To: City of Sunnyvale Planning Department
From: Kurt Fouts – Arborist Consultant
Re: City Comments dated 1/16/19
Date: 1/23/2019

Project: 2018-7737
Submittal: 3
PRC Date: 01/16/19
Address: 898 E EVELYN AV
Description: Tentative Parcel Map, Special Development Permit, & Design Review to subdivide an existing duplex into two separate condos

This letter and attached plan are a revision to my arborist report for the above property, dated 10/24/2018. As per city comments, two 15-gallon camphor trees (*Cinnamomum camphora*), will be planted at the 898 Evelyn Avenue site as replacement trees for the carob tree that will be removed.

The attached Tree Protection Plan, Sheet T1 has been revised to include the planting locations for two camphor trees. The planting locations shown are greater than 10 feet from the sanitary sewer laterals serving the remodeled home.

Also attached is the arborist report dated 10/24/2018, for your reference.

Any question regarding this revision can be directed to my office. Email and phone shown below.

Best regards,

Kurt Fouts

Kurt Fouts

Kurt Fouts
Arborist Consultant
826 Monterey Avenue
Capitola, CA 95010
831-359-3607
kurtfouts1@outlook.com

Attachments:

- Revised Tree Protection Plan, Sheet T1
- Arborist Report dated 10/24/2018

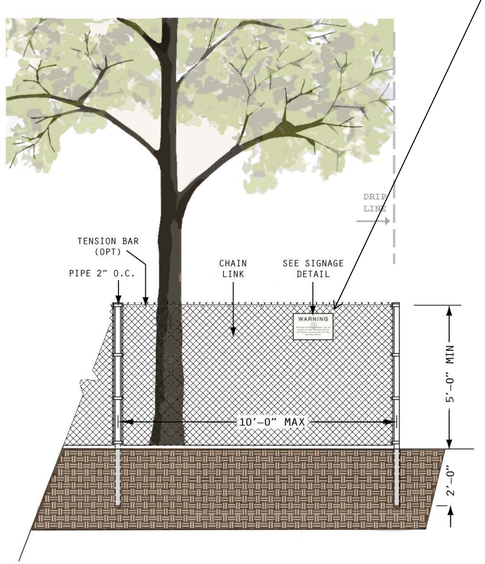
The Tree Protection Specifications & Recommended Sequence

Demolition:

1. Remove trees as indicated on Tree Protection Plan sheet.
2. Install Tree Protection Fencing as indicated on Tree Protection Plan sheet,T1
3. Remove existing concrete driveways (2) and entry walkways. Do not use a backhoe or excavator that may damage tree roots. Use a jack hammer to break concrete into small pieces and hand load.
4. Remove existing sidewalk by same method as #3 above, if tree T1 is retained.
5. Abandon existing water line. Remove existing meter boxes.

Construction Phases:

1. Utilities –If utility routes are within the TPZ of any trees, **the project arborist shall be notified 48 hours prior** to this work to confirm trench location and root pruning procedures with the installation crew. Excavation for utilities within the T.P.Z. for tree T3 shall be accomplished by hand. Temporarily remove sections of Tree Protection Fence to allow access for utility line installation. Depending on palm root mass and orientation, a determination will be made to prune sections of roots or retain the root section by "bridging" the trench and installing the piping under the roots.
2. New Sidewalk – If tree T1 is retained, **the project arborist shall be notified 48 hours prior** to this work to confirm excavation procedures and any necessary root pruning procedures with the installation crew.
3. Paver Driveways and Walkways – **The project arborist shall be notified 48 hours prior** to this work to review hand trenching locations for paver driveway and walkway. Excavation for the edges of the driveway and walkway (as indicated on Tree Protection Plan sheet T1), shall be accomplished by hand, prior to excavation for remainder of driveway and walkway. A trench shall be dug on the edges, 6 inches to one foot outside the forming boards. The depth of the trench shall equal the depth required for excavation of the driveway and walkway. If roots are encountered 2" in diameter or greater, they shall be pruned under supervision of the Project Arborist and by methods indicated on Tree Protection Plan sheet T2, Pre-Construction Root Pruning.
4. New Bedroom Foundation - If tree T7 is retained, **the project arborist shall be notified 48 hours prior** to this work to confirm excavation procedures and any necessary root pruning procedures with the installation crew. The wood deck will be removed, and the edge of the existing slab will be inspected to determine the number and size of significant roots that may grow under the slab and will require removal for new foundation. Some hand excavation at slab edge may be required, to aid in root evaluation. If the size and number of roots found is determined to be minimal, the tree can be retained and any roots 2" in diameter or larger shall be pruned under supervision of the Project Arborist and by methods indicated on Tree Protection Plan sheet T2, Pre-Construction Root Pruning. If the size and number of roots growing under the slab is determined to be significant, the tree should be removed.
5. New Bedroom Roof – If tree T7 is retained, clearance pruning to achieve a minimum of 5 feet from the roof and adjacent fire place chimney shall be accomplished.



TREE PROTECTION FENCE DETAIL
ELEVATION VIEW

Legend

Tree Location & Number

Tree Protection Fencing

Tree Canopy Extents

Hand Trenching & Root Pruning

Remove Tree X

Warning

Tree Protection Zone

Keep Out

NOTICE: PROTECTIVE FENCING IS REQUIRED ON THIS JOB SITE. THIS FENCE SHALL NOT BE REMOVED & IS SUBJECT TO A PENALTY ACCORDING TO PAMC SECTION 8.10.110.9 NO STORAGE OF MATERIALS OF ANY TYPE IS ALLOWED WITHIN THE FENCED AREA.

This sign must be prominently displayed. Fencing may not be moved or removed without permission of the Project Arborist.
During demolition and construction, all reasonable steps necessary to prevent damage, or the destruction of protected trees is required. Failure to comply with all precautions may result in a STOP WORK order being issue by the regulating agency.

No Entry without Project Arborist Authorization
Kurt Fouts –Arborist Consultant- 831 – 359 -3607

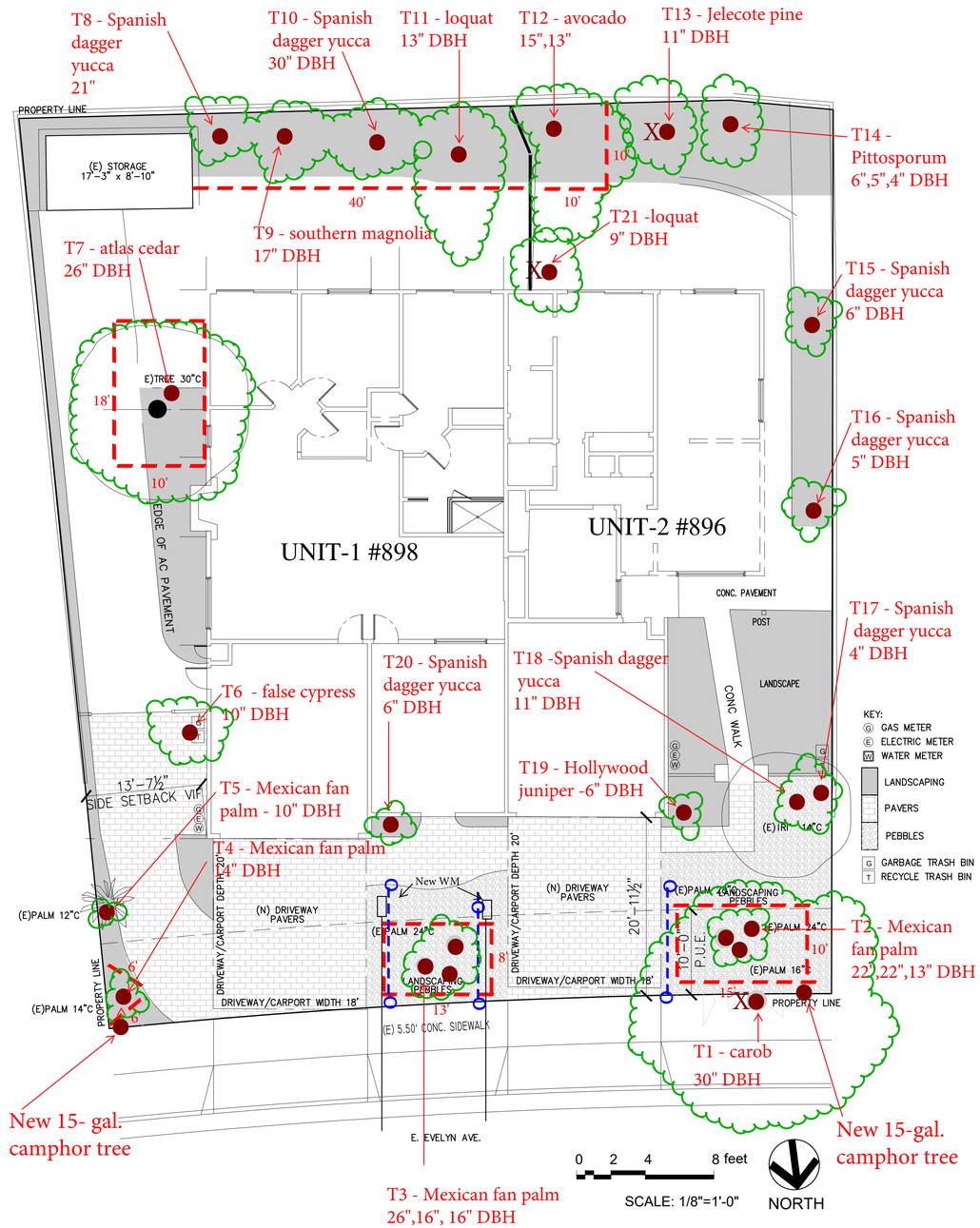
PRE-CONSTRUCTION ROOT PRUNING

Excavation shall only occur within the TPZ (Tree Protection Zone), of retained trees, when designated by the Project Arborist. Excavations within (*or outside of the TPZ, as designated*), the Tree Protection Zone, will be executed by hand, in order to preserve roots two (2") inches in diameter or greater during the excavation process. All root pruning will be conducted under supervision of the Project Arborist. These activities will be documented, and a monitoring report will be provided to the City Arborist. Under direction of the Project Arborist, it may be necessary to temporarily remove the Tree Protection Fencing to allow access for root pruning activities.

Trenches for root pruning will be hand dug according to locations of the Tree Protection Plan sheet:

- Trenches will be dug one foot behind staking on tree side of stakes.
- The depth of the trench will equal the depth required for installation of the adjacent element.
- Cleanly prune and roots encountered 2 inches in diameter or greater. Use loppers, hand saw or Sawzall. A sharp spade may be used for palm roots. The pruned roots should be covered with burlap layers or carpeting and kept moist until the trench is backfilled.
- Reinstall the Tree Protection Fencing to its original location.

See arborist report dated October 24, 2018 for additrional tree protection information.



Kurt Fouts
Arborist Consultant
826 Monterey Avenue
Capitola, CA 95010
831-559-3607
kurtfouts1@outlook.com

APN213-03-007

Tree Protection Plan

896 & 898 Evelyn Avenue

K>F. 10/26/2018

Sheet T1
of 1

ARBORIST REPORT-

Tree Resource Analysis, Construction Impacts & Protection Plan for:

896 & 898 Evelyn Avenue/ APN: 213-03-007

Sunnyvale, CA

October 24, 2018

Prepared for:

Mr. Thomas TuanDat Nguyen
2943 Bell Avenue
San Jose, CA 95133

Prepared by:

Kurt Fouts
Arborist Consultant

826 Monterey Avenue
Capitola, CA 95010
831-359-3607
kurtfouts1@outlook.com

ISA Certified Arborist WE0681A

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- City of Sunnyvale Protected Trees

Appendix H - Assumptions & Limiting Conditions

SUMMARY

- An existing duplex will be subdivided into two separate condominiums at 896 & 898 Evelyn Avenue, Sunnyvale.
- Twenty-one trees including ten “protected” trees on the property, were inventoried.
- The ten “protected” trees are comprised of seven species. Nine of the ten trees are in good to fair condition.
- One “protected” tree is in poor condition, will suffer significant construction impacts and its removal is recommended.
- One “protected” tree is in good condition, may suffer significant impacts and will require further root inspection to determine degree of impacts.
- Two “protected” groups of palms will suffer moderate construction impacts and can be retained.
- There will be minor, to no construction impacts to the remaining “protected” trees.
- Mitigation measures for retained trees are specified and protection methods detailed.
- When final construction plans are submitted, additional protection specifications may be required.

Background

Plans will be submitted to the City of Sunnyvale Planning Department, to subdivide an existing duplex into two separate condominiums. Mr. Thomas TuanDat Nguyen has requested my services, to assess the condition of ten trees on the applicant’s property and two trees on an adjacent property with canopies that overhang the project boundaries, and the construction impacts that may affect them. Further, to provide a report with my findings and recommendations to meet City of Sunnyvale planning requirements.

Assignment

Provide an arborist report that includes an assessment of the trees within the project area. The assessment is to include the species, size (trunk diameter, height and canopy spread), condition (health and structure), and suitability for preservation ratings.

To complete this assignment, the following services were performed:

- **Tree Resource Evaluation:** Inventory, evaluate and assign suitability for preservation ratings for subject trees.
- **Plan Review: Reviewed provided plans including:** Civil Plan Set, by KLC Engineers, dated October 3, 2018 and Architectural Plan set, by KLC Engineers dated October 18, 2018.
- **Construction Impact Assessment:** Combine tree resource data with anticipated construction impacts, to provide recommendations for removal or retention of trees.
-

- **Mapping:** Tree canopies were plotted onto: Architectural Site Plan, Landscape Calculations, Sheet L, by KLC Engineers, dated October 18, 2018 and a Tree Protection Plan sheet was developed.

Limits of the Assignment

The information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection on October 24, 2018.

The inspection is limited to visual examination of accessible items without climbing, dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the trees in questions may not arise in the future.

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 the developer, their agents, and the City of Sunnyvale as a reference for existing tree conditions and to help satisfy the City of Sunnyvale planning requirements.

Resources

All information within this report is based on site plans as of the date of this report. Resources are as follows:

- Civil Plan Set dated October 3, 2018 and Architectural Plan set dated October 18, 2018.
- Site Visit, Tree Inventory & Condition Evaluation at, 896 & 898 Evelyn Avenue, Sunnyvale, 10/24/2018.
- City of Sunnyvale Municipal Code – Chapter 19.94 *Tree Preservation* (applicable sections).

OBSERVATIONS

The project site is slopes from the rear yard to Evelyn Avenue. The front yard contains several “protected” trees including a mature carob tree, two sets of three mature Mexican fan palms and a smaller Mexican fan palm in the north east corner. The two sets of fan palms consist of three palms planted closely together.

Image #1 – Two sets of Mexican fan palms (red arrows) & carob tree (blue arrow).

The rear yard includes several “protected” mature trees planted very close together along the rear fence. The trees include two yuccas, a magnolia, loquat and an avocado.

Image #2 – Backyard trees including magnolia, yuccas, loquat and avocado (in background, middle of image).

One “protected” cedar is in the side yard of Unit 1 - #898. This mature specimen is planted 4.5 feet from the corner of the existing home and has a canopy that overhangs a portion of the roof.

Image #3 – Tree T7, cedar.

DISCUSSION

Species List

TOTAL SUBJECT TREES: 21 Trees

Protected: 10

1	Carob	(*Ceratonia seliqua*)
3	Mexican fan palm	(*Washingtonia robusta*)
1	Atlas cedar	(*Cedrus atlantica*)
2	Spanish dagger yucca	(*Yucca gloriosa)*
1	southern magnolia	*(Magnolia grandiflora)*
1	Loquat	(Euiobotrya deflexa)
1	Avocado	(Persea sp.)

Not Protected: 11

1	Mexican fan palm	(*Washingtonia robusta*)
1	False cypress	(*Chamaecyparis obtusa*)
1	Jelecote pine	(*Pinus patula*)
1	Pittosporum	(*Pittosporum sp.*)
5	Spanish dagger yucca	(*Yucca gloriosa*)
1	Hollywood juniper	(Juniperis chinensis ‘Torulosa’
1	loquat	(*Eriobotrya deflexa*)

Tree Evaluation and Recording Methods

Site evaluations were made on 10/24/2018. *The inventory included all trees on the property within the project limits.* The health and structural **condition** of each tree was assessed and recorded. Based on the trees health and structural condition, each trees **suitability for preservation** was rated and recorded.

The recorded data is included in the *Tree Assessment Chart, Appendix A,* of this report. Tree numbers were plotted on the attached *Tree Protection Plan sheet, T1*. **To correlate the data in the Tree Assessment Chart to the tree’s location on the site, refer to the Tree Protection Site Plan sheet - Appendix C.**

Condition Rating

A trees condition is determined by an assessing both the **health** and **structure**, then combining the two factors to reach a *condition rating*. Tree condition is rated as poor, fair or good. The quantity of trees assigned for each category (good, fair or poor), is indicated below:

Tree Condition Rating

- Good - 10
- Fair - 8
- Poor - 3

Suitability for Preservation

A trees suitability for preservation is determined based on its health, structure, age, species characteristics and longevity using a scale of good, fair or poor. The quantity of trees assigned to each category (good, fair or poor), is listed below.

Suitability Rating

- Good - 9
- Fair – 8
- Poor - 4

Impact Level

Impact level rates the degree a tree may be impacted by construction activity and is primarily determined by how close the construction procedures occur to the tree. Construction impacts are rated as low, moderate, high. The quantity of trees assigned for each category (low, moderate, high), is indicated below:

Impact Rating

- Low - 16
- Moderate – 3
- High - 2

Tree Protection Zone

The tree protection zone (TPZ), is a defined area within which certain activities are prohibited or restricted to minimize potential injury to designated trees during construction.

The size of the optimal TPZ can be determined by a formula based on: 1) trunk diameter 2) species tolerance to construction impacts, and 3) tree age (Matheny, N. and Clark, J 1998). In some instances, tree drip line is used as the TPZ. Development constraints can also influence the final size of the tree protection zone.

Fencing is installed to delineate the (TPZ), and to protect tree roots, trunk, and scaffold branches from construction equipment. *The fenced protection area may be smaller than the optimal or designated TPZ area in some circumstances.* Tree protection may also involve the armoring of the tree trunk and/or scaffold limbs with barriers to prevent mechanical damage from construction equipment. *See Tree Protection Guidelines & Restrictions* – Appendix E.

Once the TPZ is delineated and fenced (prior to any site work, equipment and materials move in), construction activities are only to be permitted within the TPZ if allowed for and specified by the project arborist.

Where tree protection fencing cannot be used, or as an additional protection from heavy equipment, tree wrap may be used. Wooden slats at least one inch thick are to be bound securely, edge to edge, around the trunk. A single layer or more of orange plastic construction fencing is to be wrapped and secured around the outside of the wooden slats. Major scaffold limbs may require protection as determined by the City arborist or Project arborist. Straw wattle may also be used as a trunk wrap and secured with orange plastic fencing.

Data has been entered in the *Tree Assessment Chart – Appendix A,* which indicates the optimal Tree Protection Zone for each tree.

Additional general tree protection guidelines are included in *Tree Protection Guidelines & Restrictions* – Appendix G.

Critical Root Zone

Critical Root Zone (CRZ) is the area of soil around the trunk of a tree where roots are located that provide critical stability, uptake of water and nutrients required for a tree's survival. The CRZ is the minimum distance from the trunk that trenching that requires root cutting should occur and can be calculated as three to the five times the trunk Diameter at Breast Height (DBH). For example, if a tree is one foot in trunk diameter than the CRZ is three to five feet from the trunk location. We will often average this as four times the trunk diameter or 1ft. DBH = 4ft. CRZ (Smiley, E.T., Fraedrich, B. and Hendrickson, N. 2007).

Construction Impacts to Subject Trees

Demolition Elements Affecting Subject Trees

1. Removal of any existing driveways (2).
2. Removal of existing sidewalk.
3. Abandonment of existing water lines and meters (2).

Construction Phases Affecting Subject Trees –

1. Installation of new water service and meters (2).
2. Installation of new paver driveways and entry walkways (2).
3. Installation of new foundation footing for new bedroom (Unit #1).
4. Installation of new bedroom roof (Unit #1).

Impacts to Subject Trees by Tree Number –

Demolition:

1. Removal of existing driveways will impact trees T1,T2, & T3.
2. Removal of existing sidewalk will impact tree T1.
3. Abandonment of existing water lines and meters (2) could impact tree T1.

Construction Phases:

1. Installation of new water service and meters (2), will impact tree T3.
2. Installation of new sidewalk will impact tree T1.
3. Installation of new paver driveways (2) & entry walkways, will impact trees T1,2,3 & T4.
4. Installation of new foundation footing for new bedroom (Unit #1) will impact tree T7.
5. Installation of new bedroom roof (Unit #1), will impact tree T7.

Mitigation Measures for Retained Trees

The trees retained on this project will require the following methods to protect them from the impacts described above and to minimize root or canopy damage during the demolition and construction phases.

- Tree Protection Fencing
- Supervised hand excavation.
- Supervised, selective and non- selective root pruning.

Detailed descriptions of the protection requirements (mitigation methods), listed above are specified below. Some of the demolition and construction work will affect the *critical root zones* of selected trees and mitigation methods including project arborist supervision is specified. ***The Tree Protection Specifications & Recommended Sequence listed below, are included on the attached Tree Protection Plan sheet T1 and shall become an element of the final plan set.***

When final drawings are submitted, additional tree protections may be specified in an addendum or revision to this report and included on the *Tree Protection Plan* sheet T1 or an additional T2 sheet.

Tree Protection Specifications & Recommended Sequence

Demolition:

1. Remove trees as indicated on Tree Protection Plan sheet.
2. Install Tree Protection Fencing as indicated on Tree Protection Plan sheet,T1
3. Remove existing concrete driveways (2) and entry walkways. Do not use a backhoe or excavator that may damage tree roots. Use a jack hammer to break concrete into small pieces and hand load.
4. Remove existing sidewalk by same method as #3 above,24 if tree T1 is retained.
5. Abandon existing water line. Remove existing meter boxes.

Construction Phases:

1. Utilities –If utility routes are within the TPZ of any trees, **the project arborist shall be notified 48 hours prior** to this work to confirm trench location and root pruning procedures with the installation crew. Excavation for utilities within the T.P.Z. for tree T3 shall be accomplished by hand. Temporarily remove sections of Tree Protection Fence to allow access for utility line installation. Depending on palm root mass and orientation, a determination will be made to prune sections of roots or retain the root section by “bridging” the trench and installing the piping under the roots.
2. New Sidewalk – If tree T1 is retained, **the project arborist shall be notified 48 hours prior** to this work to confirm excavation procedures and any necessary root pruning procedures with the installation crew.

3. Paver Driveways and Walkways – **The project arborist shall be notified 48 hours prior** to this work to review hand trenching locations for paver driveway and walkway. Excavation for the edges of the driveway and walkway (as indicated on Tree Protection Plan sheet T1), shall be accomplished by hand, prior to excavation for remainder of driveway and walkway. A trench shall be dug on the edges, 6 inches to one foot outside the forming boards. The depth of the trench shall equal the depth required for excavation of the driveway and walkway. If roots are encountered 2" in diameter or greater, they shall be pruned under supervision of the Project Arborist and by methods indicated on Tree Protection Plan sheet T2, Pre-Construction Root Pruning.
4. New Bedroom Foundation - If tree T7 is retained, **the project arborist shall be notified 48 hours prior** to this work to confirm excavation procedures and any necessary root pruning procedures with the installation crew. The wood deck will be removed, and the edge of the existing slab will be inspected to determine the number and size of significant roots that may grow under the slab and will require removal for new foundation. Some hand excavation at slab edge may be required, to aid in root evaluation. If the size and number of roots found is determined to be minimal, the tree can be retained and any roots 2" in diameter or larger shall be pruned under supervision of the Project Arborist and by methods indicated on Tree Protection Plan sheet T2, Pre-Construction Root Pruning. If the size and number of roots growing under the slab is determined to be significant, the tree should be removed.
5. New Bedroom Roof – If tree T7 is retained, clearance pruning to achieve a minimum of 5 feet from the roof and adjacent fire place chimney shall be accomplished.

Tree Appraisal and Valuation

The value of five "protected" trees, affected by the proposed project have been appraised. References included, 1) *Guide for Plant Appraisal 9th Edition, 2) Species Classification and Group Assignment,* (Wester Chapter Edition).

The total appraised value is $19,105. The criteria for appraisal are included in the attached spreadsheet, *Appendix D, Appraised Value of "Protected" Trees – Trunk Formula Method.*

The approving body shall have the authority to require a developer to post a bond with the City of Sunnyvale, for the value of any tree required to remain as a condition of permit approval during development activities on a site.

Tree Replacement

If "protected" trees are removed, replacement trees will be required.

The following is an excerpt from the City of Sunnyvale Municipal Code Section 19.94.110: *Requirements concerning protected trees during site development or modification.*

(c) Replanting Plans. When protected trees must be removed, replanting plans shall be submitted as part of the landscaping plan for the proposed project. The replanting plan shall be subject to the requirements of Section 19.94.110., but actual number and sizes of replacement trees shall be reviewed on a case by case basis

CONCLUSION

- An existing duplex will be subdivided into two separate condominiums at 896 & 898 Evelyn Avenue, Sunnyvale.
- Twenty-one trees including ten "protected" trees on the property, were inventoried.
- The ten "protected" trees are comprised of seven species. Nine of the ten trees are in good to fair condition.
- One "protected" tree is in poor condition (tree T1), will suffer significant construction impacts and its removal is recommended.
- One "protected" tree is in good condition (tree T7), may suffer significant impacts and will require further root inspection to determine degree of impacts.
- Two "protected" groups of palms (trees T2 & T3), will suffer moderate construction impacts and can be retained.
- There will be minor, to no construction impacts to the remaining "protected" trees T4 & T8,9,10,11 & 12.
- Mitigation measures for retained trees are specified and protection methods detailed.
- Replacement trees will be required for removal of tree T1 and possibly tree T7. The number and size of replacement trees shall be determined by the City of Sunnyvale.
- When final construction plans are submitted, additional protection specifications may be required.

RECOMMENDATIONS

1. Obtain all necessary permits prior to removing or significantly altering any trees on site.
2. Follow demolition procedures as indicated on Tree Protection Plan sheet.
3. Follow installation procedures as indicated on Tree Protection Plan sheet.
4. If protected trees are removed, plant replacement trees. Size and number to be determined by the City of Sunnyvale.

Respectfully submitted,

Kurt Fouts

Kurt Fouts ISA Certified Arborist WE0681A

Kurt Fouts
Arborist Consultant
826 Monterey Avenue
Capitola, CA 95010
831-359-3607
kurtfouts1@outlook.com

896 & 898 Evelyn Avenue, Sunnyvale

Tree Assessment Chart - Appendix A

Suitability for Preservation Ratings:

Good: Trees in good health and structural condition with potential for longevity on the site

Fair: Trees in fair health and/or with structural defects that may be reduced with treatment procedures

Poor: Trees in poor health and/or with poor structure that cannot be effectively abated with treatment

Retention or Removal Code:

RT: Retain Tree
RI: Remove Due to Construction Impacts
I.M. Impacts can be Mitigated with Pre-Const
R.C. Remove Due to Condition

Protected Tree City of Sunnyvale - Any tree 12 inches or greater in diameter measured at 4.5 feet above grade.

Tree #	Species	Trunk Diameter @ 4.5'	Protected Tree	Crown Height & Spread	Health Rating	Structural Rating	Suitability for Preservation (Based Upon Condition)	Tree Protection Zone (in feet)	Construction Impacts (Rating & Description)	Retention or Removal Code	Comments
T1	carob (*Ceratonia siliqua*)	30"	Yes	40'X35'	Poor	Poor	Poor	23'	High (Root loss: excavation, compaction)	R.C. & R.I.	Tree trunk appears to straddle public / private property line. 3' from existing sidewalk and 8' from new driveway. Grade is raised by extensive buttress root diameter enlargement to 18" above sidewalk grade. Tree has been poorly maintained. Incomplete callusing of pruning scars with deadwood and wood decay fungi present (**Image #4**), indicates lack of energy reserves and reduced vigor. Poor scaffold arrangement with multiple crossing limbs. Thinning and dieback over > 40% of canopy (**Image #5**). Dieback of limbs up to 4" in diameter. Sidewalk is lifted in multiple locations up to 18' from tree trunk (**Image #6**).

Kurt Fouts
Arborist Consultant
826 Monterey Avenue
Capitola, CA 95010
831-359-3607
scharborgrounds@yahoo.com

10/24/2018

896 & 898 Evelyn Avenue, Sunnyvale

Tree Assessment Chart - Appendix A

Tree #	Species	Trunk Diameter @ 4.5'	Protected Tree	Crown Height & Spread	Health Rating	Structural Rating	Suitability for Preservation (Based Upon Condition)	Tree Protection Zone (in feet)	Construction Impacts (Rating & Description)	Retention or Removal Code	Comments
T2	Mexican fan palm (*Washingtonia robusta*)	22",22", 13"	Yes	75'X10'	Fair	Good	Fair	11'	Moderate (Root loss - soil excavation & compaction)	RT	Within 4' of new paver driveway. Remove dead fronds.
T3	Mexican fan palm	26",16", 16"	Yes	65'X15'	Fair	Good	Fair	13'	Moderate (Root loss - soil excavation & compaction).	R.T.	Remove dead fronds. Within 1' of first water service trench, and 4' of second water service trench. With 4' of new paver driveway.
T4	Mexican fan palm	14"	Yes	12'X8'	Good	Good	Good	7'	Low (Root loss - soil excavation and compaction.	R.T.	
T5	Mexican fan palm	10"	No	9'X7'	Good	Good	Good	5'	None	R.T.	
T6	false cypress (*Chamaecyparis obtusa*)	10"	No	37'X15'	Good	Good	Good	10'	High (Root loss: excavation).	R.I.	Within footprint on new paver installation.

Kurt Fouts
Arborist Consultant
826 Monterey Avenue
Capitola, CA 95010
831-359-3607
scharborgrounds@yahoo.com

10/24/2018

896 & 898 Evelyn Avenue, Sunnyvale

Tree Assessment Chart - Appendix A

Tree #	Species	Trunk Diameter @ 4.5'	Protected Tree	Crown Height & Spread	Health Rating	Structural Rating	Suitability for Preservation (Based Upon Condition)	Tree Protection Zone (in feet)	Construction Impacts (Rating & Description)	Retention or Removal Code	Comments
T7	atlas cedar (*Cedrus atlantica*)	26"	Yes	65'X40'	Good	Good	Good	20'	Moderate to High (Root loss: excavation)	R.T. or R.I.	3.5' from new bedroom foundation. Loss of anchoring roots could significantly impact structural stability of tree. Loss of absorbing roots will impact health of tree. Further inspection of root zone is required to better determine impacts. See Tree Protection Specifications in report.
T8	Spanish dagger yucca (*Yucca gloriosa*)	21"	Yes	15'X10'	Fair	Fair	Fair	10'	None	R.T.	
T9	southern magnolia (*Magnolia grandiflora*)	17"	Yes	40'X15'	Fair	Fair	Fair	17'	None	R.T.	
T10	Spanish dagger yucca	30"	Yes	30'X10'	Good	Good	Good	10'	None	R.T.	
T11	loquat (*Eriobotrya deflexa*)	13"	Yes	40'X30'	Good	Fair	Fair	10'	None	R.T.	

Kurt Fouts
Arborist Consultant
826 Monterey Avenue
Capitola, CA 95010
831-359-3607
scharborgrounds@yahoo.com

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896 & 898 Evelyn Avenue, Sunnyvale

Tree Assessment Chart - Appendix A

Tree #	Species	Trunk Diameter @ 4.5'	Protected Tree	Crown Height & Spread	Health Rating	Structural Rating	Suitability for Preservation (Based Upon Condition)	Tree Protection Zone (in feet)	Construction Impacts (Rating & Description)	Retention or Removal Code	Comments
T12	avocado (*Persea sp.*)	15",13"	Yes	38'X25'	Fair	Fair	Fair	15'	None	RT	Co-dominant trunks at grade. Topped at 35' with decay present. Tree has been headed back hard with poor callusing of pruning scars.
T13	Jelecote pine (*Pinus patula*)	11"	No	30'X25'	Poor	Poor	Poor	N/A	None	RC	Tree is in severe decline.
T14	pittosporum (*Pittosporum sp* .)	6",5"4"	No	20'X20'	Poor	Fair	Poor	N/A	None	R.C.	Growth suppressed by shading from adjacent trees. Very poor condition.
T15	Spanish dagger yucca (*Yucca gloriosa*)	6"	No	20'X7'	Good	Good	Good	5'	--	R.T.	
T16	Spanish dagger yucca	5"	No	22'X5'	Fair	Good	Good	5'	Low (Root loss: grading)	R.T.	

Kurt Fouts
Arborist Consultant
826 Monterey Avenue
Capitola, CA 95010
831-359-3607
scharborgrounds@yahoo.com

10/24/2018

896 & 898 Evelyn Avenue, Sunnyvale

Tree Assessment Chart - Appendix A

Tree #	Species	Trunk Diameter @ 4.5'	Protected Tree	Crown Height & Spread	Health Rating	Structural Rating	Suitability for Preservation (Based Upon Condition)	Tree Protection Zone (in feet)	Construction Impacts (Rating & Description)	Retention or Removal Code	Comments
T17	Spanish dagger yucca	4"	No	15'X6'	Fair	Fair	Good	5'	None	R.T.	
T18	Spanish dagger yucca (*Yucca gloriosa*)	11"	No	15'X8'	Good	Good	Good	7'	None	R.T.	
T19	Hollywood juniper (*Juniperis chinensis 'Torulosa'*)	6"	No	12'X5'	Fair	Fair	Fair	6'	None	R.T.	
T20	Spanish dagger yucca	6"	No	15'X10'	Good	Good	Fair	6'	None	R.T.	
T21	loquat (*Eriobotrya deflexa*)	9"	No	20'X15'	Fair	Poor	Poor	7'	None	R.C.	Large vertical split from grade to 4' above grade, with deadwood and decay.

Kurt Fouts
Arborist Consultant
826 Monterey Avenue
Capitola, CA 95010
831-359-3607
scharborgrounds@yahoo.com

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APPENDIX B – CRITERIA FOR TREE ASSESSMENT CHART

Following is an explanation of the data used in the tree evaluations. The data is incorporated in the *Tree Assessment Chart, Appendix A.*

Trunk Diameter and Number of Trunks:

Trunk diameter as measured at 4.5 feet above grade. The number of trunks refers to a single or multiple trunked tree. Multiple trunks are measured at 4.5 feet above grade.

Health Ratings:

Good: A healthy, vigorous tree, reasonably free of signs and symptoms of disease

Fair: Moderate vigor, moderate twig and small branch dieback, crown may be thinning and leaf color may be poor

Poor: Tree in severe decline, dieback of scaffold branches and/or trunk, most of foliage from epicormics

Structure Ratings:

Good: No significant structural defects. Growth habit and form typical of the species

Fair: Moderate structural defects that might be mitigated with regular care

Poor: Extensive structural defects that cannot be abated.

Suitability for Preservation Ratings:

Rating factors:

Tree Health: Healthy vigorous trees are more tolerant of construction impacts such as root loss, grading and soil compaction, then are less vigorous specimens.

Structural integrity: Preserved trees should be structurally sound and absent of defects or have defects that can be effectively reduced, especially near structures or high use areas.

Tree Age: Over mature trees have a reduced ability to tolerate construction impacts, generate new tissue and adjust to an altered environment. Young to maturing specimens are better able to respond to change.

Species response: There is a wide variation in the tolerance of individual tree species to construction impacts.

Rating Scale:

Good: Trees in good health and structural condition with potential for longevity on the site

Fair: Trees in fair health and/or with structural defects that may be reduced with treatment procedures.

Poor: Trees in poor health and/or with poor structure that cannot be effectively abated with treatment. Trees can be expected to decline or fail regardless of construction impacts or management . The species or individual may possess characteristics that are incompatible or undesirable in landscape settings or unsuited for the intended use of the site.

Construction Impacts:

Rating Scale:

High: Development elements proposed that are located within the Tree Protection Zone that would severely impact the health and /or stability of the tree. The tree impacts cannot be mitigated without design changes. The tree may be located within the building footprint.

Moderate: Development elements proposed that are located within the Tree Protection Zone that will impact the health and/or stability of the tree and can be mitigated with tree protection treatments.

Low: Development elements proposed that are located within or near the Tree Protection Zone that will have a minor impact on the health of the tree and can be mitigated with tree protection treatments.

None: Development elements will have no impact on the health and stability of the Tree.

Tree Protection Zone (TPZ):

Defined area within which certain activities are prohibited or restricted to prevent or minimize potential injury to designated trees, particularly during construction or development.

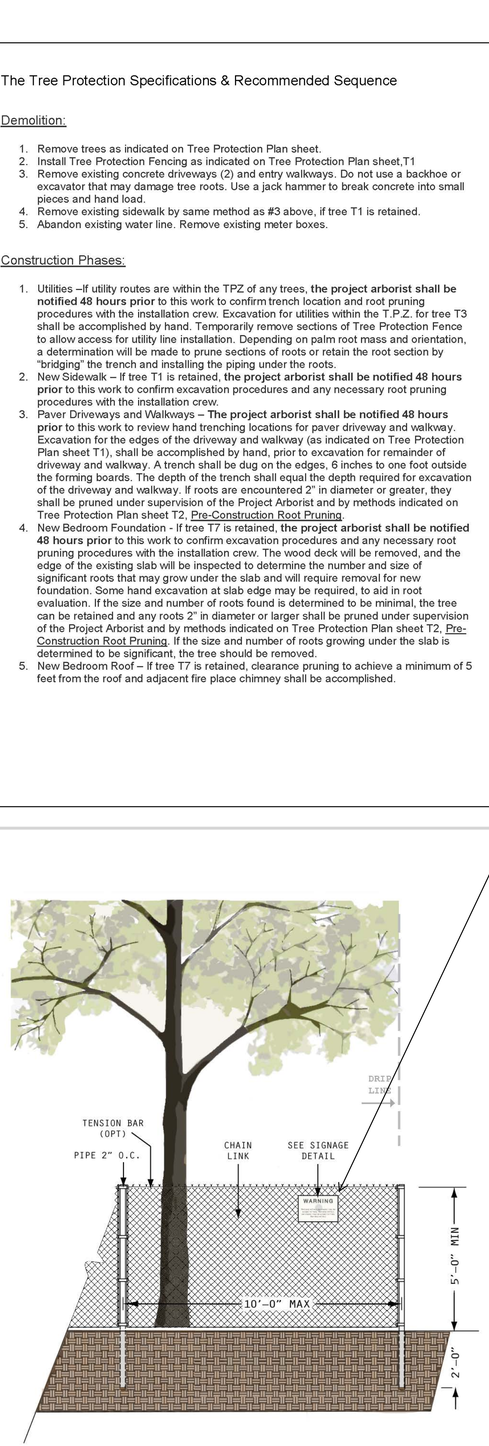
The Tree Protection Specifications & Recommended Sequence

Demolition:

1. Remove trees as indicated on Tree Protection Plan sheet.
2. Install Tree Protection Fencing as indicated on Tree Protection Plan sheet,T1
3. Remove existing concrete driveways (2) and entry walkways. Do not use a backhoe or excavator that may damage tree roots. Use a jack hammer to break concrete into small pieces and hand load.
4. Remove existing sidewalk by same method as #3 above, if tree T1 is retained.
5. Abandon existing water line. Remove existing meter boxes.

Construction Phases:

1. Utilities –If utility routes are within the TPZ of any trees, **the project arborist shall be notified 48 hours prior** to this work to confirm trench location and root pruning procedures with the installation crew. Excavation for utilities within the T.P.Z. for tree T3 shall be accomplished by hand. Temporarily remove sections of Tree Protection Fence to allow access for utility line installation. Depending on palm root mass and orientation, a determination will be made to prune sections of roots or retain the root section by "bridging" the trench and installing the piping under the roots.
2. New Sidewalk – If tree T1 is retained, **the project arborist shall be notified 48 hours prior** to this work to confirm excavation procedures and any necessary root pruning procedures with the installation crew.
3. Paver Driveways and Walkways – **The project arborist shall be notified 48 hours prior** to this work to review hand trenching locations for paver driveway and walkway. Excavation for the edges of the driveway and walkway (as indicated on Tree Protection Plan sheet T1), shall be accomplished by hand, prior to excavation for remainder of driveway and walkway. A trench shall be dug on the edges, 6 inches to one foot outside the forming boards. The depth of the trench shall equal the depth required for excavation of the driveway and walkway. If roots are encountered 2" in diameter or greater, they shall be pruned under supervision of the Project Arborist and by methods indicated on Tree Protection Plan sheet T2, Pre-Construction Root Pruning.
4. New Bedroom Foundation - If tree T7 is retained, **the project arborist shall be notified 48 hours prior** to this work to confirm excavation procedures and any necessary root pruning procedures with the installation crew. The wood deck will be removed, and the edge of the existing slab will be inspected to determine the number and size of significant roots that may grow under the slab and will require removal for new foundation. Some hand excavation at slab edge may be required, to aid in root evaluation. If the size and number of roots found is determined to be minimal, the tree can be retained and any roots 2" in diameter or larger shall be pruned under supervision of the Project Arborist and by methods indicated on Tree Protection Plan sheet T2, Pre-Construction Root Pruning. If the size and number of roots growing under the slab is determined to be significant, the tree should be removed.
5. New Bedroom Roof – If tree T7 is retained, clearance pruning to achieve a minimum of 5 feet from the roof and adjacent fire place chimney shall be accomplished.



TREE PROTECTION FENCE DETAIL
ELEVATION VIEW

Legend

Tree Location & Number

Tree Protection Fencing

Tree Canopy Extents

Hand Trenching & Root Pruning

Remove Tree X

Warning

Tree Protection Zone

Keep Out

NOTICE: PROTECTIVE FENCING IS REQUIRED ON THIS JOB SITE. THIS FENCE SHALL NOT BE REMOVED & IS SUBJECT TO A PENALTY ACCORDING TO PAMC SECTION 8.10.110.9 NO STORAGE OF MATERIALS OF ANY TYPE IS ALLOWED WITHIN THE FENCED AREA.

This sign must be prominently displayed. Fencing may not be moved or removed without permission of the Project Arborist.
During demolition and construction, all reasonable steps necessary to prevent damage, or the destruction of protected trees is required. Failure to comply with all precautions may result in a STOP WORK order being issue by the regulating agency.

No Entry without Project Arborist Authorization
Kurt Fouts –Arborist Consultant- 831 – 359 -3607

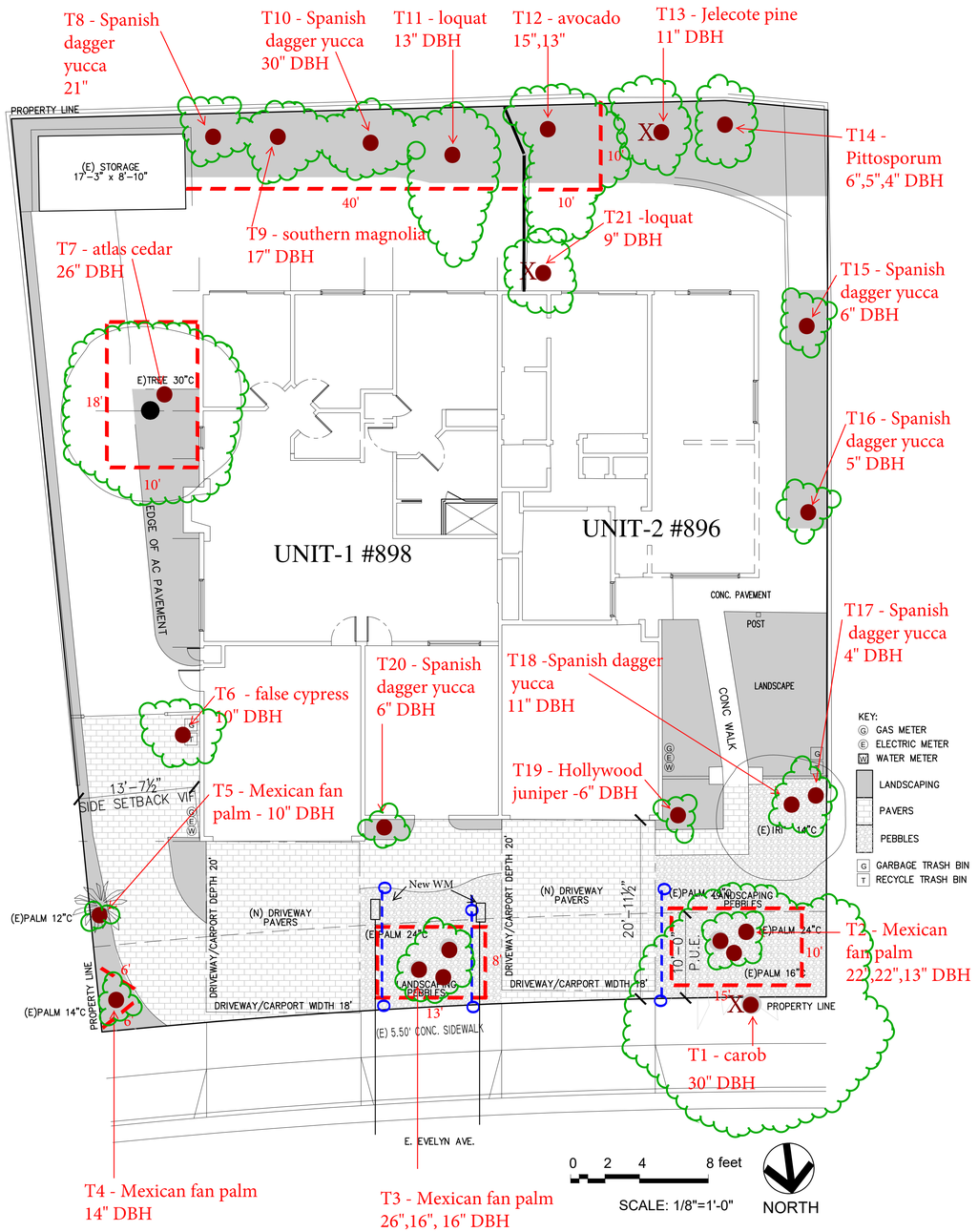
PRE-CONSTRUCTION ROOT PRUNING

Excavation shall only occur within the TPZ (Tree Protection Zone), of retained trees, when designated by the Project Arborist. Excavations within (*or outside of the TPZ, as designated*), the Tree Protection Zone, will be executed by hand, in order to preserve roots two (2") inches in diameter or greater during the excavation process. All root pruning will be conducted under supervision of the Project Arborist. These activities will be documented, and a monitoring report will be provided to the City Arborist. Under direction of the Project Arborist, it may be necessary to temporarily remove the Tree Protection Fencing to allow access for root pruning activities.

Trenches for root pruning will be hand dug according to locations of the Tree Protection Plan sheet:

- Trenches will be dug one foot behind staking on tree side of stakes.
- The depth of the trench will equal the depth required for installation of the adjacent element.
- Cleanly prune and roots encountered 2 inches in diameter or greater. Use loppers, hand saw or Sawzall. A sharp spade may be used for palm roots. The pruned roots should be covered with burlap layers or carpeting and kept moist until the trench is backfilled.
- Reinstall the Tree Protection Fencing to its original location.

See arborist report dated October 24, 2018 for additrional tree protection information.



Kurt Fouts
Arborist Consultant
826 Monterey Avenue
Capitola, CA 95010
831-559-3607
kurtfouts1@outlook.com

Tree Protection Plan

896 & 898 Evelyn Avenue

APN213-03-007

K>F. 10/26/2018

Sheet T1
of 1

896 & 898 Evelyn Avenue, Sunnyvale

Appraised Value of "Protected" Trees - Trunk Formula Method

Tree #	Species	Trunk Diameter @ 4.5'	Basic Tree Cost	Species	Condition	Site	Contribution	Placement	Appraised Value
T1	carob (*Ceratonia siliqua*)	30"	$34,208	50%	56%	70%	70%	40%	**$5,800**
T2	Mexican fan palm (*Washingtonia robusta*)	22",22",13" (3 trees)	$5,750	50%	75%	70%	70%	70%	**$1,450**
T3	Mexican fan palm	26",16",16" (3 trees)	$5,499	50%	75%	70%	70%	70%	**$1,380**
T4	Mexican fan palm	14"	$550	50%	95%	70%	70%	65%	**$175**
T7	atlas cedar (*Cedrus atlantica*)	26"	$26,207	90%	75%	70%	65%	40%	**$10,300**
				Total Value of Appraised Trees					**$19,105**

Kurt Fouts
Arborist Consultant
826 Monterey Avenue
Capitola, CA 95010
831-359-3607
scharborgrounds@yahoo.com

10/4/2018

Image #4 – Tree T1, carob, incomplete callusing of pruning scar with wood decay fungi present.

Image #5 – Tree T1, carob, significantly thinning canopy indicating lack of vigor and decline.

Image #6 – Tree T1, carob (arrow). Sidewalk, curb and gutter cracked and lifted because of enlargement of diameter of several roots. Several previous asphalt repairs are seen.

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Appendix G - TREE PROTECTION GUIDELINES AND

RESTRICTIONS Protecting Trees During Construction:

1) Before the start of site work, equipment or materials move in, clearing, excavation, construction, or other work on the site, every tree to be retained shall be securely fenced- off as delineated in approved plans. Such fences shall remain continuously in place for the duration of the work undertaken in connection with the development.

2) If the proposed development, including any site work, will encroach upon the tree protection zone, special measures shall be utilized, as approved by the project arborist, to allow the roots to obtain necessary oxygen, water, and nutrients.

3) Underground trenching shall avoid the major support and absorbing tree roots of protected trees. If avoidance is impractical, hand excavation undertaken under the supervision of the project arborist may be required. Trenches shall be consolidated to service as many units as possible. Boring/tunneling under roots should be considered as an alternative to trenching.

4) Concrete or asphalt paving shall not be placed over the root zones of protected trees, unless otherwise permitted by the project arborist.

5) Artificial irrigation shall not occur within the root zone of native oaks, unless deemed appropriate on a temporary basis by the project arborist to improve tree vigor or mitigate root loss.

6) Compaction of the soil within the tree protection zone shall be avoided.

7) Any excavation, cutting, or filling of the existing ground surface within the tree protection zone shall be minimized and subject to such conditions as the project arborist may impose. Retaining walls shall likewise be designed, sited, and constructed to minimize their impact on protected trees.

8) Burning or use of equipment with an open flame near or within the tree protection zone shall be avoided. All brush, earth, and other debris shall be removed in a manner that prevents injury to the tree.

9) Oil, gas, chemicals, paints, cement, stucco or other substances that may be harmful to trees shall not be stored or dumped within the tree protection zone of any protected tree, or at any other location on the site from which such substances might enter the tree protection zone of a protected tree.

10) Construction materials shall not be stored within the tree protection zone of a protected tree.

Project Arborist Duties and Inspection Schedule:

The project arborist is the person(s) responsible for carrying out technical tree inspections, assessment of tree health, structure and risk, arborist report preparation, consultation with designers and municipal planners, specifying tree protection measures, monitoring, progress reports and final inspection.
A qualified project arborist (or firm) should be designated and assigned to facilitate and insure tree preservation practices. He/she/they should perform the following inspections:

Inspection of site: Prior to equipment and materials move in, site work, demolition, landscape construction and tree removal: The project arborist will meet with the general contractor, architect / engineer, and owner or their representative to review tree preservation measures, designate tree removals, delineate the location of tree protection fencing, specify equipment access routes and materials storage areas, review the existing condition of trees and provide any necessary recommendations.

Inspection of site: During excavation or any activities that could affect trees: Inspect site during any activity within the Tree Protection Zones of preserved trees and any recommendations implemented. Assess any changes in the health of trees since last inspection.

Final Inspection of Site: Inspection of site following completion of construction. Inspect for tree health and make any necessary recommendations.

Kurt Fouts shall be the Project Arborist for this project. All scheduled inspections shall include a brief Tree Monitoring report, documenting activities and provided to the City Arborist.

Tree Protection Fencing

Tree Protection fencing shall be installed prior to the arrival of construction equipment or materials. Fence shall be comprised of six -foot chain link fence mounted on eight - foot tall, 1 and 7/8-inch diameter galvanized posts, driven 24 inches into the ground and spaced on a minimum of 10-foot centers. Once established, the fence must remain undisturbed and be maintained throughout the construction process until final inspection.

A final inspection by the City Arborist at the end of the project will be required prior to removing any tree protection fencing.

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.

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.

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.

Tree Work Standards and Qualifications

All tree work, removal, pruning, planting, shall be performed using industry standards of workmanship as established in the Best Management Practices of the International Society of Arboriculture (ISA) and the American National Standards Institute series, *Safety Requirements in Arboriculture Operations* ANSI Z133-2017,

Contractor licensing and insurance coverage shall be verified.

During tree removal and clearance, sections of the Tree Protection Fencing may need to be temporarily dismantled to complete removal and pruning specifications. After each section is completed, the fencing is to be re-installed.

Trees to be removed shall be cut into smaller manageable pieces consistent with safe arboricultural practices, and carefully removed so as not to damage any surrounding trees or structures. The trees shall be cut down as close to grade as possible. Tree removal is to be performed by a qualified contractor with valid City Business/ State Licenses and General Liability and Workman's Compensation insurance.

Development Site Tree Health Care Measures

RECOMMENDED TO PROVIDE OPTIMUM GROWING CONDITIONS, PHYSIOLOGICAL INVIGORATION AND STAMINA, FOR PROTECTION AND RECOVERY FROM CONSTRUCTION IMPACT.

Establish and maintain TPZ fencing, trunk and scaffold limb barriers for protection from mechanical damage, and other tree protection requirements as specified in the arborist report.

Project arborist to specify site-specific soil surface coverings (wood chip mulch or other) for prevention of soil compaction and loss of root aeration capacity.

Soil, water and drainage management is to follow the ISA BMP for "Managing Trees During Construction" and the ANSI Standard A300(Part 2)- 2011 Soil Management (a. Modification, b. 'Fertilization, c. Drainage.)

Fertilizer / soil amendment product(s) amounts and method of application to be specified by certified arborist.

City of Sunnyvale – Protected Tree

(3) “Protected tree” means a tree of significant size.

(4) “Significant size” means a tree thirty-eight inches or greater in circumference measured four and one-half feet above ground for single-trunk trees. For multi-trunk trees “significant size” means a tree which has at least one trunk with a circumference thirty-eight inches or greater measured four and one-half feet above ground level, or in which the measurements of the circumferences of each of the multi-trunks, when measured four and one-half feet above the ground level, added together equal an overall circumference one hundred thirteen inches or greater.

ASSUMPTIONS AND LIMITING CONDITIONS

1. Any legal description provided by the appraiser/consultant is assumed to be correct. No responsibility is assumed for matters legal in character nor is any opinion rendered as the quality of any title.
2. The appraiser/consultant can neither guarantee nor be responsible for accuracy of information provided by others.
3. The appraiser/consultant shall not be required to give testimony or to attend court by reason of this appraisal unless subsequent written arrangements are made, including payment of an additional fee for services.
4. Loss or removal of any part of this report invalidates the entire appraisal/evaluation.
5. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other than the person(s) to whom it is addressed without written consent of this appraiser/consultant.
6. This report and the values expressed herein represent the opinion of the appraiser/consultant, and the appraiser/consultant's fee is in no way contingent upon the reporting of a specified value nor upon any finding to be reported.
7. Sketches. Diagrams. Graphs. Photos. Etc., in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering reports or surveys.
8. This report has been made in conformity with acceptable appraisal/evaluation/diagnostic reporting techniques and procedures, as recommended by the International Society of Arboriculture.
9. When applying any pesticide, fungicide, or herbicide, always follow label instructions.
10. No tree described in this report was climbed, unless otherwise stated. We cannot take responsibility for any defects which could only have been discovered by climbing. A full root collar inspection, consisting of excavating around the tree to uncover the root collar and major buttress roots, was not performed, unless otherwise stated. We cannot take responsibility for any root defects which could only have been discovered by such an inspection.

CONSULTING ARBORIST DISCLOSURE STATEMENT

Arborists are tree specialists who use their education. Knowledge, training, and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce risk of living near trees, Clients may choose to accept or disregard the recommendations of the arborist, or to seek additional advice.

Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that fail in ways we do not fully understand. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like medicine, cannot be guaranteed.

Trees can be managed, but they cannot be controlled. To live near trees is to accept some degree of risk. The only way to eliminate all risk associated with trees is to eliminate all trees.

Kurt Fouts
Arborist Consultant
826 Monterey Avenue
Capitola, CA 95010
831-359-3607
kurtfouts1@outlook.com

MEMBER
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