

**EXHIBIT A
DRAFT CONDITIONS OF APPROVAL**

**P15-0620
3 Winding Oaks Drive, Bommarito Residence
May 11, 2016**

PROJECT SPECIFIC CONDITIONS OF APPROVAL

Planning Division

1. The proposed Design Review shall conform substantially to the project plans, view simulations, and color and material board Exhibit B, dated "Received March 22, 2016," on file with the Planning Division, except as modified by the following conditions. Minor changes to the plans may be allowed subject to the approval of the Director of Community Development if found to be in substantial conformance to the approved exhibits.
2. The Design Review will lapse and shall become void one year following the date on which the Design Review became effective, unless prior to the expiration of one year a building permit is issued and construction which was the subject of the Design Review application is commenced and diligently pursued toward completion on the site, or the applicant or his or her successor has filed a request for extension with the Director of Community Development pursuant to the provisions of the Pleasanton Municipal Code Section 18.12.030.
3. Prior to issuance of a building permit, the applicant shall submit a growth management application for Zoning Administrator review and action. The growth management approval shall be granted prior to issuance of a building permit.
4. The applicant shall obtain all required City permits prior to construction.
5. All conditions of approval for this case shall be reprinted and included as a plan sheet(s) with the building permit plan check sets submitted for review and approval. At all times these conditions of approval shall be on all grading and construction plans kept on the project site.
6. All windows shall be recessed divided light design. If simulated mullions are used, they shall be located on both sides of the glass.
7. The applicant shall submit a final landscape and irrigation plan within the building permit plan set to the Planning Division for review and approval before installation. Details of the fencing shall be included with the landscape and irrigation plans. Said landscape plan shall be detailed in terms of species, location, size, quantities, and spacing. Plant species shall be native/indigenous and of drought tolerant nature with an irrigation system that maximizes water conservation (e.g., drip system).

8. The project shall comply with the State of California Model Water Efficient Landscape Ordinance and Bay Friendly Basics Landscape Checklist. Prior to issuance of a Building Permit, the applicant shall submit the following documentation to the Planning Division:
 - a. Landscape Documentation Package, which includes date; project applicant/contact information; project address; total landscape area; project type (new, rehabilitated, public, private, cemetery, homeowner-installed); water supply type (potable, recycled, well, greywater, combination of potable/greywater); Water Efficient Landscape Worksheet; Soil Management Report; Landscape Design Plan; Irrigation Design Plan; Grading Design Plan; and applicant signature/date with the statement that "I agree to comply with the requirements of the Water Efficient Landscape Ordinance."
 - b. Certificate of Completion
9. In accordance with the timing requirements below, the landscape architect or landscape designer shall certify in writing to the Director of Community Development that the landscaping has been installed in accordance with the approved landscape and irrigation plans with respect to size, number, and species of plants and overall design concept. A special inspection by the Planning Division shall be coordinated with regards to landscaping and irrigation.

Landscaping installation time requirements:

- a. Prior to occupancy, all front yard landscaping shall be installed and inspected; and
 - b. The remaining landscaping not specified above but shown on the final landscape plan (i.e., those areas between the rear property line (eastern side of subject parcel) and the house and those areas south of the house) shall be installed by the homeowner within nine months of occupancy. The homeowner shall arrange a landscape/irrigation site inspection with the Planning Division within thirty (30) days of completion of the side and rear yard landscaping/irrigation system installation.
10. Prior to occupancy, the property owner shall replace with new trees any dead mitigation trees on the subject lot that were required pursuant to PUD-54 and Tract 7815, consistent with the City approved tree replacement plan as determined by the Director of Community Development. Adequate irrigation shall also be provided.
 11. All retaining walls shall be stone-faced to match the stone of the proposed residence.
 12. All exterior lighting including landscape lighting shall be directed downward and designed or shielded so as to not shine onto neighboring properties. The project/building developer shall submit a final lighting plan, and include drawings and/or manufacturer's specification sheets showing the location, size and types of light fixtures proposed for the exterior of the buildings. All wall-mounted lighting shall be complementary to the architectural style of the residence. The revised landscape plan shall also show the removal of all landscaping up-lights.

13. The electrical plan for the home shall provide telecommunications infrastructure consistent with state-of-the-art methods (e.g. cabling for DSL, broadband, or wireless service, wiring for total room access, etc.) in effect at the time that building permit(s) are issued. The plan shall be part of the building permit plan set.
14. Water conservation devices such as low-flow faucets, toilets, shower fixtures, etc., shall be installed as part of the project. The water conservation devices shall be stated on the plans submitted for the issuance of a building permit.
15. The State of California's Green Building Standards Code, "CALGreen", as amended, shall apply, as applicable.
16. All excess soil from the site shall be off-hauled from the site and disposed of in a lawful manner. No temporary stockpiling of dirt on this site shall occur without specific review and approval by the Planning Division.
17. All demolition and construction activities, inspections, plan checking, material delivery, staff assignment or coordination, etc., shall be limited to the hours of 8:00 a.m. to 5:00 p.m., Monday through Friday. No construction shall be allowed on State or Federal Holidays, Saturdays or Sundays. The Director of Community Development may allow earlier "start-times" or later "stop-times" for specific construction activities (e.g., concrete pouring), if it can be demonstrated to the satisfaction of the Director of Community Development that the construction noise and construction traffic noise will not affect nearby residents or businesses. All construction equipment must meet Department of Motor Vehicles (DMV) noise standards and shall be equipped with muffling devices. Prior to construction, the applicant shall post on the site the allowable hours of construction activity.
18. The building permit plan check package will be accepted for submittal only after completion of the 15-day appeal period, measured from the date of the approval letter, unless the project developer submits a signed statement acknowledging that the plan check fees may be forfeited in the event that the approval is overturned on appeal, or that the design is significantly changed as a result of the appeal. In no case will a building permit be issued prior to the expiration of the 15-day time-period.

STANDARD CONDITIONS

Community Development Department

19. The project applicant/developer shall submit a refundable cash bond for hazard and erosion control. The amount of this bond will be determined by the Director of Community Development. The cash bond will be retained by the City until all the permanent landscaping is installed for the development, including individual lots, unless otherwise approved by the department.
20. The project developer shall submit a written dust control plan or procedure as part of the improvement plans.

21. If any prehistoric or historic artifacts, or other indication of cultural resources are found once the project construction is underway, all work must stop within 20 meters (66 feet) of the find. A qualified archaeologist shall be consulted for an immediate evaluation of the find prior to resuming groundbreaking construction activities within 20 meters of the find. If the find is determined to be an important archaeological resource, the resource shall be either avoided, if feasible, or recovered consistent with the requirements of the State CEQA Guidelines. In the event of discovery or recognition of any human remains in any on-site location, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the County coroner has determined, in accordance with any law concerning investigation of the circumstances, the manner and cause of death and has made recommendations concerning treatment and dispositions of the human remains to the person responsible for the excavation, or to his/her authorized representative. A similar note shall appear on the improvement plans.
22. The applicant shall pay any and all fees to which the property may be subject prior to issuance of building permits. The type and amount of the fees shall be those in effect at the time the building permit is issued. This includes, but is not limited to, the park dedication fees.
23. The applicant shall pay the applicable Zone 7 and City connection fees and water meter cost for any water meters, including irrigation meters. Additionally, the applicant shall pay any applicable Dublin San Ramon Services District (DSRSD) sewer permit fee prior to issuance of a building permit.

Planning Division

24. To the extent permitted by law, the project applicant shall defend (with counsel reasonably acceptable to the City), indemnify and hold harmless the City, its City Council, its officers, boards, commissions, employees and agents from and against any claim (including claims for attorney's fees), action, or proceeding brought by a third party against the indemnified parties and the applicant to attack, set aside, or void the approval of the project or any permit authorized hereby for the project, including (without limitation) reimbursing the City its attorney's fees and costs incurred in defense of the litigation. The City may, in its sole discretion, elect to defend any such action with attorneys of its choice.
25. The Applicant shall work with the Pleasanton Unified School District (PUSD) to develop a program to offset this project's long term effect on school facility needs in Pleasanton in addition to the school impact fees required by State law. This program shall be designed to fund school facilities necessary to offset this project's reasonably related effect on the long-term need for expanded school facilities. The method and manner for the provision of these funds and/or facilities shall be approved by the PUSD and in place prior to building permit issuance. Written proof of compliance with this condition shall be provided by Applicant to the City, on a form generated by the PUSD, prior to building permit issuance.

26. The applicant/building developer shall submit a final list of the green building measures used in the design of the house covered by this approval to the Planning Division for the review and approval by the Director of Community Development prior to the building permit submittal. The home shall be designed to achieve a “certified rating” of a minimum of 50 total points, achieving at least the minimum points in each category, using BuildItGreen’s current GreenPoints rating system. Notwithstanding the foregoing, the State of California’s Green Building Standards Code, “CALGreen”, as amended, shall also apply.

The green building measures shall be shown on one of the first two pages of the plans submitted for issuance of a building permit. Each point identified shall have a notation indicating the sheet the point can be found, and each sheet shall note where the point is located. All proposed green building measures shall be shown throughout the plan set, as appropriate, as determined by the Director of Community Development.

A special inspection by from the Planning Division shall be coordinated with regards to landscaping, irrigation, and exterior materials. All of the green building measures indicated on the approved checklist shall be inspected and approved by either the City of Pleasanton, or a third party rater, or the applicants shall provide written verification by the project engineer, architect, landscape architect, or designer.

27. The residence shall be constructed to allow for future installation of a photovoltaic (PV) system and solar water heating systems. The project applicant shall comply with the following requirements for making the dwelling photovoltaic-ready and solar-water-heating-ready:
- a. Electrical conduit and cable pull strings shall be installed from the roof/attic area to the building’s main electrical panels;
 - b. An area shall be provided near the electrical panel for the installation of an “inverter” required to convert the direct current output from the photovoltaic panels to alternating current;
 - c. Engineer the roof trusses to handle an additional load as determined by a structural engineer to accommodate the additional weight of a prototypical photovoltaic system beyond that anticipated for roofing;
 - d. Plumbing shall be installed for solar-water heating; and
 - e. Space shall be provided for solar-heating tank.

These measures shall be shown on the building permit plan set submitted to the Director of Community Development for review and approval before issuance of the first building permit.

28. All HVAC condensing units shall be located on the plans.
29. Only gas fireplaces, pellet fueled wood heaters or EPA certified wood-burning appliances may be installed.

30. Planning Division approval is required before any changes are implemented in site design, grading, house design, house colors or materials, green building measures, landscape material, etc.
31. The developer and future homeowners are encouraged to use reclaimed gray water, rain water, etc., for landscape irrigation. If used, the details shall be shown on the permit plan set to the satisfaction of the Director of Community Development before issuance of a building permit.
32. The developer and future homeowners are encouraged to use best management practices for the use of pesticides and herbicides.
33. The project developer must provide to the Director of Community Development a building height certification performed by a licensed land surveyor or civil engineer. Said certification must allow for the installation of finished roof materials and must meet the approved building height.
34. The approved building materials and colors shall be stated on the plans submitted for issuance of building permits.
35. Campers, trailers, motor homes, or any other similar vehicle are not allowed on the construction site except when needed as sleeping quarters for a security guard.
36. A construction trailer shall be allowed to be placed on the project site for daily administration/coordination purposes during the construction period.
37. Portable toilets used during construction shall be kept as far as possible from existing residences and shall be emptied on a regular basis as necessary to prevent odor.
38. The project developer shall submit a building pad elevation certification and foundation certification prepared by a licensed land surveyor or registered civil engineer to the Chief Building Official, certifying that the pad elevations and building locations (setbacks) conform to the approved plans, prior to receiving a foundation inspector for the structures.

Building Division

39. All retaining walls higher than four feet from the top of the wall to the bottom of the footway shall be constructed of reinforced concrete, masonry, or other material as approved by the Director of Community Development, or shall be an approved crib wall type. Calculations signed by a registered civil engineer shall accompany the wall plans.
40. At the time of building permit plan submittal, the project developer shall submit a final grading and drainage plan prepared by a licensed civil engineer depicting all final grades and on-site drainage control measures to prevent stormwater runoff onto adjoining properties.

41. Prior to issuance of building or demolition permits, the applicant shall submit a waste management plan to the Building and Safety Division. The plan shall include the estimated composition and quantities of waste to be generated and indicate how the project developer intends to recycle at least 75 percent of the total job site construction and demolition waste measured by weight or volume. Proof of compliance shall be provided to the Chief Building Official prior to the issuance of a final building permit. During demolition and construction, the project developer shall mark all trash disposal bins "trash materials only" and all recycling bins "recycling materials only." The project developer shall contact Pleasanton Garbage Service for the disposal of all waste from the site.

Landscaping

42. The project developer shall comply with the recommendations of the tree report prepared for Owner/Applicant by HortScience, Inc. dated February 2, 2016, except that tree No. 7 shall be saved. No tree trimming or pruning other than that specified in the tree report shall occur. The project developer shall arrange for the horticultural consultant to conduct a field inspection prior to issuance of City permits to ensure that all recommendations have been properly implemented. The consultant shall certify in writing that such recommendations have been followed.
43. The project developer shall post cash, letter of credit, or other security satisfactory to the Director of Community Development in the amount of \$5,000 for each tree required to be preserved, up to a maximum of \$25,000. This cash bond or security shall be retained for one year following acceptance of public improvements or completion of construction, whichever is later, and shall be forfeited if the trees are destroyed or substantially damaged. No trees shall be removed other than tree No. 11 as indicated in the tree report.
44. The following statements shall be printed on the site, grading, and landscape plans where applicable to the satisfaction of the Director of Community Development prior to issuance of a building permit:
 - a. No existing tree may be trimmed or pruned without prior approval by Community Development Director.
 - b. No equipment may be stored within or beneath the driplines of the existing trees.
 - c. No oil, gasoline, chemicals, or other harmful materials shall be deposited or disposed within the dripline of the trees or in drainage channels, swales, or areas that may lead to the dripline.
 - d. No stockpiling/storage of fill, etc., shall take place underneath or within five feet of the dripline of the existing trees.
45. Prior to issuance of a grading or building permit, the project developer shall install a temporary six foot tall chain-link fence (or other fence type acceptable to the Director of Community Development) outside of the existing tree drip lines, as shown on the plans. The fencing shall remain in place until final landscape inspection by Community

Development Department. Removal of such fencing prior to that time may result in a "stop work order."

46. The applicant shall comply with the following tree root cutting requirements:
 - Roots that are one inch (1") in diameter and smaller are not considered to be significant and may be removed by the most efficient means.
 - Within eight feet (8') of the tree trunk, no roots larger than two inches (2") in diameter shall be cut or ground unless prior approval has been received from the Director of Community Development.
 - Farther than eight feet (8') from the tree trunk, roots of any diameter may be ground a maximum of one-half (1/2) of their diameter if they are in conflict with the proposed work. Work of this nature shall only be performed using a mechanical stump grinder and only by personnel experienced with its operation.
 - Farther than eight feet (8') from the tree trunk, roots up to six inches (6") in diameter may be removed if they are in conflict with the proposed work. Roots that are removed shall be cleanly cut using a hand saw.
47. The project developer shall provide root control barriers and four inch perforated pipes for street trees and trees in planting areas less than ten feet in width, as determined necessary by the Director of Community Development at the time of review of the final landscape plans.
48. For purposes of erosion control, the applicant/developer shall plant a hydroseed mixture that has been designed by the project Landscape Architect. The hydroseed mixture shall be specified on the building permit plans for review and approval by the Director of Community Development and shall be maintained by the applicant/developer.

Engineering Department

49. The project developer shall comply with the recommendations of the Subdivisions' geotechnical report approved as part of PUD-54. The project developer shall hire a geotechnical consultant to review and approve all foundation, retaining wall, and drainage geotechnical aspects of the final development plans to ensure that the recommendations have been properly incorporated into the development. The consultant shall certify by writing on the plans or as otherwise acceptable to the City Engineer that the final development plan is in conformance with the geotechnical report approved with the Subdivision as part of PUD-54.
50. The haul route for all materials to and from this development shall be approved by the City Engineer prior to the issuance of a permit, and shall address the need to schedule major truck trips and deliveries during off peak travel times, to avoid peak travel congestion. It shall also include the provision to monitor the street surfaces used for the haul route so that any damage and debris attributable to the haul trucks is identified and corrected at the expense of the project applicant or developer.

51. All dry utilities (electric power distribution, gas distribution, communication service, Cable television, street lights and any required alarm systems) required to serve existing or new development shall be installed in conduit, underground in a joint utility trench unless otherwise specifically approved by the City Engineer.
52. Any damage to existing street improvements during construction on the subject property shall be repaired to the satisfaction of the City Engineer at full expense to the project developer and includes but is not limited to slurry seal, overlay, restoration of landscaping and irrigation system, signing, striping, pavement marking or street reconstruction if deemed warranted by the City Engineer.
53. This approval does not guarantee the availability of sufficient water and/or sewer capacity to serve the project.
54. There shall be no direct roof leaders connected to the street gutter or storm drain system, unless otherwise approved by the City Engineer.
55. The project developer and/or the project developer's contractor(s) shall obtain an encroachment permit from the City Engineer prior to any work to be performed within the public right of way.
56. The project developer shall submit a final grading and drainage plan prepared by a licensed civil engineer depicting all final grades and drainage control measures, including concrete-lined V-ditches, to protect all cut and fill slopes from surface water overflow. This plan shall be subject to the review and approval of the City Engineer prior to the issuance of a grading permit.
57. The project developer shall include erosion control measures on the final grading plan, subject to the approval of the City Engineer. The project developer is responsible for ensuring that the contractor is aware of such measures. All cut and fill slopes shall be revegetated and stabilized as soon as possible after completion of grading, in no case later than October 15. No grading shall occur between October 15 and April 15 unless approved erosion control measures are in place, subject to the approval of the City Engineer. Such measures shall be maintained until such time as a permanent landscaping is in place.
58. All retaining walls along the street shall be placed behind the Public Service Easement (PSE), unless otherwise approved by the City Engineer.

Fire Department

59. The project developer shall keep the site free of fire hazards from the start of construction until the final inspection.

Urban Stormwater

60. The project shall comply with the “Alameda Countywide NPDES Permit #CAS612008 dated November 19, 2015 and amendments to this permit” issued by the California Regional Water Quality Control Board, San Francisco Bay Region, a copy of which is available at Community Development Department, Public Works/Engineering section at City offices, Alameda County Clean Water Program, at the State Water Board, and the following websites:

http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/stormwater/Municipal/index.shtml;

and

http://www.swrcb.ca.gov/sanfranciscobay/water_issues/programs/stormwater/Municipal/R2-2015-0049.pdf

A. Design Requirements

1. The Permit design requirements include, but are not limited to, the following:
 - a. Source control, site design measures, and design and implementation of stormwater treatment measures are required when commercial, industrial or residential development creates and replaces 10,000 square feet or more of impervious surface, including roof area, streets and sidewalk.
 - b. The Permit requires a proactive Diazinon pollutant reduction plan (aka Pesticide Plan) to reduce or substitute pesticide use with less toxic alternatives.
2. The following requirements shall be incorporated into the project:
 - a. The project developer shall submit a final grading and drainage plan prepared by a licensed civil engineer depicting all final grades and on-site drainage control measures including bio-swales. Irrigated bio-swales shall be redesigned as needed to the satisfaction of the City Engineer to optimize the amount of the stormwater running off the paved surface that enters the bio-swale at its most upstream end. This plan shall be subject to the review and approval of the City Engineer prior to the issuance of any building permits.
 - b. Landscaping shall be designed to minimize irrigation and runoff, promote surface infiltration where appropriate and acceptable to the project soils engineer, and minimize the use of fertilizers and pesticides that can contribute to stormwater pollution.
 - Structures shall be designed to prohibit the occurrence and entry of pests into buildings, thus minimizing the need for pesticides.
 - Where feasible, landscaping shall be designed and operated to treat stormwater runoff. In areas that provide detention of water, plants that are tolerant of saturated soil conditions and prolonged exposure to water shall be specified. Soil shall be amended as required. (See planting guidelines of the Alameda County Clean Water Program.)

- Plant materials selected shall be appropriate to site specific characteristics such as soil type, topography, climate, amount and timing of sunlight, prevailing winds, rainfall, air movement, patterns of land use, ecological consistency and plant interactions to ensure successful establishment.
 - Landscaping shall also comply with City of Pleasanton ordinances and policies regarding water conservation.
- c. Roof drains shall discharge and drain away from the building foundation. Ten percent of the stormwater flow shall drain to a landscaped area or to an unpaved area wherever practicable.

B. Construction Requirements

The project developer is responsible for implementing the following Best Management Practices (BMPs). These, as well as any other applicable measures, shall be included in the Stormwater Pollution Prevention Plan (SWPPP) and implemented as approved by the City.

- a. The project developer shall include erosion control/stormwater quality measures on the final grading plan which shall specifically address measures to prevent soil, dirt, and debris from entering the storm drain system. Such measures may include, but are not limited to, hydroseeding, hay bales, sandbags, and siltation fences and are subject to the review and approval of the City Engineer/Chief Building Official. If no grading plan is required, necessary erosion control/stormwater quality measures shall be shown on the site plan submitted for an on-site permit, subject to the review and approval of the Building and Safety Division. The project developer is responsible for ensuring that the contractor is aware of and implements such measures.
- b. All cut and fill slopes shall be revegetated and stabilized after completion of grading, but in no case later than October 15. Hydroseeding shall be accomplished before September 15 and irrigated with a temporary irrigation system to ensure that the grasses are established before October 15. No grading shall occur between October 15 and April 15 unless approved erosion control/stormwater quality measures are in place, subject to the approval of the City Engineer/Chief Building Official. Such measures shall be maintained until such time as permanent landscaping is in place.
- c. Gather all sorted construction debris on a regular basis and place it in the appropriate container for recycling to be emptied at least on a weekly basis. When appropriate, use tarps on the ground to collect fallen debris or splatters that could contribute to stormwater runoff pollution.
- d. Remove all dirt, gravel, rubbish, refuse, and green waste from the street pavement and storm drains adjoining the site. Limit construction access routes onto the site and place gravel on them. Do not drive vehicles and equipment off paved or graveled areas during wet weather. Broom sweep the street pavement adjoining the project site on a daily basis. Scrape caked-on mud and dirt from these areas before sweeping.

- e. Install filter materials (such as sandbags, filter fabric, etc.) at the storm drain inlet nearest the downstream side of the project site in order to retain any debris or dirt flowing into the storm drain system. Maintain and/or replace filter materials to ensure effectiveness and to prevent street flooding.
- f. Create a contained and covered area on the site for the storage of cement, paints, oils, fertilizers, pesticides, or other materials used on the site that have the potential of being discharged into the storm drain system through being windblown or in the event of a material spill.
- g. Never clean machinery, equipment, tools, brushes, or rinse containers into a street, gutter, or storm drain.
- h. Ensure that concrete/gunite supply trucks or concrete/plaster operations do not discharge wash water into street, gutters, or storm drains.

C. Operation Requirements

The following requirements shall be incorporated into the project:

- a. The applicant, present homeowner, and future homeowners of the home covered by this approval are encouraged to use best management practices for the use of pesticides and herbicides.
- b. Vegetated swales with grasses shall be mowed and clippings removed on a regular basis.

CODE REQUIREMENTS

Applicants/Developers are responsible for complying with all applicable Federal, State and City codes and regulations regardless of whether or not the requirements are part of this list. The following items are provided for the purpose of highlighting key requirements.

Building Division

- 61. The project developer shall submit a building survey and/or record of survey and a site development plan in accordance with the provisions of Chapter 18.68 of the Municipal Code of the City of Pleasanton. These plans shall be approved by the Chief Building and Safety Official prior to the issuance of a building permit. The site development plan shall include all required information to design and construct site, grading, paving, drainage, and utilities.
- 62. The project developer shall post address numerals on the building so as to be plainly visible from all adjoining streets or driveways during both daylight and night time hours.
- 63. The building covered by this approval shall be designed and constructed to meet Title 24 state energy requirements.

64. All building and/or structural plans must comply with all codes and ordinances in effect before the Building and Safety Division will issue permits.

Fire Department

65. All construction shall conform to the requirements of the California Fire Code currently in effect, City of Pleasanton Building and Safety Division and City of Pleasanton Ordinance 2015. All required permits shall be obtained.
66. Automatic fire sprinklers shall be installed in all occupancies in accordance with City of Pleasanton Ordinance 2015. Installations shall conform to the National Fire Protection Association (NFPA) Pamphlet 13 for commercial occupancies, NFPA 13D for residential occupancies, and NFPA 13R for multifamily residential occupancies.
67. Fire alarm system shall be provided and installed in accordance with the CFC currently in effect, the City of Pleasanton Ordinance 2015 and 2002 NFPA 72 - National Fire Alarm Code. Notification appliances and manual fire alarm boxes shall be provided in all areas consistent with the definition of a notification zone (notification zones coincide with the smoke and fire zones of a building). Shop drawings shall be submitted for permit issuance in compliance with the CFC currently in effect.
68. All buildings undergoing construction, alteration or demolition shall comply with Chapter 14 (California Fire Code currently in effect) pertaining to the use of any hazardous materials, flame- producing devices, asphalt/tar kettles, etc.
69. The building (s) covered by this approval shall conform to the requirements of the California Building Code currently in effect, the California Fire Code currently in effect and the City of Pleasanton Ordinance 2015. If required plans and specifications for the automatic fire sprinkler system shall be submitted to the Livermore-Pleasanton Fire Department for review and approval prior to installation. The fire alarm system, including water flow and valve tamper, shall have plans and specifications submitted to Fire Prevention for review and approval prior to installation. All required inspections and witnessing of tests shall be completed prior to final inspection and occupancy of the building(s).

< End >



Arborist Report

**Lot 3 Subdivision 7815
Pleasanton, CA**

**PREPARED FOR
Paul and Molly Bommarito
1308 Rhone Place
Pleasanton, CA 94588**

**PREPARED BY:
HortScience, Inc.
325 Ray St.
Pleasanton, CA 94566**

February 2, 2016

Arborist Report

Lot 3 Subdivision 7815
Pleasanton, CA

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Arborist Report

Lot 3 Subdivision 7815

Pleasanton, CA

Introduction and Overview

Paul and Molly Bommarito are planning to develop the Lot 3 Subdivision 7815 in Pleasanton, CA. The property is located adjacent to a native oak woodland. HortScience, Inc. was asked to prepare an **Arborist Report** for the site as part of the development application to the City of Pleasanton.

This report provides the following information:

1. An evaluation of the health and structural condition of the trees and area surrounding the building pad based on a visual inspection from the ground.
2. An assessment of the development impacts to the trees based on the drawings provided by the client.
3. An appraisal value of the trees to be removed according to the procedures described in the *Guide for Plant Appraisal* (Council of Tree and Landscape Appraisers).
4. Guidelines for tree preservation during the design, construction and maintenance phases of development.

Assessment Methods

Trees were assessed on January 25. The assessment included all trees within and adjacent to proposed construction areas measuring 6" and greater in diameter. The assessment procedure consisted of the following steps:

1. Identifying the species of tree;
2. Tagging each tree with a numerically coded metal tag and recording its location on a map;
3. Measuring the trunk diameter at a point 54" above grade;
4. Evaluating the health and structural condition using a scale of 1 – 5:
 - 5** - A healthy, vigorous tree, reasonably free of signs and symptoms of disease, with good structure and form typical of the species.
 - 4** - Tree with slight decline in vigor, small amount of twig dieback, minor structural defects that could be corrected.
 - 3** - Tree with moderate vigor, moderate twig and small branch dieback, thinning of crown, poor leaf color, moderate structural defects that might be mitigated with regular care.
 - 2** - Tree in decline, epicormic growth, extensive dieback of medium to large branches, significant structural defects that cannot be abated.
 - 1** - Tree in severe decline, dieback of scaffold branches and/or trunk; most of foliage from epicormics; extensive structural defects that cannot be abated.
5. Rating the suitability for preservation as "high", "moderate" or "low". Suitability for preservation considers the health, age and structural condition of the tree species, and its potential to remain an asset to the site.

High: Trees with good health and structural stability that have the potential for longevity at the site.

Moderate: Trees with somewhat declining health and/or structural defects than can be abated with treatment. The tree will require more intense management and monitoring, and may have shorter life span than those in 'high' category.

Low: Trees in poor health or with significant structural defects that cannot be mitigated. Tree is expected to continue to decline, regardless of

treatment. The species or individual tree may have characteristics that are undesirable for landscapes, and generally are unsuited for use areas.

City of Pleasanton Urban Tree Protection Requirements

The Pleasanton Municipal Code Chapter 17.16 controls the removal and preservation of Heritage trees within the city. Heritage trees are defined as:

1. Any single-trunked tree with a circumference of 55 inches or more measured four and one-half feet above ground level;
2. Any multi-trunked tree of which the two largest trunks have a circumference of 55 inches or more measured four and one-half feet above ground level;
3. Any tree 35 feet or more in height;
4. Any tree of particular historical significance specifically designated by official action;
5. A stand of trees, the nature of which makes each dependent upon the other for survival or the area's natural beauty.

Heritage trees may not be removed, destroyed, or disfigured without a permit.

Description of Trees

The property is within a native oak woodland on Winding Oaks. A building pad had been graded years ago. The building pad is situated west of the oak woodland that extends down the northeastern slope above Old Vineyard Ave. The trees were growing in a non-irrigated environment with natural grasses within and between the driplines. They showed a typical range of size, age and health for this region. There were eleven mature blue oak trees examined along the edge of the canopy closest to the building pad. (Table 1)

The City of Pleasanton defines a Heritage tree by either the diameter (18" or greater) or height (35' or greater). By these criteria, four (#4, 9, 10, 11) of the eleven trees were Heritage.

For all trees combined, 6 were in good condition, 4 were in fair condition, and 1 was poor. Descriptions of each tree are found in the ***Tree Assessment*** and approximate locations are plotted on the ***Tree Assessment Map*** (see Attachments).

Blue oak #4 was the largest tree with a 19" trunk diameter. It formed a single, uniform crown with good structure. It had multiple pruning wounds where branches had been removed. There was woodpecker activity throughout the crown, but especially on the south. I think the woodpeckers were seeking food in the form of insect larvae. In the canopy was a crack (approximately 6" long) near the point of attachment where an interior branch had been removed.

Blue Oak #5

This 16" diameter tree was in good condition. There was a 5'-long crack on the south located below codominant branches (Photo 1 & 2). A branch stub located to the west of the crack had a cavity holding water.

Blue oak #6

This tree was in good condition with codominant trunks at 3'. There was a large decayed pruning wound on the east branch at 4'. The tree had additional codominance at about 11' with a cavity between the two branches.

Blue oak #7

This was a declining 17" diameter tree in poor condition with extensive decay in the trunk and branches (Photo 3 & 4). Just below two codominant branches was a large wound on the north in which woodpeckers were storing acorns (serving as a granary). There was a pruning wound on the south at 8' from a large branch removal. At 11' on the west branch was an old wound. The

tree's asymmetric form was toward the northeast. Because of the extensive decay and poor structural condition, this tree is likely to fail.



Photo 1 (far left): Blue oak #5, viewed from the south.

Photo 2 (left): This tree had a large crack on the trunk approximately 5' long.



Photos 3 (above left), 4 (above right): Blue oak #7 showing codominant branching and decay area from old wound and a large cavity on N (red arrow).

Blue oak #11

This tree had a thin canopy with several pruning wounds on the west side toward the building pad including a large pruning wound at 6'. On the east was a small cavity at 4'.

Suitability for Preservation

Before evaluating the impacts that will occur during development, it is important to consider the quality of the tree resource itself, and the potential for individual trees to function well over an extended length of time. Trees that are preserved on development sites must be carefully selected to provide greater assurance they survive development impacts, adapt to a new environment, and perform well in the landscape.

Our goal is to identify trees that have the potential for long-term health, structural stability and longevity. Evaluation of suitability for preservation considers several factors:

- **Tree health**
Healthy, vigorous trees are better able to tolerate impacts such as root injury, demolition of existing structures, changes in soil grade and moisture, and soil compaction than are non-vigorous trees.
- **Structural integrity**
Trees with significant amounts of wood decay and other structural defects that cannot be corrected are likely to fail. Such trees should not be preserved in areas where damage to people or property is likely. Tree # 7 is an example of such a tree.
- **Species response**
There is a wide variation in the response of individual species to construction impacts and changes in the environment. In general, blue oak is moderately tolerant of construction impacts and site changes.
- **Tree age and longevity**
Old trees, while having significant emotional and aesthetic appeal, have limited physiological capacity to adjust to an altered environment. Young trees are better able to generate new tissue and respond to change.
- **Invasiveness**
Species that spread across a site and displace desired vegetation are not always appropriate for retention. This is particularly true when indigenous species are displaced. The California Invasive Plant Inventory Database (<http://www.cal-ipc.org/paf/>) lists species identified as being invasive. Pleasanton is part of the Central West Floristic Province. None of the trees evaluated at the site are listed as invasive.

Each tree was rated for suitability for preservation based upon its age, health, structural condition and ability to safely coexist within a development environment. Table 2 (following page) provides a summary of suitability ratings. Suitability ratings for individual trees are provided in the ***Tree Assessment Forms*** (see attachments).

We consider trees with good suitability for preservation to be the best candidates for preservation. We do not recommend retention of trees with low suitability for preservation in areas where people or property will be present. Retention of trees with moderate suitability for preservation depends upon the intensity of proposed site changes.

**Table 1: Tree suitability for preservation
Lot 3 Subdivision 7815, Pleasanton, CA**

High These are trees with good health and structural stability that have the potential for longevity at the site. There were no trees of high suitability for preservation.

Moderate Trees in this category have fair health and/or structural defects that may be abated with treatment. These trees require more intense management and monitoring, and may have shorter life-spans than those in the "high" category. Nine trees evaluated at the site were included in this category.

Tag #	Species	Diameter
1	Blue oak	13"
2	Blue oak	9", 6"
3	Blue oak	10"
4	Blue oak	19"
5	Blue oak	16"
6	Blue oak	14", 12"
8	Blue oak	17", 16"
9	Blue oak	15", 14"
10	Blue oak	12"

Low Trees in this category are in poor health or have significant defects in structure that cannot be abated with treatment. These trees can be expected to decline regardless of management. The species or individual tree may possess either characteristics that are undesirable in landscape settings or be unsuited for use areas. Two trees were of low suitability for preservation.

Tag #	Species	Diameter
7	Blue oak	17"
11	Blue oak	18", 9"

Evaluation of Impacts and Recommendations

Appropriate tree retention develops a practical match between the location and intensity of construction activities and the quality and health of trees. The **Tree Assessment Form** was the reference point for tree health and condition. I referred to the Site Plan (5/13/15) provided by the architect and the Grading and Drainage Plan (7/1/15) created by Alexander & Associates Inc. to estimate the impacts to trees from the proposed changes.

The plan proposes to construct a new house on the existing building pad extending onto the slope at the northeast corner. The perimeter of the property is gently sloped and the house is to be built at the highest, most level portion of the property. The pad will be graded to an elevation of 550'. Surveyed locations were shown on plans of most of the trees around the perimeter of the building pad.

The proposed project would construct a 6'-tall retaining wall on the west side of tree #7 and a pool to the west side of #11. Installation of the retaining wall and conforming the finish grade will involve soil cuts and fills, trenching and installation of footings and potentially slope keyways (no details for slope construction were provided). In some cases, these activities will take place within a portion of tree driplines, and will cause both root and canopy impacts

- A retaining wall will be constructed within 2 - 3' west of tree #7 which is located within the limit of grading. Four to 5' of fill material is to be placed west of the wall. The tree's dripline extends over the west wall by 3'. I recommend removing tree #7 due to the structural instability of the tree.
- Tree # 11 is located within the limit of grading. A retaining wall comes within 4 - 5' of #11 and the pool within 8'. The original dripline was reduced by pruning.
- A wrought iron fence has been proposed to be installed from the southeast corner extending down the slope near the bottom of the lot. The plans indicate that post are to be installed every 8' with a 14" concrete footing in a 2' compacted subgrade over ¾" river rock. There are several trees that have the possibility of being impacted and precautions should be made to prevent damage from post holes.
- The nine other trees that were tagged were out of direct impact from construction.

Many of the trees on the slope have asymmetrical canopies leaning downhill toward the east. Driplines were not a good indication of outlining were the tree protection zones should be installed.

I recommend removing Heritage trees #7 due to its' poor condition and high likelihood for failure. Tree #11 is within the building footprint and should be removed.

**Table 2: Recommendations for Action
 Lot 12 Subdivision 6951, Pleasanton, CA.**

Tree #	Species	Diameter	Heritage	Recommendations
1	Blue oak	13"	No	Preserve
2	Blue oak	9", 6"	No	Preserve
3	Blue oak	10"	No	Preserve
4	Blue oak	19"	Yes	Preserve
5	Blue oak	16"	No	Preserve
6	Blue oak	14", 12"	No	Preserve
7	Blue oak	17"	No	Remove, unstable (likely to fail)
8	Blue oak	17", 16"	No	Preserve
9	Blue oak	15", 14"	Yes	Preserve
10	Blue oak	12"	Yes	Preserve
11	Blue oak	18", 9"	Yes	Remove, within building footprint

Nine (9) trees can be preserved. Recommendations for preservation are predicated on the implementation of specific recommendations in the **Tree Preservation Guidelines**.

Establishing a Tree Protection Zone (TPZ) around these trees prior to the removing of rocks, grading and construction process will be critical to protecting roots and successfully preserving trees. Trees must be protected during demolition of existing landscape features and must be maintained for the duration of construction. Excavation within Tree Protection Zones shall begin by carefully hand-digging at the edge of excavation to locate and limit damage to tree roots. Work within the Tree Protection Zone (TPZ) should be performed under the guidance of a Consulting Arborist.

When constructing the good neighbor fence, avoid installing post within 8' of existing trees. Do not cut roots with an axe, hatchet or other dull instrument but cut cleanly with a saw. Do not change grade around trees with fill soil.

In summary, 2 trees are recommended for removal, one of which is a *Heritage* trees. Nine trees will be preserved.

Appraisal of Value

The City of Pleasanton requires the value be established of all trees to be removed. To accomplish this we used the standard methods found in *Guide for Plant Appraisal*, 9th edition (published in 2000 by the International Society of Arboriculture, Champaign IL). In addition, we referred to *Species Classification and Group Assignment* (2004), a publication of the Western Chapter of the International Society of Arboriculture. These two documents outline the methods employed in tree appraisal.

The value of landscape trees is based upon four factors: size, species, condition and location. Size is measured as trunk diameter, normally 54" above grade. A multi-branched tree, which has major branches below 54" above the natural grade, is measured just below the first major trunk fork. The species factor considers the adaptability and appropriateness of the plant in the Bay area. The *Species Classification and Group Assignment* lists recommended species ratings and evaluations. Condition reflects the health and structural integrity of the individual, as noted in the *Tree Assessment Form*. Location considers the site, placement, and contribution of the tree in its surrounding landscape.

The appraised value of the 2 trees recommended for removal is \$4500. The appraised value of each tree is provided in Table 4.

Table 3: Appraised value of trees at Lot 3 Subdivision 7815

Tree No.	Species	Trunk Diameter (in.)	Appraised Value
1	Blue oak	13	1850
2	Blue oak	9, 6	950
3	Blue oak	10	1100
4	Blue oak	19	2850
5	Blue oak	16	2000
6	Blue oak	12, 14	3750
7	Blue oak	17	1350
8	Blue oak	17, 16	5950
9	Blue oak	15, 14	4600
10	Blue oak	12	1600
11	Blue oak	18, 9	3150

Tree Preservation Guidelines

The goal of tree preservation is not merely tree survival during construction but maintenance of tree health and beauty for many years. Trees retained on sites that are either subject to

extensive injury during construction or are inadequately maintained become a liability rather than an asset. The response of individual trees will depend on the amount of excavation and grading, the care with which demolition is undertaken, and the construction methods. These impacts can be minimized by coordinating any construction activity inside the **TREE PROTECTION ZONE**. Key elements of a tree preservation plan for the tree would include:

The following recommendations will help reduce impacts to the tree from construction and maintain and improve its health and vitality through the construction phases.

Design recommendations

1. Tree Preservation Guidelines, prepared by the Consulting Arborist, should be included on all plans.
2. Any changes to the plans affecting trees should be reviewed by the Consulting Arborist with regard to tree impacts. These include, but are not limited to, improvement plans, utility and drainage plans, grading plans, landscape and irrigation plans and demolition plans.
3. **TREE PROTECTION ZONE (TPZ)** shall be established around the tree. The tree protection zone should be at least 1' for every inch in tree diameter. No grading, excavation, construction, or storage of materials shall occur within the **TREE PROTECTION ZONE**. It could be that those trees with overlapping driplines could have one continuous TPZ with temporary access for the good neighbor fence installation. No underground services including utilities, sub-drains, water or sewer shall be placed in the **TREE PROTECTION ZONE**. Spoil from trench, footing, utility or other excavation shall not be placed within the **TREE PROTECTION ZONE**, either temporarily or permanently. **TREE PROTECTION ZONES** are plotted on Tree Fencing Map.
4. Grading—maintain natural grade undisturbed within the **TPZ**. Surface drainage must be away from the trunk.
5. Utilities—keep all utilities (wet and dry) outside the **TPZ**
6. Landscaping—the best treatment under oaks is a thick layer of organic mulch, such as wood chip mulch. Avoid planting and installation of irrigation within oak tree driplines.
7. Lighting—the use of up-lights at the edge of the canopy is preferred over the installation of conduits and/or cables attached to the trunk and major branches. Up-lights highlighting the tree's branch architecture, reduce impacts to the tree, provides a clean installation and are easier to maintain.
8. Liming soil—do not apply lime to the soil for compaction purposes within 50' of the dripline of the tree. Lime is toxic to roots.

Pre-construction treatments and recommendations

1. The construction superintendent should meet with the Consulting Arborist before beginning work near the tree to discuss work procedures and tree protection measures.
2. Fence the tree to be retained to completely enclose the **TREE PROTECTION ZONE** prior to demolition, excavation, or construction. Fence locations are plotted on the Fence Location Map. Fence shall be 6 ft. chain link with steel posts embedded in the ground. Fences are to remain until all construction is completed.

3. Prune trees to raise crowns as minimally as possible to accomplish clearance for grading and construction activities. All pruning shall be done by a State of California Licensed Tree Contractor (C61/D49). All pruning shall be done by Certified Arborist or Certified
4. Tree Worker in accordance with the **Best Management Practices for Pruning** (International Society of Arboriculture, 2002) and adhere to the most recent editions of the American National Standard for Tree Care Operations (Z133.1) and Pruning (A300). While in the tree, the Certified Arborist should perform an aerial inspection to identify defects that are not visible from the ground that require treatment.
5. Apply and maintain a 4-6"-deep layer of wood chip mulch (gorilla hair mulch is not acceptable) within the **TREE PROTECTION ZONE**. Keep mulch 24-30" from the trunk. Allow leaf litter to accumulate under the tree.

Recommendations for tree protection during construction

1. No demolition, excavation, construction or storage of materials shall occur within the **TREE PROTECTION ZONE** unless approved and monitored by the Consulting Arborist. No underground services including utilities, sub-drains, water, sewer or irrigation shall be placed in the **TREE PROTECTION ZONE** unless approved and monitored by the Consulting Arborist. Spoil from trench, footing, utility or other excavation shall not be placed within the **TREE PROTECTION ZONE**, either temporarily or permanently. Any modifications must be approved and monitored by the Consulting Arborist.
2. All demolition, excavation and construction within the dripline of trees shall be done using the smallest equipment possible. The Consulting Arborist will identify where hand excavation may be required. Motorized equipment shall not be used within the **TREE PROTECTION ZONE**.
3. Prior to excavation for the demolition and construction the tree may require root pruning outside the **TREE PROTECTION ZONE** by cutting all roots cleanly to the depth of construction. Roots will be exposed by either: pulling soil away from the tree by digging by hand; using an air spade; or water excavation. The Consulting Arborist should monitor the excavation and root pruning. Roots shall be pruned at undamaged tissue and perpendicular to the root, with a saw or other approved root pruning equipment. The Consulting Arborist will identify in the field where root pruning is to occur, if required.
4. If injury should occur to the tree during construction, it should be evaluated as soon as possible by the Consulting Arborist so that appropriate treatments can be applied.
5. No excess soil, chemicals, debris, equipment or other materials shall be dumped or stored within the **TREE PROTECTION ZONE**.
6. Any additional tree pruning needed for clearance during construction must be performed by a Certified Arborist and not by construction personnel.

Maintenance of impacted trees

Trees preserved at the Lot 3 Subdivision 7815 site will experience a physical environment different from that pre-development. As a result, tree health and structural stability should be monitored. A Homeowner Guide to Care of Oaks is provided in Exhibits. Occasional pruning, mulch and pest management may be required. In addition, provisions for monitoring both tree health and structural stability following construction must be made a priority. As trees age, the likelihood of branches or entire trees failing will increase. Therefore, annual inspection for hazard potential is recommended.

If you have any questions regarding my observations or recommendations, please contact me.

HortScience, Inc.

A handwritten signature in cursive script that reads "Maryellen Bell".

Maryellen Bell
Horticultural Consultant WE#5643A



Exhibits

Tree Assessment Plan

Tree Assessment Form

Tree Fencing Plan

Homeowner Guide Care of Oaks



Tree Assessment

Lot 3 Subdivision 7815
Pleasanton, CA
February 2, 2016



Tree No.	Species	Trunk Diameter (in.)	Heritage Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
1	Blue oak	13"	No	4	Moderate	Decay on S trunks @ 4'; codominant branching @ 5'; history of branch failure.
2	Blue oak	9", 6"	No	3	Moderate	Codominant trunks @ base; codominant branching @ 15' with decay.
3	Blue oak	10"	No	4	Moderate	Multiple branching @ 7'; decay in branch W.
4	Blue oak	19"	Yes	3	Moderate	Woodpecker activity especially on the S; small crack on N trunk @ 4'; history of branch failure on N; small crack where branch was removed on N.
5	Blue oak	16"	No	3	Moderate	Codominant trunks @ 6'; codominant branch @ 8'; decay on S trunk @ 5'; crack from base up to 4' on S.
6	Blue oak	14", 12"	No	4	Moderate	Codominant trunks @ 3'; decay @ 4' where branch was removed S; history of branch failure N.
7	Blue oak	17"	No	2	Low	Codominant trunks @ 11'; decay on N trunk @ 7' that is approximately 3' long; crack in trunk on W; decay in branch on W @ 15'.
8	Blue oak	17", 16"	No	4	Moderate	Codominant trunks @ 3'; codominant branches N @ 8'; codominant branches S @ 12'; asymmetrical canopy to E.
9	Blue oak	15", 14"	Yes	4	Moderate	Codominant trunks @ base; asymmetrical canopy to the E.
10	Blue oak	12"	Yes	4	Moderate	High canopy; pruning wounds on W.
11	Blue oak	19", 9"	Yes	3	Moderate	Multiple branch attachment @ 3'; decay on E'; pruning wounds on W side; thin canopy; history of branch failure.

**Lot 3, Subdivision 7815
Pleasanton, CA**

Prepared for:
**Paul and Molly Bommarito
1308 Rhone Place
Pleasanton, CA**

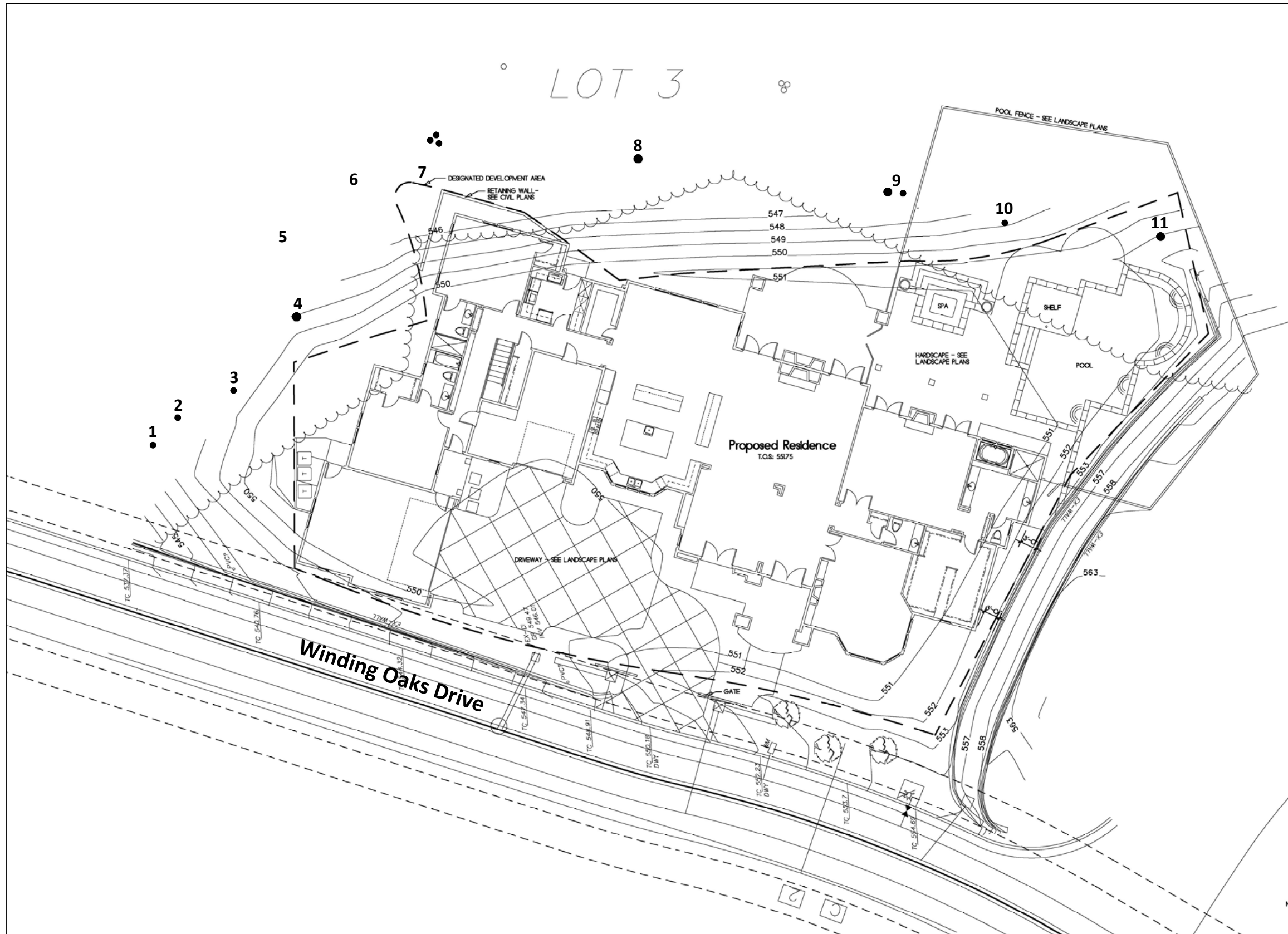
January 2016



No Scale

Notes

- Base map provided by:
Terry J. Townsend, Architect
Pleasanton, CA
- Numbered tree locations
are approximate.



325 Ray Street
Pleasanton, California 94566
Phone 925.484.0211
Fax 925.484.0596

Lot 3, Subdivision 7815
Pleasanton, CA

Prepared for:
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Pleasanton, CA

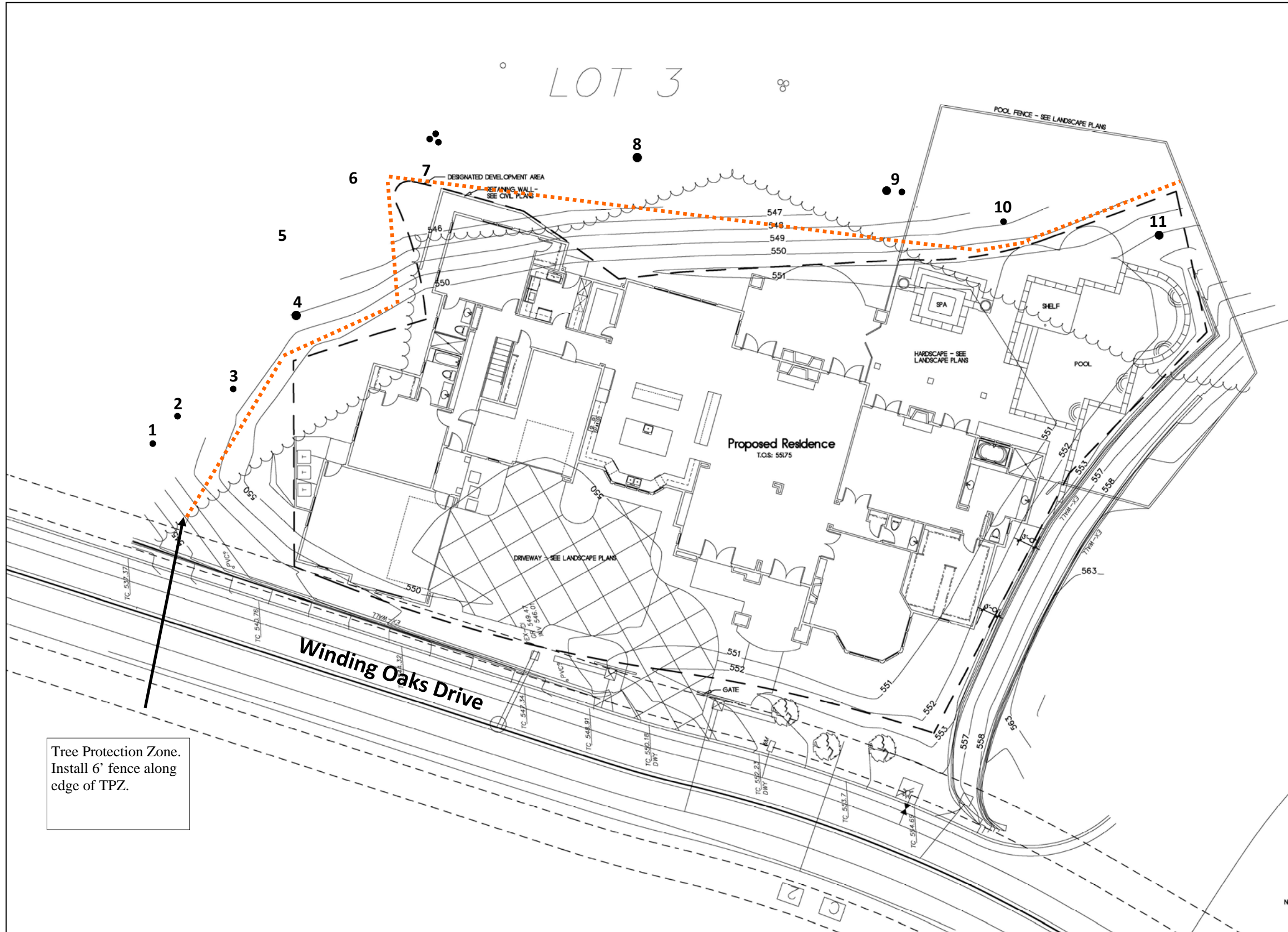
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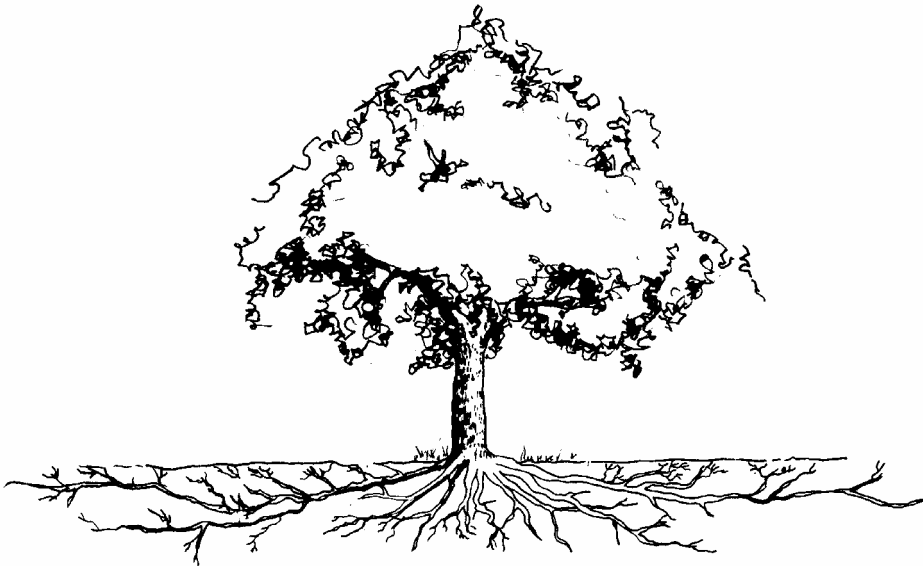


Tree Protection Zone.
Install 6' fence along
edge of TPZ.



325 Ray Street
Pleasanton, California 94566
Phone 925.484.0211
Fax 925.484.0596

PROTECTING AND MAINTAINING NATIVE OAKS



PREPARED BY
HortScience, Inc.
4125 Mohr Ave., Suite F
Pleasanton CA 94566

May 2001

Homeowner's Guide to Protecting and Maintaining Oaks

One of the outstanding features of your neighborhood is the stand of mature and young native oaks in the landscape. There are two types of oaks at your home: coast live oak and valley oak. The coast live oak has dense, deep green foliage that is retained throughout the year. The valley oak is deciduous, meaning it loses its leaves in the winter. Most of these trees were sown naturally from acorns of nearby trees. They established and grew in balance with the amount of rainfall and groundwater that was available, and the nutrients both held in the soil, and recycled through fallen, decomposing leaves.

Oaks are sensitive to changes in their environment. While we may minimize changes to the site during development, they cannot be avoided. Nor do the changes cease when construction ends, but continue for the life of the trees as we incorporate the trees into our landscapes and daily activities.

This booklet has been prepared to help you care for the oaks on your property. It provides guidelines for you, the homeowner, and the landscape architects, contractors and tree service people who will help you design, install and maintain your landscape. Although this material addresses oak trees specifically, the practices set forth in these guidelines are appropriate for most trees in Northern California landscapes. It is recommended that the homeowner follow these guidelines to protect any existing trees either on or adjacent to their property.

The city in which you live may require you to obtain a permit to remove or prune any existing trees from your property. We caution all homeowners to check with the city prior to removal of any existing trees.

Protecting your Oak

The key to promoting tree health and vigor is protecting it from damage. Once damage is done to your tree, there is no way to repair it. There are many professionals involved in designing and constructing your home and landscape. We need all of their cooperation in protecting the oaks from unnecessary damage. If oak tree preservation is a priority to you, it must become a priority to anyone providing a service for your property.

Remember that any activity on your property that requires digging into the soil can affect the health and stability of nearby oaks. Some examples are:

- Installation of drain lines
- Installation of landscape irrigation and lighting
- Construction of patios, decks, walkways
- Installation of pools, spas, ponds
- Fine grading to create mounds, swales
- Construction of fences, walls, gazebos
- Rototilling to incorporate soil conditioners
- Digging holes for planting

Furthermore, grade changes that cause water to be directed towards oaks, or that cover the roots with additional soil (fill) will have very detrimental effects on your tree. It is

important to keep the original soil level around the tree and make sure water does not stand around it. As little as 6" of fill can harm the tree.

Root Structure of Oaks

Protection of the root area of an oak tree is the single most important aspect of tree preservation. Without roots, the tree cannot absorb water and mineral nutrients vital for growth. In addition, a healthy root system physically supports the tree.

To plan for tree protection it is important to understand the structure of the oak root systems, because we cannot protect the roots if we do not know where they are. Most people think of oaks as being deep-rooted trees with a long taproot. Unfortunately, that is not the case. Roots can only grow where there is adequate air and moisture for their survival. These conditions occur predominantly in the top 3' of soil.

About 90% of the roots of oaks at this site can be expected to occur within the top 3' of soil, and about 70% of these are within 6-18" of the surface (Fig. 1). When the shallow nature of the root system is understood, it is easy to see how digging 12-18" deep trenches to install irrigation lines can cause major root injury.

Another misconception is that tree roots only occupy the area beneath the tree canopy (within the dripline). Actually, roots extend beyond the dripline for some distance.

Design and Construction around your Oak

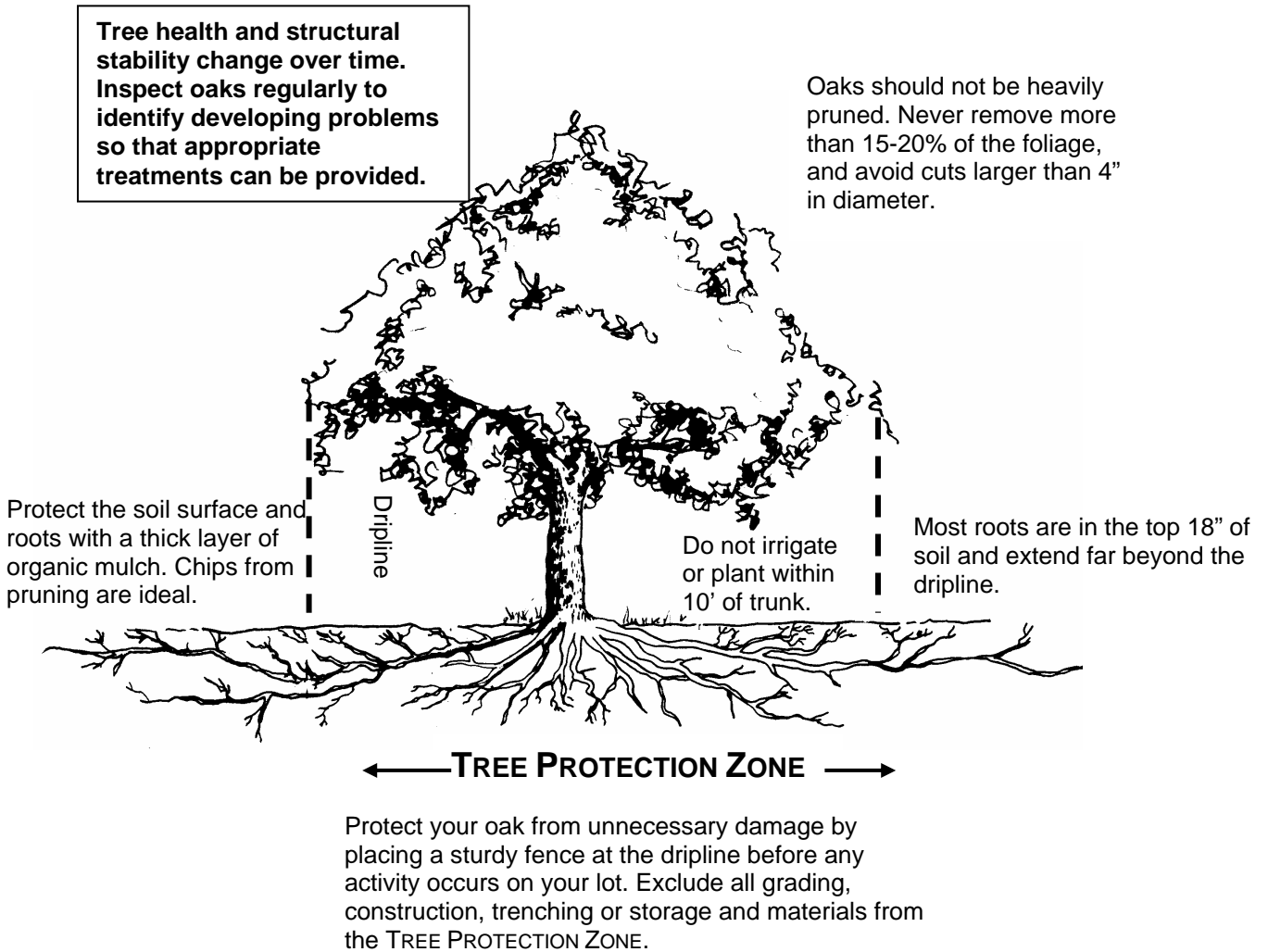
The more site change that occurs around oaks, the greater care must be taken in protecting and maintaining it. The trees become less drought tolerant, and more prone to developing pest and disease problems. This is particularly true for the valley oak and California black oak, which are less drought and construction impact tolerant than its relative, coast live oak. The degree of damage to a tree caused by construction depends on the severity of the impacts (e.g. how much of the roots are injured) and the initial health and age of the tree. Therefore, preservation efforts must begin with an evaluation of the individual tree and some assessment of its ability to adjust to an altered environment. As you begin planning your site improvements, such as landscaping, pools and patios, consider soliciting advice from a consulting arborist on how best to protect and manage your tree.

When designing uses around the native oaks consider the following:

1. All the trees within the development area of your property are accurately surveyed and plotted on the site plan. We cannot plan for their preservation if we do not know exactly where they are! Include the driplines on all the plans as well.
2. Avoid entry into the dripline of an oak tree whenever possible. For vigorous trees it may be possible to encroach within the dripline, but maintain at least the area half way from the trunk to the dripline free from any encroachment, and only on one side of the tree. Encroachment includes soil fills, cuts, trenches, paving or structures.
3. Maintain natural grade around the trees. If you have excess soil from grading your lot or digging a pool, do not put it around the trees. As little as 6" of soil can kill oaks.
4. It is important to avoid redirecting water by altering natural drainage. Simply put, *do not direct drainage water toward oaks.*

5. Avoid installing impervious paving, such as concrete, within the dripline of trees whenever possible. Pervious paving materials can be used (e.g. uncemented brick), but they should be placed on grade to avoid excavation normally required to place base material under the pavement. Compaction of the soil under the bricks also should be avoided. Paving should be limited to less than a third of the soil area within the TREE PROTECTION ZONE.
6. Where structures must encroach beneath a tree, consider using footings or foundations that avoid having to dig continuous trenches (e.g. pier foundations with the grade beam above grade).
7. **The single most important thing you can do to protect your trees is to place a temporary fence around those that near the construction area.** This excludes activity around the trees that can compact the soil, injure roots and damage the trunk and limbs. No equipment, materials, excess soil or trash should be placed under trees within the fenced area. The fencing should be in place before any type of equipment is allowed on your lot, and remain until all construction activity is completed.

Figure 1: The most important thing you can do to enhance the health and stability of your oak is to protect it from damage. Design your landscape to provide undisturbed space around the tree and keep all equipment and materials from beneath the canopy.



Landscaping Around Oaks

Our native oaks are adapted to conditions of cool, wet winters and warm, dry summers. They are accustomed to a period of prolonged drought in the summer months. They are intolerant of heavy irrigation during this period. Installation of new landscapes around oaks must recognize and respect this fact. Lawn, flowers, ivy, azaleas, ferns or other plantings requiring frequent watering are inappropriate around oaks. Even so, attractive landscapes can be created around your trees.

The best treatment under oaks is to place a thick layer of organic mulch such as bark or wood chips. Alternatives are rock or cobble mulches that can simulate dry streambeds. Make sure there is surface drainage away from the base of the trunks so that water does not flow to the base of the trees.

If you do decide to plant under oaks, select species that are under 4' tall when mature, shade tolerant and will require irrigation no more than once a month. Do not plant within 10' of the trunk. Some planting suggestions are listed in Table 1.

Design your irrigation system with the tree in mind. Maintain an area within ten feet of the trunk free from any irrigation. If you install plants outside that dry zone, create a berm around the plant to contain water. The well can be irrigated by hand. If you prefer an automatic system, use drip, micro-sprinklers or bubblers that wet a small area around each plant. However, you must give careful consideration to how the irrigation system is laid out to avoid damaging roots during installation.

The best way to minimize damage to the oaks is to avoid laying irrigation lines within the dripline. If you chose to plant in that area and want to install an irrigation system, consider laying the pipe on the surface rather than in trenches that cut through the roots. The pipes can be covered with deep mulch. If you must place pipe underground within the dripline of the tree, dig the trenches by hand so that woody roots can be left intact. Dig a tunnel under the roots and thread the pipe underneath. In this way, the roots that transport water and minerals to your tree will continue to function.

As you design your landscape, consider planting more oaks. They fit in well with your environment, are adapted to the site, and are easy to care for. Vigorous, nursery-grown oaks have a growth rate similar to many common landscape trees. Use them to augment your landscape scheme. Oak species to consider are the valley oak and the evergreen coast live oak.

The following are general guidelines for landscaping around oaks:

1. The best treatment under oaks is a thick layer of organic mulch, such as bark, wood chips or leaf litter. Prunings may be chipped by the arborist and left beneath the canopy. Alternatives include use of rocks or cobbles. In all cases, drainage must be away from the trunk.
2. Use wood decking on piers rather than patios under the driplines of trees. Allow at least 1' clearance between the deck and tree trunk.
3. If you choose to plant under your oaks, select plants that are shade and drought tolerant (no more than one irrigation per month). No plants should be installed within 10' of the trunk of the tree. A list of species appropriate for use under oaks is listed in Table 1.
4. Irrigation systems must be very carefully designed to avoid trenching through roots. No irrigation lines shall be placed under the driplines of

existing oaks. Only infrequent irrigation (once a month, maximum) is compatible with oaks.

5. If lawns or other frequently irrigated planting are to be used, place them outside the driplines of oaks, and ensure that runoff will not enter the dripline.
6. When planning landscape irrigation, route all irrigation trenches outside the driplines of oaks. Make sure that the area within 10' of the trunk is not wetted during operation of the system. Also, direct runoff away from oaks.
7. Planting young oaks is highly recommended. Coast live oak (*Q. agrifolia*) and valley oak (*Q. lobata*) are the species that are appropriate for your site.

Maintenance of Oaks in the Landscape

Native oaks have survived for decades in a system that provides the right balance of water, elements, light, etc. Even though we try to design appropriately around oaks, the balance that nature has provided is interrupted. The trees become a maintenance responsibility.

The primary maintenance requirements of oaks are pruning, mulching, pest and disease control, and in some cases, irrigation and fertilization.

Pruning

Mature oaks seldom need much pruning. It is important to maintain as much foliage as possible to supply the tree with adequate food for growth and maintenance. Your trees were pruned prior to the start of construction.

Oaks are pruned to enhance their health and structural stability, and to provide clearance beneath their crowns. Removal of dead, dying, diseased and weak branches enhances tree health and reduces the potential for failure of a branch.

Topping and stubbing off branches are not appropriate pruning methods for any tree, particularly oaks. Avoid stripping out the interior foliage. Excessive pruning to expose the branch structure of oaks is very damaging. As a general guide, remove no more than 25% of the foliage of the tree. Previously shaded branches that are exposed to the sun are easily damaged from sunburn. Pruning to reduce the weight on heavy horizontal limbs should remove small diameter branches (less than 3"), and retain foliage along the length of the branch.

Trees need to be inspected annually to evaluate structural stability and need for pruning. Most old oaks have considerable amount of decay in the trunk and major branches. They need to be inspected regularly by a professional to determine if weight needs to be removed from weak areas to reduce the risk of branch or trunk failure.

Pruning and cabling should be undertaken by qualified arborist. Tree pruning companies must carry the California State Contractors License for Tree Services (#C61/D49). Any pruning should be performed by a Certified Arborist or Tree Worker and adhere to the *Tree Pruning Guidelines* of the International Society of Arboriculture.

Irrigation

Supplemental irrigation may be needed for trees whose root systems have been impacted. However, oaks are accustomed to dry summer conditions and tend to develop fatal root diseases if irrigated frequently during the summer.

For trees that would benefit from extra water, we suggest extending the period of natural rain while preserving the annual summer drought. We do so by irrigating in late spring (May and June) and early fall (September - October). However, no irrigation should take place in July and August.

Irrigation should wet the top 2 - 3' of soil. We suggest creating basins to contain irrigation water on flat sites (Fig. 2), or using slow drip emitters or soaker hoses on sloped sites (Fig. 3). Soaker hoses can be allowed to run overnight. Check the depth of water penetration with a shovel.

Under no circumstances should trees be irrigated within 10' of the trunk. Irrigating frequently around the trunks of mature oaks during the summer leads to development of root diseases that can kill the tree.

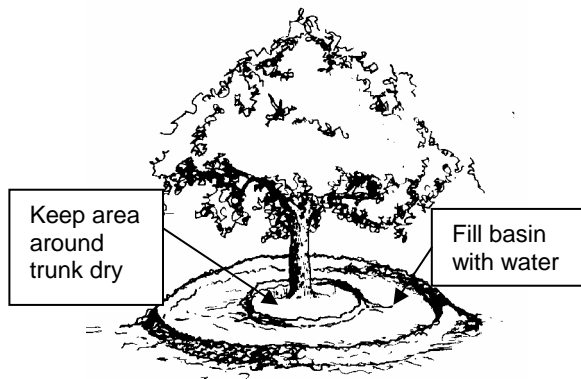


Fig. 2: Construct earthen berms to create watering basins around trees on flat ground. An inner berm keeps water away from the trunk.

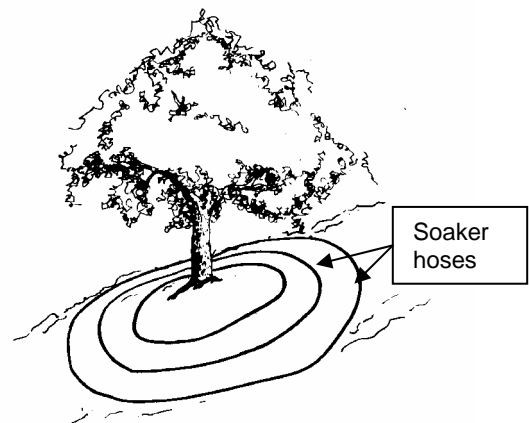


Fig. 3: For trees on slopes, soaker hoses placed in concentric rings can be used to provide supplemental water. Mulch can be placed over the hoses.

Pest Management

Oaks should be inspected regularly for disease and insect pests. While treatment is not normally required for these problems, pest infestations may reduce the overall health of the trees. Careful water management (see above) can avoid most disease problems. In most cases oaks do not require regular treatment for pests and diseases. While there are many insects commonly associated with oaks, they usually do little permanent damage.

An exception is the newly identified disease sudden oak death. Affected trees turn brown and die suddenly. The cause is the fungus *Phytophthora*. The disease is being studied intensely, but as yet little is known about how the disease is spread or ways to control it. For up to date information about the disease refer to the web site www.suddenoakdeath.org.

The insect pest you are most likely to experience is the oak moth. The larval stage of this insect feeds on oak leaves. Although the damage is unattractive, it will not kill the tree. In addition, pest populations are cyclic, so some years you may see many insects, while other years there are very few. Treatments may be warranted for aesthetic reasons, but are not necessary for tree health. Therefore, we do not recommend spraying for oak moth on a routine basis, but only when populations are high and you find the pest or its damage annoying. If you wish to treat an oak moth problem on your tree we suggest you contact the University of California Cooperative Extension office at (650) 726-9059 for advice.

Fertilization

Oaks do not normally require annual fertilization if the leaf litter is allowed to accumulate under the canopy. As the leaves decompose, they return nutrient elements to the trees.

If you routinely remove the natural leaf litter, then plan to fertilize your oak every two to three years. A slow-release fertilizer that provides only nitrogen is the best material to use. Apply the material at a rate of 1 pound actual nitrogen per 1000 ft² of open soil under the dripline plus 10' beyond. Spread the fertilizer evenly on the soil within the dripline of the tree plus 10' beyond (where possible). Apply in the late winter before the rains end.

Mulching

Oaks benefit from a layer of thick organic mulch beneath the canopy. The mulch helps retain surface soil moisture, moderates temperatures, and provides nutrients for the tree as it decomposes. Mulch material can be purchased at garden centers. You can also have brush from prunings chipped and left under the trees. Allow the natural leaf litter to accumulate within the mulched area as well. Mulch should be maintained at a maximum thickness of 4-6".

Conclusions

The oak trees on your property are a valuable asset to you, the community, and the environment. But they require on-going care, specific to their needs. Trees change over time and need to be inspected regularly to evaluate their health and structural condition. This booklet has provided some guidelines for providing for the basic needs of your native oaks.

Table 1. Plants appropriate for use under native oaks

Shrubs

Carpenteria	<i>Carpenteria californica</i>
Wild lilac	<i>Ceanothus</i> species
Western redbud	<i>Cercis occidentalis</i>
Mountain-mahogany	<i>Cercocarpus betuloides</i>
Santa Cruz Island buckwheat	<i>Eriogonum arborescens</i>
Island bush snapdragon	<i>Galvezia speciosa</i>
Silk-tassel bush	<i>Garrya elliptica</i>
Mahonias	<i>Mahonia</i> species
Gooseberries	<i>Ribes</i> species
San Diego wild sage	<i>Salvia clevelandii</i>
Coastal white sage	<i>Salvia leucophylla</i>
Snowberry	<i>Symphoricarpos</i> sp.

Ground Covers

Wolly yarrow	<i>Achillea tomentosa</i>
Manzanita	<i>Arctostaphylos</i>
Carmel creeper	<i>Ceanothus griseus</i> var. <i>horizontalis</i>
Hoover ceanothus	<i>Ceanothus maritimus</i>
Australian fuchsia	<i>Correa</i> sp.
Rock rose	<i>Cissus</i> sp.
Compact Oregon grape	<i>Mahonia aquifolium</i> 'Compacta'
Creeping mahonia	<i>Mahonia repens</i>
Catalina currant	<i>Ribes viburnifolium</i>

Evergreen Herbaceous Plants

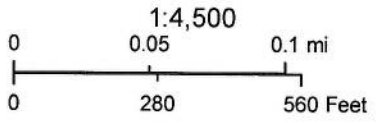
Winter-blooming bergenia	<i>Bergenia crassifolia</i>
Buckwheat	<i>Eriogonum umbelatum</i> v. <i>polyanthum</i>
Giant alum root	<i>Heuchera maxima</i>
California iris	<i>Iris douglasiana</i> and hybrids
Monkey flower	<i>Mimulus aurantiacus</i>
Beard tongue	<i>Penstemon</i> sp.

Deciduous or Annual Herbaceous Plants

Clarkia	<i>Clarkia</i> species
Chinese houses	<i>Collinsia heterophylla</i>
Shooting stars	<i>Dodecatheon clevelandii</i>
Poppies	<i>Eschscholzia</i> species
Baby blue eyes	<i>Nemophila Menziesii</i>
Evening primrose	<i>Oenothera</i> species
Blue-eyed-grass	<i>Sisyrinchium bellum</i>
California wild fuchsia	<i>Zauschneria californica</i>

Bulbs

Blue dicks	<i>Brodiaea</i> species
Mariposa lilies	<i>Calochortus</i> species
Leopard lily	<i>Lilium pardinalinum</i>
Common trillium	<i>Trillium chloropetalum</i>



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