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ARBORIST REPORT

North 40 Property, Los Gatos, California

Prepared for:

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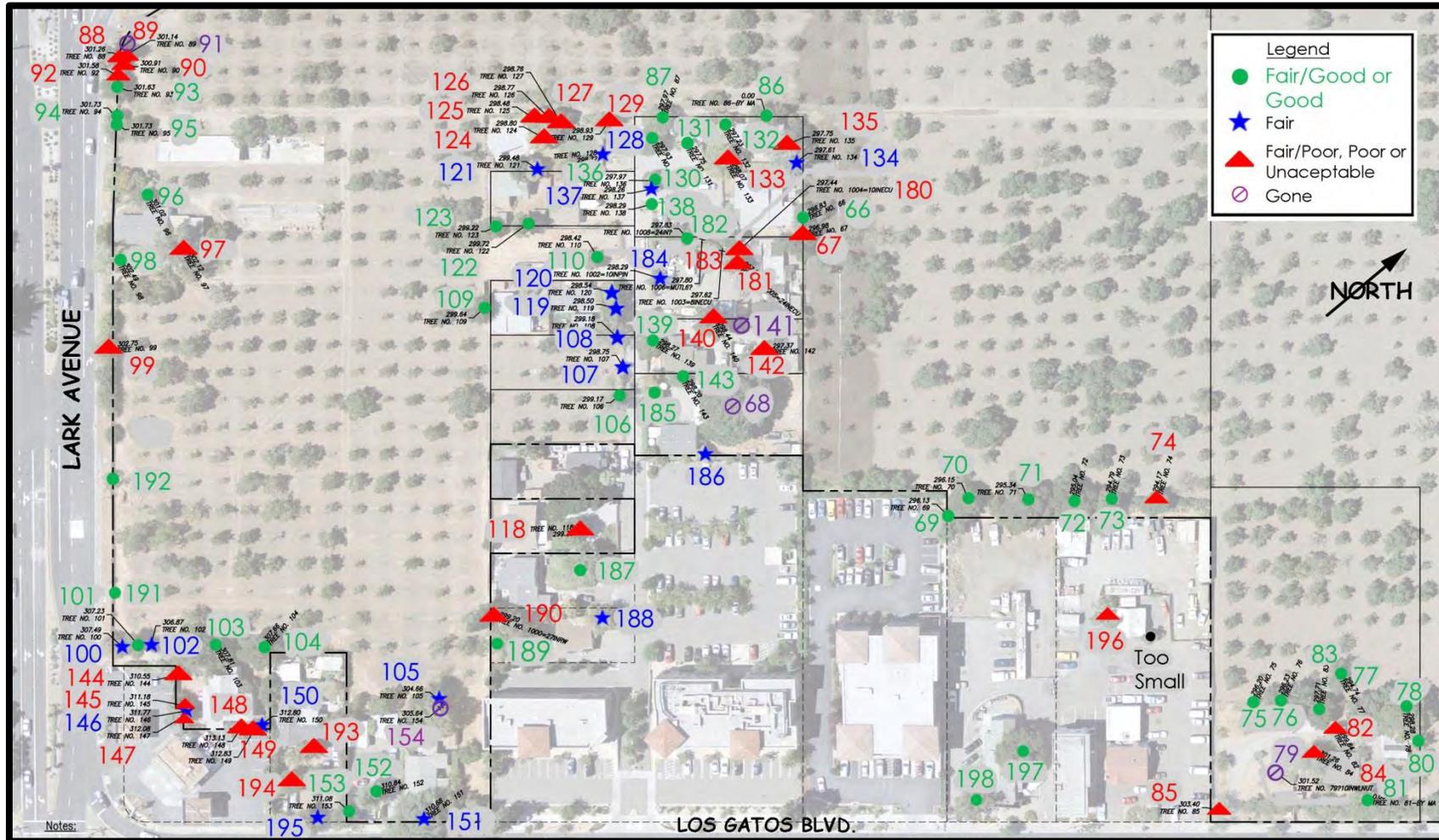
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Cover photo: **coast live oak #130**, with **#87** in the background. These trees have Good/Excellent and Good preservation suitability, respectively. They are located near the corner of Los Gatos Boulevard and Lark Avenue. All photos in this report were taken by D. Ellis on September 12, 2013.



TREE MAP

Please Note: a separate, larger copy of this map has also been provided for your convenience.



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SUMMARY

There are 96 *protected trees*¹ within the proposed work area of the project site, not counting 4 trees on the Fales property². The existing walnut orchard trees were also not included in this survey, although most of these walnuts are of less than protected size. The 25 tree species in the project work area, along with the prevalence of each species as a percentage of the total tree population are listed in [Table 1](#) on page 3. The 96 individual surveyed trees are described briefly the *Summary Tree Table* ([Table 2](#)) on page 5 and in greater detail in the *Complete Tree Table* ([Table 6](#)) beginning on page 13. No tree disposition recommendations provided in this report, because construction plans have not yet been developed. The tree *Preservation Suitability* ratings and *Tree Root Protection Distances* will be helpful to the project architects however, in deciding which trees to retain and how far improvements should be located from these trees, during the design process. Trees are color-coded as to their preservation suitability on the Tree Map on the previous page, and also in the Summary Table. In addition, trees in the various preservation suitability ratings have been grouped into separate tables for quick reference, as listed below:

- **Forty-five trees** are classified as having “Excellent”, “Good” or “Fair/Good” preservation suitability. These are the better trees on the site, and those that are most worthy of retaining or transplanting. They are listed in [Table 3](#) on page 7.
- **Eighteen trees** are classified as having “Fair” preservation suitability. These are “so-so” trees and I do not recommend going through too much trouble to retain them. They are listed in [Table 4](#) on page 7.
- **Thirty-three trees** are classified as having “Unacceptable”, “Poor” or “Fair/Poor” preservation suitability. I would not put any effort into retaining any of these trees, which are listed in [Table 5](#) on page 8. Those trees listed as Poor or Unacceptable should be removed. **#97 California pepper should be removed ASAP.** This tree has extensive trunk decay and a large branch recently failed out of the tree. The overhangs an occupied house, parking area and a children’s swing.

As the construction plans for the project are developed I will review these plans and produce additional reports describing the expected impact of construction on those trees that will remain. I can work with the architects to reduce construction impacts to trees where possible. I will eventually prepare a final arborist report listing trees to remain, trees to be removed and tree protection specifications for those trees that will remain.

¹ For the purpose of this project, a protected tree in Los Gatos as defined in the [Los Gatos Town Code, Division 2 Tree Protection, Section 29.10.0960, 12/3/2010 the Scope of Protected Trees](#) is any tree with a 4-inch or greater diameter of any trunk, when removal relates to any review for which zoning approval or subdivision approval is required. Town Street trees of any size are protected. Fruit trees less than 18 inches in trunk diameter are exempt.

² Fales property trees: see page 10.



TABLE 1 TREE SPECIES COMPOSITION

This Table (continued on the next page) lists each tree species by common name with the species name to follow.

Common Name	Species	No. of Trees	% of Total Trees
Arizona cypress	<i>Cupressus arizonica</i>	11	11%
bigleaf maple	<i>Acer macrophyllum</i>	1	
black acacia	<i>Acacia melanoxylon</i>	1	
black locust	<i>Robinia pseudoacacia</i>	1	
black walnut	<i>Juglans californica</i> <i>hindsii</i>	3	
blue gum	<i>Eucalyptus globulus</i>	2	
Calif. fan palm	<i>Washingtonia filifera</i>	4	
Calif. pepper	<i>Schinus molle</i>	4	
camphor	<i>Cinnamomum</i> <i>camphora</i>	1	
chinaberry	<i>Melia azedarach</i>	1	
Chinese elm	<i>Ulmus parvifolia</i>	2	
coast live oak	<i>Quercus agrifolia</i>	36	37%
Crape myrtle	<i>Lagerstroemia hybrid</i>	1	
deodar cedar	<i>Cedrus deodara</i>	3	
fruitless mulberry	<i>Morus alba</i> 'Fruitless'	1	
glossy privet	<i>Ligustrum lucidum</i>	9	9%
green wattle	<i>Acacia dealbata</i>	4	
Hollywood juniper	<i>Juniperus chinensis</i> 'Torulosa'	2	

**Table 1. Tree Species Composition** (continued from the previous page)

Common Name	Species	No. of Trees	% of Total Trees
incense cedar	<i>Calocedrus decurrens</i>	3	
juniper	<i>Juniperus species</i>	1	
London plane	<i>Platanus x hispanica</i> (Syn. <i>P. x acerifolia</i>)	1	
Olive	<i>Olea europaea</i>	1	
pistache	<i>Pistacia chinensis</i>	1	
redwood	<i>Sequoia sempervirens</i>	2	
toyon	<i>Heteromeles arbutifolia</i>	1	
TOTAL:		98	

As you can see from the above Table, 3 tree species (**coast live oak**, **Arizona cypress** and **glossy privet**) make up 55% of the tree species on site, with coast live oak at an overwhelming 37 percent. All other species comprise 4% or less of the total species.

This site is well adapted to **coast live oak**, which is a valuable species in this area. Since there are already quite a few coast live oaks on the site, it makes sense to try to preserve those trees in good condition. Young coast live oaks transplant very well and even large trees can be transplanted with good care and after maintenance. Please note that existing coast live oaks should be managed in a **summer dry**³ landscape manner. Newly planted coast live oaks (along with other drought tolerant trees) will require irrigation during the dry months for the first 2 to 3 years after planting. After these trees are established however, they should also exist within a summer dry landscape environment.

Arizona cypress is a drought tolerant tree that does not require irrigation after establishment, but most of the cypress trees on this site have been allowed to develop into lanky, leaning, sprawling trees. They will probably not be suitable to retain if there will be development nearby.

Glossy leaf privet is not normally a highly desirable species; it is weedy and often an uninvited invader. These privets are tough however, and they can survive well with complete neglect and no irrigation. They also make good dense screens when planted close together. There are actually many more than the 9 glossy privet trees listed on the site, as many long hedge rows of trees (one hedge with more than 60 trunks) have been listed as a single tree, for practical purposes.

³ Terms **highlighted** at their first occurrence are explained in the Glossary beginning on page 30.



TABLE 2 SUMMARY TREE TABLE

Continued on the next page

Tree #	Common Name	Trunk Diam. @ 3 ft.	Preservation Suitability	Action	Reason
066	coast live oak	12	Fair/Good		
067	coast live oak	19	Poor		
069	coast live oak	21	Fair/Good		
070	coast live oak	18	Good		
071	coast live oak	24	Good		
072	coast live oak	27	Good		
073	coast live oak	14	Fair/Good		
074	coast live oak	15	Fair/Poor		
075	coast live oak	6,6	Fair/Good		
076	coast live oak	15	Fair/Good		
077	coast live oak	22	Fair/Good		
078	coast live oak	33	Fair/Good		
080	coast live oak	13	Good		
081	coast live oak	16	Fair/Good		
082	green wattle	8,9	Fair/Poor		
083	coast live oak	18	Fair/Good		
084	green wattle	16	Fair/Poor		
085	green wattle	6,6,6,6	Fair/Poor		
086	coast live oak	18	Fair/Good		
087	coast live oak	24	Good		
088	Arizona cypress	16	Fair/Poor		
089	coast live oak	6	Fair/Poor		
090	Arizona cypress	13	Fair/Poor		
092	Arizona cypress	12,5	Poor		

Tree #	Common Name	Trunk Diam. @ 3 ft.	Preservation Suitability	Action	Reason
093	coast live oak	14 (2)	Fair/Good		
094	Arizona cypress	9	Fair/Good		
095	Chinese elm	6	Fair/Good		
096	coast live oak	15	Fair/Good		
097	Calif. pepper	51 (4)	Unacceptable	Remove	Risk, Structure
098	London plane	15	Fair/Good		
099	Chinese elm	7,6,6	Fair/Poor		
100	pistache (fruiting)	8,10	Fair		
101	coast live oak	13	Fair/Good		
102	coast live oak	16 (2.5)	Fair		
103	coast live oak	33	Good		
104	coast live oak	19	Good		
105	coast live oak	20	Fair		
106	Calif. pepper	29	Fair/Good		
107	black acacia	6	Fair		
108	Calif. pepper	40	Fair		
109	coast live oak	20	Good		
110	toyon	10,8	Fair/Good		
118	incense cedar	25	Fair/Poor		
119	fruitless mulberry	9 (4)	Fair		
120	glossy privet	13	Fair		
121	glossy privet	10	Fair		
122	incense cedar	23	Good		



Table 2 Summary Tree Table (continued from the previous page)

Tree #	Common Name	Trunk Diam. @ 3 ft.	Preservation Suitability	Action	Reason
123	coast live oak	15	Good		
124	glossy privet	18*3-5	Fair/Poor		
125	glossy privet	12,8,5*4	Fair/Poor		
126	glossy privet	4,6,4*3,2	Fair/Poor		
127	olive	18 (2.5)	Fair/Poor		
128	green wattle	7,6,6,4,4	Fair		
129	redwood	28	Fair/Poor		
130	coast live oak	16	Good/Excellent		
131	Calif. fan palm	19	Good		
132	Calif. fan palm	23	Good		
133	camphor	33	Fair/Poor		
134	deodar cedar	26	Fair		
135	black locust	23	Poor		
136	coast live oak	15	Fair/Good		
137	Calif. fan palm	13	Fair		
138	Calif. fan palm	23	Good		
139	chinaberry	19	Fair/Good		
140	black walnut	19	Poor		
142	black walnut	26	Poor		
143	coast live oak	10	Fair/Good		
144	Arizona cypress	9	Fair/Poor		
145	Arizona cypress	8	Fair/Poor		
146	Arizona cypress	12	Fair		
147	Arizona cypress	8	Fair/Poor		
148	Arizona cypress	4	Fair/Poor		
149	Arizona cypress	7,6	Fair/Poor		

Tree #	Common Name	Trunk Diam. @ 3 ft.	Preservation Suitability	Action	Reason
150	Arizona cypress	6	Fair		
151	deodar cedar	37	Fair		
152	deodar cedar	19	Fair/Good		
153	coast live oak	13,6	Fair/Good		
180	blue gum	13	Poor		
181	blue gum	9,9,8	Fair/Poor		
182	coast live oak	18	Good		
183	glossy privet	60*1-8	Fair/Poor		
184	juniper	10	Fair		
185	glossy privet	4,4,4,3,3	Fair/Good		
186	glossy privet	9	Fair		
187	bignonia	19	Good		
188	Crape myrtle	8,6,4,3,3,4,5,4	Fair		
189	incense cedar	31	Good		
190	glossy privet	8,6,4	Fair/Poor		
191	coast live oak	8 (1.5)	Fair/Good		
192	coast live oak	5	Good		
193	Hollywood juniper	13	Fair/Poor		
194	Hollywood juniper	16	Fair/Poor		
195	coast live oak	18	Fair		
196	Black walnut	19	Fair/Poor		
197	Coast live oak	26	Fair/Good		
198	Calif. pepper	24	Good		



TABLE 3 TREES WITH EXCELLENT, GOOD OR FAIR/GOOD PRESERVATION SUITABILITY

Tree #	Common Name	Trunk Diam. @ 3 ft.	Preservation Suitability
066	coast live oak	12	Fair/Good
069	coast live oak	21	Fair/Good
070	coast live oak	18	Good
071	coast live oak	24	Good
072	coast live oak	27	Good
073	coast live oak	14	Fair/Good
075	coast live oak	6,6	Fair/Good
076	coast live oak	15	Fair/Good
077	coast live oak	22	Fair/Good
078	coast live oak	33	Fair/Good
080	coast live oak	13	Good
081	coast live oak	16	Fair/Good
083	coast live oak	18	Fair/Good
086	coast live oak	18	Fair/Good
087	coast live oak	24	Good
093	coast live oak	14 (2)	Fair/Good
094	Arizona cypress	9	Fair/Good
095	Chinese elm	6	Fair/Good
096	coast live oak	15	Fair/Good
098	London plane	15	Fair/Good
101	coast live oak	13	Fair/Good
103	coast live oak	33	Good
104	coast live oak	19	Good

Tree #	Common Name	Trunk Diam. @ 3 ft.	Preservation Suitability
106	Calif. pepper	29	Fair/Good
109	coast live oak	20	Good
110	toyon	10,8	Fair/Good
122	incense cedar	23	Good
123	coast live oak	15	Good
130	coast live oak	16	Good/Excellent
131	Calif. fan palm	19	Good
132	Calif. fan palm	23	Good
136	coast live oak	15	Fair/Good
138	Calif. fan palm	23	Good
139	chinaberry	19	Fair/Good
143	coast live oak	10	Fair/Good
152	deodar cedar	19	Fair/Good
153	coast live oak	13,6	Fair/Good
182	coast live oak	18	Good
185	glossy privet	4,4,4,3,3	Fair/Good
187	bignonia maple	19	Good
189	incense cedar	31	Good
191	coast live oak	8 (1.5)	Fair/Good
192	coast live oak	5	Good
197	coast live oak	26	Fair/Good
198	Calif. pepper	24	Good

45 Trees



TABLE 4 TREES WITH FAIR PRESERVATION SUITABILITY

Tree #	Common Name	Trunk Diam. @ 3 ft.
100	pistache (fruiting)	8,10
102	coast live oak	16 (2.5)
105	coast live oak	20
107	black acacia	6
108	Calif. pepper	40
119	fruitless mulberry	9 (4)
120	glossy privet	13
121	glossy privet	10
128	green wattle	7,6,6,4,4
134	deodar cedar	26
137	Calif. fan palm	13
146	Arizona cypress	12
150	Arizona cypress	6
151	deodar cedar	37
184	juniper	10
186	glossy privet	9
188	Crape myrtle	8,6,4,3,3,4,5,4
195	coast live oak	18

18 Trees



TABLE 5 TREES WITH UNACCEPTABLE, POOR OR FAIR/POOR PRESERVATION SUITABILITY

Tree #	Common Name	Trunk Diam. @ 3 ft.	Preservation Suitability	Action	Reason
067	coast live oak	19	Poor		
074	coast live oak	15	Fair/Poor		
082	green wattle	8,9	Fair/Poor		
084	green wattle	16	Fair/Poor		
085	green wattle	6,6,6,6	Fair/Poor		
088	Arizona cypress	16	Fair/Poor		
089	coast live oak	6	Fair/Poor		
090	Arizona cypress	13	Fair/Poor		
092	Arizona cypress	12,5	Poor		
097	Calif. pepper	51 (4)	Unacceptable	Remove	Risk, Structure
099	Chinese elm	7,6,6	Fair/Poor		
118	incense cedar	25	Fair/Poor		
124	glossy privet	18*3-5	Fair/Poor		
125	glossy privet	12,8,5*4	Fair/Poor		
126	glossy privet	4,6,4*3,2	Fair/Poor		
127	olive	18 (2.5)	Fair/Poor		
129	redwood	28	Fair/Poor		
133	camphor	33	Fair/Poor		
135	black locust	23	Poor		

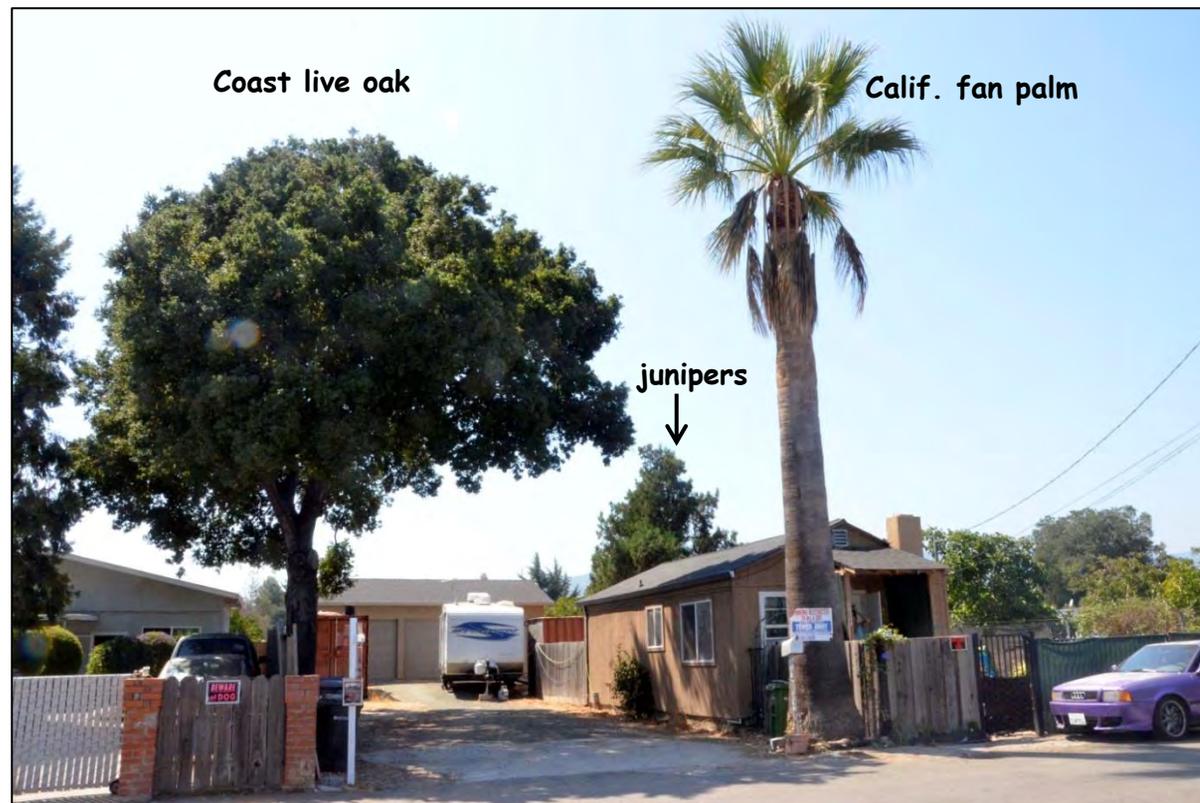
Tree #	Common Name	Trunk Diam. @ 3 ft.	Preservation Suitability	Action	Reason
140	black walnut	19	Poor		
142	black walnut	26	Poor		
144	Arizona cypress	9	Fair/Poor		
145	Arizona cypress	8	Fair/Poor		
147	Arizona cypress	8	Fair/Poor		
148	Arizona cypress	4	Fair/Poor		
149	Arizona cypress	7,6	Fair/Poor		
180	blue gum	13	Poor		
181	blue gum	9,9,8	Fair/Poor		
183	glossy privet	60*1-8	Fair/Poor		
190	glossy privet	8,6,4	Fair/Poor		
193	Hollywood juniper	13	Fair/Poor		
194	Hollywood juniper	16	Fair/Poor		
196	black walnut	19	Fair/Poor		

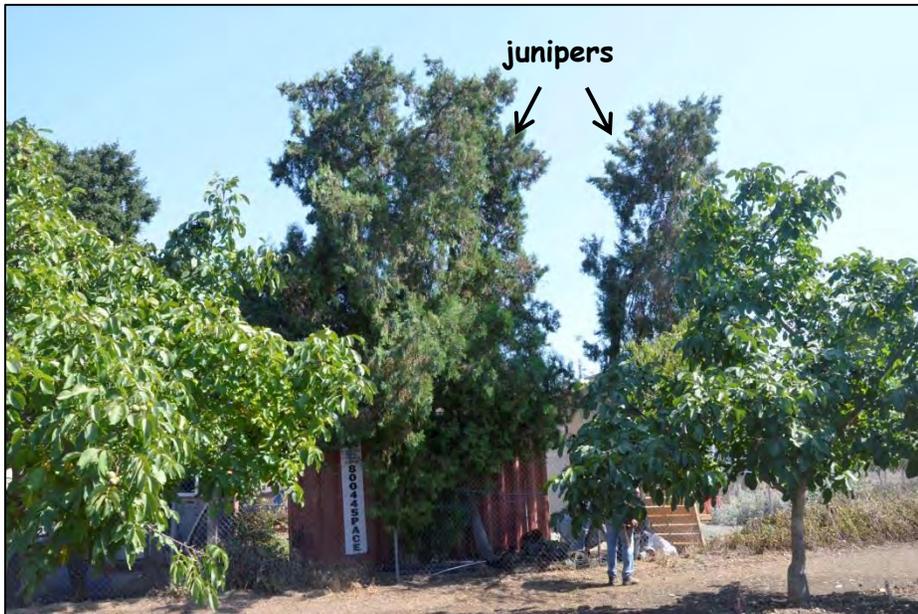
33 Trees



TREES ON THE FALES PROPERTY

We were instructed by the developer not enter the Fales property in order to evaluate the trees there, but instead to view any trees from outside the property. The photos below and on the next page show the trees on this property, viewed from the street and orchard. These four trees are not included in any of the previous tree tables. One **coast live oak**, one **California fan palm** and two large **junipers** inhabit the property. The oak seems to have Fair/Good preservation suitability, the California fan palm is "Good" and the junipers are "Fair/Poor". I should verify the condition of these trees with a closer inspection from the Fales property, however.





Fales property trees viewed from the orchard to the southwest

Upper photo: the two **juniper trees**. Foreground trees in the orchard are walnuts.

Lower photo: the **coast live oak** and **California fan palm**. Foreground tree is also an orchard walnut.



Calif. fan palm

Coast live oak



RECOMMENDATIONS

1. **Remove California pepper tree #97 ASAP.** It poses high risk to occupants and visitors of the adjacent house.
2. **Remove all trees listed as having “Unacceptable” or “Poor” preservation suitability.** In most instances, trees with “Fair/Poor” preservation suitability should be removed as well. These trees are listed in Table 5 on page 8.
3. **Try to save as many trees with “Fair/Good”, “Good”, and “Good/Excellent” preservation suitability.** These trees are listed in Table 3 on page 7
4. **Trees with “Fair” preservation suitability** are debatable as to whether it is worthwhile to save or remove them. These trees are listed in Table 4 on page 7.
5. **In general, try to keep improvements (and any additional over-excavation or work area beyond the improvement) as far from tree trunks as possible.** 3xDBH⁴ should be considered the absolute minimum distance from any disturbance to the tree trunk on one side of the trunk, for root protection. If there will be disturbances on multiple sides of the trunk, then 5xDBH or greater should be used. Tree canopies must also be taken into consideration when designing around trees.
6. **The developer should continue to work with me as they develop your construction plans.** I should review all site-based plans in order to estimate the impact of construction on those trees that are proposed to be saved, and to help make the final decision as to which trees can actually be saved, and those trees which should be removed. I can also help the architects to modify design and construction so that construction damage to trees can be reduced.
7. **For those trees that will be retained on the site, the Los Gatos General Tree Protection Directions** and possibly also some Supplemental Tree Protection Directions will be included in my Final Arborist Report for this project.

⁴ 3xDBH: See page 25 for an explanation of 3 and 5xDBH, which are used to calculate root protection distances for trees.



APPENDIX

TABLE 6 COMPLETE TREE TABLE

This Table is continued through page 20. Data fields in the Table are explained on pages 20 to 23.

Tree #	Common Name	Trunk Diam. @ 3 ft.	Size	CONDITION		Preservation Suitability	Notes	TREE ROOT PROTECTION DISTANCES		
				Vigor	Structure			OTPZ	5xDBH	3xDBH
066	coast live oak	12	25*18	90	60	Fair/Good	Leans toward light.	6	5	3
067	coast live oak	19	25*10	90	20	Poor	Topped at 20 feet and a mass of epicormic sprouts.	9	8	5
068	GONE Italian stone pine	40	40*60	90	50	Fair/Good	9/2013 update: tree fell over at the roots and has been removed.	36	15	9
069	coast live oak	21	40*25	75	50	Fair/Good	Somewhat off-color foliage. May be on neighboring commercial property. Also has a tag #39 from another tree survey.	15	9	5
070	coast live oak	18	35*30	90	80	Good		9	7	4
071	coast live oak	24	45*45	85	60	Good	Co-dominant 24 & 26 inch trunks at 4.5 feet with a pocket between trunks.	24	10	6
072	coast live oak	27	40*40	80	75	Good		20	11	7
073	coast live oak	14	35*25	80	60	Fair/Good	Trunk obstructed from view. Multiple attachments of scaffold branches.	7	6	3
074	coast live oak	15	30*25	90	40	Fair/Poor	Trunk obstructed from view. Co-dominant scaffold failure wound covers half the trunk circumference and the canopy is not asymmetric due to this loss -- but the tree may outgrow this eventually.	7	6	4



Tree #	Common Name	Trunk Diam. @ 3 ft.	Size	CONDITION		Preservation Suitability	Notes	TREE ROOT PROTECTION DISTANCES		
				Vigor	Structure			OTZ	5xDBH	3xDBH
075	coast live oak	6,6	20*18	90	50	Fair/Good		4	4	2
076	coast live oak	15	30*20	90	50	Fair/Good	Asymmetric canopy due to past branch failure.	7	6	4
077	coast live oak	22	35*30	85	50	Fair/Good	Co-dominant trunk with included bark .	16	9	5
078	coast live oak	33	40*40	80	50	Fair/Good	Multiple attachments of trunks/scaffolds at 6 feet. Recent 6-inch branch failure (9/2013)	33	14	8
079	GONE glossy privet	8	16*15	90	50	Fair		4	3	2
080	coast live oak	13	25*20	90	60	Good		6	5	3
081	coast live oak	16	30*30	60	70	Fair/Good		8	6	4
082	green wattle	8,9	25*18	80	50	Fair/Poor		6	3	2
083	coast live oak	18	35*30	80	50	Fair/Good		9	7	4
084	green wattle	16	50*30	60	50	Fair/Poor		16	6	4
085	green wattle	6,6,6,6	30*30	50	50	Fair/Poor	Heavy exudation from trunk; may have borers .	12	7	4
086	coast live oak	18	35*30	90	50	Fair/Good	The majority of the trunk and branches of this tree are covered with ivy, so the trunk diameter and structure was estimated.	9	7	4
087	coast live oak	24	30*35	100	70	Good		18	10	6
088	Arizona cypress	16	40*20	80	50	Fair/Poor		16	6	4



Tree #	Common Name	Trunk Diam. @ 3 ft.	Size	CONDITION		Preservation Suitability	Notes	TREE ROOT PROTECTION DISTANCES		
				Vigor	Structure			OTPZ	5xDBH	3xDBH
089	coast live oak	6	18*15	70	40	Fair/Poor	Suppressed understory tree with a pronounced sweep. The trunk is 18 inches from the trunk of adjacent tree #88.	3	2	1
090	Arizona cypress	13	45*18	70	40	Fair/Poor	Leans on tree #88, but also constitutes a grove with this tree.	13	5	3
094	GONE Arizona cypress	42	40*13	60	20	Poor		9	5	3
092	Arizona cypress	12,5	45*18	70	40	Poor	Severe lean.	11	6	4
093	coast live oak	14 (2)	25*30	65	50	Fair/Good		7	6	3
094	Arizona cypress	9	20*15	80	80	Fair/Good	Good screen tree.	6	4	2
095	Chinese elm	6	16*20	80	75	Fair/Good		4	2	1
096	coast live oak	15	30*25	80	70	Fair/Good		7	6	4
097	Calif. pepper	51 (4)	35*50	90	20	Unacceptable	REMOVE TREE ASAP. This is a beautiful large pepper tree, but there are wood decay fungus fruiting bodies popping out all over the lower trunk. This means that there is extensive trunk decay. 9/11/13 update: a huge scaffold branch recently failed out of tree. This tree poses a great risk to occupants of the nearby house.	76	21	13
098	London plane	15	40*25	70	70	Fair/Good		7	6	4
099	Chinese elm	7,6,6	28*25	70	30	Fair/Poor		9	5	3
100	Chinese pistache	8,10	20*20	70	60	Fair	Female tree with heavy fruiting.	14	6	3



Tree #	Common Name	Trunk Diam. @ 3 ft.	Size	CONDITION		Preservation Suitability	Notes	TREE ROOT PROTECTION DISTANCES		
				Vigor	Structure			OTPZ	5xDBH	3xDBH
101	coast live oak	13	30*25	80	50	Fair/Good	Co-dominant scaffolds with included bark.	6	5	3
102	coast live oak	16 (2.5)	28*25	80	45	Fair	Co-dominant scaffolds and a flat, fan-shaped canopy. 2013 update: a recent 8-inch diameter scaffold branch failure.	8	6	4
103	coast live oak	33	45*60	90	70	Good		24	14	8
104	coast live oak	19	40*35	85	60	Good		9	8	5
105	coast live oak	20	35*30	50	50	Fair	Many bleached leaves on west side of tree probably a minor wet-weather foliar fungal disease. 9/12/13 update: Large California pepper tree #154 to North removed.	10	8	5
106	Calif. pepper	29	35*40	80	60	Fair/Good		36	12	7
107	black acacia	6	30*12	80	80	Fair		3	2	1
108	Calif. pepper	40	30*30	80	50	Fair	Trunk obstructed from view.	59	16	10
109	coast live oak	20	28*35	80	70	Good	A small portion of a chain link fence is embedded in the trunk -- this should be cut around the tree and not ripped out of the tree.	10	8	5
110	toyon	10,8	18*20	80	60	Fair/Good		14	6	3
118	incense cedar	25	40*25	70	40	Fair/Poor		25	10	6
119	fruitless mulberry	9 (4)	18*18	80	60	Fair		5	4	2
120	glossy privet	13	30*20	80	60	Fair		6	5	3
121	glossy privet	10	25*16	80	60	Fair		5	4	2
122	incense cedar	23	45*20	80	70	Good		23	9	6



Tree #	Common Name	Trunk Diam. @ 3 ft.	Size	CONDITION		Preservation Suitability	Notes	TREE ROOT PROTECTION DISTANCES		
				Vigor	Structure			OTZ	5xDBH	3xDBH
123	coast live oak	15	22*22	90	75	Good		7	6	4
124	glossy privet	18*3-5	25*25	75	50	Fair/Poor	Stump sprout grove.	3	2	1
125	glossy privet	12,8,5*4	25*20	75	50	Fair/Poor	Stump sprout grove.	9	5	3
126	glossy privet	4,6,4*3,2	25*18	50	40	Fair/Poor	Stump sprout grove.	3	2	1
127	olive	18 (2.5)	25*18	60	40	Fair/Poor	crowded	13	7	4
128	green wattle	7,6,6,4,4	35*25	85	50	Fair	stump sprout	12	7	4
129	redwood	28	38*18	50	50	Fair/Poor		21	12	7
130	coast live oak	16	22*30	100	80	Good/Excellent		8	6	4
131	Calif. fan palm	19	30*9	70	80	Good	20 feet clear trunk.	9	8	5
132	Calif. fan palm	23	25*10	70	60	Good	18 feet clear trunk. Large gash in west side of trunk probably of minor concern.	11	9	6
133	camphor	33	30*30	70	50	Fair/Poor	The trunks of this tree also include an old trunk stump with decay. There is also some other decay within this tree.	33	14	8
134	deodar cedar	26	45*45	80	50	Fair	Lost its leader in the past.	19	11	6
135	black locust	23	50*30	50	40	Poor	Lots of dead branches and branch failures.	23	9	6
136	coast live oak	15	14*18	90	60	Fair/Good		7	6	4
137	Calif. fan palm	13	10*6	80	60	Fair	The trunk of this palm is bent because it is growing underneath adjacent oak #136. The palm has above 5.5 feet of clear trunk.	6	5	3
138	Calif. fan palm	23	40*12	80	80	Good	30 feet of clear trunk.	11	9	6



Tree #	Common Name	Trunk Diam. @ 3 ft.	Size	CONDITION		Preservation Suitability	Notes	TREE ROOT PROTECTION DISTANCES		
				Vigor	Structure			OTZ	5xDBH	3xDBH
139	chinaberry	19	25*20	100	60	Fair/Good		14	8	5
140	black walnut	19	28*18	90	40	Poor	Topped	23	8	5
141	GONE Monterey pine	20	60*30	75	60	Fair		3	2	4
142	black walnut	26	40*30	40	40	Poor	Lots of dead branches.	38	11	6
143	coast live oak	10	18*22	100	60	Fair/Good	The lower 5 feet of trunk are growing through the fence at the property line, and so I cannot see this portion of the trunk. The base of the trunk of this tree is located on adjacent, non-project property but the majority of the canopy overhangs the project site.	5	4	2
144	Arizona cypress	9	22*15	60	60	Fair/Poor		6	4	2
145	Arizona cypress	8	30*12	60	50	Fair/Poor		6	3	2
146	Arizona cypress	12	38*22	80	60	Fair		12	5	3
147	Arizona cypress	8	25*18	80	50	Fair/Poor		6	3	2
148	Arizona cypress	4	25*15	50	50	Fair/Poor		3	2	1
149	Arizona cypress	7,6	28*15	60	40	Fair/Poor		7	4	2
150	Arizona cypress	6	28*15	60	50	Fair		4	2	1



Tree #	Common Name	Trunk Diam. @ 3 ft.	Size	CONDITION		Preservation Suitability	Notes	TREE ROOT PROTECTION DISTANCES		
				Vigor	Structure			OTZ	5xDBH	3xDBH
151	deodar cedar	37	45*60	80	50	Fair	A long, low, heavy scaffold turns into an upright vigorous vertical branch to the North. There are other upturning branches as well. This tree also has triple leaders that are large in diameter. All in all it is a sprawling tree.	37	15	9
152	deodar cedar	19	40*25	90	50	Fair/Good	Several vigorous vertical branches but the overall structure of this tree could be significantly improved with some remedial pruning.	9	8	5
153	coast live oak	13,6	25*22	70	60	Fair/Good		9	8	5
154	GONE Calif. pepper	31	30*30	80	60	Fair/Good		38	13	8
180	blue gum	13	45*16	80	40	Poor		6	5	3
181	blue gum	9,9,8	45*22	90	50	Fair/Poor		9	7	4
182	coast live oak	18	40*25	90	70	Good	Trunk obstructed by vegetation.	18	7	4
183	glossy privet	60*1-8	25*40 hedge	75	50	Fair/Poor	Lots of past trunk heading cuts , but makes a good screen.	6	3	2
184	juniper	10	25*18	60	70	Fair		14	4	2
185	glossy privet	4,4,4,3,3	16*17	90	60	Fair/Good		8	4	3
186	glossy privet	9	12*10	70	60	Fair		6	4	2
187	bigleaf maple	19	38*40	80	75	Good		19	8	5
188	Crape myrtle	8,6,4,3,3,4,5,4	28*20	60	40	Fair		10	9	5
189	incense cedar	31	60*18	75	75	Good		38	13	8
190	glossy privet	8,6,4	20*12	90	40	Fair/Poor		9	5	3



Tree #	Common Name	Trunk Diam. @ 3 ft.	Size	CONDITION		Preservation Suitability	Notes	TREE ROOT PROTECTION DISTANCES		
				Vigor	Structure			OTPZ	5xDBH	3xDBH
191	coast live oak	8 (1.5)	16*16	80	50	Fair/Good		4	3	2
192	coast live oak	5	14*14	80	70	Good		3	2	1
193	Hollywood juniper	13	25*16	70	50	Fair/Poor		19	5	3
194	Hollywood juniper	16	22*20	60	50	Fair/Poor		23	6	4
195	coast live oak	18	25*35	65	60	Fair		13	7	4
196	Black walnut	19	25*30	60	60	Fair/Poor		23	8	5
197	Coast live oak	26	30*45	100	60	Fair/Good	Fill soil placed over root collar	19	11	6
198	Calif. pepper	24	35*30	85	75	Good				

EXPLANATION OF TREE TABLE DATA COLUMNS:

- Tree Number** (the field tag number of the existing tree). Each existing tree in the field is tagged with a 1.25 inch round aluminum number tag that corresponds to its tree number referenced in the arborist report, Tree Map, Tree Protection Specifications and any other project plans where existing trees must be shown and referenced.
- Tree Name and Type:**

Species: The *Genus* and *species* of each tree. This is the unique scientific name of the plant, for example *Quercus agrifolia* where *Quercus* is the Genus and *agrifolia* is the species. The scientific names of plants can be changed from time to time, but those used in this report are from the most



current edition of the Sunset Western Garden Book (2012) Sunset Publishing Corporation. The scientific name is presented at its first occurrence in the Tree Table, along with the regional common name. After that only the common name is used.

- 3) **Trunk diameter (at 3 feet above the ground).** This is the trunk diameter measurement height required by the Town of Los Gatos, in lieu of DBH⁵. For multi-trunk trees, trunk diameter is measured for the largest trunk and estimated for all smaller trunks. A number in parentheses (e.g. 2) after the trunk diameter(s) indicates that it was not possible to measure the trunk at 3 feet (due to tree architecture) and so the diameter was measured at this alternate height (in feet), which reflects a more realistic trunk diameter for the tree.

Examples: an "18" in the DBH Diameter column means that the tree has a diameter of 18 inches at 4.5 feet above the ground. An "18 (2)" means that trunk diameter was 18 inches at 2 feet above the ground. "18, 7, 5" means that this is a multi-trunk tree with trunk diameters of 18, 7 and 5 inches at 3 feet above the ground.

- 4) **Size:** tree size is listed as height x width in feet, estimated and approximate and intended for comparison purposes.

- 5) **Condition Ratings:** Trees are rated for their *condition* on a scale of *zero to 100* with zero being a dead tree and 100 being a perfect tree (which is rare – like a supermodel in human terms). A 60 is "average" (not great but not terrible either). There are two components to tree condition – **vigor** and **structure**, and each component is rated separately. Averaging the two components is not useful because a very low rating for either one could be a valid reason to remove a tree from a site -- even if the other component has a high rating. Numerically speaking for each separate component:

- **100** is equivalent to *Excellent* (an `A' academic grade), **80** is *Good* (B), **60** is *Fair* (C), **40** is *Poor* (D), **20** is *Unacceptable* (F) and **0** is *Dead*.

Relative to the scope of work for this report, tree condition has been rated but not explained in detail and recommendations for the management of tree condition have not been included. The tree owner may contact Deborah Ellis for additional information on tree condition and specific recommendations for the general care of individual trees relative to their condition.

The condition of the tree is considered relative to the tree species and present or future intended use of the site to provide an opinion on the tree's Preservation Suitability Rating (i.e. "Is this tree worth keeping on this site, in this location, as explained in Table 7 on the next page. This is based upon the scenario that the tree is given enough above and below-ground space to survive and live a long life on the site. Ratings such as "Fair/Good" and "Fair/Poor" are intermediate in nature. The Preservation Suitability rating is not always the same as the Condition Rating because (for example) some

⁵ DBH is tree trunk diameter in inches "at breast height", measured at 4.5 feet above ground level. This is the forestry and arboricultural standard measurement height that is also used in many tree-related calculations.



trees with poor condition or structure can be significantly improved with just a small amount of work – and it would be worthwhile to keep the tree if this were done.

Table 7 Preservation Suitability Rating Explanation

Excellent	Such trees are rare but they have unusually good health and structure and provide multiple functional and aesthetic benefits to the environment and the users of the site. These are great trees with a minimum rating of “Good” for both vigor and structure. Equivalent to academic grade ‘A’.
Good	These trees may have some minor to moderate structural or condition flaws that can be improved with treatment. They are not perfect but they are in relatively good condition and provide at least one significant functional or aesthetic benefit to the environment and the users of the site. These are better than average trees equivalent to academic grade ‘B’.
Fair	These trees have moderate or greater health and/or structural defects that it may or may not be possible to improve with treatment. These are “average” trees – not great but not so terrible that they absolutely should be removed. The majority of trees on most sites tend to fall into this category. These trees will require more intensive management and monitoring, and may also have shorter life spans than trees in the “Good” category. Retention of trees with moderate suitability for preservation depends upon the degree of proposed site changes. Equivalent to academic grade ‘C’.
Poor	These trees have significant structural defects or poor health that cannot be reasonably improved with treatment. These trees can be expected to decline regardless of management. The tree species themselves may have characteristics that are undesirable in landscape settings or may be unsuitable for high use areas. I do not recommend retention of trees with low suitability for preservation in areas where people or property will be present. Equivalent to academic grade ‘D’.
None	These trees are dead and are not suitable for retention in their location. In certain settings however, (such as wilderness areas, dead trees are beneficial as food and shelter for certain animals and plants including decomposers. Equivalent to academic grade ‘F’.

14. **Notes:** This may include any other information that would be helpful to the client and their architects and contractors within the scope of work for this report, such as a more detailed explanation of tree condition or expected construction impact. When reasonable, methods of reducing construction impact (including design changes) are presented here.



15. Tree Protection Distances (See page 25).

a. Root Protection:

- **3 and 5xDBH:** Both the 3 and 5xDBH distances are listed for each tree. For multi-trunk trees 100% of the DBH of the largest trunk is added to 50% of the DBH for all other trunks in order to compute the operational DBH to use for these the Tree Protection Distance calculations.
- **OTPZ (Optimum Tree Protection Zone):** This is calculated as per the text, *Trees & Development*, Matheny et al., International Society of Arboriculture, 1998. This method takes into account tree age and the particular tree species tolerance of root disturbance. Because it may not be possible to maintain the OPTZ distance recommended for trees on many projects due to crowded site conditions, the Arborist may omit this requirement and list only the 3 and 5xDBH distances.

- b. Canopy Protection: Additional space beyond root zone protection distances may be necessary for canopy protection.

SUPPORTING INFORMATION

PURPOSE & USE OF REPORT

This survey and report was required by the Town of Los Gatos as a part of the building permit process for this project. The purpose of the report is to identify and describe the existing protected trees on site - - their size, condition and suitability for preservation. The audience for this report is the property owner, developer, project architects and contractors, and Town of Los Gatos authorities concerned with tree preservation and tree removal. The goal of this report is to preserve the existing protected trees on site that are in acceptable condition, are good species for the area and will fit in well with the proposed new use of the site.

BACKGROUND INFORMATION

In 2011 I prepared the first arborist report for the North 40 property; that report is dated March 25, 2011. The first report included more of the North 40 site than this current report, although some additional residential properties have been added to the current work area. The 2011 report described 179 trees (**trees #1 through #179**). This current report includes many of those original 179 trees although it omits **trees #1 - 65, 111 - 117 and 155 - 179**. All of the trees that were previously surveyed were re-measured and their condition re-assessed on September 12, 2013, therefore all tree data presented in this report is current to that date. This report has also added 16 additional trees #180 - 195. Some of these trees are on residential properties that were not included in the previous survey. Other trees are trees that were less than protected size at the time of the 2011 survey but have since "sized up" to protected tree status. Five of the original trees inventoried for the 2011 report have been removed; these are **trees #68 Italian stone pine, #79 glossy privet, #91 Arizona cypress, #141 Monterey pine and #154 California pepper tree**.



METHODOLOGY

I performed a **basic evaluation** of the subject trees on September 12, and October 14, 2013. Tree characteristics such as form, weight distribution, foliage color and density, wounds and indicators of decay were noted. Surrounding site conditions were also observed. Evaluation procedures were taken from:

- *Guide for Plant Appraisal*, 9th edition, 2000, authored by the Council of Tree and Landscape Appraisers (CTLA) and published by the International Society of Arboriculture (ISA).
- *Species Classification and Group Assignment* published by the Western Chapter of the International Society of Arboriculture (WCISA), 1992.
- *Tree Hazard Evaluation Form* taken from *Evaluation of Hazard Trees in Urban Areas*, 2nd Ed., Matheny & Clark, International Society of Arboriculture, 1994.

The above three references serve as industry professional standards for tree and landscape evaluations.

I measured the trunk diameter of each tree with a diameter tape at 3 feet above the ground, which is the required trunk diameter measurement height of the Town of Los Gatos. Trunk diameter was extrapolated to *DBH* (diameter at breast height, 4.5 feet above the ground) because *DBH* is also used calculate tree protection distances and other tree-related factors. The *DBH* figure is not included in the Tree Tables, but I have used it to estimate construction impacts to trees. Trunk diameter was rounded to the nearest inch. I estimated the tree's height and canopy spread. Tree *Condition* (structure and vigor) was evaluated and I also recorded additional notes for trees when significant. Tree species and condition considered in combination with the current or (if applicable) proposed use of the site yields the *Tree Preservation Suitability* rating.

OBSERVATIONS

SITE CONDITIONS

The current proposed project area of the North 40 site includes a portion of an operating walnut orchard as well as adjacent single-family residence lots. The homes are primarily small, old and many of them are not well maintained. Landscaping around these homes is mostly sparse, receives a low level of maintenance and is often not irrigated. Site topography is mainly level. Sun exposure for the trees varies from full to partly shaded, depending upon proximity to existing buildings and to other trees. Some trees grow in quite crowded conditions relative to structures and to other trees.



TREE PROTECTION DISTANCES

3 TO 5 X DBH

No one can estimate and predict with absolute certainty how far a soil disturbance such as an excavation must be from the edge of the trunk of an individual tree to affect tree stability or health at a low, moderate or severe degree -- there are simply too many variables involved that we cannot see or anticipate. 3xDBH however, is a reasonable "rule of thumb" minimum distance (in feet) any excavation should be from the edge of the trunk *on one side of the trunk*. This is supported by several separate research studies including (Smiley, Fraedrich, & Hendrickson 2002, Bartlett Tree Research Laboratories. *DBH* is trunk "diameter at breast height" (4.5 feet above the ground). This distance is often used during the design and planning phases of a construction project in order to estimate root damage to a tree due to the proposed construction. It tends to correlate reasonably well with the *zone of rapid taper*, which is the area in which the large *buttress roots* (main support roots close to the trunk) rapidly decrease in diameter with increasing distance from the trunk. For example, using the 3X DBH guideline an excavation should be no closer than 4.5 feet from the trunk of an 18-inch DBH tree. Such distances are guidelines only, and should be increased for trees with heavy canopies, significant leans, decay, structural problems, etc. It is also important to understand that in actual field conditions we often find that much less root damage occurs than was anticipated by the guidelines. 3xDBH may be more of an aid in preserving tree stability and not necessarily long-term tree health. 5X DBH or greater is the "preferred" minimum distance which should be strived for, and this distance or greater should probably be used when there are multiple trenches on more than one side of the trunk. The roots beyond the zone of rapid taper form an extensive network of long, rope-like roots one to two inches in diameter. These woody perennial roots are referred to as *transport roots* because they function primarily to transport water and minerals. Maintaining a 5xDBH tree protection zone or greater around a tree will preserve more of these transport roots, which will have less of an impact on tree health than if the excavation were closer to the trunk.

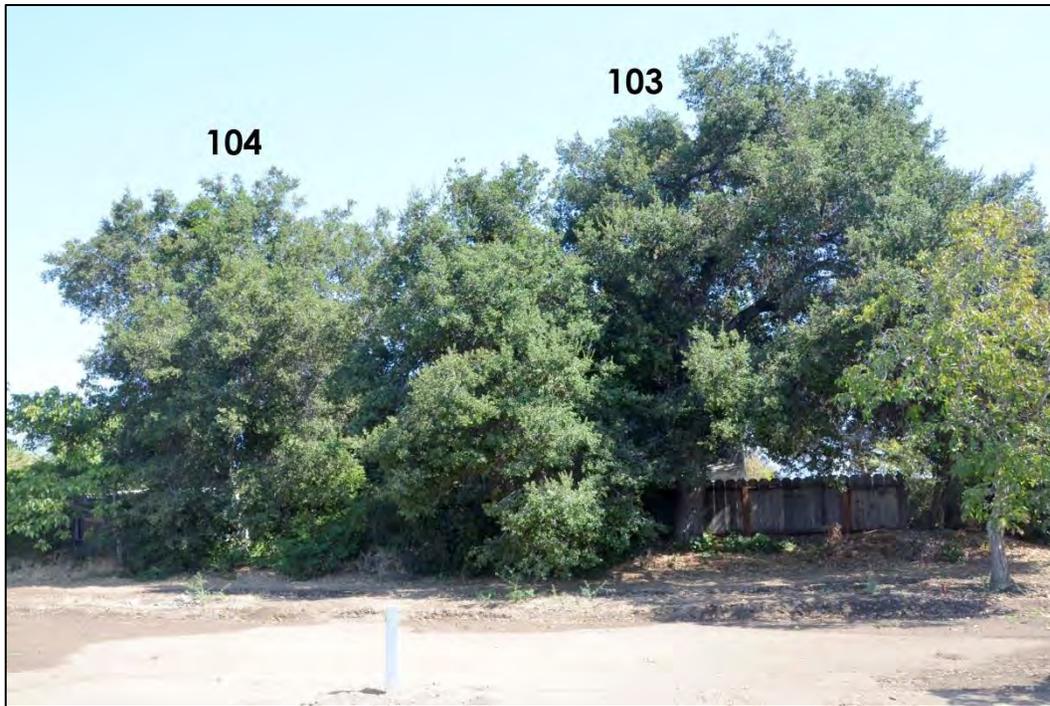
OTPZ (OPTIMUM TREE PROTECTION ZONE)

OTPZ is the distance in feet from the trunk of the tree, all around the tree, that construction or other disturbance should not encroach within. If this zone is respected, then chances of the tree surviving construction disturbance are very good. This method takes into account tree age, DBH and the particular species tolerance to root disturbance. Although there are no scientifically based methods to determine the minimum distance for construction (for example, root severance) from trees to assure their survival and stability, there are some guidelines that are often used in the arboricultural industry. The most current guideline comes from the text, Trees & Development, Matheny et al., International Society of Arboriculture, 1998. The tree protection zone calculation method in this text was used to obtain the OTPZ's provided in this report. Due to the crowded, constrained nature of many building sites it is often not possible to maintain the OPTZ distance recommended for many of the trees -- therefore I have also listed alternate distances of 3 and 5X DBH (*see paragraph above*).

TREE PHOTOS



California pepper tree #97 should be removed ASAP. This tree is infected with a wood decay fungus and the fungal fruiting bodies are popping out all over the trunk. I recommended that this tree be removed in my 2011 report because it posed high risk to the residents of the house. Since then it has dropped a very large branch (at least 18 inches in diameter). Looking into the wound caused by this branch failure I can see that the trunk of the tree is hollow.



Upper photo: **coast live oaks #103 and 104**, large trees with 19 and 33 inch trunk diameters. Both trees have "Good" preservation suitability.

Lower photo: **incense cedar #189**, another large tree with a trunk diameter of 31 inches. This tree also has "Good" preservation suitability.





ASSUMPTIONS & LIMITATIONS

I, Deborah Ellis, the author of this report state the following:

- 1) **Tree locations** were provided by Mackay & Somps Civil Engineers, and are shown on the Tree Map on page 1 of this report. The tree map is a reduced partial copy of their Tree Topo Plan dated December 4, 2012.
- 2) **Some of the trees described in this report were not included on the Tree Topo Plan** and so we tentatively plotted the approximate locations of these trees on the Tree Map, and have provided a copy of the Tree Topo Plan, which we marked up in the field, to Mackay & Somps. Together we are working to coordinate all tree locations on the Tree Topo Plan.
- 3) **Trees on neighboring properties were not evaluated.** They were only viewed cursorily from the project site. I did not enter the neighboring property to inspect these trees up close.
- 4) **Trees on Fales property were not evaluated.** They were only viewed cursorily from the project site. I did not enter the Fales property to inspect these trees up close.
- 5) **Several trees had their root collars and or lower trunks covered** with soil, vegetation or debris and were obstructed from view when I conducted my tree evaluation. The obstructions should be removed and the project arborist should then be called back to re-examine these previously covered areas.
- 6) **This report has been prepared in conformity with generally acceptable appraisal/diagnostic/reporting methods and procedures** and is consistent with practices recommended by the International Society of Arboriculture and the American Society of Consulting Arborists.
- 7) **My evaluation of the trees that are the subject of this report is limited to visual examination of accessible items without dissection, excavation, probing or coring.** There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the plants or property in question may not arise in the future.
- 8) **I take no responsibility for any defects in any tree's structure.** No tree described in this report has been climbed and examined from above the ground, and as such, structural defects that could only have been discovered have not been reported, unless otherwise stated. Structural defects may also be hidden within a tree, in any portion of a tree.
- 9) **The measures noted within this report are designed to assist in the protection and preservation of the trees mentioned herein,** should some or all of those trees remain, and to help in their short and long term health and longevity. This is not however; a guarantee that any of these trees may not suddenly or eventually decline, fail, or die, for whatever reason. Because a significant portion of a tree's roots are usually far beyond its dripline, even trees that are well protected during construction often decline, fail or die. Because there may be hidden defects within the root system, trunk or branches of trees, it is possible that trees with no obvious defects can be subject to failure without warning. The current state of arboricultural science does not guarantee the accurate detection and prediction of tree defects and the risks associated with trees. There will always be some level of risk associated with trees, particularly large trees. It is impossible to guarantee the safety of any tree. Trees are unpredictable.

Deborah Ellis, MS

Consulting Arborist & Horticulturist



Service since 1984

I certify that the information contained in this report is correct to the best of my knowledge, and that this report was prepared in good faith. Thank you for the opportunity to provide service again. Please call me if you have questions or if I can be of further assistance.

Sincerely,

A handwritten signature in blue ink that reads "Deborah Ellis".

Deborah Ellis, MS.

Consulting Arborist & Horticulturist

Certified Professional Horticulturist #30022

ASCA Registered Consulting Arborist #305

I.S.A. Board Certified Master Arborist WE-457B



GLOSSARY

- 1) **Basic Evaluation of Trees:** A visual evaluation of the tree from the ground, without climbing into the tree or performing detailed tests such as extensive digging, boring or removing samples. This is an initial screening of the tree after which the evaluator may recommend that additional, more detailed examination(s) be performed.
- 2) **Borers** are beetle insects that tend to attack trees that have been weakened from some sort of stress or injury, particularly drought stress or root damage. The borers are usually a secondary problem, not the primary or main problem, but they serve to “finish off” the weak tree, functioning as scavengers
- 3) **Clear trunk** height (of palms): is measured from the soil level (base of the trunk) to the base of the live fronds. This is the height that is normally used when measuring, appraising, purchasing and describing palms. “Overall Height” is the height of the base of the trunk to the height of the uppermost point of the highest frond.
- 4) **Co-dominant** refers to two leaders, branches or trunks that arise at the same point on a tree and are about the same diameter. This is an undesirable structural defect that is a weak point in the tree. Co-dominant stems typically lack the overlapping tissue present in a branch or trunk collar, which may be why trees with this defect split so easily. Included bark between members also reduces the strength of the union. It is best that branches or trunks originate with space between them, or if they arise at the same point that they be of different sizes. Co-dominant leaders can often be corrected (one leader removed) when trees are young. When trees are older it is often better to subdue the smaller or more undesirable member by reducing the length of and/or thinning the terminal half of the foliage by 25% to slow its growth and ultimate size relative to the other member, rather than create a large wound by removing one of the members. Large wounds are much more subject to decay than are smaller wounds and there is no natural decay barrier between the members.
- 5) **Dripline:** the area under the total branch spread of the tree, all around the tree. Although tree roots may extend out 2 to 3 times the radius of the dripline, a great concentration of active roots is often in the soil directly beneath this area. The dripline is often used as an arbitrary “tree protection zone”.
- 6) **Grove:** is a group of trees that located close together that shelter each other from wind and the elements, having “knit” canopies. If of the same species, there is usually root grafting between trees, which lends support from the ground, as well as water and mineral sharing. Removal of one or some grove members could cause remaining members to be unstable due to a reduction of previous shelter. Grove trees often have asymmetrical canopies when viewed as individuals.
- 7) **Heading cuts:** cutting a shoot back to a bud, or cutting branches back to buds, stubs or lateral branches not large enough to assume the apical dominance (at least 1/3 the diameter of the branch portion being cut off); or cutting an older branch or stem back to a stub in order to meet a structural objective. Also called stub cuts. When heading cuts are made across most or the entire top of a tree canopy, it is called topping.
- 8) **Included bark** is bark sandwiched between adjacent branches, a branch and the trunk, or two or more trunks, often appearing as a seam. In contrast, a normal attachment will have a ridge of bark protruding upwards and a continuous wood connection between adjacent members. An included bark branch or trunk attachment is weaker than a normal attachment. As branches or trunks with included bark grow, they expand in diameter, squeezing the bark along the seam. This may kill some portion of the included bark. When this occurs, a wound response is initiated. As a consequence, cracks can be generated, leading to breakage. Such defects can often be completely removed when a tree is young (e.g. the offending members equal or less than 2 inches in diameter). Older, larger cuts (such as 6 inches in diameter or more) could cause decay to



spread into the remaining member, which is undesirable. In these cases it may be best to thin one member (usually the smaller member) by 25% to slow its growth and ultimate size.

- 9) **Leader:** the primary terminal shoot or trunk of a tree.
- 10) **Multiple trunks (leaders) or branch attachments** are a common structural defect in many tree species such as ash and flowering pear. In this condition, more than one branch or trunk originates at the same point. These attachments are not as strong as well-spaced branches or trunks, particularly if included bark between them that prevents a solid wood connection.
- 11) **Pocket:** a depression or hole, usually between trunks or branches. Pockets often result from the death or removal of a previous trunk or branch in this area. There may be associated decay. Installing pipes and/or drilling holes to drain these areas is no longer recommended, although it is a good idea to remove debris from time to time.
- 12) **Scaffold branch:** a primary structural branch arising from the trunk of a tree. Usually the largest and often the lowest branches of the tree.
- 13) **Stump sprout trees** are the result of a tree trunk being cut down to a short stump close to the ground. If the tree survives, it sends out many small shoots (suckers) from around the cut stump. Some of these suckers may survive and grow to become significant trunks. These trunks are spaced very close together and usually have included bark between them, which reduces the strength of their union. Such trunks are prone to failure. Stump sprout trees can be very structurally unsound, particularly as they become large and old. There is often a great deal of decay associated with the mother stump, which can also reduce mechanical stability.
- 14) **Summer Dry:** Our native oak species are adapted to our “summer dry” climate. When the soil in their root system is kept moist during our normally dry months, these oaks are predisposed to attack by fungal root rot pathogens that are usually present in our soils. Therefore it is important to keep irrigation as far from the tree trunk (preferably beyond the mature dripline) as possible. The best landscape treatment underneath native oaks is non-compacted soil covered with a 3 to 4-inch depth of oak wood, leaf and twig litter (the tree’s natural litter). Keep this mulch 6 to 12 inches away from the root collar (junction of trunk and roots). An exception to the no summer water rule would be newly planted oaks (for the first 2 to 3 years after planting, until they are “established”) and also during droughts that occur during the normal rainy season.
- 15) **Topped, Topping:** Topping is the practice of indiscriminately cutting back large diameter branches of a mature tree to some predetermined lower height; to reduce the overall height of the tree. Cuts are made to buds, stubs or lateral branches not large enough to assume the terminal role. Reputable arborists no longer recommend topping because it is a particularly destructive pruning practice. It is stressful to mature trees and may result in reduced vigor, decline and even death of trees. In addition, branches that regrow from topping cuts are weakly attached to the tree and are in danger of splitting out. Large topping cuts may have significant decay associated with them, which weakens the branch as well as the attachment of any secondary branches attached nearby. Topping is useful however, for immediately reducing the risk of a very hazardous tree that will soon be removed.