

**Assessment of Five (5) Protected-Size Trees
at
15 Loma Alta
Los Gatos, California**

Prepared for:
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110 E. Main Street
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Field Visit:
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8/27/2019

Report by CTA
9/2/2019

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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 (Contract Town Arborist) 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.

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 are included in this tree study (e.g. tree trunks located between approximately zero and 15 linear feet of current proposed new grading, trenching, excavation, haul routes, landscaping, etc. as shown on proposed plans, and trees with canopy driplines that encroach onto the subject property).

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

Line Number	Tree Tag Number / Common Name	Estimated Root Radius to the Historical Foundation, Driveway, or Other Impediments	Critical Root Zone (CRZ) Radius Suggested for Optimal Structural Stability	Large Protected Tree (LPT)? Conservation Suitability Rating (CSR)?	Appraised Value	Suggested Changes to Applicant's Proposed Plans to Boost Conservation Suitability Rating (CSR) to "Good"	Replacement Rate Per Canopy Lost	Replacement Size Tree
1	Oak #1	(Unknown)	5 feet	-----	\$3,570.	No changes required, though the routing of the proposed sewer pipe may change in relation to tree #3 protection, which will in turn mean that the route of this trench (or trenchless installation) will likely be different from that shown on the plans.	\$250 X 3 = \$750.	24" Box

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2	Oak #2	(Unknown)	5 feet	-----	\$4,520.	No changes required. The street trees will be fitted with fencing enclosures that account for the proposed water and sewer trenching work, so that the fences can remain erected in-place before, during, and after the trenching work (see the CTA's tree map markup).	\$250 X 3 = \$750.	24" Box
3	Strawberry tree #3	15 to 30 feet or more.	5 to 7 feet	-----	\$7,500.	The sanitary sewer pipe alignment proposed on the applicant's plans is roughly 5 feet offset from trunk. The CTA suggests pushing this pipe alignment to 10 or 15 feet offset from trunk, or alternatively using a trenchless technology such as "burst in place" to install the new sewer along its current-proposed route without any trenching at all.	\$250 X 4 = \$1,000.	24" Box
4	Oak #4	8 feet to historical foundation south of trunk. Distances of root extension north, east, and west: unknown.	10 to 12 feet.	YES	\$9,700.	The CTA suggests pushing out the current-proposed area drain and storm drain piping to outside of the Root Protection Zone fence enclosure. I suggest keeping all new work at least 9 feet southeast of trunk edge, and erecting the RPZ at least 7 feet southeast of trunk.	\$250 X 4 = \$1,000.	24" Box

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5	Catalina cherry #5	n/a	n/a	-----	\$1,130.	(Tree to be removed)	\$250 X 3 = \$750.	24" Box

2018-19 Town of Los Gatos In-lieu fee equivalent = \$250 per each required 24" box mitigation tree planting not installed on the site.

1.0 (b) Summary of tree disposition and tree issues, based on the set of plans dated August, 2019:

1. TREE IMPACTS EXPECTED IF THE PROJECT WERE TO BE BUILT AS CURRENTLY PROPOSED BY THE APPLICANT:

1.1. Two (2) of the five (5) study tree specimens #3 and #4 will be significantly impacted by storm drain pipe trenching and sanitary sewer pipe trenching, if the project were to be built as currently proposed.

The sanitary sewer (SS) pipe should either be pushed to 10 or 15 feet offset from trunk of **tree #3**, or the work can proceed along the current proposed alignment if the pipe is installed as a flexible pipe pulled horizontally through the subgrade using trenchless technology such as the common "burst in place" system.

Storm drain (SD) pipe and area drain construction currently shown just southeast of **tree #4** should be able either eliminated or simply rerouted to at least 9 feet southeast of trunk edge, in order to keep all new work outside of the RPZ chain link fencing enclosure. The RPZ will be erected at least 7 feet southeast of trunk edge, and at much farther offset distances northeast and southwest of trunk edge.

1.2. Joint Trench:

Joint trench work that is shown on the applicant's plans to occur in the area just west of the existing older residence foundation footing to be demolished may or may not cause severe loss of or damage to roots. It is likely that the tree extended roots out to the old footing, and that those roots were then deflected along the length of the existing footing. The sizes, quantities, depths, etc. of these deflected woody roots are not known at the time of writing. However, use of **water-jetting and/or Airspade air excavation** using a supersonic air wand may allow for the roots to be exposed and thereby more cleanly-severed using a Sawzall, to clear a trench for the utilities to be buried in the "Joint Trench".

1.3 Arborist Monitoring / Historical Footing Demolition & Joint Trench Creation:

The CTA suggests that a portion of the old residence foundation footing **demolition within 8 to 25 feet of the trunk edge of oak #4** be monitored by the applicant's project arborist (PA), who needs to be at minimum an ISA Certified Arborist or ASCA Registered Consulting Arborist, to ensure that the RPZ fences and trunk buffer wraps are all in place around trees #1, 2, 3, and 4 prior to this demolition.

The **joint trench excavation** using an Airspade supersonic air wand and/or water-jetting in close proximity to **oak #4** will also require arborist monitoring.

Root severing inside of the joint trench (JT) itself, prior to installation of pipes, conduit, wires, etc. proposed to be installed within the JT, is also recommended to be performed by or under direct site supervision of the project arborist.

1.4 Large Protected Trees (LPT) / Required Town Staff Findings:

Note that **large protected tree #4 (LPT)** is governed by the Town's tree ordinance **section 29.10.0992**. This section states that in order to prune (which includes root pruning of roots above 4 inches diameter, per section 29.10.1010 "Pruning and Maintenance" section of the tree ordinance), severely prune any Town-regulated size tree, or remove an LPT specimen from a private property, one or more of the ordinance-stated findings in section 29.10.0992 must be made by Town Staff.

Note also that tree #4 is a joint-owned tree that appears to be partially owned by one or more additional private property owners, which means that maintenance work in the canopy and/or construction work in the root zone should be cleared with all of the tree owners in writing, prior to start of any work. Severe pruning work to remove a 13" diameter limb over the existing residence proposed to be demolished already occurred in the recent past, which may or may not have been performed with permission from the joint tree owners.

2. LANDSCAPE AND IRRIGATION

The CTA is not in receipt of irrigation or landscape planting plan sheets as of the date of writing. Therefore, these plans have not been reviewed as part of this initial tree study report.

Irrigation pipe trenching is typically one of the most damaging impacts, or in many cases the most damaging impact, to horizontally extended woody tree root systems. The CTA suggests that irrigation and planting plan sheets be routed to the CTA for review and comment prior to Town approval of the building plan set.

3. APPRAISAL:

See the summary table above for the appraised dollar value of each individual tree specimen. The values of the on-site trees and trees adjacent to the site were determined using the new completely revamped trunk formula technique (TFT) per the 2018 10th edition of *Guide for Plant Appraisal*.

A transparent appraisal worksheet with the calculations used for the appraisal determinations is attached to the end of this arborist report.

The total value of all 5 study trees is \$26,420 as noted at the end of the appraisal worksheet.

The value of tree #5 which is proposed by the applicant to be removed is \$1,130. Therefore, the net value of the four (4) trees expected to be retained on and adjacent to the site is \$26,420 - \$1,130 = **\$25,290**.

4. 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. It is likely that at least four (4) of the five (5) study trees in this report will be protected and preserved, which activates a minimum bond of $4 \times \$5,000 = \$20,000$.

It would be reasonable, based on the actual appraised values of trees being retained at this site (i.e. \$25,290.), for the Town to condition the project approval upon posting of a security bond in the amount of **\$20,000**, to ensure that the trees being retained and protected actually survive the construction process and maintain their pre-project condition ratings into the future. A smaller, more reasonable bond on the order of 50% of the value of the four trees being preserved on site would be $\$25,290 \times 0.50 = \$12,645$. Given that two of the four trees being preserved are Town-owned street trees, and that a third tree, oak #4, is the most valuable tree being preserved, with an appraised value of \$9,700, it is not unreasonable to expect that a bond of 50% to 100% of the trees' value is held as a security bond by the Town. A bond also makes sense for this site, given that oak #4 is actually a joint-owned tree, with at least two or more tree owners who hold legal jurisdiction over the tree's health and structure, while proposed construction activity is to be commenced in the vicinity of the tree by only one of those joint owners.

5. REMOVALS:

It is suggested that the Town permit the removal of tree #5 proposed by the applicant.

The removal fee for this tree would be a payment of \$750 to the Town, or installation of three (3) 24" box size tree specimens on the property (species to be determined), with appropriate high flow-type irrigation using at least two (2) 1/2" diameter flood bubblers with 2 gallon per minute (2GPM) flow rate, set directly over the rootball of each tree.

Alternatively, a combination of fees and plantings would also be appropriate. For example, Installation of two (2) 24" box size native trees on site with stakes, ties, and very high flow-type flood bubblers, plus payment of \$250.

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 in relatively close proximity to the proposed site plan project area, including off-site trees on neighboring properties which were expected to be negatively impacted by the applicant's planned work.

The site is an older single story residence property, on which the existing structures are all to be demolished. The CTA assessed the proposed grading and drainage plan sheets C2.0 and C2.1 which show both the existing residence and existing structures, in addition to all proposed new foundation work, utility trenching, storm drain pipe alignments, etc. For the purposes of this initial study, the CTA assumed that tree roots were impeded at the closest known structural footing, and that the laterally-extended woody roots did not grow past the locations of those structural foundations, such as the older residence at 15 Loma Alta. However, it is not known whether roots may have extended into the asphalt roadways such as the private access road known as "Panighetti Way" which runs directly adjacent to the trunk of oak #4. It is possible that past root damage to tree #4 may have occurred during asphalt and base course renovation work along Panighetti Way (not verified).

The site was assessed by the CTA on 8/27/2019.

Trees were tagged by the CTA at eye level using racetrack shaped tags numbering "1" through "5".

Tree data was collected and assembled by the CTA in section 11.0 of this report.

The CTA's recommendations in section 4.0 of this report are based on published information in various standard arboriculture texts, such as the series of *Best Management Practices* (BMP) companion publication (booklets) published by International Society of Arboriculture that are periodically updated over time. The series of BMP booklets accompany the ANSI-A300 USA standards for tree care used by U.S.-based tree care companies.

Additional supporting information includes digital images archived by the CTA and included in section 10.0, a full appraisal worksheet based on the guidelines in the new 10th edition of *Guide for Plant Appraisal* (2018) attached as section 13.0, and a tree map markup attached as section 12.0.

The sheet used to prepare the CTA's tree map markup is the applicant's sheet C-2.0 "grading and drainage plan" dated 8/09/19 by Lea and Braze, Engineering, Inc. of Hayward, California.

The CTA utilized a forester's D-tape to determine tree mainstem (trunk) diameters at 4.5 feet above grade. The D-tape is a circumferential tape that converts actual trunk circumference to an averaged diameter in inches and tenths of inches.

Tree heights were determined using a digital Nikon Forestry Pro 550 hypsometer.

Tree canopy spread diameters were estimated visually or paced off, and the approximate distances noted on the CTA's tree map markup.

3.0 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), including fruiting olive trees.
- 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.

4.0 Recommendations

1. Project Arborist (“PA”):

Initial Signoff

It is recommended 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 Ms. Jennifer Armer, Senior Planner (jarmer@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 (jarmer@losgatosca.gov) beginning with the initial tree protection verification approval letter”.

1. (Continued) PROJECT ARBORIST / SPECIAL SITE MONITORING:

The PA shall work with the project team to directly monitor a portion of the following items such as, but not limited to the following:

- 1a. Demolition of existing concrete perimeter beam foundation footing materials within 25 feet of the trunk edge of large protected tree (LPT) #4.
- 1b. Joint trench (JT) excavation using either a supersonic Airspade or AirKnife air wand or water-jetting, and subsequent root pruning using sharp tools such as a Sawzall, to clear the JT for installation of utilities, etc.

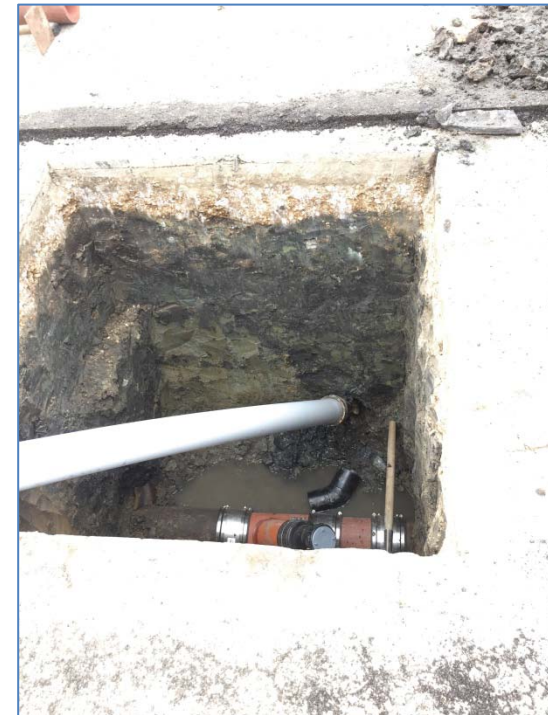
2. Project Team Pre-Project Adjustments, Clarifications, and Limits Suggested or Required:

2a. Tree #1: Keep proposed water line centered between trees #1 and #2 as currently shown, in order to limit root loss during trenching related to fire water and drinking water service pipe upgrades.

2b. Tree #2: Move proposed sewer pipe to near to the water service pipe alignment, after adjusting the sewer pipe route to at least 10 or 15 feet offset from the trunk edge of tree #3. Keep the sewer pipe routing centered between trees #1 and #2 to minimize root loss/damage to these Town-owned street trees. Ideally, both the water pipe and sewer pipe would be aligned in close proximity to one another, in order to allow for a single closed perimeter RPZ fencing protection enclosure to be erected around each of trees #1 and #2.

2c. Tree #3: Push the proposed sewer pipe alignment to 10 or 15 feet northwest of the trunk edge, such that fencing can be erected as a closed perimeter roughly at the canopy dripline of the tree, as shown on the CTA's tree protection map markup attached to the end of the Town arborist report. If the sewer cannot be relocated to this offset distance, then utilize a "trenchless" construction technology such as "burst in place" or equivalent, to pull flexible piping through the subgrade without requiring any new trenching (see sample image at right showing this work). If trenchless technology is utilized, then the sewer alignment can be per the route shown on the applicant's current proposed plans.

2d. Tree #4: Pull out the area drain (AD) and associated storm drain (SD) work that is located within the CTA's suggested RPZ fence enclosure around the tree's open soil root zone. The fencing is suggested to be at least 7 or more feet offset to the southeast of the trunk edge of tree #4, while the AD and SD work is suggested to be at least 9 feet or more offset southeast from the trunk edge.



2e. Tree #4: (Optional) Install a through-bolt bracing system (see sample image at right¹) at the bark inclusion type fork at the codominant mainstem system attachment zone located in the lower trunk area of the tree. Install through-bolt bracing rods per the specifications noted in the most recent edition of:

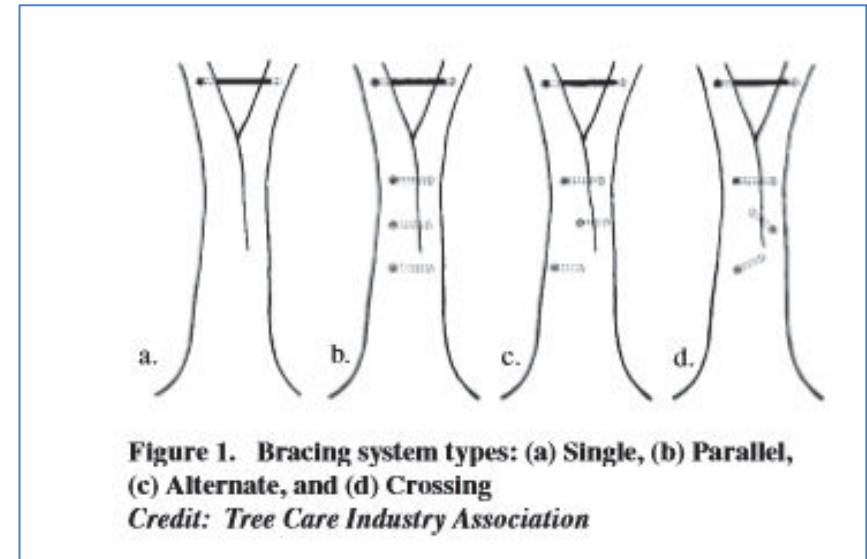
*Best Management Practices / Tree Support Systems / Cabling, Bracing, and Guying.*²

2f. Tree #4: Project Arborist (PA) retained by the applicant shall perform special monitoring of the demolition of the existing concrete perimeter beam foundation footing areas within 25 linear feet of the trunk of tree #4. The PA shall recommend any additional maintenance or protection for tree #4 related to demolition, such as root pruning of roots comingled with the foundation footing during the demolition work itself, heavy irrigation of the RPZ chain link fenced enclosure around the open soil section of root zone being protected and preserved, etc.

2g. Tree #4: the PA retained by the applicant shall also monitor joint trench (JT) work to be performed using Airspade or Airknife or Waterjetting tools to clear out the proposed trench that will run northeast-southwest along the east side the RPZ fence protection zone of oak #4, within 25 feet of the trunk of the tree.

2h. Tree #4: The PA shall either personally perform or oversee performance of root pruning of any oak #4 woody roots measuring 1 inch diameter or greater, that need to be cleanly severed to clear out the trench area for installation of utilities, etc. If possible, retain all roots inside the trench measuring 1 inch diameter or greater, by slipping pipes, conduits, etc. around those woody roots, and simply backfilling the trench with parent soil.

2i. Tree #4: The applicant shall attempt to contact the joint owner(s) of oak #4 in writing to notify them of residential construction-related impacts to the tree that are expected to be performed as part of the proposed entitlement currently under review by Town of Los Gatos planning division, and gain permission from those owner(s) for any maintenance work that will be occurring in close proximity to the tree (e.g. root pruning, trenching, demolition of existing foundation materials, construction of new residence, etc.).



¹ <https://extension.tennessee.edu/publications/Documents/SP659.pdf> from University of Tennessee Extension online docs (open-source document).

² Published by International Society of Arboriculture.

3. Pruning & Tree Maintenance:

3a. ISA Certified Arborist:

Retain the services of an **ISA Certified Arborist** to perform pruning work on trees requiring clearance pruning or other tree maintenance.

All pruning work on trees at this project will need to be performed directly by an ISA Certified Arborist, or under full-time on-site direct supervision of an ISA Certified Arborist.

All pruning shall conform to the most current iteration (2017) of ANSI-A300 *tree, shrub, and other woody plant maintenance / pruning* and the Best Management Practices companion pamphlet to the ANSI-A300 pruning standards, published by International Society of Arboriculture.

3b. Optional: Through-bolt brace installation at the bark inclusion type fork of oak #4 at lower trunk (see recommendation #2e).

4. New Irrigation Piping and Landscape Plantings:

4a. Review:

Provide a landscape plan sheet to Town Staff for review. All new irrigation hard PVC pipe trenching shall be offset at least 25 feet from the trunk edge of any tree being retained both on and off site.

For areas within 25 feet of a tree being retained, use only over-grade “trenchless” systems such as flexible ½” diameter tubing that is UV-resistant and rated for installations on-grade, in order to avoid trenching which would destroy tree root systems.

5. Trunk Buffer Wrap Type III Protection:

Prior to demolition commencement, install trunk buffers around all trees being retained both on-site.

Wrap **one (1) entire roll of orange plastic snow fencing around the trunk of each single tree**, between grade and 6 to 8 feet above grade to create a padding of at least 1 to 2 inches thickness around each tree trunk.

Stand 2x4 wood boards upright, side by side, around the entire circumference of the orange plastic wraps. Affix using duct tape (do not use wires or ropes). See spec image at right showing the wooden boards correctly mounted against one entire roll of orange snow fencing, such that the wood does not actually touch the trunk at all.



6. Chain Link Fencing Type I and/or Type II Root Protection Zone (RPZ):

Prior to demolition commencement, erect chain link fencing panels set on moveable concrete block footings (see sample image below right). Wire the fence panels to iron layout stakes pounded 24 inches 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. These panels are available commonly for rent or purchase.

Alternative Fencing / Tube Posts and Rolled Chain Link: Using a professional grade post bender, pound 7-foot long 2-inch diameter iron tube posts 24-inches into the ground, at 6 to 10-foot spacing maximum on-center, and hang steel chain link fencing material minimum 5-feet height on the tube posts. These materials are available for purchase at many retail and wholesale construction supply houses such as Home Depot, Lowe's, Grainger's, White Cap, Harbor Freight, etc.

Pre-construction fence routes for trees #1, 2, 3, 4: See the CTA's red dashed lines indicating chain link fence routing, on the attached tree map markup.



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.

7. Signage: The RPZ fencing shall have one sign affixed with UV-stabilized zip ties to the chain link at eye level for every 15 linear feet of fencing, minimum 8"X11" size each, plastic laminated or printed with waterproof ink on waterproof paper, 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:

8. Water Spray:

Spray off foliage of all trees **within 20 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.

Spray should be applied approximately **once-monthly**, or when ambient airborne dust concentration is unusually high.



9. Tree Removal Permitting / Removal of Protected-Size Trees / Mitigation:

The applicant's removal of **trees #5** will require that a canopy replacement of a minimum three (3) 24" box size replacement tree plantings be installed on site with high flow type (e.g. 2 gallon per minute bubblers, two per each tree) irrigation set directly over the rootball of each new tree, or payment of an in-lieu fee of \$750 (\$250 X 3 = \$750). Alternatively, a combination of one or more site plantings plus a partial in-lieu fee payment can be utilized by the applicant to meet this requirement.

Ideally, **two (2) high flow type adjustable bubblers each emitting 2 gallons per minute (2GPM)** are set over the rootball of each single tree planting, and each tree is installed with two (2) wooden planting stakes (not the shipping stake), with a set of figure-8 Cinch Ties™ affixed per the standard spec image below right.

Note how the tree stakes are cut to just above the elevation of the Cinch-Ties to avoid abrasion between the stakes and the limbs and trunk during wind movement.

A watering berm consisting of site soil is formed around the outside edge of the rootball to force irrigation water to pool up directly over the rootball, as seen in the image below right.

10. Temporary Irrigation During Construction:

Volume per week: **TBD.**

Application locations: **TBD.**

Application methods: **TBD.**

See image at right showing a 100-foot long soaker hose setup with wood chip mulch around a large coast redwood specimen being retained during construction on a Walter Levison project. Palo Alto, California.

Other over-grade temporary irrigation techniques can be used, including a tow-behind water tank/spray apparatus, water truck, garden hose, high flow type bubblers, etc.

The most important location for application of water during construction will probably be the joint trench (JT) which will be cut at roughly 7 to 9 feet southeast of the trunk edge of oak #4. Heavy application of water at this location may need to occur on at least a 1x/monthly basis, using 100 to 200 gallons of water, applied on a single day, directly over the trench's soil backfill.



5.0 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)

6.0 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

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 shall comply with 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.

7.0 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 #WE-3172A
- 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

UCSC Chancellor's Award, 1990

(My full curriculum vitae is available upon request)

8.0 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.

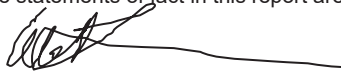
Treatment, pruning, and removal of trees may involve considerations beyond the scope of the arborist's services such as property boundaries, property ownership, site lines, disputes between neighbors, and other issues. Arborists cannot take such considerations into account unless complete and accurate 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.

9.0 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



10.0 Digital Images

Below: Digital Images by the CTA archived 8/27/19 (the date imprint showing "8/26/19" is incorrect):

Tag #	Image	Tag #	Image
1		1	

2



3



3

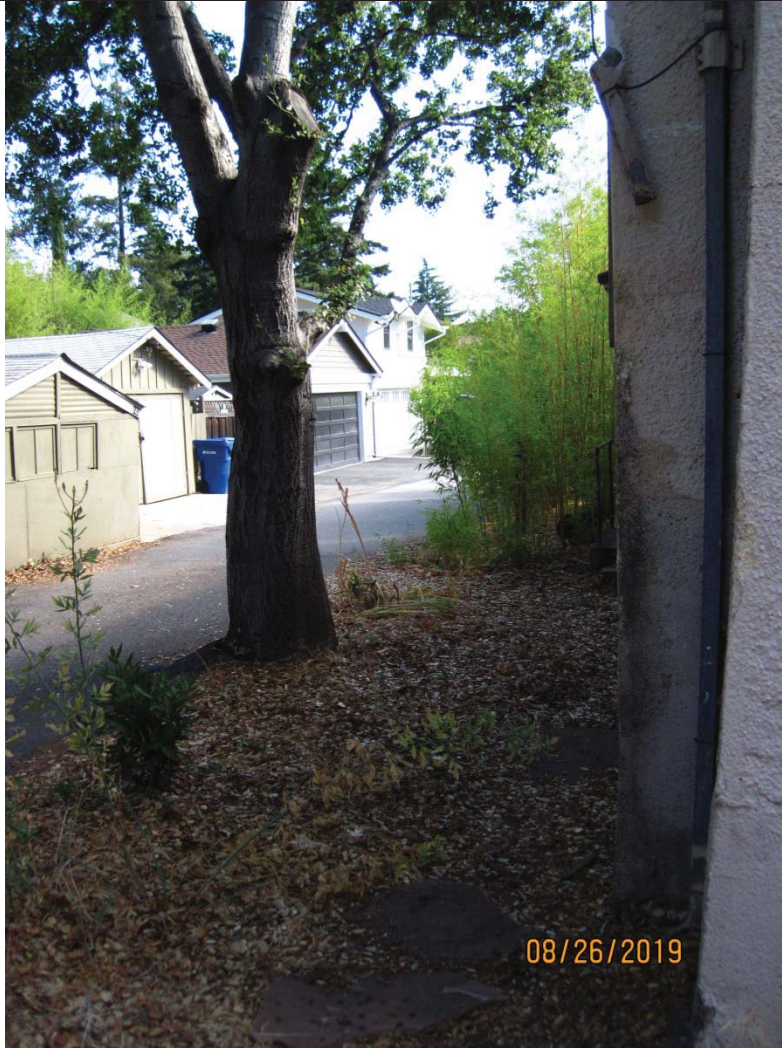


4



Note the narrow fork attachment angle at the lower trunk area of oak #4. The CTA suggests optional installation of through-bolt bracing per ANSI A300 specifications to support this fork.

4



4



Note the 13 inch diameter limb recently removed at 10 feet elevation on the residence side of oak #4. This is considered “severe pruning”, and downgrades the tree’s health and structure ratings.

5		(Intentionally blank)
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11.0 Tree Data Table

NOTE 1: Fruit and nut trees measuring less than 18” diameter (total of all mainstems), including fruiting olive trees, both on the site and on adjacent neighbor properties are excluded from the CTA’s tree studies as “exemption trees” per the Town tree ordinance.

NOTE 2: Tree conservation suitability ratings (TCS) are now based on the 2016 version of *Best Management Practices: Managing Trees During Construction, 2nd Edition*, published by the International Society of Arboriculture. These ratings are linked to tree health, desirability, distance between tree trunk edges and construction impacts such as root cuts and graded fill soil as shown on the applicant’s current-proposed set of plan sheets, species’ tolerance to construction impacts, etc. See the worksheet at the end of this data table for the full breakdown of TCS rating determinations and definitions.

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	Tree Conservation Suitability Ratings (TCS)	Lopsided Canopy (note direction)	Trunk Lean (note direction)	Girdling Roots	Root Flares Buried in Fill Soil	Pests and Disease Presence, and Other Notes	SUGGESTED ROOT PROTECTION FENCE RADIUS (Ft.)	MAINTENANCE AND PROTECTION CODES
1	<i>Quercus x ganderi</i> (street tree)	California black oak hybrid	9.7	--	--	9.7	35/18	75/65	70% Good		X		Mod to Good	S				Some drought stress noted, probably from soil moisture deficit in the planting strip. Tree has likely not been irrigated for years.	See CTA's tree map markup for RPZ chain link fence routing.	TB, RPZ, and relocate the current proposed sewer pipe to work around tree #3.

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	Tree Conservation Suitability Ratings (TCS)	Lopsided Canopy (note direction)	Trunk Lean (note direction)	Girdling Roots	Root Flares Buried in Fill Soil	Pests and Disease Presence, and Other Notes	SUGGESTED ROOT PROTECTION FENCE RADIUS (Ft.)	MAINTENANCE AND PROTECTION CODES
2	<i>Quercus x ganderi</i> <i>(street tree)</i>	California black oak hybrid	9.7	5.7	--	15.4	35/20	77/65	74% Good		X		Mod to Good	S				Some drought stress noted, probably from soil moisture deficit in the planting strip. Tree has likely not been irrigated for years. Note that the existing sidewalk slab has been replaced near this tree, assumedly due to heave damage from oak root expansion (?).	See CTA's tree map markup for RPZ chain link fence routing.	TB, RPZ, and relocate the current proposed sewer pipe to work around tree #3. This will place the sewer in closer proximity to the water service pipe route.
3	<i>Arbutus 'Marina'</i>	'Marina' strawberry tree (cultivar not verified)	9.0	5.5	4.2	18.7	28/28	78/83	80% Good		X		"Mod" if current proposed sewer cut at 5 feet offset. "Good" if move sewer to 10 or 15 ft. west.					Canopy extends NE-SW. Push sewer pipe to 10 or 15 feet offset, or use trenchless "burst in place" to avoid trenching.	See CTA's tree map markup for RPZ chain link fence routing.	W, TB, RPZ, and relocate the current proposed sewer to 10 or 15 feet offset.

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)ave Tree	(D)isposition Unclear	Tree Conservation Suitability Ratings (TCS)	Lopsided Canopy (note direction)	Trunk Lean (note direction)	Girdling Roots	Root Flares Buried in Fill Soil	Pests and Disease Presence, and Other Notes	SUGGESTED ROOT PROTECTION FENCE RADIUS (Ft.)	MAINTENANCE AND PROTECTION CODES
4	<i>Quercus agrifolia</i> Joint-owned tree (it is not clear who the other tree owner(s) are)	Coast live oak	19.6	16.2	--	35.8	35/35	70/60	67% Good		X		Mod	W				East side of canopy has been limbed up severely to clear the existing residence. A 13" diameter limb was removed on this side of tree at 10 feet elevation, which downgrades the tree's health and structural ratings. Expect some root damage during joint trench cuts, and during removal of the existing residence perimeter beam foundation footing concrete (see photos). It is suggested that this portion of the work be monitored by an arborist.	See CTA's tree map markup for RPZ chain link fence routing.	TB, RPZ, and remove the proposed area drain and piping from within the CTA's proposed RPZ fence-enclosed area. Consider installing a through-bolt brace rod or two at the bark inclusion type fork (lower trunk). Needs arborist to oversee demolition of old footing.

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)ave Tree	(D)isposition Unclear	Tree Conservation Suitability Ratings (TCS)	Lopsided Canopy (note direction)	Trunk Lean (note direction)	Girdling Roots	Root Flares Buried in Fill Soil	Pests and Disease Presence, and Other Notes	SUGGESTED ROOT PROTECTION FENCE RADIUS (Ft.)	MAINTENANCE AND PROTECTION CODES
5	<i>Prunus ilicifolia</i> or <i>P. ilicifolia</i> ssp. <i>lyonii</i>	Holly-leaf cherry or Catalina cherry (semi-native Northern California species)	4.2	2.8	--	7.0	18/15	90/68	79% Good	X			"Poor", due to proximity of proposed work to the canopy and root system.					This is a very good species for use as a screening tree in coastal California landscapes. Native to the Catalina Islands. Tree to be removed due to construction conflicts.	Tree to be removed	Tree to be removed

Overall Tree Condition Ratings / Breakdown of Numeric Ranges (New, Per *Guide for Plant Appraisal, 10th Edition*):

- 00 - 05% = Dead
- 06 - 20% = Very Poor
- 21 - 40% = Poor
- 41 - 60% = Fair
- 61 - 80% = Good
- 81 - 100% = Exceptional

Tree Conservation Suitability (TCS) Ratings³

A tree's suitability for conservation is determined based on its health, structure, age, species and disturbance tolerances, proximity to cutting and filling, proximity to construction or demolition, and potential longevity using a scale of good, fair, or poor (Fite, K, and Smiley, E. T., 2016). The following list defines the rating scale:

TPS Ratings	Range of values	
Good	80-100	Trees with good health, good structural stability and good expected longevity after construction.
Moderate	60-79	Trees with fair health and/or structural defects that may be mitigated through treatment. These trees require more intense management and monitoring, before, during, and after construction, and may have shorter life expectancy after development.
Poor	<59	Trees are expected to decline during or after construction regardless of management. The species or individual may possess characteristics that are incompatible or undesirable in landscape settings or unsuited for the intended use of the site.

TCS Ratings Worksheet Factors (Total Possible: 100 Points)

Health (1-15)
Root Cut/Fill Distance from Trunk (1-15)
Structure Defects (1-15)
Construction Tolerance of the tree species (1-15)
Age relative to typical species lifespan (1-10)
Location of construction activity (1-10)
Soil quality/characteristics (1-10)
Species desirability (1-10)

³ Derived from Fite and Smiley, 2016. *Best Management Practices: Managing Trees During Construction, 2nd Edition*. International Society of Arboriculture.

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 ISA-Certified 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.

12.0 Attached: Tree Location & Protection Fence Map Mark-up by the CTA

The CTA marked up the applicant's grading and drainage plan sheets C2.0 and C2.1 dated 8/09/2019 by Lea & Braze Engineering, Inc. of Hayward, CA. These markups are attached to the end of the arborist report as a 2-page PDF.

The CTA added the following color-coded items to this sheet for reference purposes:

- a. Red dashed lines indicate the CTA's proposed root protection zone (RPZ) fence enclosures constructed of chain link fencing. Two sections of trenching proposed by the applicant are suggested to be pushed to outside the RPZ fencing:
 - i. The sanitary sewer pipe shown within the RPZ of Marina strawberry tree #3 should either be pushed 10 or 15 feet offset from the trunk in order to clear the RPZ, or, alternatively, the pipe could be aligned as currently proposed, but simply constructed using a trenchless technology such as "burst in place" to run flexible new piping along an existing older clay sewer pipe. Either of these options is acceptable.
 - ii. The area drain and piping system that is currently shown within the oak #4 RPZ should be pushed to outside the RPZ.
- b. Yellow highlighting indicates the CTA's suggested trunk buffer wraps.
- c. Magenta highlighting indicates the applicant's current proposed alignment of various sections of storm drain, sewer, joint trench, etc. around the site. The sections that conflict with trees #3 and #4 are suggested to be pushed to outside the red dashed lines of the CTA's RPZ protection fence enclosures.
- d. Red highlight with opacity was added to the areas within the RPZ chain link protection fencing enclosures around trees #1, 2, 3, and #4 to show clearly defined root protection zones in relation to the proposed construction project and associated trenching for utilities, etc.
- e. Black clouding indicates the approximate-scale canopy driplines of the four (4) survey trees located on site that are to be retained and protected during construction. The canopy of tree #5 is not drawn.
- f. Oversize black dots were added to more clearly indicate the locations of the applicant's surveyor-plotted tree trunk points. The tree trunk plot points indicated by the surveyor on the set of plan sheets were assumed to be accurate.

13.0 Attached: Appraisal Worksheet per 10th Edition of *Guide for Plant Appraisal* by the CTA



Valuation Appraisal Worksheet Based on *Guide for Plant Appraisal, 10th Edition (2018)*
"Functional Replacement Method / Trunk Formula Technique"

9/2/2019

15 Loma Alta, Los Gatos, CA

Tree Tag #	Name (Initials)	WCISA Speeces Group Classification Booklet Page	Health (Weighted 0.15)	Structure (Weighted 0.70)	Form (Weighted 0.15)	Overall Condition Rating (OCR) "Weighted Method"	Diameter Inches at 4.5 ft. Above Grade	Depreciation Factors		WCISA Species Group Number	Trunk Square Inches for Replacement-Size Specimen of This Species	Average SF Bay Area Cost of 24 Inch Box Tree (2019)	Line 9	Trunk Area (TA) ((dia. x dia.) x 0.785)	Line 10	Line 11	Rounded-off Appraised Values
								Functional Limitations	External Limitations				(UTC) Unit Tree Cost per Sq Inch (M Divided by L)		Basic Functional Replacement Cost (BFRC) = (OxN)	Depreciated Functional Replacement Cost (DFRC) = PxGxIxJ	
1	Qk	31	0.75	0.65	0.8	69%	9.7	70%	90%	2	2.24	\$250.00	\$111.61	73.86	\$ 8,243	\$ 3,570	\$3,570
2	Qk	31	0.77	0.65	0.8	69%	(Adjusted Trunk Area - "ATA")	70%	90%	2	2.24	\$250.00	\$111.61	93.00	\$ 10,379	\$ 4,515	\$4,520
3	AM	5	0.78	0.83	0.75	81%	(Adjusted Trunk Area - "ATA")	90%	90%	2	2.24	\$250.00	\$111.61	102.00	\$ 11,384	\$ 7,474	\$7,500
4	Qa	30	0.7	0.6	0.85	65%	(Adjusted Trunk Area - "ATA")	50%	90%	3	3.8	\$250.00	\$65.79	500.00	\$ 32,895	\$ 9,659	\$9,700
5	Pil	28	0.9	0.68	0.6	70%	(Adjusted Trunk Area - "ATA")	80%	90%	2	2.24	\$250.00	\$111.61	20.00	\$ 2,232	\$ 1,127	\$1,130

