (except *Phoenix canariensis*), and privet <24 inches diameter, etc.) were not tagged or assessed by the CTA.

At this site, the CTA included all trees that were within 10 to 15 feet of proposed work, which included street trees along Jo Drive and Carleton Avenue, and one parking lot cedar near proposed scarification work South of the proposed new building footprint. On "Hillside" properties (see Hillside map, next page), all eucalyptus species are considered exception trees, and are not protected by Town ordinance provisions. The Gum Tree Lane project is within the "Hillside Area".

"Large protected tree" (LPT) as noted in the tree table below in this report means any oak (*Quercus*), California buckeye (*Aesculus californica*), or Pacific madrone (*Arbutus menziesii*) which has a 24 inch or greater diameter (75 inch circumference); or any other species of tree with a 48 inch or greater diameter (150 inch circumference). Trunk measurement in the case of a multiple stem tree is the sum of all mainstem diameters.

The author tagged all trees in this study at 5 to 6 feet above grade using large racetrack shaped tags numbering "1" through "38" as noted on the tree map below in this report.

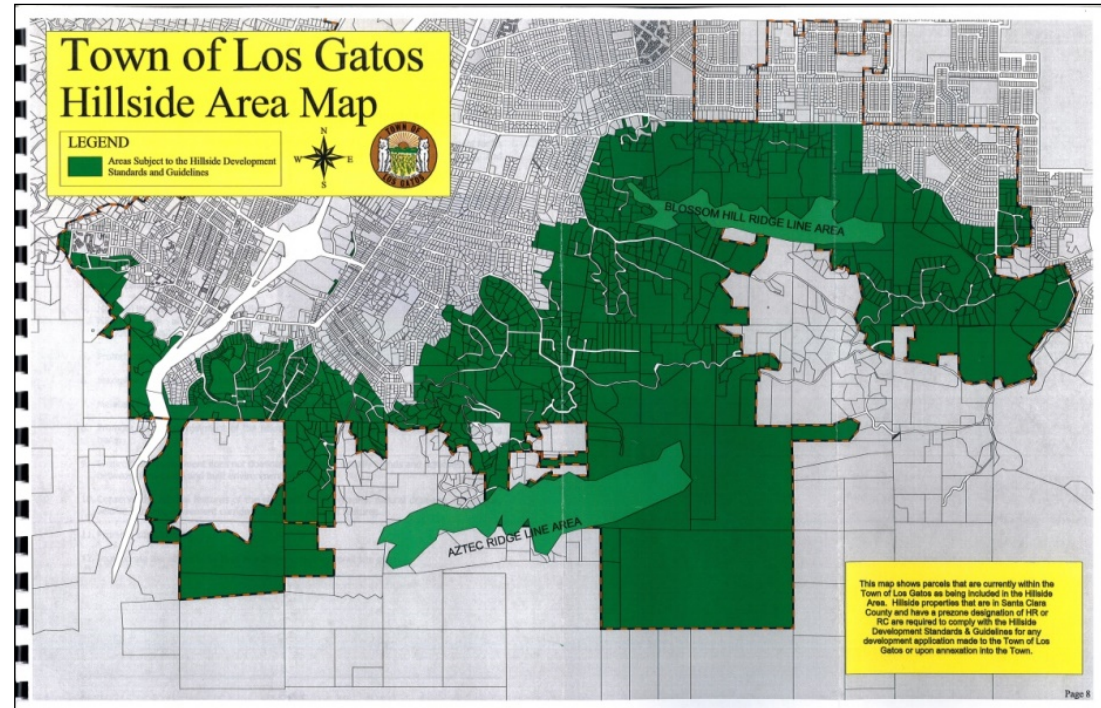
3.0 Tree Location & Protection Fence Map

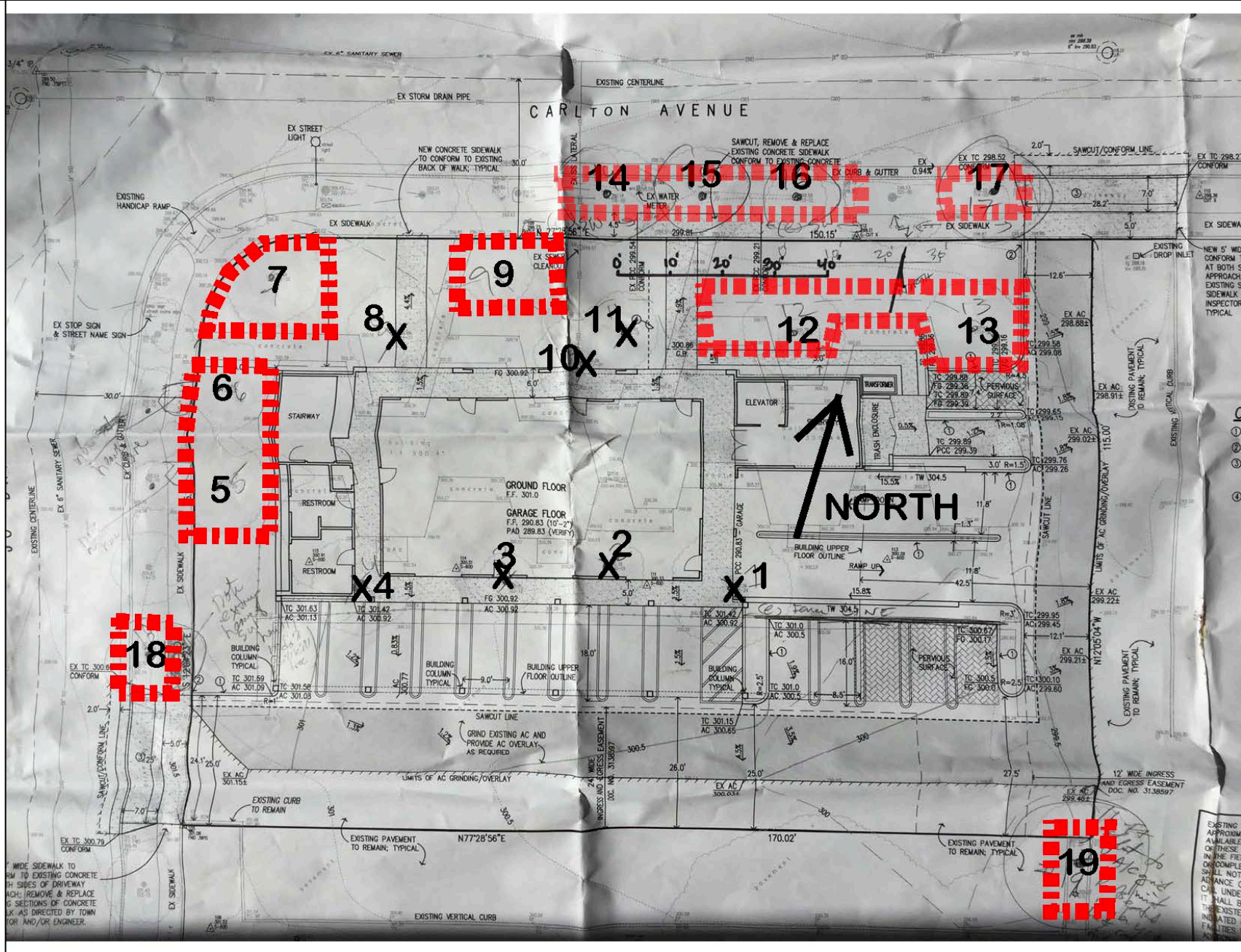
The CTA marked up the applicant's grading and drainage plan sheet dated 1/17/2017 by Hanna-Brunetti of Gilroy, California.

The **red dashed lines** indicate the CTA's suggested chain link root protection fence alignment (initial rough), based on available remnant root zone areas that are protectable (assuming the scope of site plan work will occur as currently proposed).

Note that the red dashed lines are shown as root zone protection fence routing around both non-protected size trees and protected size trees being retained.

The project team can choose to ignore protection for non-protected size olives #9 & #13 at their discretion.





4.0 Town of Los Gatos – What Trees are Protected?

Per the most recent (2015) iteration of the Town of Los Gatos tree ordinance (Town Code Chapter 29 – Zoning Regulations, Article 1), the following regulations apply to all trees within the Town's jurisdiction (wordage adjusted):

1. All trees with at least a single mainstem measuring four (4) inches diameter or greater at 4.5 feet above grade are considered “**Protected Trees**” when removal relates to any development review.
2. 12 inch diameter (18 inch multistem total) trees on developed residential property not currently subject to development review.
3. 8 inch diameter (8 inch multistem total) blue oak (*Quercus douglasii*), black oak (*Quercus kellogii*), California buckeye (*Aesculus californica*), and Pacific madrone (*Arbutus menziesii*) on developed residential lots not currently subject to development review.
4. 8 inch diameter (8 inch multistem total) trees on developed residential property not currently subject to development review, on lots in the designated **Hillside Area** per the official Town map.
5. All trees with a single mainstem or sum of multiple mainstems totaling 48 inches diameter or greater at 4.5 feet above grade are considered “**Large Protected Trees**” (LPT).
6. All oak species (*Quercus spp.*), California buckeye (*Aesculus californica*), and Pacific madrone (*Arbutus menziesii*) with one or more mainstems totaling 24 inches diameter or more at 4.5 feet above grade are considered “**Large Protected Trees**” (LPT).
7. Section 29.10.0965. Prohibitions: A **permit** is required to prune, trim, cut off, or perform any work, on a single occasion or cumulatively, over a three-year period, affecting 25% or more of any **Protected Tree** (including below ground root system).
8. Section 29.10.0965. Prohibitions: A **permit** is required to prune, trim, or cut any branch or root greater than four (4) inches in diameter of a **Large Protected Tree**.
9. Section 29.10.0965. Prohibitions: A permit is required to conduct severe pruning on any protected tree. Severe pruning is defined in section 29.10.0955 as “topping or removal of foliage or significant scaffold limbs or large diameter branches so as to cause permanent damage and/or disfigurement of a tree, and/or which does not meet specific pruning goals and objectives as set forth in the current version of the International Society of Arboriculture Best Management Practices-Tree Pruning and ANSI A300-Part 1 Tree, Shrub, and Other Woody Plant Management-Standard Practices, (Pruning).”
10. Exceptions:

Severe Pruning Exception in Town Code section 29.10.1010(3) “.....except for pollarding of fruitless mulberry (*Morus alba*) or other species approved by the Town Arborist....”.

Protected Tree Exceptions:

- a. Edible fruit or nut bearing trees less than 18 inches diameter (multistem total or single stem)
- b. *Acacia melanoxylon* (blackwood acacia) less than 24 inches (multistem total or single stem)
- c. *Liriodendron tulipifera* (tulip tree) less than 24 inches (multistem total or single stem)
- d. *Ailanthus altissima* (tree of heaven) less than 24 inches (multistem total or single stem)
- e. *Eucalyptus globulus* (Tasmanian blue gum) less than 24 inches (multistem total or single stem)
- f. *Eucalyptus camaldulensis* (River red gum) less than 24 inches (multistem total or single stem)
- g. *Other eucalyptus species* (E. spp.) not noted above, less than 24 inches (multistem total or single stem)
(REMOVAL O.K. ONLY AT HILLSIDE AREA LOCATIONS PER OFFICIAL TOWN MAP):
www.losgatosca.gov/documentcenter/view/176
- h. All palm species (except *Phoenix canariensis*) less than 24 inches (multistem total or single stem)
- i. *Ligustrum lucidum* (glossy privet) less than 24 inches (multistem total or single stem)

Note that per the exception in part 'a' above, fruiting olive trees with stems totaling less than 18 inches are considered non-protected.

5.0 Recommendations

1. Project Arborist ("PA"):

Initial Signoff

It is suggested that a third party ASCA registered consulting arborist or ISA Certified Arborist with good experience with tree protection during construction be retained by the applicant, to provide pre-project verification that tree protection and maintenance measures outlined in this section of the arborist report are adhered to. Periodic (e.g. monthly) inspections and summary reporting, if required as a project condition of approval, are suggested in order to verify contractor compliance with tree protection throughout the site plan project. This person will be referred to as the project arborist ("PA"). The PA should monitor soil moisture within the root protection zones of trees being retained, using a Lincoln soil moisture probe/meter or equivalent. If required, inspection reports shall be sent to Mr. Sean Mullin, Associate Planner, at smullin@losgatosca.gov

Sample wordage for a condition of approval regarding monitoring of tree protection and tree condition:

"The required protective fencing shall remain in place until final landscaping and inspection of the project. Project arborist approval must be obtained and documented in a monthly site activity report sent to the Town. A mandatory Monthly Tree Activity Report shall be sent at least once monthly to the Town planner associated with this project (smullin@losgatosca.gov) beginning with the initial tree protection verification approval letter".

The PA should work with the project team on critical areas where tree roots may be damaged or destroyed as a result of new driveway, walkway, sidewalk, and parking lot work near trees #12, 14, (15 if retained), 16, 17, 18, and #19.

2. Project Team Actions or Clarifications Requested:

i. Tree Removal In-Lieu Fees: (Per the Town *tree canopy replacement standard* matrix).

The CTA suggests that the project team install a total of at least six (6) on-site 24" box size tree plantings as required by the Town canopy replacement guidelines.

The current proposed olive plantings and redbud plantings are acceptable as replacement species, as long as the plantings are all of 24" box size. However, the CTA suggests that species larger than redbud be used as replacements, to replace lost large tree canopy value at parity.

ii. Tree Removal Permitting:

Removal of protected-size trees #2 and #11 per the site plan shall not occur until the applicant is granted an official Town tree removal permit.

iii. Security Bond:

It is suggested that Town Staff condition this project on receiving security bond monetary funds from the applicant in the minimum amount of 50% of the value of protected-size trees being retained on site, which is approximately **\$9,500**, as a hedge against potential decline or death of one or more of the survey trees to remain in close proximity to the proposed site plan project. Staff may choose to increase the fee to an amount above and beyond this minimum recommended fee.

iv. Plan Adjustments:

- a. **Street Tree Removal:** It is suggested that street **tree #15** be removed due to very poor overall condition. It is further suggested that the Town waive the removal fee for this tree.
- b. **Sidewalk Displacement at Jo Drive:** It is suggested that the team retain a project arborist to work with the team in replacing the sidewalk just East of **tree #18** where the root system of this sweetgum is causing vertical displacement of the slabs.

One solution may be to use a vertically-deformable



type of slab, such as rubber slab designed for sidewalks, as the new surfacing for this area. See the sample image above right showing a recent project on which the CTA worked in Palo Alto where rubber paver material was cut to retrofit a buckled walkway near mature large trees. This material is considered more appropriate than concrete for areas over existing lateral tree root growth, as the rubber can deflect upward to account for future tree root expansion. Also, the rubber can be reset as necessary to relevel, without having to demolish the material.

Work with the project arborist to design a solution that minimizes root loss to tree #18.

- c. Walkway near **olive #12**: Restrict all new walkway base section excavation cut depths to a maximum 4 inches below existing soil surface grade. Raise the new walkway finish elevation as necessary in order to comply with this restriction. Feather out the raised walkway edges as necessary to reduce trip hazard. See recommendation #9 below for a spec image of a tree-friendly type walkway that requires only minimal base section excavation.
- d. Sidewalk Work at Carleton Avenue: Do not cut below the bottom elevation of the existing older sidewalk slabs on Carleton Avenue, when working within 10 linear feet of **street trees #14, (15 if retained), 16, 17**.

Work with the project arborist to find solutions to minimize root loss and root damages to the trees.

- e. Apron Work: Limit apron replacement cut depths to the bottom elevations of existing slabs when working within 10 linear feet of **street trees #17 and #18**.
- f. Parking Lot Scarification: Limit scarification cut depths to surface asphalt removal only, when working within 30 or 40 feet of **cedar #19**.

If base rock needs to be removed or otherwise modified, then contact the project arborist to work with the project team to minimize root loss and root damage.

- g. Irrigation Laterals Vs. Street Trees: Keep all proposed irrigation pipe laterals to at least 10 linear feet from the trunk edges of street trees being retained.

For installation of irrigation piping to feed proposed new sidewalk planting areas within 10 feet of trees, use a “no dig” solution such as hiding black UV resistant poly tubing in groove cuts between sidewalk slabs, etc., as a tree root friendly alternative to standard trenching and burial.

- v. Temporary Construction Period Irrigation: All tree specimens being retained shall be heavily irrigated on a once-weekly basis. Use any means available to provide irrigation water to trees (see below in this section for details).

3. Trunk Buffer Wrap Type III Protection:

Prior to demolition commencement, install a trunk buffer around the lowermost 8 to 10 feet of the trunks of **all protected trees being retained (trees #5, 6, 7, 12, 14, (15 if retained), 16, 17, 18, 19).**

Wrap approximately 10 to 15 wraps of orange plastic snow fencing around the trunk between grade and 8 feet above grade to create a padding at least 1 to 2 inches thickness.

Stand 2x4 wood boards upright, side by side, around the entire circumference of the trunk. Affix using duct tape (do not use wires or ropes). See spec image above right.

4. Chain Link Fencing Type I and/or Type II Protection with Silt Fencing Addition:

Erect five-foot tall chain link fence on seven-foot long, two-inch diameter iron tube posts pounded 24 inches into the ground (see sample image at right).

Pre-demolition fence: Per the red dashed lines on the tree map mark-up in the CTA's arborist report (routes may be subject to change, depending on the finalized alignments of work items).

This fencing must be erected prior to any heavy machinery traffic or construction material arrival on site.

The protective fencing must not be temporarily moved during construction . No materials, tools, excavated soil, liquids, substances, etc. are to be placed or dumped, even temporarily, inside the root protection zone or "RPZ".

No storage, staging, work, or other activities will be allowed inside the RPZ except with PA monitoring.

Optional for fencing material: Use chain link fencing panels set on moveable concrete block footings. Wire the fence panels to iron layout stakes pounded into the ground at the ends of each fence panel to keep the fence route stabilized and in its correct position. Do not wire the fence panels to the trunks of the trees.

5. Signage: The RPZ fencing shall have one sign affixed with UV-stabilized zip ties to the chain link at eye level for every 20-linear feet of fencing, minimum 8"X11" size each, plastic laminated, with wordage that includes the Town Code section that refers to tree fence protection requirements (wordage can be adjusted):



TREE PROTECTION ZONE FENCE ZONA DE PROTECCION PARA ARBOLES

**-NO ENTRE SIN PERMISO-
-LLAME EL ARBOLISTA-**

**REMOVAL OF THIS FENCE IS
SUBJECT TO PENALTY ACCORDING TO
LOS GATOS TOWN CODE 29.10.1025**

**PROJECT ARBORIST:
TELEFONO CELL:**

EMAIL:

6. Irrigation Temporary During Construction:

Apply temporary irrigation to certain specified trees being retained, at a frequency and duration or total output to be specified by the project arborist (PA).

Method of water delivery can be soaker hose, emitter line, garden hose trickle, water truck, tow-behind water tank with spray apparatus, etc.

Initial suggestion by the CTA is 1x/week heavy irrigation of **all trees being retained, at a rate of 50 gallons per week per each tree (or "to be determined")**, applied throughout the entire fenced-off root protection zone areas.



7. Demolition of Existing Walkways and Parking Lot Surfaces / Special Notes:

- a. If woody tree roots measuring 1 inch diameter or larger are found to be coursing through the older base rock beneath the existing older concrete sidewalks to be demolished at this site, then work with the project arborist (PA) to determine a solution which allows for demolition to occur while also minimizing olive tree root loss and root damage (i.e. near **protected-size olive trees #6, 7, 12, etc.**).

If possible, all base rock base course beneath the demolished surfacing should be allowed to remain in-situ, to avoid damaging or destroying existing woody lateral roots.

Immediately move the chain link RPZ fence panels or chain link mesh fence runs over the demolition areas after surface materials are demolished, to protect base rock areas that may contain woody roots.

Irrigate immediately (same day) to thoroughly saturate the uppermost 24 inches of the soil profile, to prevent root desiccation.

8. Root Pruning:

All root pruning shall be performed only by, or under direct supervision of an ISA-Certified Arborist

If woody roots measuring greater than 1-inch in diameter are encountered **within 10-feet of any tree being retained during site work (30 to 40 feet from cedar #19)**, contractors shall alert the project arborist, and shall proceed to sever roots at right angles to the direction of root growth using sharp hand tools such as professional grade loppers, hand shears, chain saw, A/C sawzall, or other tools only under his/her direct supervision. See spec images at right. Note that a Sawzall blade indicating use for "bimetal" or "demolition" is typically not a good choice for this work. Instead, opt for a relatively large-toothed blade that indicates use for "pruning" or "wood" (see images at right).

Sever each root at a right angle to the root growth direction.

Woody roots shall not be shattered or broken in any way as a result of site activities. Shattered or broken areas shall be hand dug back into clear healthy root tissue and re-severed at right angles to root growth direction under the direct supervision of the project arborist (PA). Immediately (same day) backfill over roots and heavily irrigate (same day) after backfill to saturate the uppermost 24 inches of the soil profile.



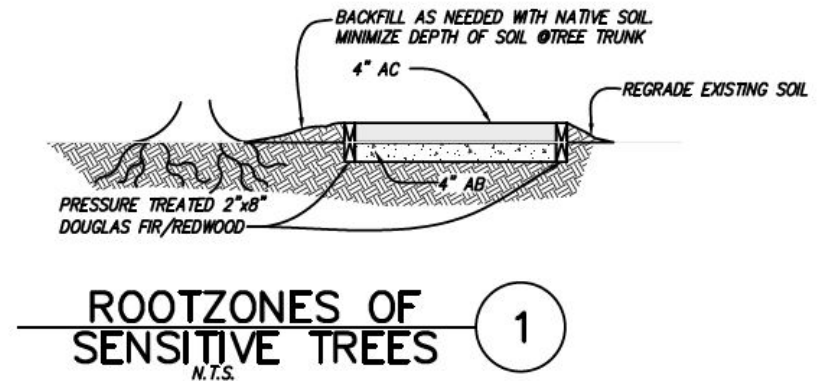
9. Walkway Sample Spec / "Minimal Dig":

At right is a sample image of a minimal-dig type tree root-friendly walkway which uses only a 4 inch depth of cut for both the baserock base section and the header board burial. A similar spec could be utilized for the proposed new walkways near trees #9 and #12 at this site.

10. Water Spray:

Spray off foliage of all trees within 30 feet of construction activity using a very high power garden hose or a pressure washer system set on low pressure to wash both the upper and lower surfaces of foliage. This helps keep the gas portals (stomata) unclogged for better gas exchange which is crucial for normal tree function (see image at right in which a fire hose system was used to wash approximately 50 redwood tree specimens in Sunnyvale during a one-year demolition period).

Spray should be applied approximately twice yearly, or when ambient airborne dust concentration is unusually high.



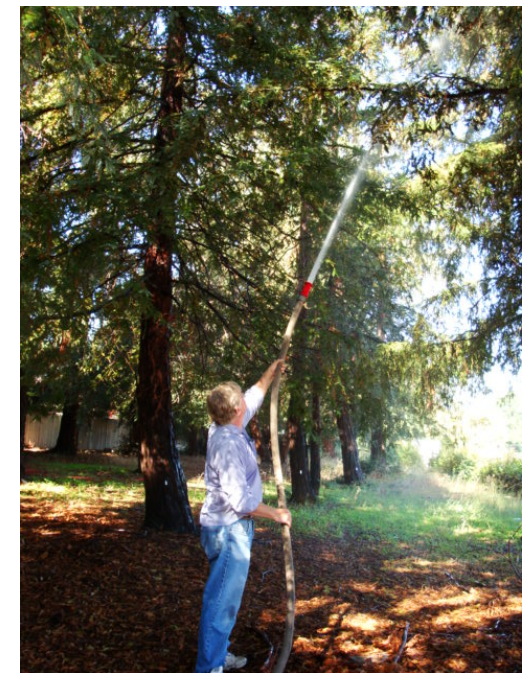
6.0 Tree Protection and Maintenance Directions per Town Code

The following is excerpted directly from the 2015 iteration of the Town of Los Gatos tree ordinance sections which provide specific tree protection directions and limitations on root pruning and above-ground pruning:

Sec. 29.10.1000. New property development.

(a) A tree survey shall be conducted prior to submittal of any development application proposing the removal of or impact to one or more protected trees. The development application shall include a Tree Survey Plan and Tree Preservation Report based on this survey. The tree survey inventory numbers shall correspond to a numbered metal tag placed on each tree on site during the tree survey. The tree survey plan shall be prepared by a certified or consulting arborist, and shall include the following information:

- (1) Location of all existing trees on the property as described in section 29.10.0995;
- (2) Identify all trees that could potentially be affected by the project (directly or indirectly- immediately or in long term), such as upslope grading or compaction outside of the dripline;
- (3) Notation of all trees classified as protected trees;
- (4) In addition, for trees four (4) inches in diameter or larger, the plan shall specify the precise location of the trunk and crown spread, and the species, size (diameter, height, crown spread) and condition of the tree.



(b) The tree survey plan shall be reviewed by the Town's consulting arborist who shall, after making a field visit to the property, indicate in writing or as shown on approved plans, which trees are recommended for preservation (based on a retention rating of high/moderate/low) using, as a minimum, the Standards of Review set forth in section 29.10.0990. This plan shall be made part of the staff report to the Town reviewing body upon its consideration of the application for new property development;

(c) When development impacts are within the dripline of or will affect any protected tree, the applicant shall provide a tree preservation report prepared by a certified or consulting arborist. The report, based on the findings of the tree survey plan and other relevant information, shall be used to determine the health and structure of existing trees, the effects of the proposed development and vegetation removal upon the trees, recommendations for specific precautions necessary for their preservation during all phases of development (demolition, grading, during construction, landscaping); and shall also indicate which trees are proposed for removal. The tree preservation report shall stipulate a required tree protection zone (TPZ) for trees to be retained, including street trees, protected trees and trees whose canopies are hanging over the project site from adjacent properties. The TPZ shall be fenced as specified in section 29.10.1005:

- (1) The final approved tree preservation report shall be included in the building permit set of development plans and printed on a sheet titled: Tree Preservation Instructions (Sheet T-1). Sheet T-1 shall be referenced on all relevant sheets (civil, demolition, utility, landscape, irrigation) where tree impacts from improvements may be shown to occur;
- (2) The Town reviewing body through its site and design plan review shall endeavor to protect all trees recommended for preservation by the Town's consulting arborist. The Town reviewing body may determine if any of the trees recommended for preservation should be removed, if based upon the evidence submitted the reviewing body determines that due to special site grading or other unusual characteristics associated with the property, the preservation of the tree(s) would significantly preclude feasible development of the property as described in section 29.10.0990;
- (3) Approval of final site or landscape plans by the appropriate Town reviewing body shall comply with the following requirements and conditions of approval:
 - a. The applicant shall, within ninety (90) days of final approval or prior to issuance of a grading or building permit, whichever occurs first, secure an appraisal of the condition and value of all trees included in the tree report affected by the development that are required to remain within the development using the Tree Value Standard methodology as set forth in this Chapter. The appraisal of each tree shall recognize the location of the tree in the proposed development. The appraisal shall be performed in accordance with the current edition of the Guide for Plant Appraisal published by the Council of Tree and Landscape Appraisers (CTLA) and the Species and Group Classification Guide published by the Western Chapter of the International Society of Arboriculture. The appraisal shall be performed at the applicant's expense, and the appraisal shall be subject to the Director's approval.
 - b. The site or landscape plans shall indicate which trees are to be removed. However, the plans do not constitute approval to remove a tree until a separate permit is granted. The property owner or applicant shall obtain a protected tree removal permit, as outlined in section 29.10.0980, for each tree to be removed to satisfy the purpose of this division.

(d) Prior to acceptance of proposed development or subdivision improvements, the developer shall submit to the Director a final tree preservation report prepared by a certified or consulting arborist. This report shall consider all trees that were to remain within the development. The report shall note the trees' health in relation to the initially reported condition of the trees and shall note any changes in the trees' numbers or physical conditions. The applicant will then be responsible for the loss of any tree not previously approved for removal. For protected trees, which were removed, the developer shall pay a penalty in the amount of the appraised value of such tree in addition to replacement requirements contained in section 29.10.0985 of this Code. The applicant shall remain responsible for the health and survival of all trees within the development for a period of five (5) years

following acceptance of the public improvements of the development or certificate of occupancy.

(e) Prior to issuance of any demolition, grading or building permit, the applicant or contractor shall submit to the Building Department a written statement and photographs verifying that the required tree protection fence is installed around street trees and protected trees in accordance with the tree preservation report.

(f) If required by the Director and conditioned as part of a discretionary approval, a security guarantee shall be provided to the Town. Prior to the issuance of any permit allowing construction to begin, the applicant shall post cash, bond or other security satisfactory to the Director, in the penal sum of five thousand dollars (\$5,000.00) for each tree required to be preserved, or twenty-five thousand dollars (\$25,000.00), whichever is less. The cash, bond or other security shall be retained for a period of one (1) year following acceptance of the public improvements for the development and shall be forfeited in an amount equal to five thousand dollars (\$5,000.00) per tree as a civil penalty in the event that a tree or trees required to be preserved are removed, destroyed or severely damaged.

(g) An applicant with a proposed development which requires underground utilities shall avoid the installation of said utilities within the dripline of existing trees whenever possible. In the event that this is unavoidable, all trenching shall be done using directional boring, air-spade excavation or by hand, taking extreme caution to avoid damage to the root structure. Work within the dripline of existing trees shall be supervised at all times by a certified or consulting arborist.

(h) It shall be a violation of this division for any property owner or agent of the owner to fail to comply with any development approval condition concerning preservation, protection, and maintenance of any protected tree.

(Ord. No. 2114, §§ I, II, 8-4-03)

Sec. 29.10.1005. Protection of trees during construction.

(a) Protective tree fencing shall specify the following:

- (1) Size and materials. Six (6) foot high chain link fencing, mounted on two-inch diameter galvanized iron posts, shall be driven into the ground to a depth of at least two (2) feet at no more than 10-foot spacing. For paving area that will not be demolished and when stipulated in a tree preservation plan, posts may be supported by a concrete base.
- (2) Area type to be fenced. Type I: Enclosure with chain link fencing of either the entire dripline area or at the tree protection zone (TPZ), when specified by a certified or consulting arborist. Type II: Enclosure for street trees located in a planter strip: chain link fence around the entire planter strip to the outer branches. Type III: Protection for a tree located in a small planter cutout only (such as downtown): orange plastic fencing shall be wrapped around the trunk from the ground to the first branch with 2-inch wooden boards bound securely on the outside. Caution shall be used to avoid damaging any bark or branches.
- (3) Duration of Type I, II, III fencing. Fencing shall be erected before demolition, grading or construction permits are issued and remain in place until the work is completed. Contractor shall first obtain the approval of the project arborist on record prior to removing a tree protection fence.
- (4) Warning sign. Each tree fence shall have prominently displayed an 8.5 x 11-inch sign stating: "Warning—Tree Protection Zone-this fence shall not be removed and is subject to penalty according to Town Code 29.10.1025".

(b) All persons, shall comply with the following precautions:

- (1) Prior to the commencement of construction, install the fence at the dripline, or tree protection zone (TPZ) when specified in an approved arborist report, around any tree and/or vegetation to be retained which could be affected by the construction and prohibit any storage of construction materials or other materials, equipment cleaning, or parking of vehicles within the TPZ. The dripline shall not be altered in any way so as to increase the encroachment of the construction.
- (2) Prohibit all construction activities within the TPZ, including but not limited to: excavation, grading, drainage and leveling within the dripline of the tree unless approved by the Director.
- (3) Prohibit disposal or depositing of oil, gasoline, chemicals or other harmful materials within the dripline of or in drainage channels, swales or areas that may lead to the dripline of a protected tree.
- (4) Prohibit the attachment of wires, signs or ropes to any protected tree.
- (5) Design utility services and irrigation lines to be located outside of the dripline when feasible.
- (6) Retain the services of a certified or consulting arborist who shall serve as the project arborist for periodic monitoring of the project site and the health of those trees to be preserved. The project arborist shall be present whenever activities occur which may pose a potential threat to the health of the trees to be preserved and shall document all site visits.
- (7) The Director and project arborist shall be notified of any damage that occurs to a protected tree during construction so that proper treatment may be administered.

(Ord. No. 2114, §§ I, II, 8-4-03)

Sec. 29.10.1010. Pruning and maintenance.

All pruning shall be in accordance with the current version of the International Society of Arboriculture Best Management Practices—Tree Pruning and ANSI A300-Part 1 Tree, Shrub and Other Woody Plant Management—Standard Practices, (Pruning) and any special conditions as determined by the Director. For developments, which require a tree preservation report, a certified or consulting arborist shall be in reasonable charge of all activities involving protected trees, including pruning, cabling and any other work if specified.

- (1) Any public utility installing or maintaining any overhead wires or underground pipes or conduits in the vicinity of a protected tree shall obtain permission from the Director before performing any work, including pruning, which may cause injury to a protected tree. (e.g. cable TV/fiber optic trenching, gas, water, sewer trench, etc.).
- (2) Pruning for clearance of utility lines and energized conductors shall be performed in compliance with the current version of the American National Standards Institute (ANSI) A300 (Part 1)- Pruning, Section 5.9 Utility Pruning. Using spikes or gaffs when pruning, except where no other alternative is available, is prohibited.
- (3) No person shall prune, trim, cut off, or perform any work, on a single occasion or cumulatively, over a three-year period, affecting twenty-five percent or more of the crown of any protected tree without first obtaining a permit pursuant to this division except for pollarding of fruitless mulberry trees (*Morus alba*) or other species approved by the Town Arborist. Applications for a pruning permit shall include photographs indicating where pruning is proposed.
- (4) No person shall remove any Heritage tree or large protected tree branch or root through pruning or other method greater than four (4) inches in diameter (12.5" in circumference) without first obtaining a permit pursuant to this division.

(Ord. No. 2114, §§ I, II, 8-4-03)

7.0 Tree Replacement Standards – Los Gatos Town Code

(Excerpted from Town Code 29.10.0985 and 29.10.0987)

- (1) Two (2) or more replacement trees, of a species and size designated by the Director, shall be planted on the subject private property. Table 3-1 The Tree Canopy—Replacement Standard shall be used as a basis for this requirement. The person requesting the permit shall pay the cost of purchasing and planting the replacement trees.
- (2) If a tree or trees cannot be reasonably planted on the subject property, an in-lieu payment in an amount set forth by the Town Council by resolution shall be paid to the Town Tree Replacement Fund to:
 - a. Add or replace trees on public property in the vicinity of the subject property; or
 - b. Add or replace trees or landscaping on other Town property; or
 - c. Support the Town's urban forestry management program. (Ord. No. 2114, §§ I, II, 8-4-03)

Table 3-1 - Tree Canopy - Replacement Standard

Canopy Size of Removed Tree ¹	(Staff is using 24" box size as the Replacement Standard for SFR Projects as of 2016) ^{2,4}	Single Family Residential Replacement ^{3,4}
10 feet or less	Two 24 inch box trees	Two 15 gallon trees
More than 10 feet to 25 feet	Three 24 inch box trees	Three 15 gallon trees
More than 25 feet to 40 feet	Four 24 inch box trees; or Two 36 inch box trees	Four 15 gallon trees
More than 40 feet to 55 feet	Six 24 inch box trees; or Three 36 inch box trees	Not Available

Greater than 55 feet	Ten 24 inch box trees; or Five 36 inch box trees	Not Available
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Notes

- ¹To measure an asymmetrical canopy of a tree, the widest measurement shall be used to determine canopy size.
- ²Often, it is not possible to replace a single large, older tree with an equivalent tree(s). In this case, the tree may be replaced with a combination of both the Tree Canopy Replacement Standard and in-lieu payment in an amount set forth by Town Council resolution paid to the Town Tree Replacement Fund.
- ³Single Family Residential Replacement Option is available for developed single family residential lots under 10,000 square feet that are not subject to the Town's Hillside Development Standards and Guidelines. All 15-gallon trees must be planted on-site. Any in-lieu fees for single family residential shall be based on 24" box tree rates as adopted by Town Council.
- ⁴Replacement Trees shall be approved by the Town Arborist and shall be of a species suited to the available planting location, proximity to structures, overhead clearances, soil type, compatibility with surrounding canopy and other relevant factors. Replacement with native species shall be strongly encouraged. Replacement requirements in the Hillside Development Standards and Guidelines Appendix A and Section 29.10.0987 Special Provisions--Hillsides.

Sec. 29.10.0987. Special Provisions—Hillsides

The Town of Los Gatos recognizes its hillsides as an important natural resource and sensitive habitat which is also a key component of the Town's identity, character and charm. In order to maintain and encourage restoration of the hillside environment to its natural state, the Town has established the following special provisions for tree removal and replacement in the hillsides:

- (1) All protected trees located 30 or more feet from the primary residence that are removed shall be replaced with native trees listed in *Appendix A Recommended Native Trees for Hillside Areas of the Town of Los Gatos Hillside Development Standards and Guidelines* (HDS&G).
- (2) All protected trees located within 30 feet of the primary residence that are removed shall be replaced as follows:
 - (a) If the removed tree is a native tree listed in Appendix A of the HDS&G, it shall only be replaced with a native tree listed in Appendix A of the HDS&G.
 - (b) If the removed tree is not listed in Appendix A, it may be replaced with a tree listed in Appendix A, or replaced with another species of tree as approved by the Director.
 - (c) Replacement trees listed in Appendix A may be planted anywhere on the property.
 - (d) Replacement trees not listed in Appendix A may only be planted within 30 feet of the primary residence.
- (3) Replacement requirements shall comply with the requirements in Table 3-1 Tree Canopy Replacement Standard of this Code.

- (4) Property owners should be encouraged to retain dead or declining trees where they do not pose a safety or fire hazard, in order to foster wildlife habitat and the natural renewal of the hillside environment.

8.0 Author's Qualifications

- Continued education through The American Society of Consulting Arborists, The International Society of Arboriculture (Western Chapter), and various governmental and non-governmental entities.
- Contract Town Arborist, Town of Los Gatos, California
Community Development Department / Planning Division
2015-present
- Tree Risk Assessment Qualified (ISA TRAQ Course Graduate, Palo Alto, California)
- Millbrae Community Preservation Commission (Tree Board)
2001-2006
- ASCA Registered Consulting Arborist #401
- ASCA Arboriculture Consulting Academy graduate, class of 2000
- Associate Consulting Arborist
Barrie D. Coate and Associates
4/99-8/99
- Contract City Arborist, City of Belmont, California
Planning and Community Development Department
5/99-present
- ISA Certified Arborist #WC-3172
- Peace Corps Soil and Water Conservation Extension Agent
Chiangmai Province, Thailand 1991-1993
- B.A. Environmental Studies/Soil and Water Resources
UC Santa Cruz, Santa Cruz, California 1990

(My full curriculum vitae is available upon request)

9.0 Assumptions and Limiting Conditions

Any legal description provided to the consultant/appraiser is assumed to be correct. Any titles and ownership to any property are assumed to be good and marketable. No responsibility is assumed for matters legal in character. Any and all property is appraised and evaluated as through free and clean, under responsible ownership and competent management.

It is assumed that any property is not in violation of any applicable codes, ordinance, statutes, or other government regulations.

Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant/appraiser can neither guarantee nor be responsible for the accuracy of information provided by others.

The consultant/appraiser shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.

Unless required by law otherwise, the possession of this report or a copy thereof does not imply right of publication or use for any other purpose by any other than the person to whom it is addressed, without the prior expressed written or verbal consent of the consultant/appraiser.

Unless required by law otherwise, neither all nor any part of the contents of this report, nor copy thereof, shall be conveyed by anyone, including the client, to the public through advertising, public relations, news, sales, or other media, without the prior expressed conclusions, identity of the consultant/appraiser, or any reference to any professional society or institute or to any initiated designation conferred upon the consultant/appraiser as stated in his qualifications.

This report and any values expressed herein represent the opinion of the consultant/appraiser, and the consultant's/appraiser's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.

Sketches, drawings, and photographs in this report, being intended for visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys unless expressed otherwise. The reproduction of any information generated by engineers, architects, or other consultants on any sketches, drawings, or photographs is for the express purpose of coordination and ease of reference only. Inclusion of said information on any drawings or other documents does not constitute a representation by Walter Levison to the sufficiency or accuracy of said information.

Unless expressed otherwise:

- a. information contained in this report covers only those items that were examined and reflects the conditions of those items at the time of inspection; and
- b. the inspection is limited to visual examination of accessible items without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the plants or property in question may not arise in the future.

Loss or alteration of any part of this report invalidates the entire report.

Arborist Disclosure Statement:

Arborists are tree specialists who use their education, knowledge, training, and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risk of living near trees. Clients may choose to accept or disregard the recommendations of the arborist, or to seek additional advice.

Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborist cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like any medicine, cannot be guaranteed.

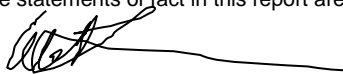
Treatment, pruning, and removal of trees may involve considerations beyond the scope of the arborist's services such as property boundaries, property ownership, site lines, disputes between neighbors, and other issues. Arborists cannot take such considerations into account unless complete and accurate information is disclosed to the arborist. An arborist should then be expected to reasonably rely upon the completeness and accuracy of the information provided.

Trees can be managed, but they cannot be controlled. To live near trees is to accept some degree of risk. The only way to eliminate all risk associated with trees is to eliminate the trees.

10.0 Certification


I hereby certify that all the statements of fact in this report are true, complete, and correct to the best of my knowledge and belief, and are made in good faith.

Signature of Consultant





11.0 Digital Images

WLCA archived images of survey trees on 2/10/2017. The following is a set of images that covers all of the survey tree specimens discussed in this CTA report.

Tree #	Image	Tree #	Image
Looking West at #1, 2, 3, 4		Looking North at #5, 6	

Tree #	Image	Tree #	Image
7		Looking East at #8, 9, 10, 11, 12, 13	
Looking East at #14, 15, 16, 17		North view of #18. Note that this sidewalk area is not currently proposed by the applicant to be renovated. However, the apron in the foreground is.	

Tree #	Image	Tree #	Image
19		<p>19 Close-up of asphalt cracking, assumably due to root expansion from this tree which radiates Northward into the proposed scarify cation area of the existing parking lot.</p>	

12.0 Tree Data Table

Tree Tag Number	Genus & Species	Common Name	Trunk1 Diameter	Trunk2 Diameter	Trunk3 Diameter	Sum of All Trunk Diameters	Height & Canopy Spread (Ft.)	Health & Structural Rating (100% Each)	Overall Condition Rating (0 to 100%)	(R)emove Tree	(S)ave Tree	(D)isposition Unclear	Severity of Impacts Expected from Site Plan Related Work	Lopsided Canopy (note direction)	Trunk Lean (note direction)	Girdling Roots	Buried Root Crown	Pests and Disease Presence, and Other Notes	SUGGESTED ROOT PROTECTION FENCE RADIUS (Ft.)	MAINTENANCE AND PROTECTION CODES
1	<i>Olea europaea</i> (Less than 18 total inches diameter. Tree may be considered "non-protected fruit tree"),	European olive	13.7			13.7	18/22	55/45	50% Fair	X			(To be removed)					Previously topped. Decay noted at 6 to 15 feet.	n/a	To be removed
2	<i>Olea europaea</i>	European olive	8	7	6	21	18/21	55/45	50% Fair	X			(To be removed)					Extensive decay noted. Previously topped.	n/a	To be removed
3	<i>Olea europaea</i> (Less than 18 total inches diameter. Tree may be considered "non-protected fruit tree"),	European olive	12.1			12.1	20/17	60/50	55% Fair	X			(To be removed)					Previously topped. Decay noted at 5 feet.	n/a	To be removed
4	<i>Olea europaea</i> (Less than 18 total inches diameter. Tree may be considered "non-protected fruit tree"),	European olive	16.5			16.5	22/20	70/40	50% Fair	X			(To be removed)					Previously topped.	n/a	To be removed

Tree Tag Number	Genus & Species	Common Name	Trunk1 Diameter	Trunk2 Diameter	Trunk3 Diameter	Sum of All Trunk Diameters	Height & Canopy Spread (Ft.)	Health & Structural Rating (100% Each)	Overall Condition Rating (0 to 100%)	(R)Remove Tree	(G)Slave Tree	(D)Disposition Unclear	Severity of Impacts Expected from Site Plan Related Work	Lopsided Canopy (note direction)	Trunk Lean (note direction)	Girdling Roots	Buried Root Crown	Pests and Disease Presence, and Other Notes	SUGGESTED ROOT PROTECTION FENCE RADIUS (Ft.)	MAINTENANCE AND PROTECTION CODES
5	<i>Olea europaea</i>	European olive	12	9	8	29	25/22	70/50	60% Fair		X		Proposed new restroom area will encroach to within 8 to 10 feet of the trunk edge, limiting root zone fencing offset from trunk to 4 feet east radius at most, which is less than standard.					Previously topped.	5 to 15 feet offset from trunk, in an elongated rectangular shape per tree map in this report.	RPZ, TB, IRRIGATION WEEKLY Keep all new irrigation pipe trenching to a max. of 6 inches depth of cover to minimize tree root loss during installation.
6	<i>Olea europaea</i>	European olive	10	10	8	35	28/21	65/50	59% Fair		X		Proposed new restroom area will encroach to within 8 to 10 feet of the trunk edge, limiting root zone fencing offset from trunk to 4 feet east radius at most, which is less than standard.					Previously topped. Four total mainstems.	5 to 15 feet offset from trunk, in an elongated rectangular shape per tree map in this report.	RPZ, TB, IRRIGATION WEEKLY Keep all new irrigation pipe trenching to a max. of 6 inches depth of cover to minimize tree root loss during installation.
7	<i>Olea europaea</i>	European olive	9	8	7	24	20/18	40/40	40% Poor		X		The only impacts to this tree will be from new irrigation pipe installation during landscape renovation.	North				Previously topped. Extensive decay noted in lower trunk regions. Canopy is lopsided North.	5 to 10 feet offset from trunk per the map in this report.	RPZ, TB, IRRIGATION WEEKLY Keep all new irrigation pipe trenching to a max. of 6 inches depth of cover to minimize tree root loss during installation.

Tree Tag Number	Genus & Species	Common Name	Trunk1 Diameter	Trunk2 Diameter	Trunk3 Diameter	Sum of All Trunk Diameters	Height & Canopy Spread (Ft.)	Health & Structural Rating (100% Each)	Overall Condition Rating (0 to 100%)	(R)emove Tree	(S)lave Tree	(D)isposition Unclear	Severity of Impacts Expected from Site Plan Related Work	Lopsided Canopy (note direction)	Trunk Lean (note direction)	Girdling Roots	Buried Root Crown	Pests and Disease Presence, and Other Notes	SUGGESTED ROOT PROTECTION FENCE RADIUS (Ft.)	MAINTENANCE AND PROTECTION CODES
8	<i>Olea europaea</i> (Less than 18 total inches diameter. Tree may be considered "non-protected fruit tree"),	European olive	10.6	6.0		16.6	23/18	55/40	48% Poor	X			(Tree to be removed)					Decay noted at 8 feet. Tree previously topped.	n/a	To be removed
9	<i>Olea europaea</i>	European olive	7	5	5	17	20/20	60/40	50% Fair		X		Impacts to the root zone will be from new irrigation pipe trenching, and from the new north-south oriented walkway to the west of the trunk of this tree.					Decay noted in lower trunk. Previously topped.	5 to 10 feet offset from trunk per the map in this report.	RPZ, TB, IRRIGATION WEEKLY Keep all new irrigation pipe trenching to a max. of 6 inches depth of cover to minimize tree root loss during installation
10	<i>Olea europaea</i> (at less than 18 inches diameter, this is not a protected size fruit tree per strict definition)	European olive	9.0	7.3		16.3	20/18	40/30	30% Poor	X			(To be removed)	North	North			Extensive decay through lower elevation areas. Previously topped. Leans North. Lopsided North.	n/a	To be removed
11	<i>Olea europaea</i>	European olive	8	6	6	26	24/21	40/25	30% Poor	X			(To be removed)	North	North			Extensive decay from 0 to 15 feet elevation. Previously topped. Leans North. Lopsided North.	n/a	To be removed

Tree Tag Number	Genus & Species	Common Name	Trunk1 Diameter	Trunk2 Diameter	Trunk3 Diameter	Sum of All Trunk Diameters	Height & Canopy Spread (Ft.)	Health & Structural Rating (100% Each)	Overall Condition Rating (0 to 100%)	(R) Remove Tree	(S) Slave Tree	(D) Disposition Unclear	Severity of Impacts Expected from Site Plan Related Work	Lopsided Canopy (note direction)	Trunk Lean (note direction)	Girdling Roots	Buried Root Crown	Pests and Disease Presence, and Other Notes	SUGGESTED ROOT PROTECTION FENCE RADIUS (Ft.)	MAINTENANCE AND PROTECTION CODES
12	<i>Olea europaea</i>	European olive	11.5	8.3		19.8	20/24	65/50	60% Fair		X		Demolition of concrete will occur along the South side of the tree. Deep excavation for new footings will occur South of the tree. New walkway construction will occur 2 to 4 feet South of tree (approx) which will sever roots at that location unless limited to shallow cut depth. Irrigation pipe trenching for new landscape.		North			Previously topped. Leans North.	Per CTA's tree map in this report. Approx. 5 to 15 feet offset radius	RPZ, TB, IRRIGATION WEEKLY Limit irrigation pipe trench depth to 6 inches approx. total cut. Limit new walkway excavation depth to 4 inches total cut depth for base rock installation.
13	<i>Olea europaea</i> Note total diameter is slightly less than 18 inches. Therefore, the tree is technically a non-protected fruit tree.	European olive	9.0	8.7		17.7	22/20	60/40	50% Fair		X		Proposed new "pervious surface" down-driveway to garage will sever the tree's South quadrant root system if baserock excavation is not limited to 6 inches of total depth of cut. Irrigation pipe trenching will occur as well. Demolition of concrete will occur along the West side of the tree.		East			Previously topped. Leans East. Two (2) bacterial galls noted (assumed to be <i>Agrobacteria tumefaciens</i>)	Per CTA's tree map in this report. Approx. 5 to 15 feet offset radius	RPZ, TB, IRRIGATION WEEKLY Limit irrigation pipe trench depth to 6 inches approx. total cut. Limit new driveway excavation depth to 6 inches total cut depth for base rock installation.

Tree Tag Number	Genus & Species	Common Name	Trunk1 Diameter	Trunk2 Diameter	Trunk3 Diameter	Sum of All Trunk Diameters	Height & Canopy Spread (Ft.)	Health & Structural Rating (100% Each)	Overall Condition Rating (0 to 100%)	(R) Remove Tree	(S) Save Tree	(D) Disposition Unclear	Severity of Impacts Expected from Site Plan Related Work	Lopsided Canopy (note direction)	Trunk Lean (note direction)	Girdling Roots	Buried Root Crown	Pests and Disease Presence, and Other Notes	SUGGESTED ROOT PROTECTION FENCE RADIUS (Ft.)	MAINTENANCE AND PROTECTION CODES
14	<i>Liquidambar styraciflua</i>	Sweetgum	16.0			16.0	50/22	60/60	60% Fair		X		New deep sidewalk cuts will occur to within approximately 6 feet Southeast of the trunk edge.					Tree needs permanent irrigation if possible, without causing root loss from pipe trenching.	Per the CTA's map in this report.	TB, RPZ, IRRIGATION Limit new excavation cuts to existing bottom edge of base rock.
15	<i>Liquidambar styraciflua</i>	Sweetgum	14.5			14.5	30/25	40/25	28% Very Poor	X			New deep sidewalk cuts will occur to within approximately 2 to 3 feet South of the trunk edge.					Tree needs permanent irrigation if possible, without causing root loss from pipe trenching. Apical meristem is split out, possibly as a result of soil moisture deficit. Tear wound noted 5 to 7 feet above grade (auto collision?)	Per the CTA's map in this report.	TB, RPZ, IRRIGATION Limit new excavation cuts to existing bottom edge of base rock.
16	<i>Liquidambar styraciflua</i>	Sweetgum	12.7			12.7	50/21	55/50	50% Fair		X		New deep sidewalk cuts will occur to within approximately 7 feet Southwest of the trunk edge.					Tree needs permanent irrigation if possible, without causing root loss from pipe trenching. Note scaffold limb splitout at 14 feet elevation over street.	Per the CTA's map in this report.	TB, RPZ, IRRIGATION Limit new excavation cuts to elevation of existing bottom edge of base rock.
17	<i>Liquidambar styraciflua</i>	Sweetgum	13.6			13.6	45/20	60/55	57% Fair		X		New deep driveway apron cuts will occur to within approximately 4 feet East of the trunk edge.					Tree needs permanent irrigation if possible, without causing root loss from pipe trenching.	Per the CTA's map in this report.	TB, RPZ, IRRIGATION Limit new apron excavation to elevation of existing bottom edge of base rock.

Tree Tag Number	Genus & Species	Common Name	Trunk1 Diameter	Trunk2 Diameter	Trunk3 Diameter	Sum of All Trunk Diameters	Height & Canopy Spread (Ft.)	Health & Structural Rating (100% Each)	Overall Condition Rating (0 to 100%)	(R) Remove Tree	(S) Save Tree	(D) Disposition Unclear	Severity of Impacts Expected from Site Plan Related Work	Lopsided Canopy (note direction)	Trunk Lean (note direction)	Girdling Roots	Buried Root Crown	Pests and Disease Presence, and Other Notes	SUGGESTED ROOT PROTECTION FENCE RADIUS (Ft.)	MAINTENANCE AND PROTECTION CODES
18	<i>Liquidambar styraciflua</i>	Sweetgum	19.9			19.9	45/20	55/55	55% Fair		X		<p>New deep driveway apron cut will encroach to within approximately 5.5 feet South of the trunk edge of this tree.</p> <p>New landscaping irrigation pipe trenching will sever the root system of this tree as well.</p>					<p>Tree needs permanent irrigation if possible, without causing root loss from pipe trenching.</p> <p>Root system expansion causing heave of existing sidewalk, estimated to be greater than 4 inches total displacement of the slabs. However, for some reason the current proposed scope of project does not include replacement of concrete in this area. Replacement may cause severe root loss, and death or decline of the tree.</p>	Per the CTA's map in this report.	<p>TB, RPZ, IRRIGATION</p> <p>Limit new apron excavation to elevation of existing bottom edge of base rock.</p> <p>Limit new irrigation pipe trenching to 6 inch total cut below grade.</p> <p>Consider replacement of the existing sidewalk slabs using rubber slabs or other technology that can be placed over older baserock and allow for continued vertical displacement over time due to root expansion.</p>
19	<i>Cedrus deodara</i>	Deodar cedar	16.8			16.8	50/30	90/84	88% Good		X		<p>Proposed A/C grinding in parking lot will encroach to within approx. 15 feet of the trunk edge. This may result in severe root loss of woody roots are removed between 15 and 25 or more feet from trunk. Roots appear to be present out to 40 to 50 feet radius from trunk (not verified).</p>					<p>Note bark inclusion at zero to 2 feet elevation. Suggest remove the downhill (northmost) mainstem. Also needs load reduction pruning by removing endweights from ends of limbs.</p>	Per CTA's tree map in this report.	<p>RPZ, TB, IRRIGATE.</p>

Tree Maintenance and Protection Codes Used in Data Table:

RPZ: Root protection zone fence, chain link, with 2" diameter iron posts driven 24" into the ground, 6 to 8 feet on center max. spacing. Alternative material: chain link fence panels set over concrete block-type footings, with the fence panels wired to steel pins pounded 24 inches into the ground at both ends of each panel.

RB: Root buffer consisting of wood chip mulch lain over existing soil as a 12 inch thick layer, overlain with 1 inch or greater plywood strapped together with metal plates. This root buffer or soil buffer should be placed over the entire width of the construction corridor between tree trunks and construction.

RP: Root pruning. Prune woody roots measuring greater than or equal to 1 inch diameter by carefully back-digging into the soil around each root using small hand tools until an area is reached where the root is undamaged. Cleanly cut through the root at right angle to the root growth direction, using professional grade pruning equipment and/or a Sawzall with wood pruning blade. Backfill around the cut root immediately (same day), and thoroughly irrigate the area to saturate the uppermost 24 inches of the soil profile.

BDRP: Back-dig root pruning: Hand-dig around the broken root, digging horizontally into the open soil root zone until a clean, unbroken, unshattered section of the root is visible. Proceed as per 'root pruning'.

RCX: Root crown excavation. Retain an experienced arborist to perform careful hand-digging using small trowels or other dull digging tools to uncover currently-buried buttress root flares. Digging shall occur between trunk edge and at least two (2) feet horizontal from trunk edge. The final soil elevation will be at a level such that the tree's buttress roots visibly flare out from the vertical trunk.

TB: Trunk buffer consists of 20-40 wraps of orange plastic snow fencing to create a 2 inch thick buffer over the lowest 8 feet of tree trunk (usually takes at least an entire roll of orange fencing per each tree). Lay 2X4 wood boards vertically, side by side, around the entire circumference of the trunk. Secure buffer using duct tape (not wires).

F: Fertilization with slow-release Greenbelt 22-14-14 tree formula, as a soil injection application using a fertilizer injection gun. This brand and formulation is commonly used by reputable tree care companies in the Bay Area. Apply at label rate and injection hole spacing.

M: 4-inch thick layer of chipper truck type natural wood chips (example source: Lyngso Garden Supply, self pick-up). Do not use bark chips or shredded redwood bark.

W: Irrigate using various methods to be determined through discussion with General Contractor. Irrigation frequency and duration to be determined through discussion and/or per directions in this report. Native oak species typically require 1x/month irrigation, while other tree species tend to prefer 2x/month or 4x/month moderate to heavy irrigation during construction.

P: Pruning per specifications noted elsewhere. All pruning must be performed only under direct site supervision of an ISA Certified Arborist, or performed directly by an ISA Certified Arborist, and shall conform to all current ANSI A300 standards.

MON: A Project Arborist must be present to monitor specific work as noted for each tree.