

Preliminary Tree Report

Butcher's Corner

Prepared for:
PlaceWorks
1625 Shattuck Avenue, Suite 300
Berkeley, California 94709

Prepared by:
HortScience, Inc.
325 Ray Street
Pleasanton CA 94566

October 21, 2015



Preliminary Tree Report

Butcher's Corner
East Fremont Avenue
Sunnyvale CA

Table of Contents

	Page
Introduction and Overview	1
Assessment Methods	1
Description of Trees	2
Suitability for Preservation	6
Evaluation of Impacts and Recommendation for Action	8
Tree Preservation Guidelines	16

List of Tables

Table 1. Tree condition & frequency of occurrence.	2
Table 2. Suitability for preservation.	7
Table 3. Proposed action.	10

Attachments

Tree Assessment Form

Tree Assessment Plan

Tree Pruning Specifications

Introduction and Overview

PlaceWorks is assisting in reviewing the environmental impacts of the proposed redevelopment of Butcher's Corner, located on E. Fremont Avenue in Sunnyvale CA. Current site use consists of two homes, accessory structures, abandoned orchard and associated landscape features. PlaceWorks requested that HortScience, Inc. prepare a **Preliminary Tree Report** for the site. This report provides the following information:

1. A survey of trees currently growing on the site and trees along the site periphery that have the potential of being impacted due to construction.
2. An assessment of the impacts of constructing the proposed project on the trees.
3. Recommendations for tree removal and replacement.
4. Guidelines for tree preservation during the design, construction, and maintenance phases of development.

Assessment Methods

Trees were assessed in September 2015. Trees were evaluated through a visual assessment from the ground and consisted of the following steps:

1. Tagging each tree with an identifying number and record its location on a map.
2. Identifying the tree as to species.
3. Measuring the trunk diameter at 54" above grade.
4. Evaluating the health and structural condition using a scale of 0 – 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.*
 - 0 – Tree is dead.*
5. Noting any significant structural characteristics including decay, poor crown conformation, dieback and a history of failure.
6. Rating the suitability for preservation as "high", "moderate" or "low".
Suitability for preservation considers the health, age and structural condition of the tree, invasive potential, and its potential to remain an asset to the site for years to come.

Each tree is described in the attached **Tree Assessment Form** and its approximate location plotted in the **Tree Assessment Map** located in the Attachments.

Description of Trees

Eighty-four (84) landscape trees were evaluated, representing 29 species (Table 1). Trees were a mix of native and non-native species. Species native to the Sunnyvale area include coast live oak, valley oak, Calif. bay, and Calif. buckeye. Some of these appear to be indigenous to the site. Among non-native species, all were typical of landscape plants used in the Sunnyvale area.

Table 1. Species present and tree condition. Butcher's Corner. Sunnyvale CA.

Common name	Scientific name	Condition				No. of Trees	
		Poor	Fair	Good	Excell.	Protected	Total
Bailey acacia	<i>Acacia baileyana</i>	--	1	--	--	1	1
Calif. buckeye	<i>Aesculus californica</i>	--	--	1	--	1	1
African fern pine	<i>Afrocarpus gracilior</i>	--	--	1	--	1	1
Strawberry tree	<i>Arbutus unedo</i>	1	--	--	--	--	1
European birch	<i>Betula pendula</i>	--	1	--	--	--	1
Carob	<i>Ceratonia siliqua</i>	--	1	--	--	1	1
Euonymus	<i>Euonymus</i> sp.	1	--	--	--	--	1
Hollywood juniper	<i>Juniperus chinensis</i> 'Torulosa'	--	1	--	--	--	1
Glossy privet	<i>Ligustrum lucidum</i>	2	1	--	--	--	3
Sweetgum	<i>Liquidambar styraciflua</i>	--	1	1	--	--	2
Catalina ironwood	<i>Lyonothamnus floribundus</i>	--	2	--	--	2	2
Olive	<i>Olea europaea</i>	--	1	--	--	--	1
Canary Island date palm	<i>Phoenix canariensis</i>	--	2	1	4	7	7
Afghan pine	<i>Pinus eldarica</i>	--	1	--	--	1	1
Monterey pine	<i>Pinus radiata</i>	--	1	--	--	1	1
Chinese pistache	<i>Pistachia chinensis</i>	1	1	1	--	1	3
Tawhihiwi	<i>Pittosporum</i> sp.	1	--	--	--	--	1
Victorian box	<i>Pittosporum undulatum</i>	1	--	--	--	1	1
Catalina cherry	<i>Prunus caroliniana</i>	2	7	--	--	2	9
Coast live oak	<i>Quercus agrifolia</i>	2	8	10	--	13	20
Holly oak	<i>Quercus ilex</i>	--	1	--	--	1	1
Valley oak	<i>Quercus lobata</i>	1	2	1	--	3	4
Chinese tallow	<i>Sapium sebiferum</i>	1	--	--	--	--	1
Calif. pepper	<i>Schinus molle</i>	2	5	--	2	7	9
Coast redwood	<i>Sequoia sempervirens</i>	1	3	1	--	5	5
Queen palm	<i>Sygarus romanzoffiana</i>	1	--	--	--	1	1
Chinese elm	<i>Ulmus parvifolia</i>	--	1	--	--	--	1
Calif. bay	<i>Umbellularia californica</i>	--	--	1	--	--	1
Xylosma	<i>Xylosma congestum</i>	1	--	1	--	1	2
Total, all trees assessed		18	41	19	6	50	84

The City of Sunnyvale defines "Protected" tree as having a circumference of 38" or more (equivalent to a diameter of 12") (Municipal Code 19.94. Fifty (50) of the 84 landscape trees met this criterion. Protected Trees are identified on the ***Tree Assessment Form***.

Coast live oak (20 trees) was the most frequently occurring species. Tree maturity ranged from young to mature. Tree trunk diameters were between 6" and 36". About half of the coast live oaks were smaller than 18" in diameter. Several large trees were present. Coast live oak #116 was 36" and in good condition. Tree #118 was also 36" but in fair condition. Both trees #116 and 118 were located off-site, near Wolfe Road, with canopies that extended over the wall separating the two properties (Photo 1).



Photo 1. The canopy of coast live oak #118 extended over the property line and into the project area.

Several large coast live oaks were present in the east side of the property. Tree #121 had several stems that arose near ground level (Photo 2). It was in good condition. Other large oaks included #119 (31", good condition), 125 (27", poor condition), and #126 (26", good condition). Several smaller oaks were also present in this area.



Photo 2. Coast live oak #121.

Condition of coast live oaks ranged from poor (#125, 149) to fair (8 trees) to good (10 trees). Factors influencing condition of coast live oaks included crowded growing conditions (leading to asymmetric and otherwise poor form), the presence of codominant trunks and multiple attachments, and drought.

Nine (9) Calif. peppers were present (Photo 3). Several trees were located near the existing residence. Trees ranged from young (#151, 160) to semi-mature (#136, 140, 143) to mature (#128, 141, 169) to overmature (#115). Located near the entrance to the site, Calif. pepper #115 was 47" and in fair condition with several large stems. Tree condition varied by diameter with the small trees in excellent condition while larger trees were in fair and poor (#140, 141) condition.



Photo 3. Typical Calif. pepper.

Nine (9) Carolina cherries were present on the south side of the residence. Most trees were small (<10" diameter). Exceptions included cherry #107 (stems of 19", 19" and 8") and #114 (6 stems between 4" and 9"). Tree #107 was in poor condition with extensive decay and a history of branch failure. Tree #114 was in fair condition with a thin canopy of foliage.

Seven (7) Canary Island date palms were present. Palms #101, 103, 105, 124, 127 were mature trees with more than 25' of clear (brown) trunk. Palms #101, 124 and 127 were in excellent condition; #105 was good with penciling of the trunk, while #103 was in fair condition. Smaller palms were #137 (4' clear trunk) and #139 (12').

The remaining 25 species were represented by 5 or fewer trees. Included in this group were:

- Coast redwoods #152 – 156 were semi-mature and mature in development with trunk diameters between 15" and 28" (Photo 4). Trees were located off-site, along the north edge of the property. Tree canopies extended into the project area. Tree condition was poor (#154), fair (#152, 153, 155) and good (#156). The primary limitation to tree health was lack of irrigation. Tree canopies were thin with extensive dieback.



Photo 4. Coast redwoods #152 – 156.

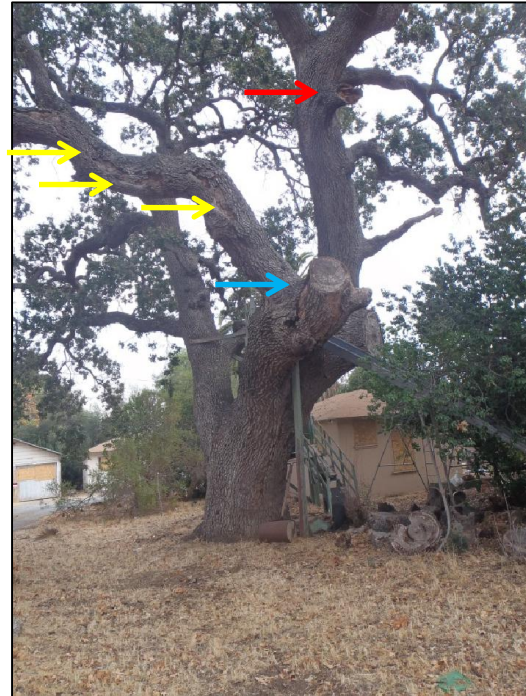
- Valley oaks #146, 147 and 148 were located near the northeast corner of the residence. Valley oak #146 was 21" and in good condition; #147 was 14" and poor; #148 was 8" and fair.

Valley oak #106 was the largest and most dominant tree at Butcher's Corner with a trunk diameter of 64" (Photo 5, following page). Overall tree structure was typical of valley oaks of this age and size. Several large scaffold limbs arose at 12'. Large pruning wounds and branch failures resulted in decay. A cavity was present at the base. The tree's canopy was thin.

- Chinese pistache #163 and 165 were located off-site, on the west side of the property. Pistache #150 was a mature tree with poor form and structure.
- Glossy privets #144, 164 and 181 were large shrubs.
- Sweetgums #157 and 158 were off-site to the north. Both were 8" in diameter. Tree #157 was in fair condition; #158 was good.
- Catalina ironwood #129 was a mature tree with several stems between 12" and 18". Tree condition was fair. Catalina ironwood #166 was located off-site. It was 14" and in fair condition.



Photo 4. Valley oak #106. Above: tree crown. Right: lower trunk and scaffold limbs. Note failed branch (red arrow), areas of dead bark (yellow arrow) and large stub (blue arrow).



- Xylosma #177 was 9" and dying while #178 was 14" and in good condition.
- Afghan pine #175 was 23" and in fair condition.
- African fern pine #162 was off-site, 15" and in good condition.
- Bailey acacia #173 was 14" and in fair condition, having been topped to clear overhead utility lines.
- Calif. bay #176 was a small tree (7, 6") in good condition.
- Calif. buckeye #104 was mature in development with multiple stems. It was in good condition.
- Carob #167 was located off-site. It was 16" and in fair condition.
- Chinese elm #172 was small (7, 4") and in fair condition.
- Chinese tallow #174 was a small tree (6, 6") in poor condition.
- Euonymus #102 was a large shrub in poor condition.
- European birch #159 was off-site, 8" and in fair condition.
- Holly oak #183 was mature in development, 18" in diameter and in fair condition.
- Hollywood juniper #8 was a large suppressed shrub.

- Monterey pine #180 was mature in size and development with a trunk diameter of 33". Condition was fair as the tree had been side-trimmed to clear nearby utility lines.
- Olive #117 was located off-site. It was 8" and in fair condition.
- Queen palm #134 was small and poor.
- Strawberry tree #145 was 8" and dying.
- Tawhiwi #179 was a large shrub in poor condition.
- Victorian box #184 was 13" in diameter and in poor condition.

Orchard species

In addition to the 84 landscape trees, a total of 161 orchard trees were present at Butcher's corner. Orchard trees were not tagged and individually assessed. Included in this group were:

- 15 small citrus (*Citrus* sp.) in declining condition.
- 42 olives (*Olea europaea*) in fair and good condition.
- 97 plums (*Prunus domestica*) were largely dead.
- 7 avocado (*Persea americana*) around the residence.

In general, orchard trees had been abandoned and left unmaintained. No irrigation appeared to be present which is why tree condition was declining.

Orchard trees are exempt from the City of Sunnyvale's tree protection requirements. (Municipal Code 19.94.050). No orchard trees are considered for Protected status.

Suitability for Preservation

Trees that are preserved on development sites must be carefully selected to make sure that they may 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.
- **Species response**
There is a wide variation in the response of individual species to construction impacts and changes in the environment. For example, coast redwood and coast live oak are relatively tolerant of construction impacts while Bailey acacia and carob are sensitive.

▪ **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.

▪ **Species invasiveness**

Species which 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 having being invasive. Sunnyvale is part of the Central West Floristic Province. Olive, Canary Island date palm, Chinese tallow, and Calif. pepper are noted as being invasive.

Each of the 84 landscape trees was rated for suitability for preservation based upon its age, health, structural condition and ability to safely coexist within a development environment (Table 2).

Table 2. Tree suitability for preservation. Butcher's Corner. Sunnyvale CA.

High	Trees with good health and structural stability that have the potential for longevity at the site. Eleven (11) trees were rated as having good suitability for preservation: Canary Island date palm #101, 105, 124, 127, 137; Calif. pepper #151, 160; coast live oak #110, 168, 171; and Chinese pistache #163.
Moderate	Trees in fair health and/or possessing structural defects that may be abated with treatment. Trees in this category require more intense management and monitoring, and may have shorter life-spans than those in the "high" category. Fifty (50) trees were rated as having moderate suitability for preservation including: 13 coast live oaks, Afghan pine #175, African fern pine #162, Calif. bay #176, Calif. buckeye #104, Calif. pepper #128, sweetgum #158, valley oak #146, and xylosma #178.
Low	Trees in poor health or possessing 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. Fifty (50) trees were rated as having poor suitability for preservation including: 8 Catalina cherry, 6 Calif. pepper, 5 coast redwood, 4 coast live oak, 3 glossy privet, and 2 valley oak.

We consider trees with high suitability for preservation to be the best candidates for preservation. We do not recommend retention of trees with low suitability for preservation near proposed homes or useable open space. Retention of trees with moderate suitability for preservation depends upon the intensity of proposed site changes.

Evaluation of Impacts and Recommendations for Action

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** was the reference point for tree condition and quality. Potential impacts from the proposed project were assessed using two Illustrative Site Plans prepared by the Dahlin Group (both plans dated June 2015).

The site plans represented two development options. Option 1 comprised the existing Butcher's Corner site while Option 2 included the property at the northwest corner of the intersection of South Wolfe Road and East Fremont Avenue. Both plans include high density residential units as well as non-residential space along East El Camino Real. Both plans would entirely redevelop the Butcher's Corner site.

Impacts to trees could occur in a variety of ways. First, demolition of existing structures could directly damage tree roots and crowns. Second, grading, excavation, and other construction activities may also damage trees, through both direct mechanical injury and indirectly by altering drainage. The most significant impacts to the trees would occur as a result of demolition, grading and construction across the entire site.

Both site plan options depict retention of valley oak #106 (Table 3, following page). This is a large massive tree in fair condition with low suitability for preservation due to its age, health and structure. It can be expected to decline over many years by losing large branches. Decay is present in the scaffold limbs and at the base. Valley oaks of this size and maturity often drop branches without any warning. Because of the risk of branch or whole tree failure, no development activity should take place within the dripline of this tree. No use such as paths, benches or parking should be planned within the dripline.

The site plans depict the tree as having a 60' wide canopy. The actual canopy is 85' to 90' wide. In order to accommodate the tree, some re-design must occur to provide additional space for the tree. No details of construction activity near the tree are provided. But removal of structures and controls to disturbance under this tree as well as corrective work on past poorly cut limbs or failed branches, together with cabling and possibly major limb support should serve to improve conditions, and reduce risks associated with this tree. So long as the proposed **TREE PROTECTION ZONE** accommodates the entire canopy, impacts from construction should be within the tolerance of the tree.

In order to maintain tree health and limit the potential for someone to be injured by a failing branch, I recommend that no improvements and use areas be established beneath the tree. No activity should occur within the dripline subsequent to demolition: The area under the dripline should be mulched with 4" to 6" of wood chips. No grading, construction, landscaping, irrigation, lighting, or utilities should be installed within the dripline with the exception of removal of artificial fills placed under the tree, paving and other impervious surfaces, the existing treehouse built onto the tree, and the nearby garage structure, assuming this work is performed under the supervision of a Certified Arborist with careful controls as described further below under the recommended **Tree Preservation Guidelines**. Grading around the tree should ensure that storm water does not collect around the base of the tree.

Based on my review of the plans, there is limited opportunity to preserve any additional trees without significant re-design of the site plan.

Several mature coast live oaks (#119, 120, 121, 123, and 126) form a grove near the highly visible El Camino Real and Wolfe Road intersection. These trees have moderate and high suitability for preservation, and would complement the stand of coast live oaks on the east side of Wolfe Road. However, preservation would require substantial redesign of the Site Plan and possible reduction of the retail/office building on the southeast end. For design purposes, the **TREE PROTECTION ZONE** should be the existing dripline of trees to be retained.

Trees located off-site are noted for preservation and pruning to provide clearance for construction activity. Recommendations for preservation are predicated on adherence to the **Tree Preservation Guidelines** (following section).

Table 3. Proposed action. Butcher's Corner. Sunnyvale CA.

Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excell.	Proposed Action	Notes
101	Canary Island date palm	35	Yes	5	Remove	Within project area
102	Euonymus	5,3,2	No	2	Remove	Within project area; low suitability for preservation
103	Canary Island date palm	47	Yes	3	Remove	Within project area; low suitability for preservation
104	Calif. buckeye	8,8,8,7,6,5	Yes	4	Remove	Within project area
105	Canary Island date palm	27	Yes	4	Remove	Within project area
106	Valley oak	64	Yes	3	Preserve	Low suitability for preservation
107	Catalina cherry	19,18,8	Yes	2	Remove	Within project area; low suitability for preservation
108	Catalina cherry	7	No	3	Remove	Within project area; low suitability for preservation
109	Catalina cherry	8	No	3	Remove	Within project area; low suitability for preservation
110	Coast live oak	7	No	4	Remove	Within project area
111	Catalina cherry	5	No	3	Remove	Within project area; low suitability for preservation
112	Catalina cherry	5	No	3	Remove	Within project area; low suitability for preservation
113	Catalina cherry	5	No	3	Remove	Within project area; low suitability for preservation
114	Catalina cherry	9,9,8,7,6,4	Yes	3	Remove	Within project area; low suitability for preservation
115	Calif. pepper	47	Yes	3	Remove	Within project area; low suitability for preservation

Table 3, continued. Proposed action. Butcher's Corner. Sunnyvale CA.

Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excell.	Proposed Action	Notes
116	Coast live oak	36	Yes	4	Preserve	Off-site; prune for clearance
117	Olive	8	No	3	Preserve	Off-site; pruning for clearance will likely remove much of the tree's canopy
118	Coast live oak	36	Yes	3	Preserve	Off-site; prune for clearance
119	Coast live oak	31	Yes	4	Remove	Within project area
120	Coast live oak	18	Yes	3	Remove	Within project area
121	Coast live oak	24,22,20,14,14	Yes	4	Remove	Within project area
122	Coast live oak	17,12	Yes	3	Remove	Within project area; low suitability for preservation
123	Coast live oak	20	Yes	3	Remove	Within project area
124	Canary Island date palm	30	Yes	5	Remove	Within project area
125	Coast live oak	27	Yes	2	Remove	Within project area; low suitability for preservation
126	Coast live oak	26	Yes	4	Remove	Within project area
127	Canary Island date palm	30,30,30	Yes	5	Remove	Within project area
128	Calif. pepper	18,16	Yes	3	Remove	Within project area
129	Catalina ironwood	18,12,12,12,10,8	Yes	3	Remove	Within project area; low suitability for preservation
130	Catalina cherry	7,5,4,4	No	3	Remove	Within project area
131	Coast live oak	8	No	3	Remove	Within project area; low suitability for preservation

Table 3, continued. Proposed action. Butcher's Corner. Sunnyvale CA.

Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excell.	Proposed Action	Notes
132	Coast live oak	13,8	Yes	3	Remove	Within project area
133	Coast live oak	13	Yes	3	Remove	Within project area
134	Queen palm	12	Yes	2	Remove	Within project area; low suitability for preservation
135	Coast live oak	14	Yes	4	Remove	Within project area
136	Calif. pepper	13	Yes	3	Remove	Within project area; low suitability for preservation
137	Canary Island date palm	22	Yes	5	Remove	Within project area
138	Catalina cherry	5	No	2	Remove	Within project area; low suitability for preservation
139	Canary Island date palm	29	Yes	3	Remove	Within project area
140	Calif. pepper	13	Yes	2	Remove	Within project area; low suitability for preservation
141	Calif. pepper	30	Yes	1	Remove	Within project area; low suitability for preservation
142	Coast live oak	6	No	4	Remove	Within project area
143	Calif. pepper	14	Yes	3	Remove	Within project area; low suitability for preservation
144	Glossy privet	6,6	No	1	Remove	Within project area; low suitability for preservation
145	Strawberry tree	8	No	1	Remove	Within project area; low suitability for preservation
146	Valley oak	21	Yes	4	Remove	Within project area
147	Valley oak	14	Yes	1	Remove	Within project area; low suitability for preservation

Table 3, continued. Proposed action. Butcher's Corner. Sunnyvale CA.

Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excell.	Proposed Action	Notes
148	Valley oak	8	No	3	Remove	Within project area; low suitability for preservation
149	Coast live oak	14	Yes	2	Remove	Within project area; low suitability for preservation
150	Chinese pistache	15	Yes	2	Remove	Within project area; low suitability for preservation
151	Calif. pepper	8,8,5	No	5	Remove	Within project area
152	Coast redwood	28	Yes	3	Preserve	Off-site; prune for clearance
153	Coast redwood	17	Yes	3	Preserve	Off-site; prune for clearance
154	Coast redwood	18	Yes	2	Preserve	Off-site; prune for clearance
155	Coast redwood	15	Yes	3	Preserve	Off-site; prune for clearance
156	Coast redwood	15	Yes	4	Preserve	Off-site; prune for clearance
157	Sweetgum	8	No	3	Preserve	Off-site; prune for clearance
158	Sweetgum	8	No	4	Preserve	Off-site; prune for clearance
159	European birch	7	No	3	Preserve	Off-site; prune for clearance
160	Calif. pepper	5,3,3	No	5	Remove	Within project area
161	Coast live oak	7	No	3	Remove	Within project area

Table 3, continued. Proposed action. Butcher's Corner. Sunnyvale CA.

Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excell.	Proposed Action	Notes
162	African fern pine	15	Yes	4	Preserve	Off-site; prune for clearance
163	Chinese pistache	9	No	4	Preserve	Off-site; prune for clearance
164	Glossy privet	8,4	No	3	Remove	Within project area; low suitability for preservation
165	Chinese pistache	9	No	3	Preserve	Off-site; prune for clearance
166	Catalina ironwood	14	Yes	3	Preserve	Off-site; prune for clearance
167	Carob	16	Yes	3	Preserve	Off-site; prune for clearance
168	Coast live oak	7,5	No	4	Remove	Within project area
169	Calif. pepper	15,14,12,11,10	Yes	3	Remove	Within project area; low suitability for preservation
170	Coast live oak	4,3,2,2	No	4	Remove	Within project area
171	Coast live oak	6,5	No	4	Remove	Within project area
172	Chinese elm	7,4	No	3	Remove	Within project area; low suitability for preservation
173	Bailey acacia	14	Yes	3	Remove	Within project area; low suitability for preservation
174	Chinese tallow	6,6	No	1	Remove	Within project area; low suitability for preservation
175	Afghan pine	23	Yes	3	Remove	Within project area
176	Calif. bay	7,5	No	4	Remove	Within project area
177	Xylosma	9	No	2	Remove	Within project area; low suitability for preservation

Table 3, continued. Proposed action. Butcher's Corner. Sunnyvale CA.

Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excell.	Proposed Action	Notes
178	Xylosma	14	Yes	4	Remove	Within project area
179	Tawhiwi	6,4	No	2	Remove	Within project area; low suitability for preservation
180	Monterey pine	33	Yes	3	Remove	Within project area; low suitability for preservation
181	Glossy privet	8,5,3	No	2	Remove	Within project area; low suitability for preservation
182	Hollywood juniper	8	No	3	Remove	Within project area; low suitability for preservation
183	Holly oak	18	Yes	3	Remove	Within project area; low suitability for preservation
184	Victorian box	13	Yes	1	Remove	Within project area; low suitability for preservation

Tree Preservation Guidelines

The following are recommendations for design and construction phases that will assist in successful tree preservation. The focus of tree preservation efforts are on valley oak #106 and all off-site trees.

Design recommendations

1. Establish the horizontal and vertical elevation of valley oak #106 and include on all plans.
2. Design improvements so that no grading or construction occurs within the dripline of valley oak #106. Demolition of the existing garage, tree house, impervious surfaces and artificial fills under the dripline of this tree shall be performed under the supervision of the Consulting Arborist. Equipment operation shall be restricted from the furthest point possible to the tree trunk, so minimize the potential for compaction and root zone disturbance.
3. Allow the Consulting Arborist to review all future project submittals including grading, utility, drainage, irrigation, and landscape plans.
4. Establish a **TREE PROTECTION ZONE** around valley oak #106. The **TREE PROTECTION ZONE** shall be at least 50' from the center of the trunk in all directions.
5. Route all underground services including utilities, sub-drains, water or sewer around the **TREE PROTECTION ZONE**.
6. Use only herbicides safe for use around trees and labeled for that use, even below pavement.
7. Design irrigation systems so that no trenching will occur within the **TREE PROTECTION ZONE**.

Pre-construction and demolition treatments and recommendations

1. The demolition contractor shall meet with the Consulting Arborist before beginning work to discuss work procedures and tree protection.
2. Install protection at the **TREE PROTECTION ZONE** prior to demolition, grubbing, or grading. Valley oak #106 may require installation of hay bales around the tree prior to the start of demolition of nearby improvements.
3. No entry is permitted into a **TREE PROTECTION ZONE** without permission of the project superintendent.
4. Trees to be preserved may require pruning to clean the crown and to provide clearance. All pruning shall be completed by an ISA Certified Arborist or Tree Worker and adhere to the latest editions of the American National Standards for tree work (Z133 and A300) and International Society of Arboriculture Best Management Practices, Pruning.

Tree protection during construction

1. Prior to beginning work, the contractors working in the vicinity of trees to be preserved are required to meet with the Consulting Arborist at the site to review all work procedures, access routes, storage areas and tree protection measures.
2. Trees to be removed shall be felled so as to fall away from **TREE PROTECTION ZONE** and avoid pulling and breaking of roots of trees to remain. If roots are entwined, the consultant may require first severing the major woody root mass before extracting the trees, or grinding the stump below ground.
3. Valley oak #106 must be irrigated during the construction period. The irrigation schedule to be determined by the Consulting Arborist. Each irrigation shall wet the soil within the **TREE PROTECTION ZONE** to a depth of 30". For planning purposes, expect to irrigate the tree twice per month during months with no or low rainfall.
4. Any grading, construction, demolition or other work that is expected to encounter roots of trees to be preserved should be monitored by the Consulting Arborist.
5. If injury occurs to any tree during construction, it should be evaluated as soon as possible by the Consulting Arborist so that appropriate treatments can be applied.
6. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without permission of the project superintendent.
7. Construction trailers, traffic and storage areas must remain outside fenced areas at all times.
8. No materials, equipment, soil, waste or wash-out water may be deposited, stored, or parked within the **TREE PROTECTION ZONE** (fenced area).
9. Any additional tree pruning needed for clearance during construction must be performed by a qualified arborist and not by construction personnel.
10. Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw.

Tree Preservation Guidelines (with coast live oaks)

The following are recommendations for design and construction phases that will assist in successful tree preservation. The focus of tree preservation efforts are on valley oak #106, several coast live oaks, and all off-site trees.

Design recommendations

1. Establish the horizontal and vertical elevation of valley oak #106 and the coast live oaks to remain. Include trunk locations on all plans.
2. Design improvements so that no grading or construction occurs within the dripline of all trees to be preserved. Demolition of the existing structures, impervious surfaces and artificial fills under the dripline of any tree to be preserved shall be performed under the supervision of the Consulting Arborist. Equipment operation shall be restricted from the furthest point possible to the tree trunk, so minimize the potential for compaction and root zone disturbance.
3. Allow the Consulting Arborist to review all future project submittals including grading, utility, drainage, irrigation, and landscape plans.
4. Establish a **TREE PROTECTION ZONE** around tree to be retained. For valley oak #106, the **TREE PROTECTION ZONE** shall be at least 50' from the center of the trunk in all directions. For coast live oaks, the **TREE PROTECTION ZONE** shall be the dripline.
5. Route all underground services including utilities, sub-drains, water or sewer around the **TREE PROTECTION ZONE**.
6. Use only herbicides safe for use around trees and labeled for that use, even below pavement.
7. Design irrigation systems so that no trenching will occur within the **TREE PROTECTION ZONE**.

Pre-construction and demolition treatments and recommendations

1. The demolition contractor shall meet with the Consulting Arborist before beginning work to discuss work procedures and tree protection.
2. Install protection at the **TREE PROTECTION ZONE** prior to demolition, grubbing, or grading. Valley oak #106 may require installation of hay bales around the tree prior to the start of demolition of nearby improvements. For coast live oaks, install tree protective fencing at the dripline.
3. No entry is permitted into a **TREE PROTECTION ZONE** without permission of the project superintendent.
4. Prune trees to be preserved may require pruning to clean the crown. All pruning shall be completed by an ISA Certified Arborist or Tree Worker and adhere to the latest editions of the American National Standards for tree work (Z133 and A300) and International Society of Arboriculture Best Management Practices, Pruning.

Tree protection during construction

1. Prior to beginning work, the contractors working in the vicinity of trees to be preserved are required to meet with the Consulting Arborist at the site to review all work procedures, access routes, storage areas and tree protection measures.
2. Trees to be removed shall be felled so as to fall away from **TREE PROTECTION ZONE** and avoid pulling and breaking of roots of trees to remain. If roots are entwined, the consultant may require first severing the major woody root mass before extracting the trees, or grinding the stump below ground.
3. Valley oak #106 must be irrigated during the construction period. Coast live oaks may require irrigation. The irrigation schedule to be determined by the Consulting Arborist. Each irrigation shall wet the soil within the **TREE PROTECTION ZONE** to a depth of 30". For planning purposes, expect to irrigate the tree twice per month during months with no or low rainfall.
4. Any grading, construction, demolition or other work that is expected to encounter roots of trees to be preserved should be monitored by the Consulting Arborist.
5. If injury occurs to any tree during construction, it should be evaluated as soon as possible by the Consulting Arborist so that appropriate treatments can be applied.
6. Fences are to remain until all site work has been completed. Fences may not be relocated or removed without permission of the project superintendent.
7. Construction trailers, traffic and storage areas must remain outside fenced areas at all times.
8. No materials, equipment, soil, waste or wash-out water may be deposited, stored, or parked within the **TREE PROTECTION ZONE** (fenced area).
9. Any additional tree pruning needed for clearance during construction must be performed by a qualified arborist and not by construction personnel.
10. Any roots damaged during grading or construction shall be exposed to sound tissue and cut cleanly with a saw.

HortScience, Inc.



James R. Clark, Ph.D.
Certified Arborist WE-0846A
Registered Consulting Arborist #357