

ARBORIST REPORT

Perry Newbury 2 SW of 4th

Root damage during construction.

Submitted to:

Sara Davis
City Forester
P.O. Box CC
Carmel by the Sea
CA 9329

February 24, 2020



Tree Care Professionals Serving Communities Who Care about Trees www.WCAINC.com

Prepared by:

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Table of Contents

Summary	2
Background	2
Assignment	2
Observations	3
Risk Assessment	4
Limitations of Tree Risk Assessment	4
Risk Rating	5
Tree Appraisal	6
Appraisal Calculations	7
Discussion	8
Recommendation	8
Glossary	9
Bibliography	10
Appendix A- Map (Approximate Tree locations)	11
Appendix B- Observation Photos	12
ASSUMPTIONS AND LIMITING CONDITIONS	15
Appendix D- Certification of Performance	16



Summary

West Coast Arborists Inc. was contracted to evaluate one Monterey Pine (*Pinus radiata*) at Perry Newbury 2 SW of 4th. The tree was reported to have been damaged during construction. Upon my site visit I determined the tree had sustained minimal damage from the construction with only a few roots severed, and large undamaged large buttress roots nearby. I determined the tree to have had a low risk rating based on the ISA risk assessment program. Crown cleaning and removal of large dead branches and reducing overextended branches is recommended if the tree is retained. It is also recommended to contact PG&E to assess the tree for utility interference, due to the tree's proximity to the power lines. I estimated the value of the tree at \$4,500, the value given was significantly impacted by depreciation factors including common pests in the area and the proximity to the utility lines.

Background

Sara Davis, the forester for City of Carmel-by-the-Sea, contacted west coast arborists for an arborist assessment in early February 2020. Ms. Davis requested that the Monterey Pine located at the south east corner of Perry Newbury 2 SW of 4th be inspected. A tree risk assessment and tree appraisal were also requested. I visited the site on February 12th and have included my findings as follows.

Assignment

The City of Carmel by the Sea has contracted West Coast Arborists Inc. to perform the following services.

1. Visit the site and evaluate one Monterey pine at the southeast corner of Perry Newbury 2 SW of 4th for construction damage.
2. Provide an estimated value (tree appraisal) and tree risk assessment.
3. Summarize findings in a formal report.



Observations

The subject tree is located on the west side of the roadway, at the southeast corner of the property. Power lines are present within 6-inches of the trunk on the east side. 3-feet north west of the tree excavation in the driveway has recently taken place that is 3 to 8-feet deep. Several 4 to 6-inch roots that had been cut clean were seen on the southern wall of the trench.

The tree stood relatively straight with a minor lean to the west, likely from pruning of the east side and phototropism (sun searching). Large buttress roots were visible, with a large 18-inch root extending to the west along the edge of the construction area, and there was no evidence of damage visible seen at grade level. Large buttress roots were seen on the south side of tree near the roadway as well. The tree had evenly spaced branches, with some overextended branches present on the west side.

The tree displayed good health for the species and the area. There was not noticeable bark beetle infestation or fungal diseases present. Five large dead branches were present over the construction area/driveway the dead branches are not the result of disease but rather the result of shading from the canopy above.



Risk Assessment

The International Society of Arboriculture *Tree Risk Assessment* program is a system in which to derive an understanding of the risks associated with a given tree and/or tree stand. Factors including *Likelihood of Failure*, *Likelihood of Impacting Target* and *Consequences of Failure* are determined from information collected during the field assessment. These factors are then run through two matrices to produce a risk rating. (Dunster, 2013)

Limitations of Tree Risk Assessment

According to the *Tree Risk Assessment Manual*, published by the International Society of Arboriculture (ISA), it is impossible to maintain trees free of risk: “There is no way to guarantee that a tree will not fail. Tree benefits increase as the age and size of trees increase; however, some level of risk must be accepted to experience the benefits provided. The goal in assessing and managing trees is to strike a balance between the risk that a tree poses and the benefits that individuals and communities derive from trees.”

“A considerable level of uncertainty is typically associated with tree risk assessment due to our limited ability to predict natural processes (rate of progression of decay, response growth, etc.), weather events, traffic and occupancy rates, and potential consequences of failure.”

“Conditions affecting trees change constantly; none of us will ever be able to predict every tree failure. Conducting a tree risk assessment neither ensures nor requires perfection. Risk assessment should, however, ensure that all reasonable efforts have been made to identify the *likelihood of failure*, the *likelihood of impact*, and the *consequences of failure* present at the time of assessment.”

“Abnormally extreme storms, such as tornadoes, hurricanes, earthquakes and heavy freezing rain, are not predictable and, in most cases, are not considered for categorizing *likelihood of failure*.”



Risk Rating

Risk rating estimate based on a 2-year timeframe

Likelihood of Failure

Root damage from construction is estimated to have had minimal impact to the root zone, and the likelihood of whole tree failure is estimated to be ***improbable***¹. Likelihood of lateral branch failure however is believed to be ***Probable*** due to large dead branches present in the canopy.

Likelihood of impacting target(s)

Within the dripline of the tree is the house/construction area to the north west and a neighboring house to the southwest, likelihood of impacting either structure is ***High***, as they are static targets. Likelihood of impact to cars and people was estimated to be ***Low***, as the street has relatively low traffic and people are only occasionally with in the target area.

Consequences

The consequences of any tree part impacting an occupied passing car or pedestrian is ***severe*** as the impact would likely result in hospitalization or death. Consequences of a large tree part impacting the structures was determined to be ***significant***, with property damage likely having high repair costs, however failure of a lateral limb would likely have ***negligible*** consequences to property.

Assigning a tree's overall risk at the highest level of risk for various factors for that tree is suggested by the tree risk assessment manual. Factors were run thru the tree risk matrices provided in the appendix of this report and resulted in a ***Low*** rating, based on the observations made on my inspection date.

¹ Terms ***italicized and bold*** are used in the tree risk matrices, example provided in *Appendix C- Risk Assessment Tables example*.



Tree Appraisal

The appraisal was determined using guidelines set forth by the Council of Tree & Landscape Appraisers in the *Guide for Plant Appraisal, 10th Edition*. In addition to the Western Chapter of the International Society of Arboriculture book titled *Species Assignment and Classification and Group Assignment* was used to determine the most commonly available replacement tree size, replacement price and average installation costs. The **Reproduction Method by Trunk Formula Technique**, where the value of the tree is determined by extrapolating the purchase cost of a nursery-grown tree up to the size of the size of the subject tree being valued. Below summarizes how I estimated the value of the subject tree following these techniques.

Health (*Good 75% Rating*)²

Vigor was determined to be normal for the species with little to no presence of pests and disease.

Structure (*Good 75% Rating*)

Well developed structure, branches evenly spaced.

Form (*Good 75% Rating*)

Minor deviations from the species norm, consistent with premature Monterey Pine of the same age. Functional aesthetics are not affected.

Functional Limitations (*50% Rating*)

Growing directly adjacent to power service lines, trunk with in 6" of power lines. Growing near or on southern property line.

External Limitations (*50% Rating*)

The tree was 1 of three Pines on the slope but was the most prominent and mature, super adequacy is not determined to be a factor. Sandy soil conditions, common for the area are sub optimal. Monterey Pine are susceptible to numerous lethal pests and disease in the area including Red Turpentine Beetle, Dwarf Mistletoe and Pitch Canker.

² Ratings are used for tree appraisal, and our calculated from table 4.1 on page 44 of the *Guide for Plant Appraisal, 10th edition*.



Appraisal Calculations

Subject Tree (Tree #2)

Species: Monterey Pine (*Pinus radiata*)

- | | |
|--|---------------------|
| 1. Trunk Diameter: | 26-in |
| 2. Cross- Sectional Area (line 1) ² x 0.7854: | 530-in ² |
| 3. Condition Rating: | 75% |
| (Lowest Individual rating to establish overall condition rating) | |
| a. Health: 75% | |
| b. Structure: 75% | |
| c. Form: 75% | |
| 4. Functional Limitations: | 50% |
| 5. External Limitations: | 50% |

Replacement Tree

Species: Monterey Pine (*Pinus radiata*)

- | | |
|---|----------------------|
| 1. Trunk Diameter: | 2.46-in |
| 2. Cross-Sectional area (line 6) ² x 0.7854: | 4.75-in ² |
| 3. Replacement Tree Cost (24-in Box): | \$172.73 |

(Lines 6-8 Source: Species Classification and Group Assignment 9th Edition)

Calculations

- | | |
|--|-------------|
| 4. Unit tree cost: (Line 8 / Line 7): | \$36.36 |
| 5. Basic reproduction cost: (line 2 x line 9): | \$19,270.80 |
| 6. Depreciated reproduction cost: | \$3,613.27 |
| (line 10 x line 3 x line 4 x line 5) | |

Additional Costs

- | | |
|--|----------------|
| Clean up: | (not factored) |
| Replacement Tree Installation: (city tree planting rate) | \$250.00 |
| Aftercare: (weekly watering for 1 year during summer months) | \$600.00 |

(Additional costs are low estimates sourced from previous experience and similar projects)

- | | |
|---|------------|
| 7. Total additional costs: | \$850.00 |
| 8. Total reproduction cost (line 11 + line 12): | \$4,463.27 |
| 9. Rounded: | \$4,500.00 |



Discussion

The subject tree does not appear to be at immediate risk of failure and the construction damage appears to be minimal. The large excavation was done within what is typically considered the **critical root zone**, and could have resulted in extensive damage, jeopardizing the structural integrity and dramatically effecting the health of the tree. Several large roots that had been cleanly cut were evident during my inspection. The exact extent of the root damage could not be measured though, as there was only 6-inches between the plywood trench wall visible. The presence of the large buttress root extending to the west suggests that stability of the tree may have not been significantly impacted, from the root damage that was visible during my inspection.

The tree appraisal provided an estimated value the subject tree at \$4,500.00 dollars. The value of the tree was significantly depreciated due to common pests and diseases in the area as well as the trees proximity to overhead power lines. While the health and structure of the tree are good, placement in an urban setting must always be considered. Future problems with the overhead utility lines are unavoidable, and the tree should be evaluated by the managing utility company (PG&E).

Recommendation

1. Crown cleaning and end weight reduction.
2. Contact utility company to assess the tree issues related to power lines.
3. Reinspection by certified arborist after construction is completed.

Thank you for the opportunity to assist you in your tree assessment needs. If there are any questions or concerns feel free to contact me directly at (408) 835-0438, greeve@wcainc.com

Respectfully,

Glenn O. Whitlock-Reeve
Board Certified Master Arborist
WE-10177BTM
ISA Qualified Tree Risk Assessor
West Coast Arborists, Inc.



Glossary

air spade- specialist excavation tool that uses compressed air to remove and break up soil with minimal damage to roots and underground utilities. It can be used for a variety of reasons including the alleviation of compaction, soil improvement, root inspection and root location.

Buttress Roots- roots at the trunk base that help support the tree and equalize mechanical stress.

Critical Root Zone (CRZ)- An area where roots are present around a tree that are critical to health and stability of the tree. Tree roots expand far beyond the canopy of the tree; most roots grow within the top 6-8" of the soil. Roots grow where conditions are most favorable, seeking oxygen water and nutrients. There is no industry standard to for measuring the *Critical Root Zone*, but for the purpose of this report it shall be defined as the **DSH** multiplied by 8-inches. All excavation should be completed by hand and with an **Air-spade** in the defined **CRZ**. No root larger than 2-inches in diameter shall be cut without approval from certified arborist within the **CRZ**.

Depreciation- a loss in value from any cause; typically caused by either physical, economic or external factors.

Phototropism- the orientation of a plant or other organism in the response to light.

Reproduction cost- the cost to replace an improvement with an exact replica. Referred to in previous editions of the *Guide* as *replacement cost*.

Trunk formula technique (TFT): a technique for developing a cost basis that involves extrapolating the purchase cost of a nursery -grown tree up to the size of the subject tree being valued.

Value: the monetary worth of a property, good or service to buyers and sellers at a given point in time. Expectation or present worth of future benefits. Economic value is created by scarcity restricting supply and utility enhancing demand. Not to be confused with cost or price.

Value estimate: an assignment result in which the plant appraiser estimates the economic value of a plant or landscape item based on its market supply and demand.



Bibliography

Dunster, J. A. (2013). *Tree Risk Assessment Manual* . Champaign, Illinois: International Society of Arboriculture.

Richard F. Gooding, J. R. (2019). *Guide for Plant Appraisal, 10th Edition*. Atlanta : International Society of Arboriculture .

Tree Care Industry Association, Inc. (2017). *Tree, Shrub, and Other Woody Plant Management- Standard Practices (Pruning)*. New Hampshire : Tree Care Industry Association, Inc.

Western Chapter of International Society of Arboriculture. (2004). *Species Classification And Group Assignment* . Western Chapter of International Society of Arboriculture.

Appendix A- Map (Approximate Tree locations)

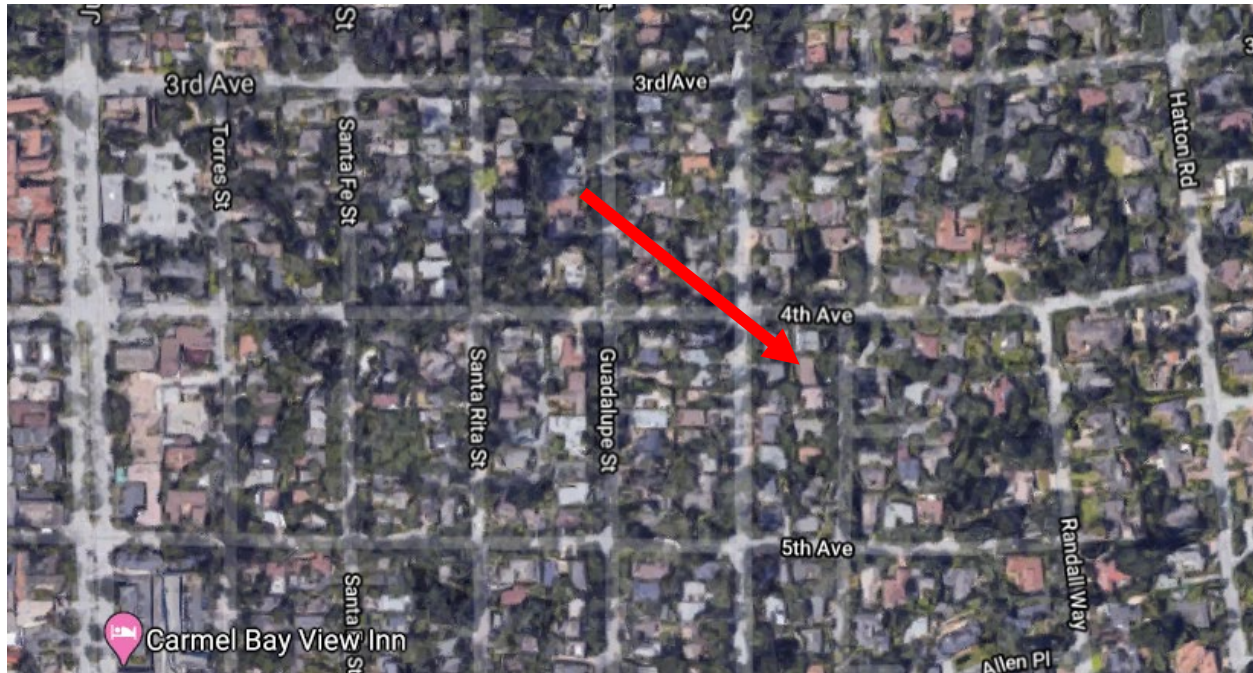


Figure 1: Red arrow indicates location of property.

Appendix B- Observation Photos



Figure 2: Subject tree seen looking south west from roadway.



Figure 3: Excavation near west side of tree. red arrow indicates the location of the large buttress root.



Figure 4: Looking down southern wall of excavated area where severed roots were found.



Figure 5: Severed root that measured 6.5-inches in diameter.



Appendix C- Risk Assessment Matrices

Based on the International Society of Arboriculture “Tree Risk Assessment” Program

Orange: People/Vehicles

Yellow: Property

Likelihood of Failure	Likelihood of Impacting Target			
	Very Low	Low	Medium	High
Imminent	Unlikely	Somewhat Likely	Likely	Very Likely
Probable	Unlikely	Unlikely	Somewhat Likely	Likely
Possible	Unlikely	Unlikely	Unlikely	Somewhat Likely
Improbable	Unlikely	Unlikely	Unlikely	Unlikely

Whole tree failure was determined to be **Improbable** which in any case resulted in a low risk rating. Branch failure was determined to be **Probable** with **Low** likelihood of impacting cars or people, and a **high** likelihood of impacting property.

Likelihood of Failure and Impact	Consequences			
	Negligible	Minor	Significant	Severe
Very likely	Low	Moderate	High	Extreme
Likely	Low	Moderate	High	High
Somewhat likely	Low	Low	Moderate	Moderate
Unlikely	Low	Low	Low	Low

Consequences of any tree part impacting any person were determined to be **Severe** while impact from a relatively small tree part to a house parked (unoccupied) care was determined to be **Negligible**.

This tree has a **Low-Risk** Rating.

**Based on a 2 year timeframe*



ASSUMPTIONS AND LIMITING CONDITIONS

1. Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the Consultant can neither guarantee nor be responsible for the accuracy of information provided by others. Standard of Care has been met with regards to this project within reasonable and normal conditions.
2. The Consultant will not be required to give testimony or to attend court by reason of this report unless subsequent contractual agreements are made, including payment of an additional fee for such services as described in the fee schedule and contract of engagement.
3. Loss or alteration of any part of this report invalidates the entire report.
4. 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 to whom it is addressed, without the prior written consent of the Consultant.
5. This report and any values expressed herein represent the opinion of the Consultant, and the Consultant's fee is in no way contingent upon the reporting of a stipulated result, a specified value, the occurrence of a subsequent event, nor upon any finding to be reported.
6. Unless expressed otherwise: 1) information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection; and 2) the inspection is limited to visual examination of accessible items without dissection, excavation, or coring, unless otherwise stated. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the tree(s) or property in question may not arise in the future.
7. 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 the risk of living near trees. It is highly recommended that you follow the arborist recommendations; however, you may choose to accept or disregard the recommendations and/or seek additional advice.
8. 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 specific period of time.
9. Any recommendation and/or performed treatments (including, but not limited to, pruning or 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 any other related issues. Arborists cannot take such considerations into account unless complete and accurate information is disclosed to the arborist. An arborist can then be expected to consider and reasonably rely on the completeness and accuracy of the information provided.
10. The author has no personal interest or bias with respect to the subject matter of this report or the parties involved. He/she has inspected the subject tree(s) and to the best of their knowledge and belief, all statements and information presented in the report are true and correct.
11. Unless otherwise stated, trees were examined using the risk assessment criteria detailed by the International Society of Arboriculture's publications *Best Management Practices – Tree Risk Assessment* and the *Tree Risk Assessment Manual*.

West Coast Arborists, Inc.

390 Martin Avenue Santa Clara, CA 95050 (408) 855-8660



Appendix D- Certification of Performance

I, Glenn O. Whitlock-Reeve, Certify that:

1. I have personally inspected the tree(s) and property referred to in this report and have stated my findings accurately.
2. I have no current or prospective interest in the tree or the property that is the subject of this report and have no personal interest or bias with respect to the parties involved.
3. The analysis, opinions and conclusions stated herein are my own and are based on current scientific procedures and facts.
4. My analysis, opinions and conclusions were developed, and this report has been prepared according to commonly accepted arboricultural practices and standards.
5. No one provided significant professional assistance to me, except as indicated within the report.
6. My compensation is not contingent upon the reporting of 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 subsequent events.

I further certify that I am a member in good standing of the American Society of Consulting Arborists and a Board-Certified Master Arborist with the International Society of Arboriculture (ISA). I have been a Certified Arborist since 2013 and in the practice of arboriculture for over 10 years.

Signed:

Glenn O. Whitlock-Reeve
Board Certified Master Arborist
WE-10177BTM
ISA Qualified Tree Risk Assessor
West Coast Arborists, Inc.

Date: 2/24/20