Tree Inventory and Protection Plan Report
For
Arcanum Architecture, Inc.
2450 Purisima Creek Rd in Half Moon Bay, CA 94019

Submitted by
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Certified Arborist WE-4597A
Revised: September 21, 2021

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Summary

Arcanum Architecture, Inc. retained my services to inventory trees that surround the proposed construction located at 2450 Purisima Creek Rd in Half Moon Bay, CA 94019. The purpose of my examination was to identify which trees are considered Significant Trees as defined by San Mateo County, to assess the health and condition of the Significant trees, determine their potential for preservation during the proposed construction and to provide recommendations to reduce the impacts of the proposed construction to a less than significant level.

There is a total of (21) trees included within this tree report. Seven (7) of these trees are considered Significant Trees and Fourteen (14) of these trees are considered non-Significant Trees per San Mateo County tree regulation.

Total Trees	Significant Trees	Non-Significant Trees
21	7	14

Of these (21) trees (16) are designated for removal either because of poor health and condition or because they are located within the zone of proposed construction and would not survive. Seven (7) of these removals are considered Significant trees and require permit approval (9) are non-Significant Trees per San Mateo County tree regulation.

Total Tree Removals	Significant Tree Removals	Non-Significant Tree Removals
16	7	9

I have provided recommendations to protect the trees that have been designated for retention.

Introduction

Assignment

Arcanum Architecture, Inc. has retained my services to perform the following tasks:

1. Assess tree health, structural condition of nineteen (19) trees that surround the proposed construction at 2450 Purisima Creek Rd in Half Moon Bay, CA 94019
2. Determine if a tree is considered a Significant Tree per San Mateo County tree regulation.
3. Determine if the condition of a tree warrants removal or retention.
4. Provide construction guidelines to be followed throughout all phases of a construction project.
5. Document this information in a written report.

Limits of Assignment

I did not perform an **aerial inspection** of the upper crown or a detailed **root crown inspection** on the subject trees.

Tree Inventory and Protection Plan Methods

On November 21, 2019, I visited the site to collect field information for this report. A Visual Tree Assessment **(VTA)** was performed on each of the subject trees. Each tree included within this tree report has been tagged with an Aluminum tree tag in the field that corresponds to the tree numbers in this report and on the included tree inventory map (see Appendix B). The following outlines the procedure for collecting information for this report:

1. Identify tree species
2. Measure the diameter of the trunk at 54 inches above grade **Diameter at Standard Height (DSH)**
3. Identify if the tree is a Significant Tree as defined by San Mateo County
4. Assess the health and condition of each tree
5. Assess the structural stability of each tree
6. Inspect the trees for pest or disease.

Health and Structure Rating System

The following table provides an overview of the rating system used when visually assessing the health and structure of the subject trees within this report.

Rating	Health	Structure
1=Poor	Dead, diseased or dying	Hazardous
2=Poor to Fair	Declining with significant signs of dieback	Structural weakness or flaws that could lead to failure
3=Fair	Minor dead branches, early stages of decline	Corrective measures such as pruning or structural support systems may be needed
4=Fair to Good	Tree is in good health	No major structural issues
5=Good	Excellent health	No structural issues

San Mateo County-Significant Tree Definition

SECTION 12,012. “SIGNIFICANT TREE” shall mean any live woody plant rising above the ground with a single stem or trunk of a circumference of thirty-eight inches (38") or more measured at four and one half feet (4 1/2') vertically above the ground or immediately below the lowest branch, whichever is lower, and having the inherent capacity of naturally producing one main axis continuing to grow more vigorously than the lateral axes.

Suitability for Preservation

The goal of tree preservation is for the existing trees to remain assets to the site for years to come. Trees that are in poor condition and cannot tolerate construction impacts will become a liability and therefore should be removed. An assessment of a tree’s suitability for preservation includes the following:

1. **Tree Health**-A healthy tree can tolerate construction impacts better than a tree in poor health and is more likely to adapt to new site conditions after development.
2. **Tree Structure**-Trees with structural defects such as decayed wood, weak branch attachments and codominant stems are a liability and therefore should be removed.
3. **Tree Age**-Mature and over-mature trees are less able to tolerate construction impacts while younger trees have more tolerance for construction impacts.
4. **Species Tolerance**-All trees require protection to avoid injury. However, certain tree species can tolerate construction impacts better than others.

Observations

Site Description

The site is located at 2450 Purisima Creek Rd in Half Moon Bay, CA 94019. A single family residential home is located on the property and the subject trees are located around the perimeter of the existing home. The existing home will be demolished and a new single family residential home will be constructed on the property.

Subject Trees

I have prepared a tree inventory with all the necessary information that is required by San Mateo County (see Tree Inventory in Appendix A).

Tree Protection Recommendations

Protective Tree Fencing

Fenced enclosures shall be erected around trees to be protected to establish the **TPZ** in which no soil disturbance is permitted and activities are restricted.

Size and type of fence
All trees to be preserved shall be protected with 6-foot high, minimum 12-gauge chain link fence. Fences are to be mounted on 2-inch diameter galvanized iron posts, driven into the ground to a depth of at least 2-feet at no more than 10-foot spacing. This detail shall appear on grading, demolition and building permit plans.

Duration
Tree fencing shall be erected before any demolition, grading or construction begins and remain in place until the completion of the project.

Tree Protection Zones

Each Significant Tree to be protected, including those on neighboring properties, shall have a designated **TPZ** identifying the area sufficiently large enough to protect the tree and roots from disturbance. **The TPZ area can be determined by the formula: 10 inches per inch of diameter.** For example, a 10" diameter tree shall have an 8' radius from the perimeter of the trunk or an 8-foot **TPZ**. Any deviation in determining the **TPZ** will require approval by the Project Arborist.

I have calculated the optimal **TPZ** for each that is going to be retained. This information can be found in the Tree Inventory (See Tree Inventory in Appendix A).

Activities prohibited within the TPZ include

1. Storage or parking vehicles, building materials, refuse, excavated spoils or dumping of poisonous materials, including but not limited to, paint, petroleum products, concrete, stucco mix or dirty water.

2. The use of tree trunks as a winch support, anchorage, as a temporary power pole, signposts or other similar function.

3. Cutting of tree roots by utility trenching, foundation digging, placement of curbs and trenches and other miscellaneous excavation.

4. Soil Disturbance, Soil Compaction or grade changes.

5. Drainage changes.

Special Activities within the Tree Protection Zone

Work in this area (TPZ) requires the direct onsite supervision of the Project Arborist.

Tree Pruning Recommendations

A **crown cleaning** is removal of all dead branches 1 inch in diameter and larger, removal of all broken branches, selective limb removal or end weight reduction to reduce the chances of limb failure and shaping to maintain a natural form.

I have indicated which trees require a crown cleaning within the Tree Inventory.

Mulching Recommendations

I recommended that wood chips be spread within the **TPZ** to a 3-to 5-inch depth, leaving the trunk clear of mulch.

Conclusion

Protection of trees that are considered a Protected Tree in San Mateo County during construction is a mandatory part of the construction process. In addition, proposed construction within Tree Protection Zones can require the direct onsite supervision of a Project Arborist and can include specialized construction designs and methods to reduce tree impacts.

I have provided recommendation for appropriate tree protection zone (TPZ) for all Protected Trees and any other trees that the client would like to protect during the construction process. All Protected Trees should have Tree Protection Fencing erected around them prior to the commencement of any construction activities occurring at the site.

Further review of proposed construction plans and revisions to the tree protection plan may be necessary if the current proposed construction that is located within the tree protection zone of these trees is modified or if additional work is proposed within the **TPZ** of these trees. This includes review of any modifications to building plans or review of civil plans, grading and drainage plans, landscape plans and any other work proposed within the tree protection zone of these trees.

Glossary of Terms

Aerial inspection	An inspection of the upper crown of the tree that requires climbing.
Crown	Parts of the tree above the trunk, including leaves, branches and scaffold limbs. (Matheny and Clark, 1994)
Diameter at standard height (DSH)	The diameter of a tree's trunk as measured at 4.5 feet from the ground. (Matheny and Clark, 1994)
Windthrow	Tree Failure due to uprooting caused by wind. (Glossary of Arboriculture Terms, 2007)
Root crown	Area where the main roots join the plant stem, usually at or near ground level. Root Collar. (Glossary of Arboriculture Terms, 2007)
Root crown inspection	Process of removing soil to expose and assess the root crown of a tree. (Glossary of Arboriculture Terms, 2007)
Visual Tree Inventory and Protection Plan (VTA)	A method of visual assessing the condition of a tree that does not include a root crown inspection or an aerial inspection.

Bibliography

Matheny, N.P. and J.R. Clark. *A Photographic Guide to the Evaluation of Hazard Trees in Urban Areas* (2nd Edition). Pleasanton, CA. HortScience Inc., 1994.

Matheny, N.P. and J.R. Clark. *Trees and Development A Technical Guide to Preservation of Trees During Land Development*. Champaign, IL. International Society of Arboriculture, 1998

Harris, R. *Arboriculture Integrated Management of Landscape Trees, Shrubs, and Vines*. Englewood Cliffs, NJ: Prentice-Hall, Inc., 1992

International Society of Arboriculture. *Glossary of Arboriculture Terms*. Champaign, IL Dixon Graphics, 2007

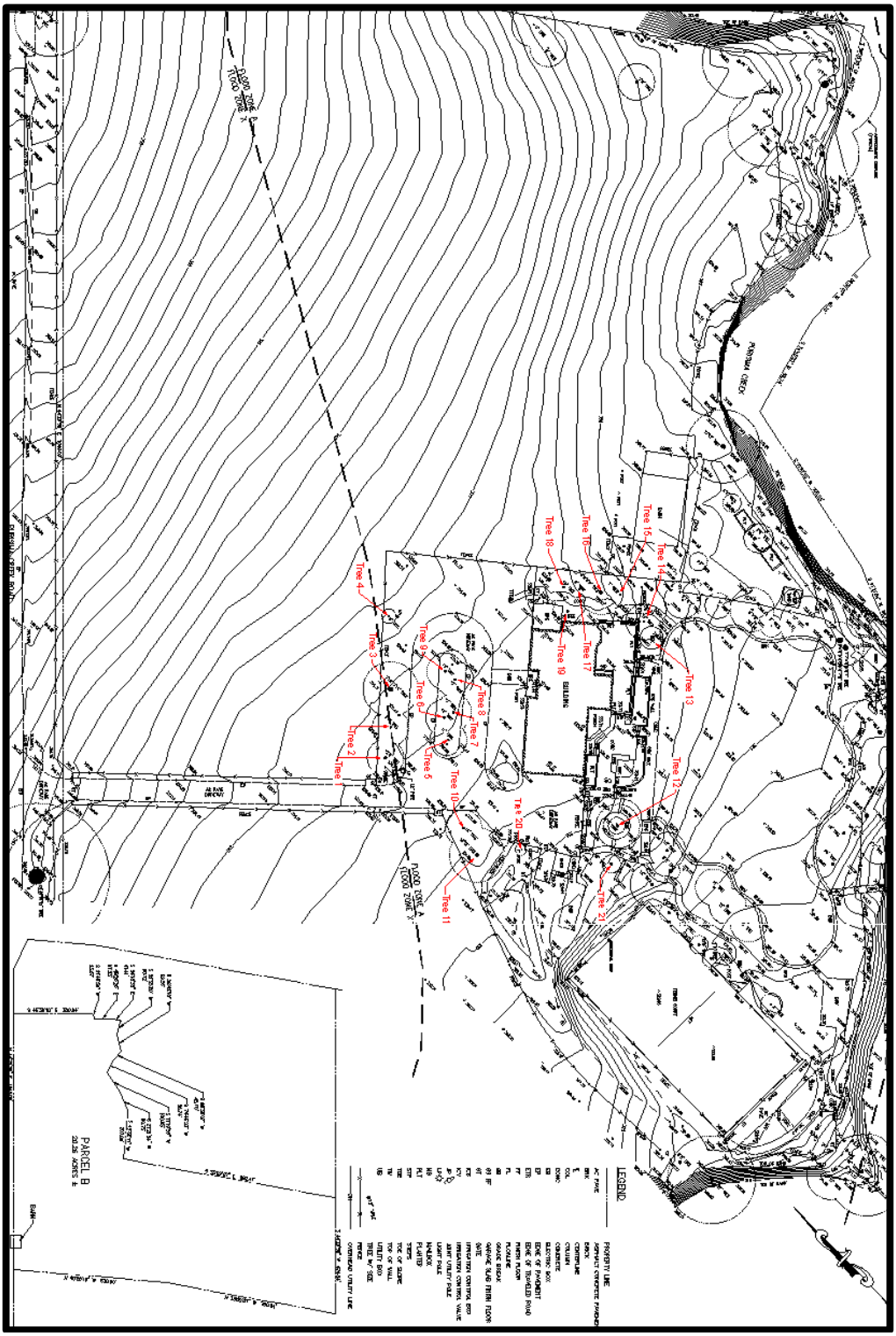
Appendix A – Tree Inventory Table

Tree #	Species	Botanical Name	DSH (inches)	Protected Tree	Health	Structural Condition	Observation	Recommendations	Optimal Tree Protection Zone (feet)
1	Grecian laurel	*Laurus nobilis*	20.5	Yes	3	2	Dead branches in upper canopy; poor branch attachments between mains stems; evidence of surface roots; evidence of decay at base of tree.	Consider removal; crown cleaning if this tree is retained.	17
2	Victoria n box	*Pittosporum undulatum*	7-2-3-4	No	2	2	Evidence of past limb failures; dead branches in the upper canopy; poor branch attachments.	Consider removal; crown cleaning if this tree is retained.	13
3	Grecian laurel	*Laurus nobilis*	30.5	Yes	2	2	Ganoderma fungal fruiting body growing on lower trunk; dead branches in upper canopy; several poor branch attachments between main stems.	Consider removal; crown cleaning if this tree is retained.	25
4	English Walnut	*Juglans regia*	9	No	3	3	Wounds on lower branches that might be from horses checking on the limbs; minor dead branches.	Consider removal; crown cleaning if this tree is retained.	8
5	White Birch	*Betula pendula*	11	No	1	2	Upper canopy is dead; lean to main trunk and upper canopy.	Removal	9
6	White Birch	*Betula pendula*	18	Yes	3	2	Lean to main trunk and upper canopy; dead branches in upper canopy; slightly one-sided.	Consider removal; crown cleaning if this tree is retained.	15
7	White Birch	*Betula pendula*	11	No	2	2	Dead branches in upper canopy; lean to main trunk and upper canopy; one sided canopy.	Consider removal; crown cleaning if this tree is retained.	9

Tree #	Species	Botanical Name	DSH (inches)	Protected Tree	Health	Structural Condition	Observation	Recommendations	Optimal Tree Protection Zone (feet)
8	White Birch	*Betula pendula*	12.5	Yes	2	2	Dead branches in upper canopy; poor branches attachment between main stems; abnormal growth between attachments.	Removal	10
9	White Birch	*Betula pendula*	15.5	Yes	2	2	Main leader is dead in upper canopy; evidence of other dead branches; poor attachments between main stems; lean to main trunk and upper canopy.	Removal	13
10	Hollywood juniper	*Juniperus chinensis*	17	Yes	3	2	Evidence of past limb failures; lean to main trunk and upper crown.	Consider removal; crown cleaning if this tree is retained.	14
11	California pepper	*Schinus mole*	11-11	No	3	3	Dead branches in upper canopy; sparse upper canopy.	Consider removal; crown cleaning if this tree is retained.	18
12	English Walnut	*Juglans regia*	7-7	No	3	3	Slight lean to the main trunk and upper canopy; evidence of sap sucker activity on trunk; minor dead branches in the upper canopy.	Consider removal; crown cleaning if this tree is retained.	12
13	Holly Tree	*Ilex aquifolium*	4-2-3	No	3	2	Topped in the past; poor branch attachments.	Removal	8
14	American plum	*Prunus americana*	9.5	No	2	2	Lean to main trunk and upper canopy; abnormal growth in upper canopy; evidence of past limb failures.	Crown cleaning and fertilize prior to construction.	8

Tree #	Species	Botanical Name	DSH (inches)	Protected Tree	Health	Structural Condition	Observation	Recommendations	Optimal Tree Protection Zone (feet)
15	Pear	*Pyrus calleryana*	7	No	2	2	Growing underneath Tree 16; dead branches.	Consider removal; crown cleaning if this tree is retained.	6
16	Corkscrew willow	*Salix matsudana*	10-9-8-7	No	2	2	Internal dead branches; poor past pruning; evidence of rot and decay on branches in upper canopy.	Crown cleaning and fertilize prior to construction.	17
17	Flowering Cherry	*Prunus serrulata*	9	No	2	2	Growing in the understory of Tree 16 & 18; dead branches; poor pruning cuts	Consider removal; crown cleaning if this tree is retained.	8
18	Corkscrew willow	*Salix matsudana*	10.5	No	2	2	Internal dead branches; suppressed by neighboring tree.	Crown cleaning and fertilize prior to construction.	9
19	Japanese maple	*Acer palmatum*	7-3-3-2-5	No	2	2	Growing against house; one sided canopy; poor branch attachments.	Consider removal; crown cleaning if this tree is retained.	13
20	Portugal laurel	*Prunus lusitanica*	7	No	2	2	Shows signs of decline; internal dead branches	Removal	6
21	Hardy banana	*Musa basjoo*	14.5	Yes	3	3	This species is considered an ornamental plant; dead leaves/fronds	Consider removal; removal of dead leaves/fronds	12

Appendix B – Tree Inventory Map



Appendix C – Arborist Disclosure Statement

Arborists are tree specialists who use their education, knowledge, training, and experience to examine trees. They recommend measures to enhance the beauty and health of trees and attempt to reduce the 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 the 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 any medicine cannot be guaranteed.

Treatment, pruning, and removal of trees may involve considerations beyond the scope of the arborist's services such as property boundaries, property ownership, site lines, disputes between neighbors, and other issues. Arborists cannot take such considerations into account unless complete and accurate information is disclosed to the arborist. An arborist should then be expected to reasonably rely upon the completeness and accuracy of the information provided.

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.

Ned Patchett

Ned Patchett
Certified Arborist WE-4597A

Appendix D – Certification of Performance

I, Ned Patchett, certify;

- That I have personally inspected the tree and the property referred to in this report. I have stated my findings accurately. The extent of the evaluation and appraisal is stated in the attached report and the 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 have no personal interest or bias with the parties involved;
- That the analysis, opinions and conclusions within this report are my own;
- That my analysis, opinions and conclusions were developed and this report has been prepared accordingly 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.

I further certify that I am an International Society of Arboriculture Certified Arborist, and have been involved in the practice of arboriculture and the study of trees for over 27 years.

Signed: Ned Patchett

Date: 9/21/21