Tree Survey Report

243 Morrison Canyon Road
Fremont, CA

PREPARED FOR
Mission Peak Homes
47289 Mission Falls Court
Fremont, CA 94539

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

November 2, 2016

HORT SCIENCE

Tree Survey Report
243 Morrison Canyon Road
Fremont, CA

Table of Contents

List of Tables

Exhibits

Tree Survey Report
243 Morrison Canyon Road
Fremont, CA

Introduction and Overview
Mission Peak Homes is planning to redevelop 243 Morrison Canyon Road in Fremont, CA. The site currently contains a single family home and large open lot with a few relic orchard trees. HortScience, Inc. was asked to prepare a **Tree Survey Report** for the site as part of the application for proposed development.

This report provides an assessment of the health and structural condition of the trees within the proposed project area based on a visual inspection from the ground.

Tree Assessment Methods
Trees were assessed on October 20, 2016. The survey included all trees 6" and greater located within the proposed project area and with canopies overhanging the project area. The assessment procedure consisted of the following steps:

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

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

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

   Low: Trees in poor health or with significant structural defects that cannot be mitigated. Tree is expected to continue to decline, regardless of treatment. The species or individual tree may have characteristics that are undesirable for landscapes, and generally are unsuited for use areas.

Description of Trees

Fifty-one (51) trees representing nine species were evaluated (Table 1). Twenty (20) off-site trees were included in the assessment (#37, 38, 52, 54-66, 69-71 and 79). Across all species, 16% of the trees were in good condition, 37% of the trees were in fair condition and 47% of the trees were in poor condition. Descriptions of each tree can be found in the ***Tree Assessment*** and locations are plotted on the ***Tree Assessment Plan*** (see Exhibits).

Table 1. Condition ratings and frequency of occurrence of trees Harvest Park, Hayward, CA

Common Name	Scientific Name	Condition			Total
		Poor (1-2)	Fair (3)	Good (4-5)	
Silk tree	*Albizia julibrissin*	1	-	-	**1**
Cook pine	*Araucaria columnaris*	-	-	1	**1**
Deodar cedar	*Cedrus deodara*	-	-	1	**1**
Hachiya persimmon	*Diospyros kaki* 'Hachiya'	-	-	1	**1**
California black walnut	*Juglans hindsii*	15	10	-	**25**
English walnut	*Juglans regia*	2	-	1	**3**
Glossy privet	*Ligustrum lucidum*	-	2	-	**2**
Olive	*Olea europaea*	1	3	-	**4**
Avocado	*Persea americana*	1	-	-	**1**
Canary Island date palm	*Phoenix canariensis*	-	-	2	**2**
Apricot	*Prunus armeniaca*	1	1	-	**2**
Plum	*Prunus domestica*	1	-	-	**1**
Hollyleaf cherry	*Prunus ilicifolia*	-	1	-	**1**
Peach	*Prunus persica*	1	-	-	**1**
Coast live oak	*Quercus agrifolia*	-	-	1	**1**
Holly oak	*Quercus ilex*	-	1	-	**1**
Gooddings willow	*Salix gooddingii*	1	-	-	**1**
California pepper	*Schinus molle*	-	1	-	**1**
Mexican fan palm	*Washingtonia robusta*	-	-	1	**1**
Total		**24**	**19**	**8**	**51**

Approximately half the trees were California black walnuts (25 trees, 49%). No black walnuts were in good condition, 10 were in fair condition and 15 were in poor condition. Ten (10) of the black walnuts were multi-stemmed trees. Of the 15 single stemmed trees, trunk diameters ranged from 6 to 50” with an average of 19”. The larger black walnuts were likely originally English walnuts with black walnut root stocks (Photo 1). As the English walnut declined, the root stock sprouted and grew a trunk around the decaying English walnut trunk. This is common in old orchards in California.

The largest healthiest tree growing on the property was deodar cedar #30 (Photo 2). It was 30” in diameter and growing near the house with good form and structure. Several branches had broken off in the past and were hanging dangerously in the crown.

Photo 1 (above) – The large black walnuts were likely sprouted root stock from English walnut orchard trees.
Photo 2 (lower left) – The deodar cedar in the front yard was the largest, healthies tree assessed.
Photo 3 (lower right) – The Goodding willow was mostly dead and resprouting.

Four small olive trees were growing on the eastern edge of the property. These trees were volunteers that sprouted near the fence line. They were in fair (3 trees) to poor (1 tree) condition and generally bushy in form.

Three English walnuts were growing along the perimeters of the property. Two trees were in poor condition and walnut #39 was in good condition with a dense crown. Tree #71 was mostly dead and beginning to sprout at the base. This is the process that led to many of the black walnuts throughout the site.

Two species were unusual for this type of site. The Goodding willow was growing in a dry area and was mostly dead and resprouting (Photo 3). The cook pine is a *Araucaria* species that looks very similar to the more common, Norfolk Island pine but typically grows with a strong lean (Photo 4).

The City of Fremont protects all trees measuring 6" in diameter or greater, on under-developed lots planned for development. All trees are *Protected* and cannot be removed without a permit. Designations for individual trees are provided in the ***Tree Assessment*** (see *Exhibits*).

Photo 4 – This cook pine was growing away from the building near Morrison Canyon Road.

Suitability for Preservation

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

Our goal is to identify trees that have the potential for long-term health, structural stability and longevity. For trees growing in open fields, away from areas where people and property are present, structural defects and/or poor health presents a low risk of damage or injury if they fail. However, we must be concerned about safety in use areas. Therefore, where development encroaches into existing plantings, we must consider their structural stability as well as their potential to grow and thrive in a new environment. Where development will not occur, the normal life cycles of decline, structural failure and death should be allowed to continue.

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. For example, English walnut #71 was in poor condition and should not be retained.

- **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. California black walnut #47 was trunk decay and should not be retained.

- **Species response**
  There is a wide variation in the response of individual species to construction impacts and changes in the environment. Glossy privet is tolerant of construction impacts whereas walnuts are intolerant of construction impacts.

- **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 that spread across a site and displace desired vegetation are not always appropriate for retention. This is particularly true when indigenous species are displaced. The California Invasive Plant Inventory Database (http://www.cal-ipc.org/paf/) lists species identified as being invasive. Fremont is part of the Central West Floristic Province. Olive, Canary Island date palm and California pepper are listed as limited invasiveness, Mexican fan palm is listed as moderate invasiveness.

Each tree was rated for suitability for preservation based upon its age, health, structural condition and ability to safely coexist within a development environment (see ***Tree Assessment*** in Exhibits, and Table 2). 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 in areas where people or property will be present. Retention of trees with moderate suitability for preservation depends upon the intensity of proposed site changes.

Table 2: Tree suitability for preservation
243 Morrison Canyon Road, Fremont

High	These are trees with good health and structural stability that have the potential for longevity at the site. Five trees had a high suitability for preservation: Canary Island date palms #58 and 77, Coast live oak #35, cook pine #31 and Hachiya persimmon #37.
Moderate	Trees in this category have fair health and/or structural defects that may be abated with treatment. These trees require more intense management and may have shorter life-spans than those in the “high” category. Ten (10) trees had a moderate suitability for preservation: glossy privets #38 and 79, olive #56 and 57, California black walnut #75, deodar cedar #30, English walnut #39, holly oak #51, hollyleaf cherry #70, and Mexican fan palm #34.
Low	Trees in this category are in poor health or have significant defects in structure that cannot be abated with treatment. These trees can be expected to decline regardless of management. The species or individual tree may possess either characteristics that are undesirable in landscape settings or be unsuited for use areas. Thirty-six (36) trees had a low suitability for preservation: 24 California black walnuts, apricots #72 and 73, English walnuts #43 and 71, avocado #36, California pepper #66, Gooddings willow #69, peach #33, plum #74 and silk tree #32.

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

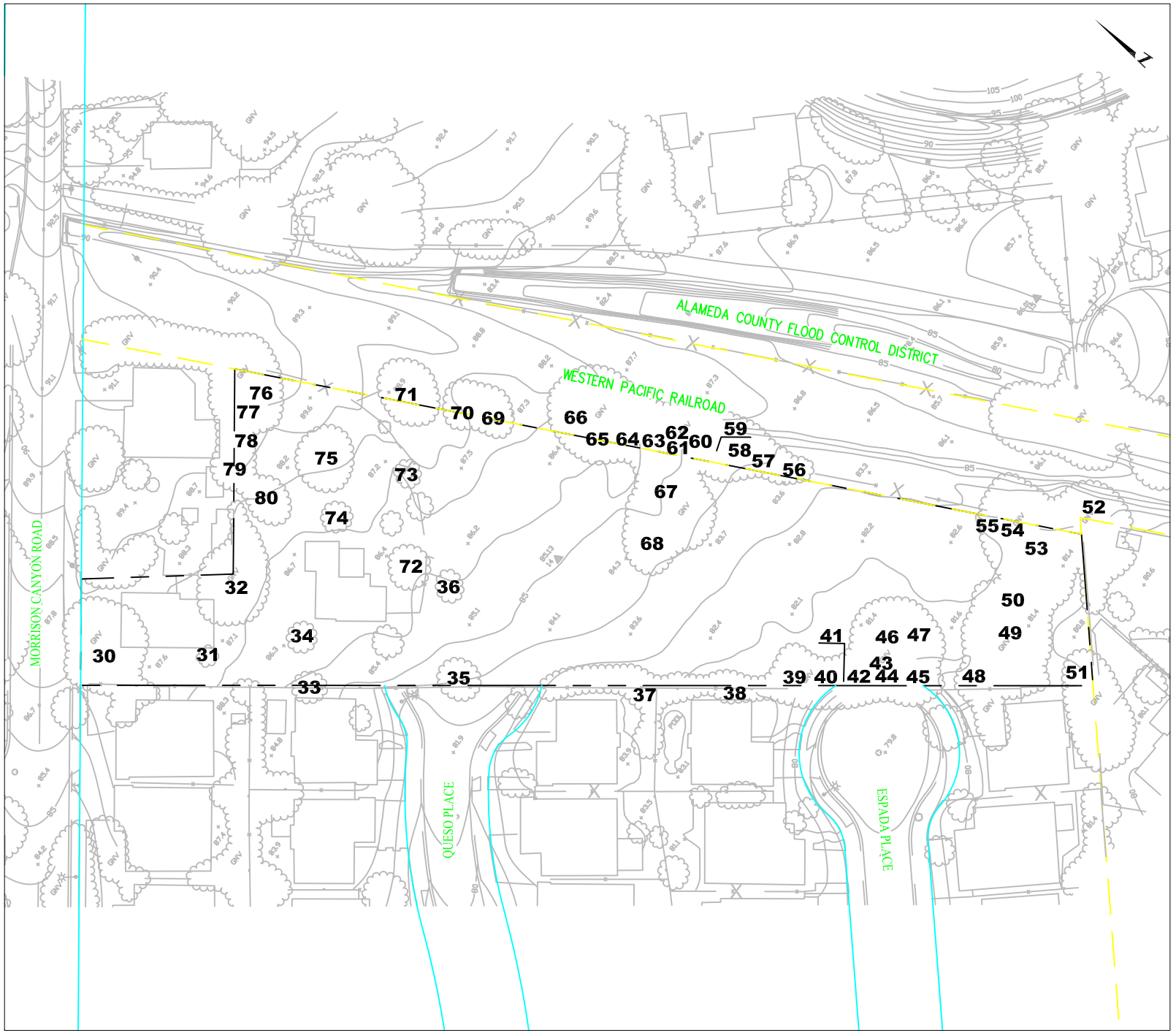
HortScience, Inc.

Ryan Gilpin, M.S.
Certified Arborist #WE-10268A

Exhibits

Tree Assessment Plan

Tree Assessment



Tree Assessment Plan

Morrison Canyon Road
Fremont, CA

Prepared for:
Mission Peak Company
Fremont, CA

October 2016

No Scale

Notes:
Base map provided by:
Carlson, Barbee & Gibson, Inc.
San Ramon, CA

Numbered tree locations are approximate.

HORT SCIENCE

325 Ray Street
Pleasanton, CA 94566
Phone 925.484.0211
Fax 925.484.0596
www.hortscience.com

Tree Assessment

243 Morrison Canyon Road
Fremont, CA
October 20, 2016

HORT SCIENCE

Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
30	Deodar cedar	30	Yes	4	Moderate	Good form and structure; history of branch failure; hanging branches; dense crown.
31	Cook pine	9	Yes	4	High	Codominant trunks arise from 8 feet; base 3 feet from building; leaning south.
32	Silk tree	13,11	Yes	2	Low	Codominant trunks arise from 2 feet with cavity to ground.
33	Peach	13	Yes	2	Low	Hollow, decayed, wilted foliage, fruiting bodies covering trunk.
34	Mexican fan palm	21	Yes	5	Moderate	Brown trunk height 10 feet; skirt halfway to ground.
35	Coast live oak	10	Yes	4	High	Codominant trunks arise from 5 feet; dense crown; sap sucker damage; base 1 foot from fence.
36	Avocado	9,6	Yes	2	Low	Codominant trunks arise from 4 feet with wide attachment; half of crown dead.
37	Hachiya persimmon	9	Yes	4	High	Off-site; base approx. 3 feet from fence; cannot see base; canopy overhangs property by 5 feet.
38	Glossy privet	6,6	Yes	3	Moderate	Off-site; codominant trunks arise from base; base approx. 1 foot from fence; cannot see base; crown raised to 12 feet.
39	English walnut	13	Yes	4	Moderate	Dense crown bows north; base covered with blackberry; base 3 feet from fence.
40	California black walnut	12,7	Yes	2	Low	Topped; history of branch failure with decay.
41	California black walnut	6	Yes	2	Low	Topped; history of branch failure with decay.
42	California black walnut	10	Yes	2	Low	Strong central leader; early deciduous and dieback; thin crown.
43	English walnut	11	Yes	2	Low	Good form and structure; slightly thin crown; 2 foot long and wide trunk wound; branch dieback.
44	California black walnut	13	Yes	2	Low	Codominant trunks at 7 feet has been removed; half of crown dead; thin crown.
45	California black walnut	5,4,4,3,3,3	Yes	2	Low	Stump sprout; multiple trunks arise from base.

Tree Assessment

243 Morrison Canyon Road
Fremont, CA
October 20, 2016

HORT SCIENCE

Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
46	California black walnut	30	Yes	3	Low	Stump sprout; multiple trunks arise from 5 feet; thin crown.
47	California black walnut	29	Yes	2	Low	Stump sprout; multiple trunks arise from 5 feet; thin crown; trunk decay.
48	California black walnut	9,7,5,5	Yes	3	Low	Multiple trunks arise from base; covering in climbing vine; thin crown.
49	California black walnut	26	Yes	1	Low	Mostly dead.
50	California black walnut	23	Yes	2	Low	Codominant trunks arise from 6 feet; thin crown raised to 18 feet; branch dieback; basal wound; trunk decay.
51	Holly oak	5,4,4,4,4,3,3,3,2	Yes	3	Moderate	Multiple trunks arise from base; short wide bushy form.
52	California black walnut	50	Yes	1	Low	Off-site; base 10 feet from property; mostly dead; decay on east side of base.
53	California black walnut	28,17,13,12,12	Yes	3	Low	Stump sprout; multiple trunks arise from base; thin crown.
54	California black walnut	8	Yes	3	Low	Off-site; base at fence line; leans heavily north.
55	California black walnut	7	Yes	3	Low	Off-site; codominant trunks arise from 5 feet; thin crown with dieback; at fence line.
56	Olive	6,5	Yes	3	Moderate	Off-site; codominant trunks arise from base; bushy; growing on fence line.
57	Olive	5,4,3	Yes	3	Moderate	Off-site; multiple trunks arise from base; bushy; growing on fence line; bowed heavily east.
58	Canary Island date palm	32	Yes	5	High	Off-site; base approx. 1 foot from fence; growing on fence line in dense group of trees.
59	Olive	7,4	Yes	2	Low	Off-site; codominant trunks arise from base; bushy; growing on fence line in dense group of trees.
60	California black walnut	14,8	Yes	3	Low	Off-site; codominant trunks arise from 3 feet; growing on fence line in dense group of trees.

Tree Assessment

243 Morrison Canyon Road
Fremont, CA
October 20, 2016

HORT SCIENCE

Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
61	California black walnut	10	Yes	3	Low	Off-site; narrow upright form; growing on fence line in dense group of trees.
62	California black walnut	9	Yes	3	Low	Off-site; narrow upright form; base 6 feet from fence; growing on fence line in dense group of trees.
63	Olive	8	Yes	3	Low	Off-site; bushy; growing on fence line in dense group of trees.
64	California black walnut	14,7	Yes	3	Low	Off-site; wide spreading crown; branch dieback; thin crown.
65	California black walnut	16	Yes	2	Low	Off-site; poor form and structure; thin crown; branch dieback.
66	California pepper	19,15,14	Yes	3	Low	Off-site; multiple trunks arise from base with ganoderma; dense crown.
67	California black walnut	38	Yes	2	Low	Stump sprout; multiple trunks arise from 5 feet; thin crown; trunk decay; wire embedded in trunk.
68	California black walnut	14,12,11	Yes	2	Low	Stump sprout; multiple trunks arise from base; dead stem; trunk decay.
69	Gooddings willow	23	Yes	2	Low	Off-site; crown died and is resprouting; trunk decay.
70	Hollyleaf cherry	6,6,3	Yes	3	Moderate	Off-site; multiple trunks arise from base; bushy; dense crown.
71	English walnut	12,12,12,8,7,6	Yes	1	Low	Off-site; mostly dead.
72	Apricot	8,7,6	Yes	3	Low	Multiple trunks arise from 3 feet; dense crown with dieback.
73	Apricot	10,7	Yes	1	Low	Mostly dead.
74	Plum	8	Yes	2	Low	Extensive trunk decay; dense crown.
75	California black walnut	16,11	Yes	3	Moderate	Codominant trunks arise from 1 foot; chlorotic; dense crown; minor dieback.
76	California black walnut	14,12	Yes	1	Low	Mostly dead.

Tree Assessment

243 Morrison Canyon Road
Fremont, CA
October 20, 2016

HORT SCIENCE

Tree No.	Species	Trunk Diameter (in.)	Protected Tree?	Condition 1=poor 5=excellent	Suitability for Preservation	Comments
77	Canary Island date palm	48	Yes	5	High	Growing dense patch of trees; 6 foot brown trunk height.
78	California black walnut	18,15	Yes	2	Low	Most of tree removed; poor form and structure; trunk decay.
79	Glossy privet	10,9	Yes	3	Moderate	Off-site; base at fence line; bushy, dense crown.
80	California black walnut	9	Yes	2	Low	Stump sprout; trunk decay; poor form and structure.