

**Tree Inventory, Assessment,
and
Protection**

**100 Enterprise Way
Scotts Valley, CA 95063**

Prepared for:

CV Scotts Valley 2, Investment, LLC

December 2, 2015

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Table of Contents

Summary	1
Introduction.....	1
Background.....	1
Assignment.....	1
Limits of the assignment	2
Purpose and use of the report	2
Observations.....	2
Tree Observations	2
Plan Observations	3
Analysis	4
Discussion.....	5
Tree Inventory.....	5
Condition Rating	6
Suitability for Preservation	7
Influence Level.....	8
Patio Construction within the Tree Protection Zone.....	9
Tree Protection	10
Critical Root Zone	11
Conclusion	12
Recommendations.....	13
Bibliography.....	14
Glossary of Terms	15
Appendix A: Tree Inventory Maps.....	17
A1: Cul de sac	17
A2: Southwest Corner.....	18
A3: Southeast Corner	19
Northeast Corner	20
Appendix B: Tree Inventory and Assessment Table	21
B2: Appraisal Summary Table.....	27
Appendix C: Photographs	33
C1: Stand of redwoods #245 to #268	33



C2: Multi-trunk redwood #272.....	34
C3: Willows #240 and #241 in dense thicket.....	35
C4: Cottonwoods #230 to #231 and redwood #232 on Enterprise Tech	36
C5: Cottonwoods #220 to #224	37
C6: Northeast Stand	38
Appendix D: Tree protection specifications.....	39
Pre-Construction Meeting with the Project Arborist	39
Tree Protection Zones and Fencing.....	39
Monitoring	39
Restrictions Within the Tree Protection Zone	39
Root Pruning.....	40
Boring or Tunneling.....	40
Timing	40
Tree Pruning and Removal Operations	40
Tree Protection Signs	40
City of Scotts Valley Requirements 17.44.080.....	41
Appendix E: Tree Protection Signs.....	42
E1: English.....	42
E2: Spanish	43
Qualifications, Assumptions, and Limiting Conditions	44
Certification of Performance	45



Summary

The property located at 100 Enterprise Way in Scotts Valley is at the end of Santa's Village Road and contains 65 protected trees comprised of 6 different species.. There are several mature trees growing adjacent to the Carbonera Creek and are primarily comprised of three groups of large coast redwoods. The majority of trees are in fair overall condition. Most of the trees have either fair or good suitability for preservation with thirteen being poorly suited to retain. Nineteen trees will not be affected by the project while there is potential for forty-two to be impacted on some level, primarily coast redwoods and their roots on one side. The two willows, 240 and 241, are within the footprint of the buildings and will need to be removed. Bay tree 243 is also within the footprint of construction and will require removal. The Lennar development road improvements will likely require at least two trees to be removed which are coast redwood 267 and bay laurel 268, and the demo plan indicates one more redwood removed for this improvement. The recommended maximum encroachment into the root zone of any tree is three to five times the trunk diameter on one side. Adopting a no dig policy and incorporating a design plan to minimize soil compaction and root disturbances within the critical root zones will be necessary to retain the groves. A total of 65 trees were appraised using the Trunk Formula Method for a value of \$623,969.00.

Introduction

Background

CV Scotts Valley 2, Investment, LLC is planning on developing the site located at 100 Enterprise Way. I agreed to assess the site, trees, proposed improvement plans, and to provide a report with my findings and recommendations to help satisfy the City of Scotts Valley planning requirements.

Assignment

1. Provide an arborist's report that includes an assessment of the trees within the project area. The assessment is to include the species, size (trunk diameter), condition (health and structure), and suitability for preservation ratings.
2. Provide tree protection specifications and influence ratings for the trees that will be affected by the project.
3. Appraise protected tree values.



Limits of the assignment

1. The information in this report is limited to the condition of the trees during my inspection on October 3, 2015.
2. No tree risk assessments were performed.
3. The plans reviewed for this assignment were as follows: Existing Site and Demolition Plan C1.1, Tentative Grading Plan C3.1, Tentative Utility Plan C4.1 dated October 28, 2015, provided by C2G Engineers.
4. Site issues and property boundaries were coordinated with Consulting Arborist James Allen on the property prior to the assessment.

Purpose and use of the report

The report is intended to identify all the trees within the plan area that could be affected by a project. The report is to be used by CV Scotts Valley 2, Investment, LLC, their agents, and the City of Scotts Valley as a reference for existing tree conditions and values to help satisfy the City of Scotts Valley planning requirements.

Observations

Tree Observations

There are several mature trees growing on the southeast side of the site adjacent to the Carbonera Creek, primarily comprised of two groups of large coast redwoods (*Sequoia sempervirens*) along with some California bay laurels (*Umbellularia californica*). The adjacent developed property, Enterprise Technology Center, has some cottonwoods (*Populus fremontii*) along the south boundary. There are some dead cottonwoods and a couple American sweet gum (*Liquidambar styraciflua*) near the end of Santa's Village Road close to the Enterprise Technology Center property boundary. Directly southwest on the site is a small triangular portion of the parcel that contains two mature willows (*Salix alba*) that are falling apart along with some other smaller volunteer coast live oaks, however the area is so dense with thicket it was not accessed. The entire central and northwest portion of the property has no vegetation and is open. There is a service road that extends around the northwest perimeter.

Most of the trees are second and possibly first growth coast redwoods and over-mature California bay laurels. These trees are growing in clusters and many of them have multiple trunks. There are number tags affixed to the trees for on site identification and many trees have tags from this assessment and those from a previous assessment.

Bay laurels 268 and 262 have significant structural defects and conditions that could lead to failure under normal conditions including multiple stems and signs of a wood decaying pathogen (*Ganoderma applanatum*).



Coast redwood 267 has a corrected lean, is located on the edge of the stand, decayed near its base, and leans over the service road that accesses the area to the developing area to the east. This tree along with bay laurel 268 are within Lennar's road improvement area and could be impacted or caused to be removed by that project. Willows 240 and 241 both have failed trunks that extend over a small fence. Cottonwoods 220, 221, 222, 225, 226, and 227 are all dead.

Plan Observations

The proposed site development is located in the central portion of the lot.

Several units abutting against the riparian corridor where the trees are located. The limits of excavation are near three distinct groves of coast redwoods to be retained.

Coast redwood 267 and bay laurel 268 are near the road improvements that are part of Lennar's development that were discussed with arborist James P. Allen. These trees are on the property but would be impacted or caused to be removed by that project.

Two willow trees (240 and 241) and one bay laurel (243) are within the project footprint.

The patios for many units will be within the tree protection zone or critical root zones of some trees.



Analysis

Tree appraisal was performed according to the *Council of Tree & Landscape Appraisers Guide for Plant Appraisal 9th Edition, 2000 (CLTA)* along with *Western Chapter International Society of Arboriculture Species Classification and Group Assignment, 2004*. The trees were appraised using the “Cost Approach” and more specifically the “Trunk Formula Method” (Appendix B).

“Trunk Formula Method” is calculated as follows: Basic Tree Cost = (Appraised tree trunk increase X Unit tree cost + Installed tree cost) Appraised Value = (Basic tree cost X Species % X Condition % X Location %). Trees with trunks greater than 30 inches were appraised using the “Adjusted Trunk Area.” Multi-trunk trees were appraised by adding the cross sectional areas of each stem to arrive at one number.

The trunk diameters were measured with a standard tape measure on the uphill sides of the trees.

The trunk formula valuations are based on four tree factors; species, size (trunk cross sectional area), condition, and location. There are two steps to determine the overall value. The first step is to determine the “Basic Tree Cost” based on size and species rating which is determined by the *Species Classification and Group Assignment, 2004 Western Chapter Regional Supplement*.

The second part is to depreciate the value according to the location and condition of the trees.

The condition assessment and percentages are defined in the “Condition Rating” section of this report. The condition ratings deviate from the Guide’s condition assessment numerical rating system. The reason for this deviation is the Guide’s assessment criteria fails to account for significant health or structural issues creating high percentages for trees with either significant structural defects or health problems that could ultimately lead to failure or irreversible decline.

Location rating is an average of three factors; site, contribution, and placement. Site is determined by the relative property value where the trees are planted. The residential site would be classified as “very high” value with a 90 percent rating compared to similar sites in the area (ISA, 2000).

Contribution and placement is determined by the function and aesthetics the trees provide for the site and their location on the property. The percent of contribution and placement can range from 10 to 100 percent depending on the trees influence to the value of the property. I rated both the contribution and placement to be 50 percent for a combined location rating of 63.33.

A total of 52 trees were appraised for a value of \$623,969.00 (Appendix B2).

Appraisal worksheets are available upon request.



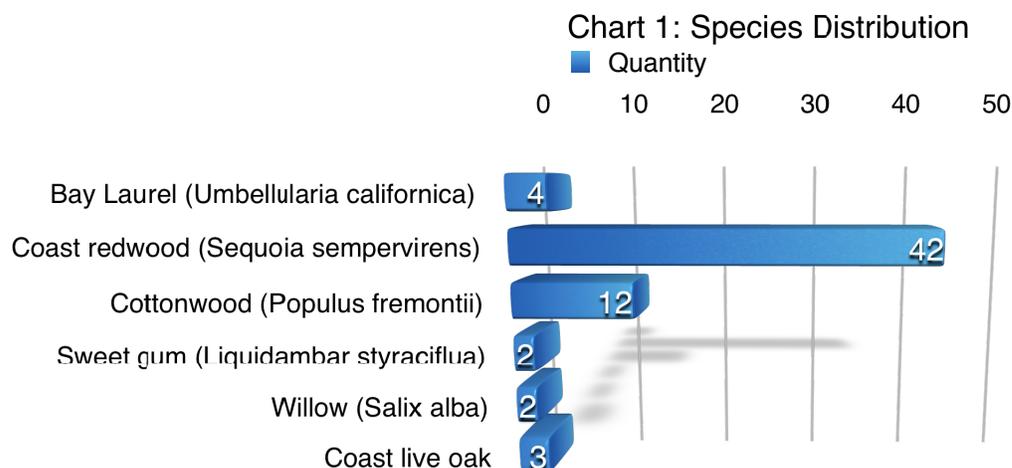
Discussion

Tree Inventory

Scotts Valley Considers the following protected trees:

- A. "Protected tree" means a standing or upright tree meeting any one of the following:
- B. Any tree having a main stem or trunk which measures twenty-five inches or greater in circumference (eight 8 inches in diameter, approximately) measured fifty-four inches above natural grade, located in a hillside residential zone where the slope of the area within twenty feet of where the tree is located exceeds twenty percent;
- C. Any tree which existed at the time of any approval granted under any zoning ordinance in effect prior to the adoption of the ordinance codified in this title and which was required to be preserved as part of such approval;
- D. Any tree required to be planted as condition of any approval under this title;
- E. Any tree that was or is required to be planted as a replacement for any unlawfully removed tree;
- F. Any oak tree having a main stem or trunk which measures twenty-five inches or greater in circumference (eight inches diameter, approximately) measure fifty-four inches above natural grade. Any multi-trunk oak with an individual trunk of over twelve inches in circumference (four inches diameter, approximately) measured fifty-four inches above the natural grade;
- G. Any street tree, as defined in subsection B.9, regardless of size;

The inventory contains 65 protected trees comprised of 6 different species protected by the ordinance. Coast redwood is the most dominant species and most of the trees are located within three stands along the southeast and northeast boundary. The chart below lists the species and their relative quantities (Chart 1).



Condition Rating

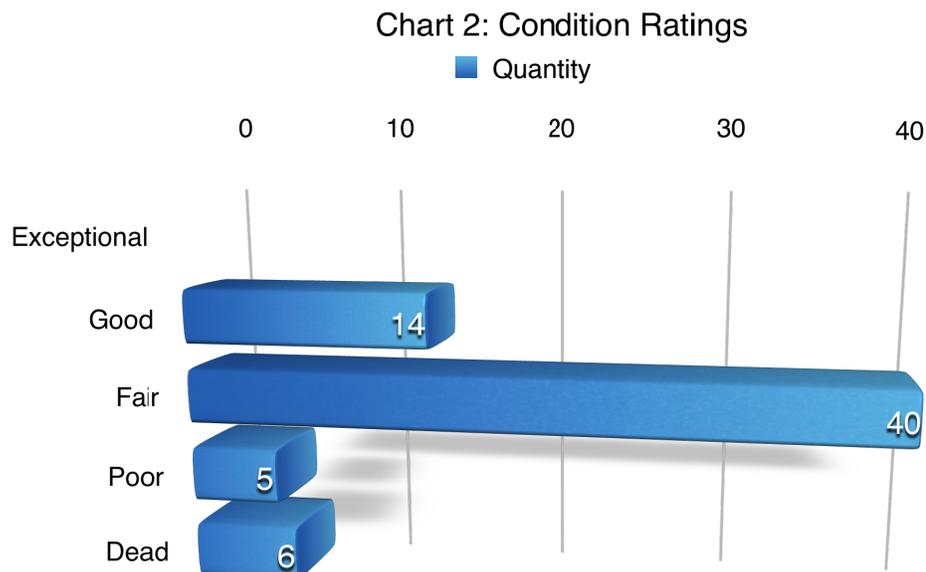
A tree's condition percentage is a determination of its overall health and structure based on five aspects: Roots, trunk, scaffold branches, twigs, and foliage. Points are totaled for each tree and converted to a percentage.

The following scale defines the condition ratings from the condition percentages:

- 100% = Exceptional = Good health and structure with significant size, location or quality.
- 75% = Good = No apparent problems, good structure and health, good longevity for the site.
- 50% = Fair = Minor problems, at least one structural defect or health concern, problems can be mitigated through cultural practices such as pruning or a plant health care program.
- 25% = Poor = Major problems with multiple structural defects or declining health.
- 0% = Dead/Unstable = Extreme problems, irreversible decline, failing structure, or dead.

The majority of trees are in fair overall condition with 40. Fourteen trees are in good condition, five poor, and six dead. The cottonwoods are all either dead or in poor shape. Three bay laurels (268, 235 and 243) have positive indicators of decay (fungal conks) and multiple stems originate near their base which could lead to failure. The two willows (240 and 241) have large failed stems on the ground and are structurally compromised.

The chart below lists the quantity of trees and their condition ratings for each category (Chart 2).



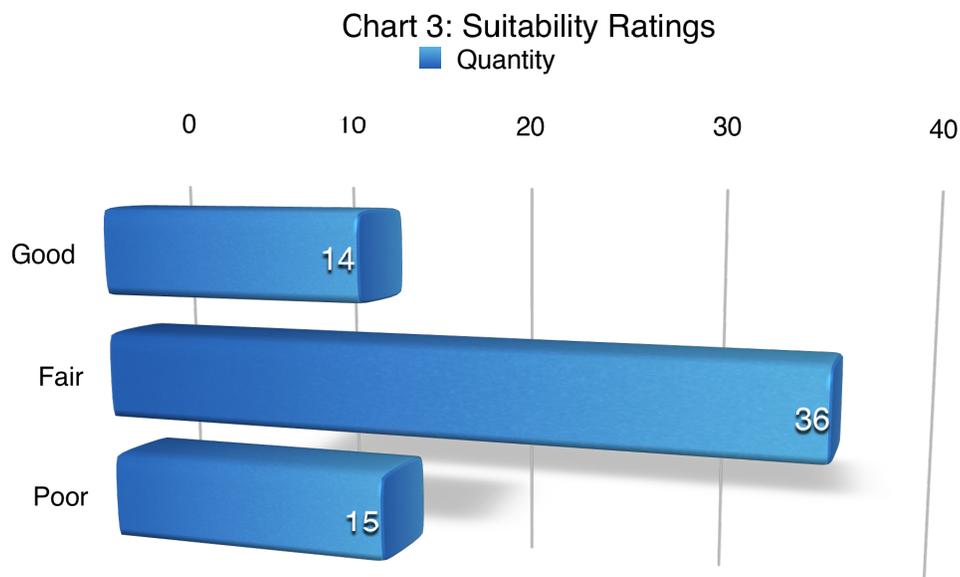
Suitability for Preservation

A tree's suitability for preservation is determined based on its health, structure, age, species characteristics, and longevity using a scale of good, fair, or poor. The following list defines the rating scale (Tree Care Industry Association, 2012):

- Good = Trees with good health, structural stability and longevity.
- Fair = Trees with fair health and/or structural defects that may be mitigated through treatment. These trees require more intense management and monitoring, and may have shorter life spans than those in the good category.
- Poor = Trees in poor health with significant structural defects that cannot be mitigated and will continue to decline regardless of treatment. The species or individual may possess characteristics that are incompatible or undesirable in landscape settings or unsuited for the intended use of the site.

Most of the trees have either fair or good suitability for preservation with thirteen being poorly suited to retain. The secondary growth trees within the redwood stands were assessed as part of the stand rather than as individuals. Because several of the coast redwoods are secondary sprouts currently suppressed they may have poor suitability ratings as individuals but I considered their role within the stand dynamics. When assessing individuals as part of the stand along with their forest associates, they have greater suitability for preservation than they would as individuals. Rather than focusing on the individual in this situation it was more appropriate to look at how they contribute to the overall stand of trees.

The chart below lists the quantity of trees and their suitability rating for each category (Chart 3).



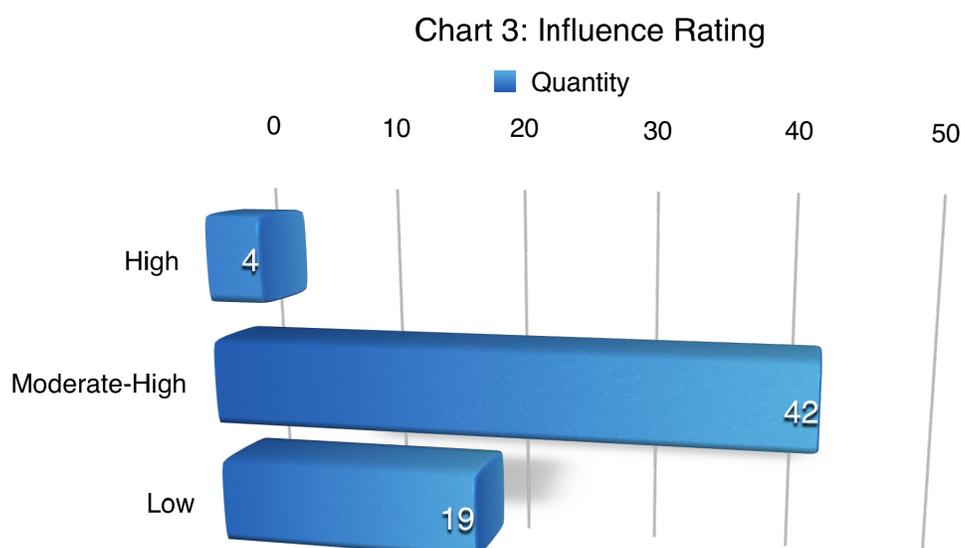
Influence Level

Influence level defines how a tree may be affected by construction activity and proximity to the tree, and is described as low, moderate, or high. The following scale defines the impact rating:

- Low = The construction activity will have little influence on the tree.
- Moderate = The construction may cause future health or structural problems, and steps must be taken to protect the tree to reduce future problems.
- High = Tree structure and health will be compromised and removal is recommended, or other actions must be taken for the tree to remain. The tree is located in the building envelope.

Nineteen trees will not be affected by the project while there is potential for forty-two to be impacted on some level, primarily coast redwoods and their roots on one side. The two willows 240 and 241 are within the footprint of the buildings and will need to be removed. Bay tree 243 is also within the footprint of construction and will require removal as well as oak tree 183. The Lennar development road improvements will likely require at least two trees to be removed which are coast redwood 267 and bay laurel 268, and the demo plan indicates one more for this reason. I did not consider the dead trees to be highly affected because they are away from the development, however they will need to be removed. Based on the plans provided some impact will occur to the root zones of the three coast redwood stands. There will be some soil cutting at the edge of the northernmost redwood stand on one side to accommodate the road. All the trees requiring removal including the cottonwoods, bay laurels 243 and 268, coast redwood 267, and willows 240 and 241 are in poor condition or have poor suitability for preservation. See the tree disposition column in Appendix B for individual tree detail regarding removal and retention.

The chart below lists the quantity of trees and their influence rating for each category (Chart 4).



Patio Construction within the Tree Protection Zone

1. The priority for the patio construction is to adopt a no dig policy and incorporate a design plan that will minimize soil compaction and root disturbances around trees to be retained.
2. Use the thinnest material possible to achieve structural compliance such as concrete versus asphalt.
3. Adjust the finished grade to be above the natural grade without digging for a sub-grade treatment. In this instance the pavement will be higher up and edge treatments or curbing also need to be constructed above grade.
4. Use paving material that does not rely on the strength of a compacted sub-base for strength. This may be accomplished by reinforcing the surface layer material.
5. Place geotextile fabric at the bottom of the sub-base to reduce displacement into the parent soil along with a reduction in compaction requirements. Use biaxial Tensar BX-1100 or equivalent to manufacturer specifications on grade.



Tree Protection

Tree protection focuses on protecting trees from damage to the roots, trunk, or scaffold branches from heavy equipment (Appendix D).

The tree protection zone (TPZ) is the defined area in which certain activities are prohibited to minimize potential injury to the tree. The TPZ can be determined by a formula based on species tolerance, tree age, and diameter at breast height (DBH) (Matheny, N. and Clark, J. 1998) or as the drip line in some instances. The City of Scotts Valley protects the root zone of trees which extends five feet from the drip line. The recommended maximum encroachment into the root zone of any tree is six times the trunk diameter (Tree Care Industry Association, 2012). The tree protection zones around the redwood stands will likely have to be at the critical root zone distances of three to five times the trunk diameters and no cutting or root removal can occur within six times the trunk diameters of the largest trees.

Preventing mechanical damage to the main stems from equipment or hand tools can be accomplished by wrapping the main stem with straw wattle (Figure 2). The wattle will create a porous barrier around the trunk and prevent damage to the bark and vascular tissues underneath. This mechanical barrier will be required for all trees within the project area where fence is not established for protection.

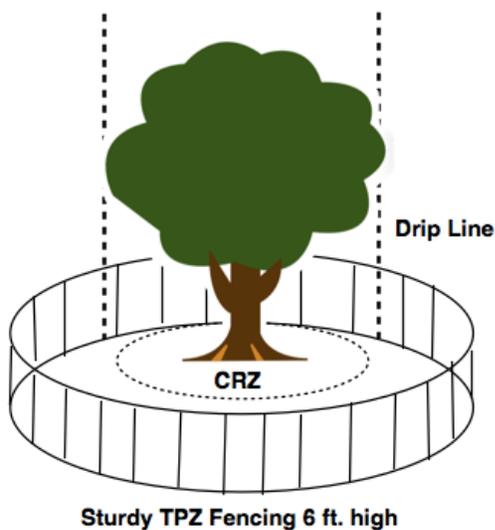


Figure 1: Tree protection distances

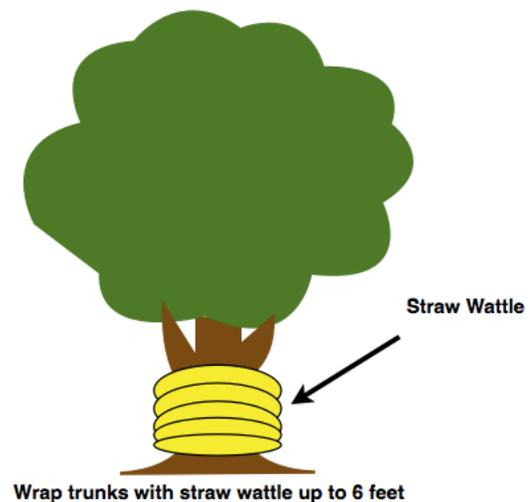


Figure 2: Trunk protection with straw wattle



Critical Root Zone

Because the trees will only be influenced on one side the CRZ will in effect be the TPZ for this project. The CRZ distances are listed in “Appendix B2”.

The critical root zone (CRZ) is the area of soil around the trunk of a tree where roots are located that provide stability and uptake of water and nutrients required for the tree’s survival. The CRZ is the minimum distance from the trunk that trenching or root cutting can occur and will be defined by the trunk diameter as a distance of three times the DBH in feet, and preferably, five times (Smiley, E.T., Fraedrich, B. and Hendrickson, N. 2007) (Figure 3). For example if the tree is two feet in diameter, the minimum CRZ distance would be six to ten feet from the stem on one side of the tree.

A maximum encroachment distance of three to five times the trunk diameter distance must be honored to reduce the risk of total tree failure onto the site after construction is completed.

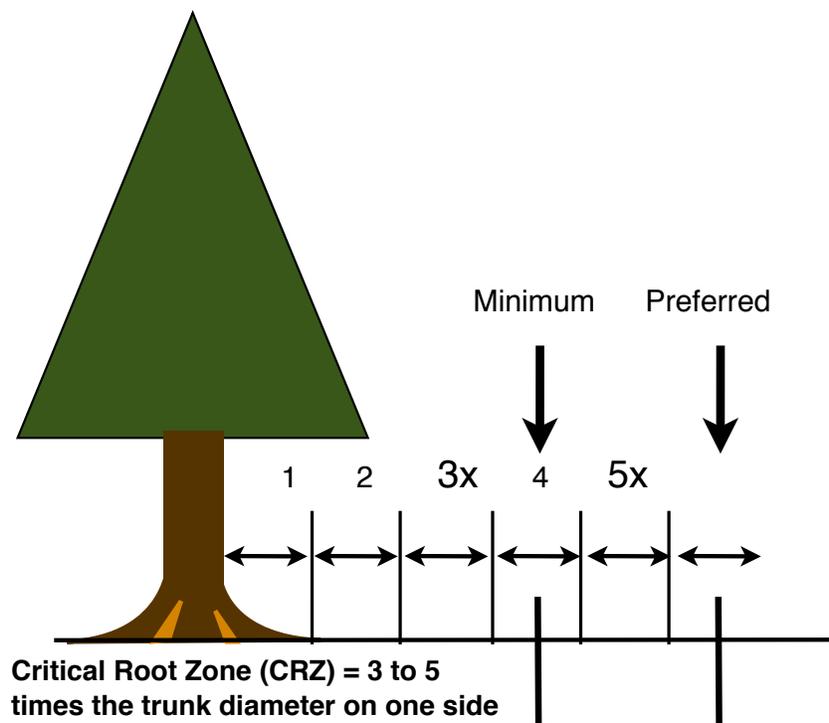


Figure 3: The image above depicts the preferred Critical Root Zone distance.



Conclusion

The property located at 100 Enterprise Way in Scotts Valley is at the end of Santa's Village Road and contains 65 protected trees comprised of 6 different species.. There are several mature trees growing adjacent to the Carbonera Creek and are primarily comprised of three groups of large coast redwoods. The majority of trees are in fair overall condition. Fourteen trees are in good condition, five poor, and six dead. The cottonwoods are all either dead or in poor shape. Three bay laurels (268, 235 and 243) have positive indicators of decay (fungal conks) and multiple stems originate near their base which could lead to failure. The two willows (240 and 241) have large failed stems on the ground and are structurally compromised. Most of the trees have either fair or good suitability for preservation with thirteen being poorly suited to retain. The secondary growth trees within the redwood stands were assessed as part of the stand rather than as individuals. Because several coast redwoods are suppressed secondary sprouts they may have poor suitability ratings as individuals but I considered their role within the stand dynamics. Nineteen trees will not be affected by the project while there is potential for forty-three to be impacted on some level, primarily coast redwoods and their roots on one side. Two willows, 240 and 241, are within the footprint of the buildings and will need to be removed. Bay tree 243 and oak 183 are also within the footprint of construction and will require removal. The nearby Lennar development road improvements that are not part of this project will require at least two trees to be removed which are coast redwood 267 and bay laurel 268, and the demo plan indicates one more coast redwood to be removed for this reason. I did not consider the dead trees to be highly affected because they are away from the development, however they will need to be removed. Based on the plans provided some impact will occur to the root zones of the three coast redwood stands. There will be some soil cutting at the edge of the northernmost redwood stand on one side to accommodate the road. The trees requiring removal including the cottonwoods, bay laurels 243 and 268, and willows 240 and 241, are in poor condition or have poor suitability for preservation. The recommended maximum encroachment into the root zone of any tree is three to five times the trunk diameter on one side. Adopting a no dig policy and incorporating a design plan to minimize soil compaction and root disturbances within the critical root zones will be necessary to retain the groves. A total of 65 trees were appraised using the Trunk Formula Method for a value of \$623,969.00.



Recommendations

1. Refer to Appendix D for general tree protection guidelines including recommendations for arborist assistance while working under trees, trenching, or excavation within a trees drip line.
2. Provide a copy of this report to all contractors and project managers, including the architect, civil engineer, and landscape designer or architect. It is the responsibility of the owner to ensure all parties are familiar with this document.
3. All development plans, and landscaping and irrigation plans shall show all trees and indicate size and species with locations, drip lines and tree root zones properly surveyed as per the city code.
4. Final plans for grading, drainage, utility, landscape, and development should be reviewed by a qualified arborist prior to the start of work.
5. Create a plan to stage equipment away from the existing trees to be preserved.
6. Place tree protection fence at a minimum distance of three to five times the trunk diameter in radius of any trees to be preserved unless recommended otherwise by the project arborist or city arborist.
7. Mitigation for the loss of trees should consist of a one to one replacement and locations and species should be selected based on the desired contribution, or replacements specified by the California Department of Fish and Wildlife.



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Glossary of Terms

Basic Tree Cost: The cost of replacement for a perfect specimen of a particular species and cross sectional area prior to location and condition depreciation.

Cost Approach: An indication of value by adding the land value to the depreciated value of improvements.

Decay: An area of wood that is undergoing decomposition. Decomposition of organic tissues by fungi or bacteria.

Defect: An imperfection, weakness, or lack of something necessary. In trees defects are injuries, growth patterns, decay, or other conditions that reduce the tree's structural strength.

Diameter at breast height (DBH): Measures at 1.4 meters (4.5 feet) above ground in the United States, Australia (arboriculture), New Zealand, and when using the Guide for Plant Appraisal, 9th edition; at 1.3 meters (4.3 feet) above ground in Australia (forestry), Canada, the European Union, and in UK forestry; and at 1.5 meters (5 feet) above ground in UK arboriculture.

Drip Line: Imaginary line defined by the branch spread or a single plant or group of plants.

Fungal conks: Fruiting body or non fruiting body (sterile) of a fungus. Often associated with decay.

Ganoderma spp.: a "white rot" which breaks down both cellulose and lignin in the wood and leaves behind a white fibrous material that has varying structural strength.

Mechanical damage: Physical damage caused by outside forces such as cutting, chopping or any mechanized device that may strike the tree trunk, roots or branches.

Scaffold branches: Permanent or structural branches that for the scaffold architecture or structure of a tree.

Stand: A contiguous area that contains a number of trees that are relatively homogeneous or have a common set of characteristics. Normally a stand will be studied or managed as a single unit.

Straw wattle: also known as straw worms, bio-logs, straw noodles, or straw tubes are man made cylinders of compressed, weed free straw (wheat or rice), 8 to 12 inches in diameter and 20 to 25 feet long. They are encased in jute, nylon, or other photo degradable materials, and have an average weight of 35 pounds.



Tree Protection Zone (TPZ): Defined area within which certain activities are prohibited or restricted to prevent or minimize potential injury to designated trees, especially during construction or development.

Tree Risk Assessment: Process of evaluating what unexpected things could happen, how likely it is, and what the likely outcomes are. In tree management, the systematic process to determine the level of risk posed by a tree, tree part, or group of trees.

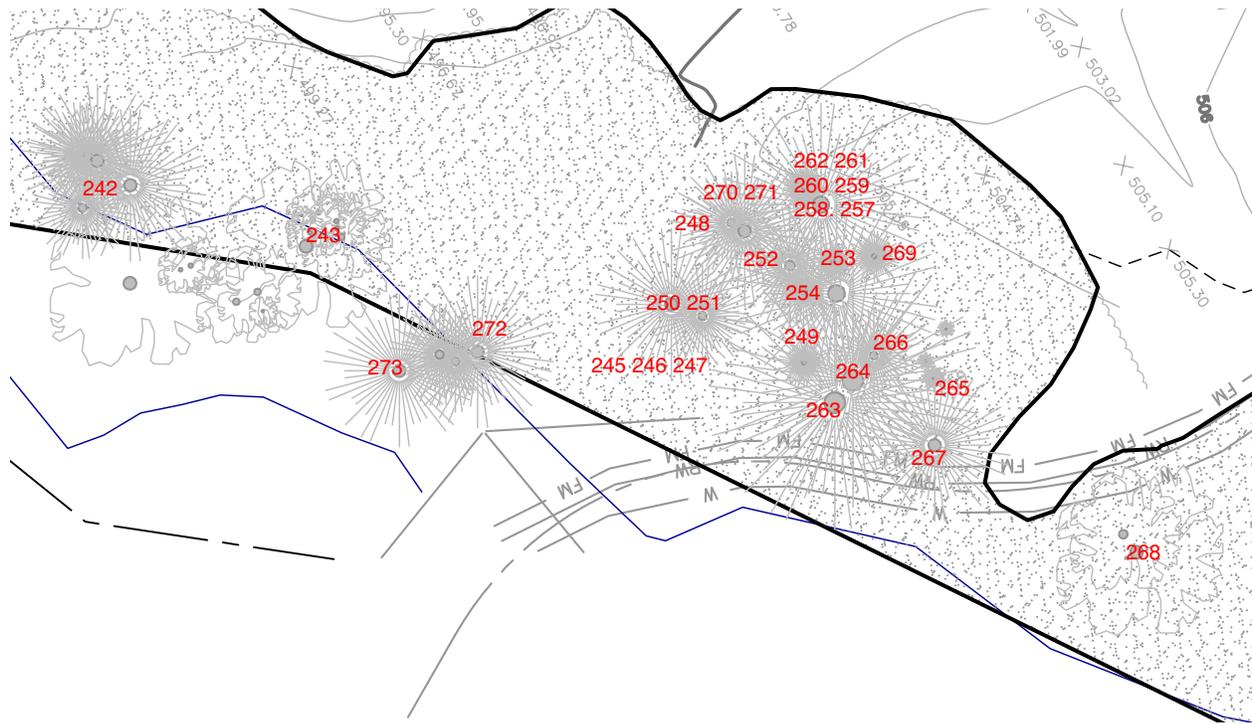
Trunk: Stem of a tree.

Trunk Formula Method: Method to appraise the monetary value of trees considered too large to be replaced with nursery or field grown stock. Based on developing a representative unit cost for replacement with the same or comparable species of the same size and in the same place, subject to depreciation for various factors. Contrast with replacement cost method.

This Glossary of terms was adapted from the Glossary of Arboricultural Terms (ISA, 2011).



A3: Southeast Corner



Northeast Corner



Appendix B: Tree Inventory and Assessment Table

Table 1: Tree Inventory and Assessment

Tree Species	#	Trunk Diameter	~ Height	~ Crown Radius	Condition	Suitability	Influence	Retain/Remove
Coast live oak (<i>Quercus agrifolia</i>)	181	36	45	25	Fair	Fair	Moderate-High	Retain
Bay Laurel (<i>Umbellularia californica</i>)	182	60	55	30	Fair	Fair	Moderate-High	Retain
Coast live oak (<i>Quercus agrifolia</i>)	183	20	45	25	Fair	Fair	High	Remove
Cottonwood (<i>Populus fremontii</i>)	220	10	35	10	Dead	Poor	Low	Remove
Cottonwood (<i>Populus fremontii</i>)	221	10	35	10	Dead	Poor	Low	Remove
Cottonwood (<i>Populus fremontii</i>)	222	12	35	10	Dead	Poor	Low	Remove
Cottonwood (<i>Populus fremontii</i>)	223	12	35	10	Fair	Poor	Low	Remove
Cottonwood (<i>Populus fremontii</i>)	224	12	35	10	Fair	Poor	Low	Remove
Cottonwood (<i>Populus fremontii</i>)	225	6	35	10	Dead	Poor	Low	Remove
Cottonwood (<i>Populus fremontii</i>)	226	19	35	10	Dead	Poor	Low	Remove
Cottonwood (<i>Populus fremontii</i>)	227	16	35	10	Dead	Poor	Low	Remove
Sweet gum (<i>Liquidambar styraciflua</i>)	228	10	35	10	Fair	Fair	Low	Retain



Tree Species	#	Trunk Diameter	~ Height	~ Crown Radius	Condition	Suitability	Influence	Retain/Remove
Sweet gum (<i>Liquidambar styraciflua</i>)	229	10	35	10	Fair	Fair	Low	Retain
Cottonwood (<i>Populus fremontii</i>)	230	18	40	15	Fair	Fair	Low	Retain
Cottonwood (<i>Populus fremontii</i>)	231	15	40	15	Fair	Fair	Low	Retain
Cottonwood (<i>Populus fremontii</i>)	232	17	40	15	Fair	Fair	Low	Retain
Cottonwood (<i>Populus fremontii</i>)	233	18	40	15	Fair	Fair	Low	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	234	16	30	12	Good	Good	Low	Retain
Bay Laurel (<i>Umbellularia californica</i>)	235	84	75	30	Fair	Fair	Low	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	236	40	85	25	Fair	Fair	Low	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	237	24	85	25	Fair	Fair	Low	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	238	40 and 24	100	25	Fair	Fair	Low	Retain
Willow (<i>Salix alba</i>)	240	24	35	20	Fair	Poor	High	Remove
Willow (<i>Salix alba</i>)	241	24	35	20	Fair	Poor	High	Remove



Tree Species	#	Trunk Diameter	~ Height	~ Crown Radius	Condition	Suitability	Influence	Retain/Remove
Coast redwood (<i>Sequoia sempervirens</i>)	242 JPA 283	24, 60, 60, 40	100	35	Fair	Fair	Moderate-High	Retain
Bay Laurel (<i>Umbellularia californica</i>)	243 JPA 282	24, 13, 13, 13, 18, 16, 16, 15, 21, 14, 24	75	35	Poor	Poor	High	Remove
Coast redwood (<i>Sequoia sempervirens</i>)	245 JPA 272	50	100	20	Good	Good	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	246 JPA 271	30	100	20	Good	Good	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	247 JPA 270	31	100	20	Good	Good	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	248	52, 18, and 32	100	20	Fair	Fair	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	249	42 and 22	100	20	Fair	Fair	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	250 JPA 275	60	100	25	Fair	Fair	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	251 JPA 276	67	100	25	Fair	Fair	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	252 JPA 277	12	50	10	Fair	Fair	Moderate-High	Retain



Tree Species	#	Trunk Diameter	~ Height	~ Crown Radius	Condition	Suitability	Influence	Retain/Remove
Coast redwood (<i>Sequoia sempervirens</i>)	253 JPA 267	60	100	20	Fair	Fair	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	254 JPA 266	72	100	20	Fair	Fair	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	255	15	75	15	Fair	Fair	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	256	15	75	15	Fair	Fair	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	257 JPA 278	28	75	20	Fair	Fair	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	258	26	75	20	Fair	Fair	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	259	15	75	15	Fair	Fair	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	260	29	100	20	Fair	Fair	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	261	40	100	20	Fair	Fair	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	262	42	100	25	Fair	Fair	Moderate-High	Retain



Tree Species	#	Trunk Diameter	~ Height	~ Crown Radius	Condition	Suitability	Influence	Retain/Remove
Coast redwood (<i>Sequoia sempervirens</i>)	263 JPA 265	30	55	20	Poor	Poor	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	264 JPA 263	72	100	25	Fair	Fair	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	265 JPA 264	17	45	12	Poor	Poor	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	266 JPA 262	36	75	25	Fair	Fair	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	267 JPA 260	52	75	25	Poor	Poor	Moderate-High	Retain
Bay Laurel (<i>Umbellularia californica</i>)	268	36, 24, and 18	50	20	Poor	Poor	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	269 JPA 268	43	100	20	Fair	Fair	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	270	17	55	10	Fair	Fair	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	271	16 and 10	55	10	Fair	Fair	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	272	36, 36, 24, 24, and 30	100	20	Fair	Fair	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	273 JPA 284	38	100	25	Good	Good	Moderate-High	Retain



Tree Species	#	Trunk Diameter	~ Height	~ Crown Radius	Condition	Suitability	Influence	Retain/Remove
Coast live oak (<i>Quercus agrifolia</i>)	291	20	30	15	Fair	Fair	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	292	8	45	8	Good	Good	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	293	11	45	8	Good	Good	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	294	34	75	20	Good	Good	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	295	36	75	20	Good	Good	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	296	12	55	15	Good	Good	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	297	12	55	15	Good	Good	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	298	48	75	20	Good	Good	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	299	20	75	20	Good	Good	Moderate-High	Retain
Coast redwood (<i>Sequoia sempervirens</i>)	300	12	55	15	Good	Good	Moderate-High	Retain



B2: Appraisal Summary Table

Table 1

Tree Species	#	Trunk Diameter	Condition (From CTLA Condition Assessment)	Location	Species Rating (From Supplement)	Appraised Value
Cottonwood (<i>Populus fremontii</i>)	220	10	0.0%	0.00%	0.00%	\$0.0
Cottonwood (<i>Populus fremontii</i>)	221	10	0.0%	0.00%	0.00%	\$0.0
Cottonwood (<i>Populus fremontii</i>)	222	12	0.0%	0.00%	0.00%	\$0.0
Cottonwood (<i>Populus fremontii</i>)	223	12	25.0%	63.33%	30.00%	\$203.5
Cottonwood (<i>Populus fremontii</i>)	224	12	25.0%	63.33%	30.00%	\$203.5
Cottonwood (<i>Populus fremontii</i>)	225	6	0.0%	0.00%	30.00%	\$0.0
Cottonwood (<i>Populus fremontii</i>)	226	19	0.0%	0.00%	30.00%	\$0.0
Cottonwood (<i>Populus fremontii</i>)	227	16	0.0%	0.00%	30.00%	\$0.0
Sweet gum (<i>Liquidambar styraciflua</i>)	228	10	25.0%	63.33%	50.00%	\$492.9
Sweet gum (<i>Liquidambar styraciflua</i>)	229	10	25.0%	63.33%	50.00%	\$492.9
Cottonwood (<i>Populus fremontii</i>)	230	18	25.0%	63.33%	30.00%	\$447.5
Cottonwood (<i>Populus fremontii</i>)	231	15	25.0%	63.33%	30.00%	\$313.3



Tree Species	#	Trunk Diameter	Condition (From CTLA Condition Assessment)	Location	Species Rating (From Supplement)	Appraised Value
Cottonwood (<i>Populus fremontii</i>)	232	17	25.0%	63.33%	30.00%	\$400.1
Cottonwood (<i>Populus fremontii</i>)	233	18	25.0%	63.33%	30.00%	\$447.5
Coast redwood (<i>Sequoia sempervirens</i>)	234	16	75.0%	63.33%	90.00%	\$3,197.9
Bay Laurel (<i>Umbellularia californica</i>)	235	84	50.0%	63.33%	70.00%	\$40,556.4
Coast redwood (<i>Sequoia sempervirens</i>)	236	40	50.0%	63.33%	90.00%	\$11,957.2
Coast redwood (<i>Sequoia sempervirens</i>)	237	24	50.0%	63.33%	90.00%	\$4,735.3
Coast redwood (<i>Sequoia sempervirens</i>)	238	40 and 24	50.0%	63.33%	90.00%	\$16,692.00
Willow (<i>Salix alba</i>)	240	24	50.0%	63.33%	30.00%	\$1,578.4
Willow (<i>Salix alba</i>)	241	24	50.0%	63.33%	30.00%	\$1,578.4
Coast redwood (<i>Sequoia sempervirens</i>)	242	24, 24, 60, 60, 40	50.0%	63.33%	90.00%	\$60,183.00
Bay Laurel (<i>Umbellularia californica</i>)	243	24	25.0%	63.33%	70.00%	\$22,732.01
Coast redwood (<i>Sequoia sempervirens</i>)	245	50	75.0%	63.33%	90.00%	\$24,022.0
Coast redwood (<i>Sequoia sempervirens</i>)	246	30	75.0%	63.33%	90.00%	\$11,056.9



Tree Species	#	Trunk Diameter	Condition (From CTLA Condition Assessment)	Location	Species Rating (From Supplement)	Appraised Value
Coast redwood (<i>Sequoia sempervirens</i>)	247	31	75.0%	63.33%	90.00%	\$11,567.8
Coast redwood (<i>Sequoia sempervirens</i>)	248	52	50.0%	63.33%	90.00%	\$27,639.00
Coast redwood (<i>Sequoia sempervirens</i>)	249	42	50.0%	63.33%	90.00%	\$16,811.00
Coast redwood (<i>Sequoia sempervirens</i>)	250	60	50.0%	63.33%	90.00%	\$19,377.7
Coast redwood (<i>Sequoia sempervirens</i>)	251	67	50.0%	63.33%	90.00%	\$21,318.7
Coast redwood (<i>Sequoia sempervirens</i>)	252	12	50.0%	63.33%	90.00%	\$1,220.8
Coast redwood (<i>Sequoia sempervirens</i>)	253	60	50.0%	63.33%	90.00%	\$19,377.7
Coast redwood (<i>Sequoia sempervirens</i>)	254	72	50.0%	63.33%	90.00%	\$22,496.8
Coast redwood (<i>Sequoia sempervirens</i>)	255	15	50.0%	63.33%	90.00%	\$1,879.7
Coast redwood (<i>Sequoia sempervirens</i>)	256	15	50.0%	63.33%	90.00%	\$1,879.7
Coast redwood (<i>Sequoia sempervirens</i>)	257	28	50.0%	63.33%	90.00%	\$6,427.5
Coast redwood (<i>Sequoia sempervirens</i>)	258	26	50.0%	63.33%	90.00%	\$5,548.9
Coast redwood (<i>Sequoia sempervirens</i>)	259	15	50.0%	63.33%	90.00%	\$1,879.7



Tree Species	#	Trunk Diameter	Condition (From CTLA Condition Assessment)	Location	Species Rating (From Supplement)	Appraised Value
Coast redwood (<i>Sequoia sempervirens</i>)	260	29	50.0%	63.33%	90.00%	\$6,891.3
Coast redwood (<i>Sequoia sempervirens</i>)	261	40	50.0%	63.33%	90.00%	\$11,957.2
Coast redwood (<i>Sequoia sempervirens</i>)	262	42	50.0%	63.33%	90.00%	\$12,824.3
Coast redwood (<i>Sequoia sempervirens</i>)	263	30	25.0%	63.33%	90.00%	\$3,685.6
Coast redwood (<i>Sequoia sempervirens</i>)	264	72	50.0%	63.33%	90.00%	\$22,496.8
Coast redwood (<i>Sequoia sempervirens</i>)	265	17	25.0%	63.33%	90.00%	\$1,200.2
Coast redwood (<i>Sequoia sempervirens</i>)	266	36	50.0%	63.33%	90.00%	\$10,139.8
Coast redwood (<i>Sequoia sempervirens</i>)	267	52	25.0%	63.33%	90.00%	\$8,371.4
Bay Laurel (<i>Umbellularia californica</i>)	268	36	25.0%	63.33%	70.00%	\$8,340.4
Bay Laurel (<i>Umbellularia californica</i>)	268	24	25.0%	63.33%	70.00%	\$6,076.00
Coast redwood (<i>Sequoia sempervirens</i>)	269	43	50.0%	63.33%	90.00%	\$13,247.4
Coast redwood (<i>Sequoia sempervirens</i>)	270	17	50.0%	63.33%	90.00%	\$2,400.4
Coast redwood (<i>Sequoia sempervirens</i>)	271	16	50.0%	63.33%	90.00%	\$2,994.00



Tree Species	#	Trunk Diameter	Condition (From CTLA Condition Assessment)	Location	Species Rating (From Supplement)	Appraised Value
Coast redwood (<i>Sequoia sempervirens</i>)	272	36	50.0%	63.33%	90.00%	\$37,121.00
Coast redwood (<i>Sequoia sempervirens</i>)	273	38	75.0%	63.33%	90.00%	\$16,593.6
Coast live oak (<i>Quercus agrifolia</i>)	291	20	50.0%	63.33%	90.00%	\$4,117.0
Coast redwood (<i>Sequoia sempervirens</i>)	292	8	75.0%	63.33%	70.00%	\$664.9
Coast redwood (<i>Sequoia sempervirens</i>)	293	11	75.0%	63.33%	70.00%	\$1,205.9
Coast redwood (<i>Sequoia sempervirens</i>)	294	34	75.0%	63.33%	70.00%	\$10,721.1
Coast redwood (<i>Sequoia sempervirens</i>)	295	36	75.0%	63.33%	70.00%	\$11,829.8
Coast redwood (<i>Sequoia sempervirens</i>)	296	12	75.0%	63.33%	70.00%	\$1,424.2
Coast redwood (<i>Sequoia sempervirens</i>)	297	12	75.0%	63.33%	70.00%	\$1,424.2
Coast redwood (<i>Sequoia sempervirens</i>)	298	48	75.0%	63.33%	70.00%	\$17,801.8
Coast redwood (<i>Sequoia sempervirens</i>)	299	20	75.0%	63.33%	70.00%	\$3,854.0
Coast redwood (<i>Sequoia sempervirens</i>)	300	12	75.0%	63.33%	70.00%	\$1,424.2
Coast live oak (<i>Quercus agrifolia</i>)	181	36	50.0%	63.33%	90.00%	\$10,139.8



Tree Species	#	Trunk Diameter	Condition (From CTLA Condition Assessment)	Location	Species Rating (From Supplement)	Appraised Value
Bay Laurel (<i>Umbellularia californica</i>)	182	60	50.0%	63.33%	70.00%	\$31,916.9
Coast live oak (<i>Quercus agrifolia</i>)	183	20	50.0%	63.33%	90.00%	\$4,117.0



Appendix C: Photographs

C1: Stand of redwoods #245 to #268



C2: Multi-trunk redwood #272



C3: Willows #240 and #241 in dense thicket



C4: Cottonwoods #230 to #231 and redwood #232 on Enterprise Tech



C5: Cottonwoods #220 to #224



C6: Northeast Stand



Appendix D: Tree protection specifications

Tree protection locations should be marked before any fencing contractor arrives.

Pre-Construction Meeting with the Project Arborist

Prior to beginning work, all contractors involved with the project should attend a pre construction meeting with the project arborist to review the tree protection guidelines. Access routes, storage areas, and work procedures will be discussed.

Tree Protection Zones and Fencing

Tree protection fencing should be established prior to the arrival of construction equipment or materials on site. Fencing should be comprised of six-foot high chain link fencing mounted on eight-foot tall, 1 7/8-inch diameter galvanized posts, driven 24 inches into the ground and spaced no more than 10 feet apart. Once established, the fencing must remain undisturbed and be maintained throughout the construction process until final inspection.

The fencing should be maintained throughout the site during the construction period and should be inspected periodically for damage and proper functions.

Fencing should be repaired, as necessary, to provide a physical barrier from construction activities.

A final inspection by the city arborist at the end of the project will be required prior to removing any tree protection fence and replacement tree shall be planted at this time.

Monitoring

Any trenching, construction or demolition that is expected to damage or encounter tree roots should be monitored by the project arborist or a qualified ISA Certified Arborist and should be documented.

The site should be evaluated by the project arborist or a qualified ISA Certified Arborist after construction is complete, and any necessary remedial work that needs to be performed should be noted.

Restrictions Within the Tree Protection Zone

No storage of construction materials, debris, or excess soil will be allowed within the Tree Protection Zone. Spoils from the trenching shall not be placed within the tree protection zone either temporarily or permanently. Construction personnel and equipment shall be routed outside the tree protection zones.



Root Pruning

Root pruning shall be supervised by the project arborist. When roots over two inches in diameter are encountered they should be pruned by hand with loppers, handsaw, reciprocating saw, or chain saw rather than left crushed or torn. Roots should be cut beyond sinker roots or outside root branch junctions and be supervised by the project arborist. When completed, exposed roots should be kept moist with burlap or backfilled within one hour.

Boring or Tunneling

Boring machines should be set up outside the drip line or established Tree Protection Zone. Boring may also be performed by digging a trench on both sides of the tree until roots one inch in diameter are encountered and then hand dug or excavated with an Air Spade® or similar air or water excavation tool. Bore holes should be adjacent to the trunk and never go directly under the main stem to avoid oblique (heart) roots. Bore holes should be a minimum of three feet deep.

Timing

If the construction is to occur during the summer months supplemental watering and bark beetle treatments should be applied to help ensure survival during and after construction.

Tree Pruning and Removal Operations

All tree pruning or removals should be performed by a qualified arborist with a C-61/D-49 California Contractors License. Tree pruning should be specified in writing according to ANSI A-300A pruning standards and adhere to ANSI Z133.1 safety standards. Trees that need to be removed or pruned should be identified in the pre-construction walk through.

Tree Protection Signs

All sections of fencing should be clearly marked with signs stating that all areas within the fencing are Tree Protection Zones and that disturbance is prohibited. Text on the signs should be in both English and Spanish (Appendix E).



City of Scotts Valley Requirements 17.44.080

Preservation and Maintenance.

1. The existing ground surface in the tree zone of any protected trees shall not be cut, filled, compacted or paved as a part of any new development project unless specifically recommended by a certified arborist. Specific attention to paving or covering soil within the tree zone of the any protected trees shall be evaluated to ensure the long term health of the tree(s). All cut fill, compaction and paving within the tree root zone of any protected tree shall be reviewed by a certified arborist and appropriate recommendations made based upon the conditions relative to the particular site and the condition and type of tree being affected. When conditions are applied to new development projects for preservation of specific tree(s), such conditions shall be applied to the future preservation and maintenance of the tree(s) after construction is complete.
2. When a proposed development complies with subsection E.4 and still encroaches into the tree root zone of any protected tree, special construction techniques shall be employed to permit the roots to remain undisturbed. The special construction techniques, as recommended by a certified arborist, may be required to be submitted with the application for building permits.
3. Excavation adjacent to any protected tree shall not be permitted where material damage to the root system will result. In questionable situations, the applicant shall provide substantiated documentation acceptable and satisfactory to the certified arborist and the community development director showing that the trees will be properly protected. Posting of a bond to insure tree protection may be required at the discretion of the community development director.
4. Chain link fencing with posts sunk in the ground or other fencing method approved by the city arborist shall be installed in locations surrounding tree(s) to be preserved during all construction activities on site. The location of the fencing shall be as determined by the certified arborist and community development director. Such fencing shall be installed by the applicant and inspected prior to issuance of a grading and building permit.
5. Landscaping and irrigation plans within the tree root zone of any protected tree(s) shall be reviewed and recommended by a certified arborist.



Appendix E: Tree Protection Signs

E1: English

WARNING
Tree Protection Zone
**This Fence Shall not be moved without
approval. Only authorized personnel
may enter this area!**

Project Arborist



E2: Spanish

CUIDADO
Zona De Arbol Pretejido
Esta cerca no sera removida sin
aprobacion. Solo personal autorizado
entrara en esta area!

Project Arborist



Qualifications, Assumptions, and Limiting Conditions

Any legal description provided to the consultant is assumed to be correct. Any titles or ownership of properties are assumed to be good and marketable. All property is appraised or evaluated as though free and clear, under responsible ownership and competent management.

All property is presumed to be in conformance with applicable codes, ordinances, statutes, or other regulations.

Care has been taken to obtain information from reliable sources. However, the consultant cannot be responsible for the accuracy of information provided by others.

The consultant shall not be required to give testimony or attend meetings, hearings, conferences, mediations, arbitration, or trials by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services.

This report and any appraisal value expressed herein represent the opinion of the consultant, and the consultant's fee is not contingent upon the reporting of a specified appraisal value, a stipulated result, or the occurrence of a subsequent event.

Sketches, drawings, and photographs in this report are intended for use as visual aids, are not necessarily to scale, and should not be construed as engineering or architectural reports or surveys. The reproduction of information generated by architects, engineers, or other consultants on any sketches, drawings, or photographs is only for coordination and ease of reference. Inclusion of said information with any drawings or other documents does not constitute a representation as to the sufficiency or accuracy of said information.

Unless otherwise expressed: a) this report covers only examined items and their condition at the time of inspection; and b) the inspection is limited to visual examination of accessible items without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied, that structural problems or deficiencies of plants or property may not arise in the future.



Certification of Performance

I Richard Gessner, Certify:

That I have personally inspected the tree(s) and/or the property referred to in this report, and have stated my findings accurately. The extent of the evaluation and/or appraisal is stated in the attached report and Terms of Assignment;

That I have no current or prospective interest in the vegetation or the property that is the subject of this report, and I have no personal interest or bias with respect to the parties involved;

That the analysis, opinions and conclusions stated herein are my own;

That my analysis, opinions, and conclusions were developed and this report has been prepared according to commonly accepted Arboricultural practices;

That no one provided significant professional assistance to the consultant, except as indicated within the report.

That my compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party, nor upon the results of the assessment, the attainment of stipulated results, or the occurrence of any other subsequent events;

I further certify that I am a Registered Consulting Arborist® with the American Society of Consulting Arborists, and that I acknowledge, accept and adhere to the ASCA Standards of Professional Practice. I am an International Society of Arboriculture Board Certified Master Arborist®. I have been involved with the practice of Arboriculture and the care and study of trees since 1998.

Richard J. Gessner



ASCA Registered Consulting Arborist® #496
ISA Board Certified Master Arborist® WE-4341B
ISA Tree Risk Assessor Qualified



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