Exhibit B

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October 21, 2022

To: Michael Stoltey – MD3 Investments & Damien Mavis – CoVelop

Re: Oak Tree Impact and Protection report for Ardmore Road Project, 2930 Union Rd, Paso Robles, CA 93446

Gentlemen,

In response to your request for an Oak Assessment, Impact and Protection plan for native oaks growing on a lot you intend to purchase and develop at 2930 Union Road, I have produced the following report.

Assignment

- Collect tree data and perform Level 2 inspections on 8 valley oaks *(Quercus lobata)* to determine condition and suitability for retention.
- Perform advanced Level 3 Assessment with Resistograph for 3 valley oaks.
- Provide written summary of condition and suitability for retention for all 8 valley oaks.
- Determine Tree Protection Zones (TPZs) for all trees proposed for retention that will potentially have construction impacts occurring in the Critical Root Zone (CRZ) or within 5 feet of the CRZ per City of Paso Robles requirements.
- Produce written oak tree impact and tree protection report based on the International Society of Arboriculture's (ISA) best management practices for tree protection during construction and City of Paso Robles tree protection requirements.

  Report to include:
  - Inventory of all trees being impacted
  - Critical root zone calculations
  - Tree protection zone calculations
  - Tree impact assessment
  - Tree protection requirements and standards
  - Tree protection map with TPZ fencing delineated
  - Photographs

Summary

The proposed project is for the construction of a multi-unit, mixed-use industrial site.
In total, I recommended six (6) native oak trees for removal based on structural and health issues. Proposed tree removals equate to 75% of all oak trees on site.

Tree replacements are required for all native oak trees removed that are six (6) inch diameter and larger. If all proposed oak tree removals are approved, forty-five (45) native oaks at the minimum 1.5-inch caliper or thirty-four (34) native oaks at 2-inch caliper would be required to be planted on the premises or somewhere in the city, upon the Public Works Director's approval.

An International Society of Arboriculture Certified Arborist shall observe and approve all construction activities that occur within or adjacent to the critical root zone (CRZ) of any trees proposed for retention.

A pre-construction meeting shall be held with the project arborist and all parties involved in the project. All tree protection fencing, and tree protection measures shall be in place before any construction activity begins. All necessary pruning shall also be completed before grading and construction.

Introduction

This project is located on an old cattle ranch. Most of the trees had been heavily impacted by cattle and were in severe decline due to root damage and drought or were structurally unstable. On August 2, 2022, I visited the site and performed a basic assessment on all native oaks 6-inch diameter and greater on the property you intend to develop. Initially, I found 4 trees were in such poor condition that I recommended their removal. One (1) tree was in good condition and deemed fit to retain.

As a result of the defects, I found during my basic inspection, 3 of the 8 trees on site required an advanced inspection with a Resistograph, wood density measuring device to determine their structural integrity. I returned to the site on August 5, 2022, and performed the advanced inspections with a Resistograph. On August 12, 2022, I collected additional data for 1 tree via a climbing inspection. I analyzed data collected during the advanced inspections and made recommendations regarding tree condition, tree risk and potential for retention. Ultimately, I determined 1 of the trees included in the advanced inspection could be retained. Combined with the tree deemed retainable during the basic inspection, I recommended 2 native oaks be retained and incorporated within the project.

All tree inspections were based on the potential for a tree to fail within the next 5 years from the date of this report. Any tree retained should be re-inspected on an annual basis to determine health and structural integrity status.

Methodology and Tools

My initial level 2 inspection consisted of a ground based, visual inspection and full walk around of the tree. I used a rubber mallet to sound the trunk to detect decay. I tagged each tree with an aluminum tag and assigned it a number. Based on a previous arborist's inspection of the trees, I assigned the same number that was listed in their report so we would have consistency when referencing the trees.

Advanced inspections consisted of Resistograph wood density testing, and in one instance, an aerial inspection that consisted of determining the extent of decay with a tape measure.

Tree Diameter Measurements

Diameter at Standard Height (DSH) was measured at 4.5' above ground. For multi-stem trees that divided below 4.5', I measured below the division at the narrowest point on the trunk. If it was not possible to measure below the division, I measured each stem individually, then squared the diameter of each stem. Finally, I summed the squared diameters and took the square root of the sum to get the most accurate diameter of the tree. Diameters were rounded up or down depending on fractions of inches.

Tree Numbering

I numbered all trees in the field with a rectangular metal tag and nailed it to the trunk at approximately 5 feet above ground.

Critical Root Zone Measurements

CRZs were determined by giving a radius of 1-foot per every inch of tree diameter. E.g., a 12-inch diameter tree would have a 12-foot CRZ radius measured from the outside of the trunk.

Tree Protection Zone Measurements

Generally, TPZ distances followed the distances listed for CRZs. The exception is if there were proposed tree-root encroachments into the CRZ of less than 25%. In most cases encroachments of less than 25% were allowed unless the structure or health of the tree would be compromised. TPZ's were also adjusted if the tree would outgrow the space and cause damage to foundations or cause clearance issues from buildings.

Tree Condition Ratings

All trees in the inventory were given a condition rating. The rating was based on the health, structure and presence of disease and insects. See the following definitions:

- **Dead** = Severely declining or no foliage, large dead branches, decay cavities, loss of bark, roots decayed or dead.
- **Very Poor** = Evidence of multiple large past failures, advanced decay, uncontrollable pest infestations or disease infection. Tree in severe decline.
- **Poor** = Tree may be suppressed, drought stressed, or had at least 1 large branch failure. Disease or pest infestations may be present. Can potentially be retained with attention to mitigation pruning, cultural care changes, pest and disease control.
- **Fair** = May have had minor past failures. Some pests or structural defects may be present, small deadwood. Minor to moderate drought stress present. Defects may be mitigated with pruning and pests can be controlled.
- **Good** = A relatively healthy tree with minor to no structural defects with minimal to no pest observed. Defects can be mitigated with pruning and pests can be controlled.
- **Very Good** = Trees that have had professional arboricultural care. No structural defects, disease or pests identified.
- **Excellent** = Specimen tree with superior form, root structure and health. Tree has been regularly cared for by professional arborists over its lifetime, E.g., estate or arboretum tree.

Inspection Levels

Level 1 – Limited Visual Inspection – This is a limited walk-by or drive-by, which does not typically include a complete walk around a tree. The inspection focuses on obvious defects, imminent or probable likelihood of failures. There are generally no tools used at this level. This is the fastest and least thorough assessment.

Level 2 – Basic Assessment – Generally includes a complete walk around inspection. Basic tools such as probes, measuring devices, binoculars, mallet or magnifying glass are used. At this level, an aerial inspection is not included. A Level 2 assessment is usually necessary to establish the need for a Level 3 assessment.

Level 3 – **Advanced Inspection –** Detailed inspection which usually employs the use of special equipment, data collection and analysis. A higher level of training is also required, such as International Society of Arboriculture (ISA) Tree Risk Assessment Qualification. Specialized equipment may include an Air Spade (device that uses compressed air to expose roots or root crown for inspections without causing damage to sensitive plant tissues).
Resistograph (drilling device used to measure and graph wood density) Level 3 inspections may also include sending samples to labs for analysis. A Level 3 inspections will usually take place later because of time needed to perform a Level 2 inspection.

Assessing Tree Structure and Potential to Fail

Estimating the structural integrity of trees is a challenge because, unlike steel I-beams or other construction materials there is no precise engineering standard to help determine the load a tree can withstand. Arborists must use measurement of decay, experience with previous, similar trees as well as factor in the various stressors on the compromised areas within the tree. Trees with thicker outer shells are going to be stronger. Oval internal decay areas and areas of decay that have broken through the outer shell of the trunk or branch will be weaker due to the inconsistency of the cylinder.

Tree Risk

Tree risk is determined by identifying the targets e.g. (people, buildings, cars or property) that could be injured or damaged by a whole or partial tree failure, the occupancy rate, exposure of the target to the tree hazard, the size of part of the tree that may impact the target if it were to fail, the likelihood of impact on the target, and the consequences of failure on the target.

The part of the tree most likely to fail and cause the largest impact is used to determine the highest overall risk for the tree.

When considering likelihood of failure, the definitions are as follows:

- **Imminent** – Failure has started or most likely to occur in the near future. Even if there is no significant wind or increased load. The imminent category overrides the time frame stated in the scope of work.
- **Probable** – Failure may be expected under normal weather conditions within the specified time frame.
- **Possible** – Failure may be expected in extreme weather conditions, but is unlikely during normal weather conditions during a specified time frame.
- **Improbable** – The tree or part is not likely to fail during normal weather conditions and may not fail in extreme weather conditions within the specified time frame.

Risk Matrices

I used the International Society of Arboriculture's Basic Tree Risk Assessment Form to determine risk. Matrix 1 the "Likelihood Matrix" determines the likelihood of failure and impact. The result is entered into Matrix 2, the "Risk Rating Matrix" which factors uses Consequences of Failure to get the overall risk rating. In the example below, Likelihood of failure of a part was Probable. The Likelihood of Impact was High. The result was Likely. In Matrix 2, I entered the result of Likely and entered Severe in the Consequences of Failure which gave me a risk rating of High. See example chart below.

Matrix 1. Likelihood matrix.

Likelihood of Failure	Likelihood of Impact			
	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

Matrix 2. Risk rating matrix.

Likelihood of Failure & Impact	Consequences of Failure			
	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

Mitigation

When assessing risk for a tree, it is important to determine if the risk of tree failure can be reduced through mitigation. Mitigation can be made through pruning, installing cabling or bracing support structures. Moving targets out of the strike zone of a tree or restricting access to a tree are also viable mitigation measures. The recommended mitigation should not be so excessive that they compromise the health of the tree.

Tree Risk Assessments

I performed level 2 assessments on trees 1,2,3,4,9,10,11 & 13. See Tree Map Appendix B. From those assessments, I determined that trees 1, 2 and 13 required level 3 advanced inspections. Each assessment below includes a condition rating as well as potential for retention and mitigation recommendations. For level 3 inspections, I included a tree risk assessment matrix.

Tree 1 – A 43" diameter valley oak was in Very Poor condition. See Appendix A - Photographs - Photo 1.

Basic Level 2 Inspection –

This tree had drought stress which was indicated by dead wood in the canopy. It also had decay throughout its scaffold branches which was evident from the presence of decay cavities and woodpecker nests excavated in dead wood. See Appendix A - Photographs - Photos 1 & 4.

The trunk had an approximate lean to the east of 10 degrees. It also had a horizontal compression bulge on the east side of its trunk approximately 1' above ground. Compression bulges or wrinkles, indicate that wood fibers are being crushed by the weight of the canopy and trunk due to lack of supportive structure in the trunk. Further the tree had a large, decayed, anchor root on its southwest side. The root was on the opposing side of the lean of the tree and is likely to fail as decay advances and stress from the weight of the canopy continues to build. See Appendix A - Photographs - Photos 1-3.

Although this tree had a full canopy it has significant trunk decay. When I sounded the trunk with a rubber mallet, it resounded hollow on all sides. To further confirm the sounding results, I performed an advanced inspection of the decay using a Resistograph.

Advanced Level 3 Inspection -

I took 4 measurements of the wood density of the trunk at 3.5' above ground.

- Sample 1 – west side of tree. Outer shell thickness was 4"
- Sample 2 – south side of tree. Outer shell thickness was 6"
- Sample 3 – east side of tree. Outer shell thickness was 4" with a small 1.25" pocket of sound wood at 8" laterally, then total decay
- Sample 4 – north side of tree. Outer shell thickness was 5.25"

Based on the Resistograph results, it was apparent that the interior wood of the trunk was significantly decayed. The evidence of compression bulges showed that the trunk is losing structural integrity and leaning due to lack of supportive wood fibers.

Armillaria mellea, a.k.a. Oak root fungus is a common disease in valley oaks and is likely the cause of the decay in the roots and the trunk. Christopher J. Luley in his guide *Wood Decay Fungi* calls this fungus *Number one of the "Big Three" of the important decay fungi.* Again, according to Mr. Luley, "Armillaria is a root and butt rot fungus that increases the risk of tree failure and is a pathogen capable of killing cambium of roots and lower trunk of stressed trees". See Appendix A - Photographs - Photos 29 & 30 for example of failed oak due to root and butt rot.

Parts Assessed – Roots and Trunk

I used the International Society of Arboriculture's Basic Tree Risk Assessment Form to determine risk for this tree. In Matrix 1 the "Likelihood Matrix" I selected Likelihood of Failure of the roots and trunk as Probable. The Likelihood of impacting a target in a built environment would be High. The resulting Likelihood of Impact was Likely, which I entered into Matrix 2, the "Risk Rating Matrix" in the Likelihood of Failure and Impact section. For the Consequences of Failure section of Matrix 2, I entered Severe. The Likelihood of Failure and Impact rating combined with the Consequences of Failure resulted in a risk rating of High.

Matrix 1. Likelihood matrix.

Likelihood of Failure	Likelihood of Impact			
	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

Matrix 2. Risk rating matrix.

Likelihood of Failure & Impact	Consequences of Failure			
	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

Part Assessed – Scaffold Branches

In Matrix 1 the "Likelihood Matrix" I selected Likelihood of Failure of the scaffold branches as Probable. The Likelihood of impacting a target in a built environment would be High. The resulting Likelihood of Impact was Likely, which I entered into Matrix 2, the "Risk Rating Matrix" for the Likelihood of Failure and Impact section. Under Consequences of Failure in Matrix 2, I entered Severe. The Likelihood of Failure and Impact rating combined with the Consequences of Failure resulted in a risk rating of High.

Matrix 1. Likelihood matrix.

Likelihood of Failure	Likelihood of Impact			
	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

Matrix 2. Risk rating matrix.

Likelihood of Failure & Impact	Consequences of Failure			
	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

Combined Inspection Results and Risk Assessment

The highest risk rating for this tree was High and was associated with root and trunk failure. I found decay in one anchor root and significant decay was detected in the trunk. Buckling of trunk fibers was evident. Based on shell strength measurements, the likelihood of trunk failure was probable, due to lack of structural integrity. Root failure was Probable due to significant decay in the anchor root on the southwest side of the tree. Scaffold failure was also probable with a high likelihood of failure.

Mitigation:

Scaffolds - Reducing the canopy through end weight reduction and removing decayed branches 2" diameter and larger would relieve some stress on remaining scaffold branches and reduce their risk to Moderate.

Roots and Trunk - Reducing the canopy through end weight reduction would relieve some stress on the trunk but not enough to offset the overall stress being exerted on the buckling area on the north side of the tree. No structural support or bracing will help the stability of the tree's trunk or roots. Significant decay has been detected in the roots as well as the trunk. Based on shell strength measurements, lean of the tree and buckling of wood fibers on the east side of the trunk made failure likely due to lack of structural integrity. I recommend removing the tree before commencement of construction.

Tree 2 – A 47" diameter valley oak was in Poor condition. See Appendix A - Photographs - Photo 5.

Basic Level 2 Inspection –

On the south side of the trunk there was a decay cavity originating at the root-crown and extending approximately 5.5' upward. When sounded with a rubber mallet on either side of the cavity, it resounded hollow. Moving around the trunk to the east side, I detected another hollow sounding area with my mallet at approximately 3.5' above ground. See Appendix A - Photographs - Photo 6. Like Tree 1, I suspect *Armillaria mellea* - Oak root fungus, is the cause of the rot.

At approximately 8 feet above ground, on the southwest side of the trunk there was another decay area that was almost closed over with scar tissue. Although almost closed, I suspected a large area of decay behind the scar. See Appendix A - Photographs – Photo 7. There was a large scaffold branch attached to the trunk above the scar. It had a desiccated fungal fruiting body growing on it and cankers had killed strips of bark near the fungus. See Appendix A - Photographs – Photo 8. I identified the fungi genus to be that of *Inonotus*. Jessie A. Glaeser and Kevin T. Smith in the winter 2010 issue of Western Arborist, note this fungus to cause a white rot of heartwood in the trunk of living oaks and also decays strips or sections of sapwood, forming elongate cankers and killing the cambium. According to Swiecki, T. J.; Bernhardt, E. A. 2006, A Field Guide to Insects and Diseases of California Oaks, "*Inonotus dryophilus* is one of the most serious pathogens of living oaks in California associated with decline, failure, and mortality". In this tree, the weakened trunk area at the scar combined with the heavy, decayed scaffold branch make this section of the tree likely to fail.

In the upper canopy at approximately 14' above ground there was another decay cavity in the center of the canopy, where a large scaffold branch had failed many years ago. I suspected advanced decay in the trunk at this location. See Appendix A - Photographs - Photo 9.

Advanced Level 3 Inspection -

During the aerial inspection, I discovered that the opening of the decayed scaffold in the upper canopy was 13" in diameter. The depth of the cavity was 13'2" deep. When I measured the distance to the ground from the outside of the cavity, it was 14'3", which illustrated that the entire trunk of the tree was hollow. See Appendix A - Photographs – Photos 9 -14.

From the cavity opening, the decay continued upward into the scaffold branch growing east. This scaffold is very likely to fail due to weak trunk structure. See Appendix A - Photographs – Photo 12.

Based on the decay detected during mallet sounding, I wanted to investigate the extent of the decay further. I performed an advanced inspection for decay using a Resistograph. I took 6 measurements of the wood density of the trunk at 3.5' above ground unless otherwise indicated.

- Sample 1 – west side of tree. Outer shell thickness was 8"
- Sample 2 – south side of tree, 1' west of decay cavity, outer shell thickness was 8.5"
- Sample 3 – south side of tree at decay cavity seam, outer shell thickness was 3" at 3' above ground.
- Sample 4 – south side of tree, 1' east of decay cavity, outer shell thickness was 7.25"
- Sample 5 – east side of tree, outer shell thickness was 5.5"
- Sample 6 – north side of tree, outer shell thickness was 12"

I have highlighted the tables below to show how risk was determined for the part or parts of the tree that was being considered regarding failure potential.

I used the International Society of Arboriculture's Basic Tree Risk Assessment Form to determine risk for this tree.

Part Assessed - Trunk

In Matrix 1 the "Likelihood Matrix" I selected Likelihood of Failure of the trunk as Probable. The Likelihood of impacting a target in a built environment would be High. The resulting Likelihood of Impact was Likely, which I entered into Matrix 2, the "Risk Rating Matrix" in the Likelihood of Failure and Impact section. Under Consequences of Failure in Matrix 2, I entered Severe. The Likelihood of the Failure and Impact rating combined with the Consequences of Failure resulted in a risk rating of High.

Matrix 1. Likelihood matrix.

Likelihood of Failure	Likelihood of Impact			
	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

Matrix 2. Risk rating matrix.

Likelihood of Failure & Impact	Consequences of Failure			
	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

Part Assessed – Scaffold Branches

In Matrix 1 the "Likelihood Matrix" I selected Likelihood of Failure of the scaffold branches as Probable. The Likelihood of impacting a target in a built environment would be High. The resulting Likelihood of Impact was Likely, which I entered into Matrix 2, the "Risk Rating Matrix" for the Likelihood of Failure and Impact section. Under Consequences of Failure in Matrix 2, I entered Severe. The Likelihood of Failure and Impact rating combined with the Consequences of Failure resulted in a risk rating of High.

Matrix 1. Likelihood matrix.

Likelihood of Failure	Likelihood of Impact			
	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

Matrix 2. Risk rating matrix.

Likelihood of Failure & Impact	Consequences of Failure			
	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

Combined Inspection Results and Risk Assessment-

The highest risk rating for this tree was High and was associated with trunk and scaffold branch failure. Significant decay was detected in the trunk and eastern scaffold branch.
Based on shell strength measurements, and the void caused by decay on the south side of the tree, the trunk is likely to fail due to lack of structural integrity. In regard to the eastern scaffold branch and other decayed branches, they could be removed, and end-weight could be reduced to relieve some stress on remaining scaffold branches. However, the reduction of the canopy would be close to 50% and would compromise the health of the tree. Further, since the trunk is not structurally sound, this negates the mitigation measure.

Mitigation: Remove tree before commencement of construction. No structural support or bracing will help the stability of the tree's trunk.

Tree 3 – A 47" diameter valley oak was in Very Poor condition. When I sounded the trunk with a rubber mallet, it resounded hollow on the southwest side. A large wound left by a scaffold branch failure in the crown of the tree has since decayed and left a 3'x 4' hollow at approximately 14' above ground on the east side of tree. Another decay cavity on the north side of the tree at the same height as the previous, measured approximately 2' in diameter. Remaining scaffold was overextended and attached to the decaying trunk. The remaining parts of this tree have a high likelihood of failure. See Appendix A - Photographs – Photos 15 & 16.

Mitigation: Remove tree before commencing project.

Tree 4 – A 52" diameter valley oak was in Very Poor condition. The tree was growing off-site but had critical root zone (CRZ) and crown encroachments into your proposed construction area. This tree has had several large scaffold branch failures.
At the failure points, significant decay was visible. The remaining scaffolds were overextended and potentially had similar internal decay and had a high likelihood of failure. See Appendix A - Photographs – Photo 17.

Mitigation: I highly recommend removal of this tree due to the advancement of decay in the scaffold branches which is compromising their structural integrity. Crown reduction needed to reduce the risk of scaffold branches failing would take up to 50% of the live canopy and jeopardize the tree's health. Because this tree is off site, you will need to coordinate with the owner regarding removal.

At minimum this tree should have all overextended branches reduced to help prevent further failures and protect any buildings or other targets you may place on your property within striking distance of the tree. If the owner of the tree chooses to retain it, you will need to design buildings, service and loading zones outside of the CRZ.

Tree 9 – A 51" diameter valley oak was in Very Poor condition. Multiple large scaffold branches had failed. Extensive decay was present at branch failure points. Only 2 overextended scaffold branches remain, and they are connected to a decaying trunk.

When I sounded the trunk with a rubber mallet, it resounded hollow. A 3' long by 10" wide decay cavity was on the northeast side of trunk. This tree has a high risk of complete failure. See Appendix A - Photographs – Photos 18 & 19.

Mitigation: Remove tree before commencing project.

Tree 10 – A 51" diameter valley oak was in Good condition. The trunk of the tree resounded solid when sounded with a rubber mallet. Tree form was good, but there was some large dead wood and decaying scaffolds. This tree can be retained, but it should have maintenance pruning performed prior to commencement of your project. See Appendix A - Photographs – Photos 20 & 21.

Mitigation: Reduce end-weight up to 25% on overextended scaffold branches. Remove dead wood 2" diameter and larger. Remove decayed and structurally unsound scaffold branches. Supervision of pruning work by the Project Arborist shall be required.

Tree 11 – A 30" diameter valley oak was in Very Poor condition. The tree was in severe decline due to drought stress and root disease. Many of the smaller branches had died. I detected decay at the root crown on the southwest side of the tree. I found an ant nest at the root-crown decay area indicating ants are excavating and nesting in dead roots and root crown. The dead roots contribute to the decline of the canopy and compromise the stability of the tree. At least five, 12" average diameter scaffolds had extensive decay on the east side of the tree. To reduce scaffold failure risk, up to 50% of the live canopy would need to be removed, which would compromise the health of and already unhealthy tree. See Appendix A - Photographs – Photos 22-24.

Mitigation: Remove tree prior do commencement of project.

Tree 13 – A 42" diameter valley oak was in Poor condition.

Basic Level 2 Inspection –

The tree had a full canopy with a balanced form. On the south side of the tree at the root crown, there was an area of decay in the underside of one of the anchor roots. Like trees 1 and 2, the decay is likely caused by *Armillaria mellea*. I also noted the lower trunk was bulging and larger than normal which may indicate butt-rot caused by A. mellea. Further, I observed that the eastern scaffold branch was decayed, and large dead wood was present throughout the canopy. See Appendix A - Photographs – Photos 25 - 28.

A previous report, by another arborist, expressed concern that a scar at the base of the tree might indicate decay and structural instability. When I sounded the tree's trunk with a rubber mallet, it resounded solid, except on the north side of the trunk. Due to the difference of opinion regarding the structural integrity of the trunk, I performed an advanced inspection for decay using a Resistograph.

Advanced Level 3 Inspection -

I took 5 measurements of the wood density of the trunk at 3.5' above ground.

- Sample 1 – west side of tree. Outer shell thickness was 7"
- Sample 2 – south side of tree. Outer shell thickness was 8.5"
- Sample 3 – east side of tree. Outer shell thickness was 8.5"
- Sample 4 – east side of tree scarred area on east side of trunk approximately 1' above ground. Outer shell thickness was 12".
- Sample 5 – north side of tree. Outer shell thickness was 5"

Like Tree 1, the trunk of this tree had advanced internal decay, however when comparing outer shell thickness, this specimen had thicker walls and did not have indications of trunk fibers buckling, therefore its structural integrity is likely stronger.

Tree Risk - I used the International Society of Arboriculture's Basic Tree Risk Assessment Form to determine the risk. I used Matrix 1 the "Likelihood Matrix" on the form and entered the result into Matrix 2, the "Risk Rating Matrix" to get the overall risk rating.

I have highlighted the tables below to show how risk was determined
for the part or parts of the tree that was being considered regarding failure potential.

Part Assessed - Root

In Matrix 1 the "Likelihood Matrix" I selected Likelihood of Failure of the roots as Possible. The Likelihood of impacting a target in a built environment would be High. The resulting Likelihood of Impact was Somewhat Likely, which I entered into Matrix 2, the "Risk Rating Matrix" for the Likelihood of Failure and Impact section. Under Consequences of Failure in Matrix 2, I entered Severe. The Likelihood of Failure and Impact rating combined with the Consequences of Failure resulted in a risk rating of Moderate.

Matrix 1. Likelihood matrix.

Likelihood of Failure	Likelihood of Impact			
	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

Matrix 2. Risk rating matrix.

Likelihood of Failure & Impact	Consequences of Failure			
	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

Part Assessed – Trunk

In Matrix 1 the "Likelihood Matrix" I selected Likelihood of Failure of the scaffold branches as Probable. The Likelihood of impacting a target in a built environment would be High. The resulting Likelihood of Impact was Likely, which I entered into Matrix 2, the "Risk Rating Matrix" for the Likelihood of Failure and Impact section. Under Consequences of Failure in Matrix 2, I entered Severe. The Likelihood of Failure and Impact rating combined with the Consequences of Failure resulted in a risk rating of High.

Matrix 1. Likelihood matrix.

Likelihood of Failure	Likelihood of Impact			
	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

Matrix 2. Risk rating matrix.

Likelihood of Failure & Impact	Consequences of Failure			
	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

Part Assessed – Scaffold Branches

In Matrix 1 the "Likelihood Matrix" I selected Likelihood of Failure of the scaffold branches as Probable. The Likelihood of impacting a target in a built environment would be High. The resulting Likelihood of Impact was Likely, which I entered into Matrix 2, the "Risk Rating Matrix" for the Likelihood of Failure and Impact section. Under Consequences of Failure in Matrix 2, I entered Severe. The Likelihood of Failure and Impact rating combined with the Consequences of Failure resulted in a risk rating of High.

Matrix 1. Likelihood matrix.

Likelihood of Failure	Likelihood of Impact			
	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

Matrix 2. Risk rating matrix.

Likelihood of Failure & Impact	Consequences of Failure			
	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

Combined Inspections Results and Risk Assessment-

The highest risk rating for this tree was High and was associated with scaffold and trunk failure. I found decay in one anchor root and significant decay was detected in the trunk, however no bulging of trunk fibers was evident. Based on shell strength measurements, the likelihood of trunk failure is probable due to lack of structural integrity. Scaffold failure was also probable. Risk of root failure remained moderate.

Mitigation:

Mitigations are meant to reduce risk without compromising the health of the tree. Ultimately, the tree manager, owner or other controlling entity must decide if the residual risk assessed is reasonable.

Scaffold Branches - Reduce end weight on overextended scaffold branches between 25% and 40% to reduce the likelihood of failure. Concentrate reduction more on the northeast and east side of the tree. Remove dead branches 2" diameter and larger. Remove decayed and structurally unsound scaffold branches. Supervision of pruning work by the Project Arborist shall be required. If all pruning recommendations are implemented, the risk of branch failure for the next 12 months will be reduced from High to Moderate.

Roots - Reducing the canopy through end weight reduction will relieve some stress on roots, however due to the overall weight of the canopy and stem, the risk rating for root failure will remain Moderate.

Trunk – Scaffold branch reduction will relieve some stress on the trunk of the tree, however it will not likely be enough to lower trunk failure risk to moderate. If this tree is to be retained, and the goal is to reduce the risk rating, the only reasonable way to achieve that goal will be to restrict access by installing a permanent fence around it. The fence shall be a minimum of 4.5' tall and be built at the limits of the tree protection zone. Once access is restricted, the risk rating will be Moderate. See Trees to be Protected section on page 16 of this report for more detail regarding permanent fencing.

Critical Root Zone Calculations

According to the ISA's definition, the CRZ is an area of soil around a tree where the minimum number of roots considered critical to the structural stability or health of the tree are located. CRZ determination is sometimes based on the drip line or a multiple of the DSH.

Per City of Paso Robles oak tree ordinance and ISA guidance, the CRZ was determined by assigning a radius of 1-foot per every inch of tree diameter. E.g., a 12-inch diameter tree would have a 12-foot CRZ radius measured from the outside of the trunk. Calculations for all oaks with CRZs potentially being impacted are listed in Appendix E - Tree Inventory and are shown in Appendix D - Tree Protection Map.

Tree Protection Zone Requirements

A tree protection zone or TPZ is similar to a CRZ. Ideally it will be the same size as the CRZ, however it can be smaller. The general rule for CRZ encroachments is that they may be allowed if the impact to critical roots is not more than 25% with no disturbance of ***Structural Roots*** *(large roots that provide anchorage and stability to the tree).*

Once the TPZ limits have been established, tree protection fencing shall be provided for all trees listed for protection. See Table 1 - Tree Protection Zone Measurements on page 17 of this report. Tree protection fencing is required to be in place for the duration of the construction project and shall be installed before starting any ground disturbing activities.

- Do not remove any tree protection fencing or enter the TPZ without approval of the project arborist. The fencing shall delineate and protect the tree protection zone.

- The fencing shall at minimum, be 4 feet tall and made of orange, high density, polyethylene with 3.5" x 1.5" openings. It shall be installed on steel posts 8 feet on center and tightly stretched to prevent sagging. I **STRONGLY** recommend installing 6' X 8' temporary, chain-link, fence panels secured to driven steel post. This is a more secure and less moveable option than vinyl fencing that can easily be moved by hand or run over by vehicles. See Appendix C - Tree Protection Diagrams & Photos - Diagram 2 – Temporary Chain-link Fence Panel.

- Trunk Protection shall also be provided – Often, the trunk of a tree will be damaged by construction equipment activities. In order to protect as much of the trunk as possible, 2" X 4" wood slats with a minimum height of 8' shall be placed against the trunk of the tree and secured with wire or zip-ties. **DO NOT** use anchors such as screws or nails to connect to the trunk. See Appendix C – Tree Protection Diagrams - Diagram 3- Trunk Protection for more detail.

- Tree protection signs shall be placed on the TPZ fencing and be spaced 10 feet apart. Signs shall be weatherproof, and state, “Tree Protection Zone – Do Not Enter”. The signs shall also include the project manager’s and project arborist’s phone numbers. Signs shall remain in place until completion of the project. See Appendix C – Tree Protection Diagrams - Diagram 1 – Tree Protection Fencing for further detail.

- No construction or ground disturbance shall be allowed inside the fenced TPZ or CRZ without the project arborist’s permission and/or oversite. If you are unsure whether an activity is allowed, refer to Appendix D - Tree Protection Requirements – Quick Reference List or contact the project arborist **Rodney Thurman at 805 234 8760.**

Trees To Be Protected

There were 2 native oaks in this project that were selected for retention and will required protection due to proposed construction encroachments inside the CRZ or within 5 feet of tree canopies. All TPZ fencing shall be set as prescribed in Table 1 - Tree Protection Zone Measurements on page 17 and be completed before construction begins. Trunk protection shall also be installed before construction begins. See Appendix C - Tree Protection Diagrams & Photos- Diagrams 1-3.

If construction occurs during the months of June through November, the TPZs shall be irrigated to a depth of 12 inches 1 time before construction begins, which will ensure the trees are properly hydrated. Additional irrigations during construction may be recommended by the project arborist.

I have recommended retaining and protecting Trees 10 & 13. Refer to Tree Protection Zone map in Appendix B Maps - Map 2.

All work within or adjacent to the CRZs of oak trees will require arborist supervision to ensure that all tree protection measures are implemented. To avoid damage to critical roots, no machine use will be allowed in the TPZ. In order to prevent undue damage to roots when grading, the grading limits along the perimeter of the TPZ shall be **DUG BY HAND** to the final grading depth. If a root 1” diameter or larger is exposed, it shall not be cut without the project arborist’s permission.

If the project arborist determines that a root over 1-inch diameter needs to be cut, it shall be cut by hand with a pruning saw or reciprocating saw. Once the entire perimeter outside the TPZ has been dug and roots are severed, the project arborist can approve use of machinery to complete excavation and grading if work is outside of the TPZ.

Both trees have gravity walls proposed to be built around them to prevent soil erosion. These walls shall be constructed outside the TPZ fencing area.

Tree 13 requires a permanent fence be built at the limits of the tree protection zone to restrict access. I recommend anchoring it on top of the gravity wall. The fence shall be a minimum of 4.5’ tall and be made of ornamental steel or chain-link mounted on anchored fence posts. The fence openings should not be more than 6” wide. A locked access gate shall be provided to allow maintenance personnel to access the tree. See Appendix C - Tree Protection Diagrams & Photos - Photo A, for permanent fence example.

Table 1 - Tree Protection Zone Measurements					
Tree #	**DSH**	**CRZ**	**TPZ Fence Distance from tree trunk**	**% CRZ Impact**	**Specific Protection Requirements**
10	51"	51'	51' North, 48' South. 53' East & West	< 5	Set TPZ fencing according to measurements provided. Refer to Tree Protection Zone map in Appendix B Maps - Map 2
13	42"	42'	42' all directions	0	Set TPZ fencing according to measurements provided. Refer to Tree Protection Zone map in Appendix B Maps - Map 2

Tree Removals & Tree Pruning

All tree removals and pruning maintenance shall be completed prior to construction activities.

Removals - There were 6 native oak trees that I recommended for removal. They were numbered 1,2,3,4 9 and 11. Reasons for removals are listed in Tree Risk Assessment section of this report. See Appendix A – Photographs for pictures of defects. See Appendix B – Maps - Map 1 for locations.

Tree Pruning - I have recommended that Trees 10 and 13 have mitigation pruning performed. See Appendix B – Maps - Map 1 for locations.

> **Tree 10** - Reduce end-weight up to 25% on overextended scaffold branches. Remove dead wood 2" diameter and larger. Remove decayed and structurally unsound scaffold branches. Supervision of pruning work by the Project Arborist shall be required.
>
> **Tree 13** - Reduce end weight on overextended scaffold branches between 25% and 40% to relieve stress on and reduce the likelihood of failure. Concentrate reduction more on the northeast and east side of the tree. Remove dead branches 2" diameter and larger. Remove decayed and structurally unsound scaffold branches. Supervision of pruning work by the Project Arborist shall be required.

Oak Tree Replacements

The City of Paso Robles requires replacements for any native oak removed that is 6-inches in diameter or greater. This requirement is at the discretion of the Director of Public Works. The following is excerpted from the city's Oak Tree Ordinance 835 N.S.:

> Replacement oaks being equivalent to twenty-five percent of the diameter of the removed tree(s). (For example, the replacement requirement for removal of two trees of fifteen-inch DBH (thirty total diameter inches), would be seven and one-half inches (thirty inches removed multiplied by twenty-five hundredths replacement factor).

This requirement could be satisfied by planting five, one and one-half inch caliper trees, or three, two-and one-half-inch caliper trees or any other combination totaling seven and one-half inches).
A minimum of two, twenty-four-inch box, one and one-half inch minimum trunk caliper measurement trees shall be required for each oak tree removed.

Replacement trees shall be located on the same property as where the tree is approved for removal or, subject to approval of the director, arrangements can be made to locate the replacement trees on public property. Planting standards for replacement trees shall he consistent with City Standard Details and Specification L-4 except that deep root barriers shall not be required if the trees are not adjacent to sidewalk areas. Oak tree preservation and maintenance measures shall be consistent with the provisions of this chapter.

The combined diameter of the oak trees proposed for removal within your project is 270 inches. Twenty-five percent of 270 inches is 67.5 inches. Therefore, forty-five (45) native oaks at the minimum 1.5-inch caliper or thirty-four (34) native oaks at 2-inch caliper would be required to be planted on the premises or somewhere in the city, upon the Public Works Director's approval.

When incorporating new oak trees into your landscape, you will need to allow for at least an 8' x 8' planting area. Curbing for the planting area shall not count as part of the planting area dimensions. Planting areas smaller than 8'x 8' will result in sidewalk and curb buckling when tree roots mature. Distances between oak trees should be no less than 25 feet. If oak trees can be incorporated into open, non-hardscape areas, they will have a higher success rate. Planting trees in groups of 3, in larger landscape planting islands is also a great way to ensure better root health and tree survival rates while maximizing parking lot shade benefits.

Landscaping – Irrigation - Amenities

Tree 10 –

- Do not till or trench within the TPZ to install landscaping or irrigation.
- Install only drought tolerant and preferably California native plants beneath the tree canopy.
- Irrigation shall be drip-type and all supply hoses shall be routed above ground.
- Do not install overhead sprinkler irrigation because it will introduce too much moisture and potentially rot the tree's roots.
- Do not install weed block cloth beneath the canopy of the tree. It restricts rainwater from percolating into the soil.
- Provide decorative bark as a top dressing to help retain moisture in the root zone.
- Do not construct permanent concrete or brick patios beneath the canopy of the tree.
- Install Raised deck patios. They are the preferred treatment for seating areas within the critical root zones of trees.

Tree 13 –

- **DO NOT** provide any permanent or temporary amenities such as patios or seating beneath the canopy of this tree.
- Do not till or trench within the TPZ to install landscaping or irrigation.
- Install only drought tolerant and preferably California native plants beneath the tree canopy.
- Irrigation shall be drip-type and all supply hoses shall be routed above ground.

- Do not install overhead sprinkler irrigation because it will introduce too much moisture and potential rot the tree's roots.
- Do not install weed block cloth beneath the canopy of the tree. It restricts rainwater from percolating into the soil.
- Provide decorative bark as a top dressing to help retain moisture in the root zone.

Pre-Construction Meeting

Prior to any construction or ground disturbing activities, the project arborist shall meet with all contractors involved with the development of this project to review tree protection measures. Any new contractors brought on site shall also meet or communicate with the project arborist by phone or video conference to ensure they are aware of all tree protection measures.

Conclusion

Although many of the mature trees on site were not safe to retain, two trees were viable and had good potential to be retained as an asset to your project if all site design recommendations and tree protection measures are implemented. With required native oak replacements, you will have the opportunity to build your project while also restoring a native oak forest on site.

Respectfully Submitted,

Rodney D. Thurman
ISA Board Certified Master Arborist PN-2684BUM
ISA Municipal Specialist
ISA Utility Arborist
ISA Tree Risk Assessor Qualification

Appendices: *photographs, maps, tree protection diagrams & photos, tree protection quick reference list*

Appendix A - Photographs

Photo 1 - View of Tree 1 to south. Note lean to east.

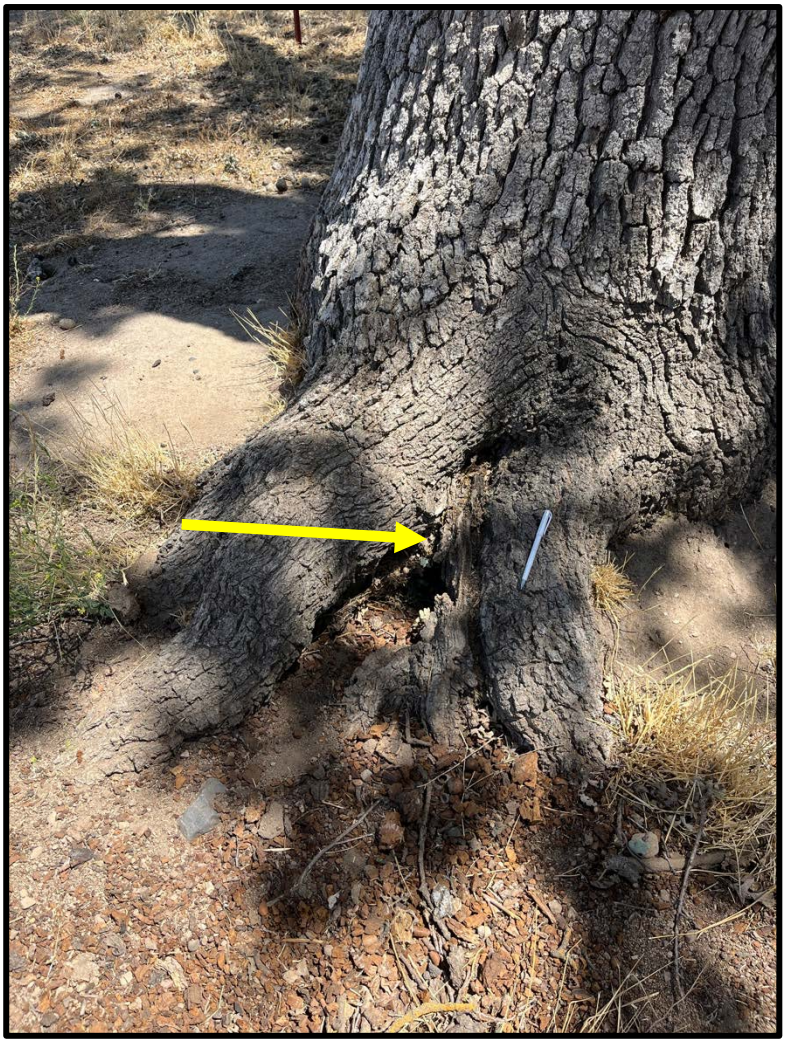


Photo 2 - Tree 1 with decayed anchor root on southwest side, indicated by arrow. Ink pen provided for scale

Photo 3 - Tree 1 with compression bulge east side of trunk indicated by arrow shows lack of structural support.

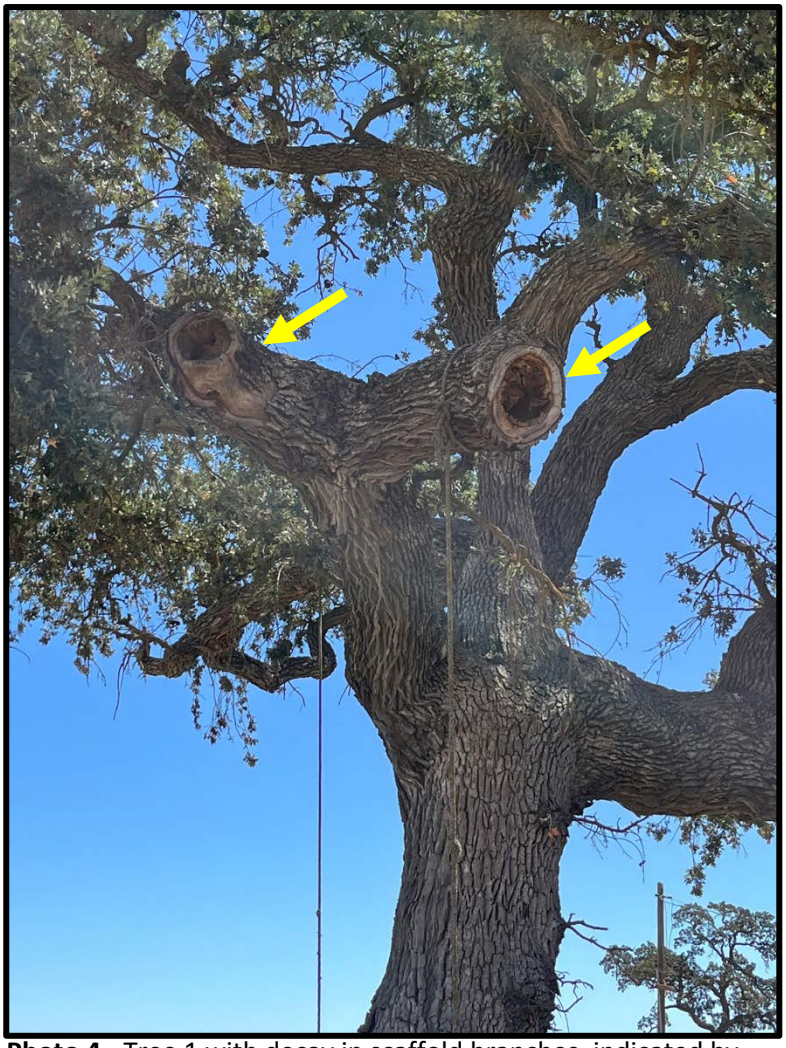


Photo 4 - Tree 1 with decay in scaffold branches. indicated by arrows.

Photo 5 - View of Tree 2 to north

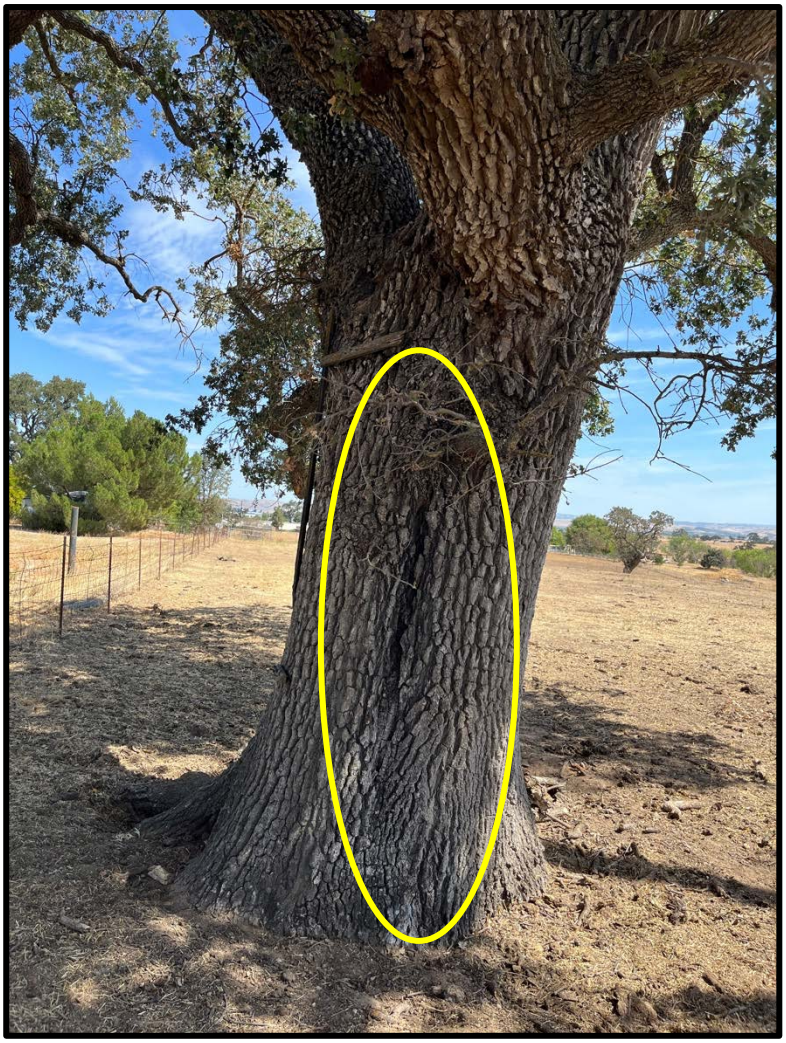


Photo 6 - Tree 2 with decay cavity south side of trunk. Length is approximately 5.5’.

Photo 7 - Tree 2 with decay cavity at scaffold union approx. 8’ above ground on southwest side of tree.

Photo 8 - Tree 2 with fungal fruiting body circled and decay in south scaffold branch indicated by arrow.

Photo 9 - Tree 2 with decay cavity formed by failed scaffold circled at center of tree, approximately 14 feet above ground.

Photo 10 - Tree 2 perspective view of decay cavity formed by failed scaffold circled at center of tree. Cavity is circled. Other decay points below the open cavity are indicated by arrows.

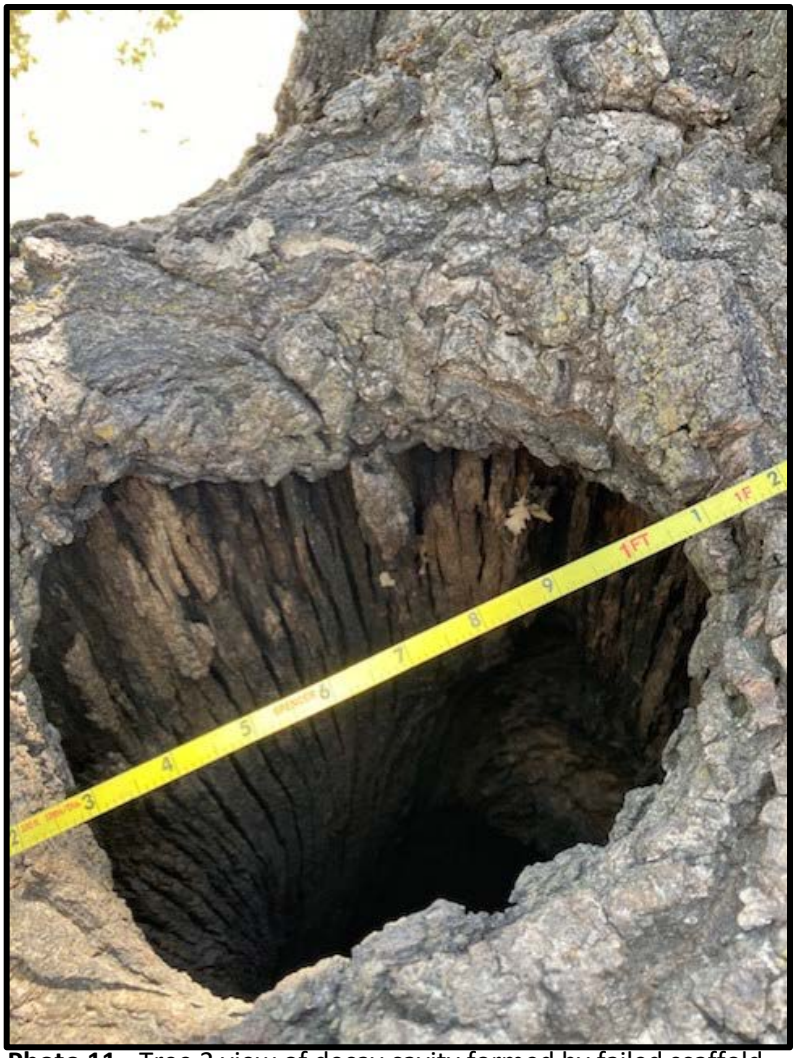


Photo 11 - Tree 2 view of decay cavity formed by failed scaffold. Opening measures 13”

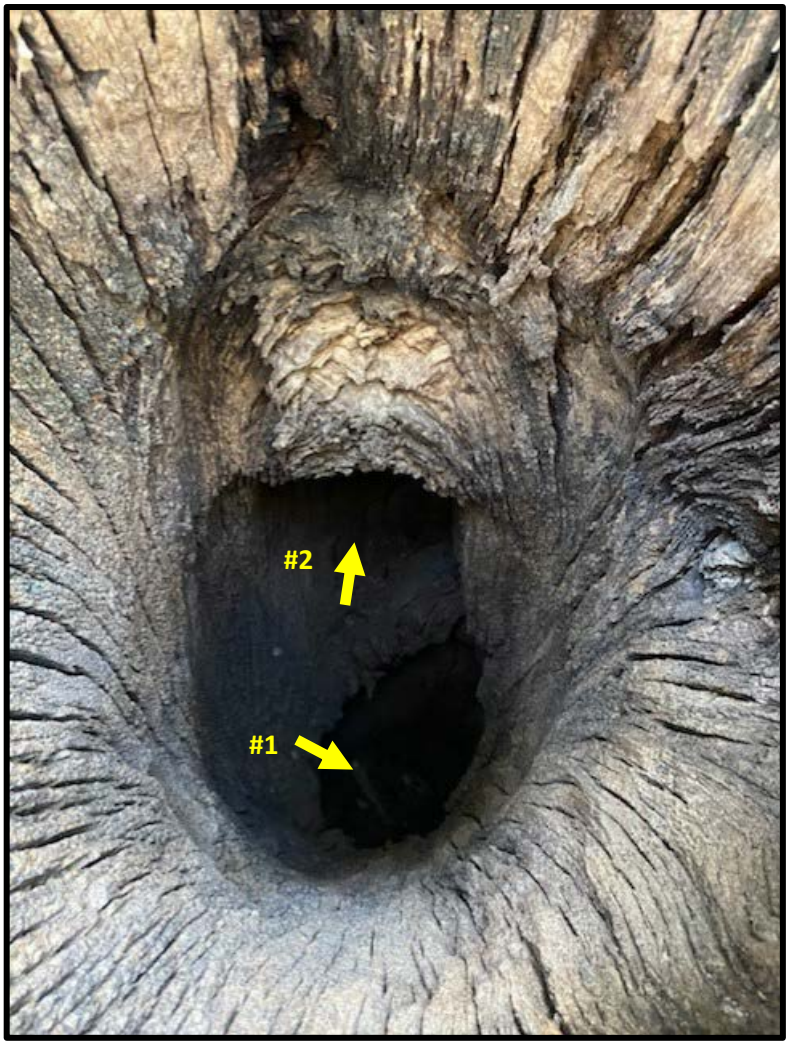


Photo 12 - Tree 2 view of interior decay cavity formed by failed scaffold. Arrow 1 shows depth of cavity down to roots of tree. Arrow 2 shows decay that has advanced into eastern scaffold branch.

Photo 13 - Tree 2 measurement of interior depth of decay cavity formed by failed scaffold. 13’ 2”

Photo 14 - Tree 2 measurement of exterior depth of decay cavity formed by failed scaffold. 14’ 3”

Photo 15 - View of Tree 3 to north. Overextended scaffold to west. Large decay cavity at connection to trunk.

Photo 16 - Tree 3 with large decay cavity at scaffold connection to trunk.

Photo 17 - View of Tree 4 with to northwest. Numerous failed scaffold branches due to overextension and internal decay.

Photo 18 - View of Tree 9 to north. Numerous failed scaffold branches due to overextension and internal decay.

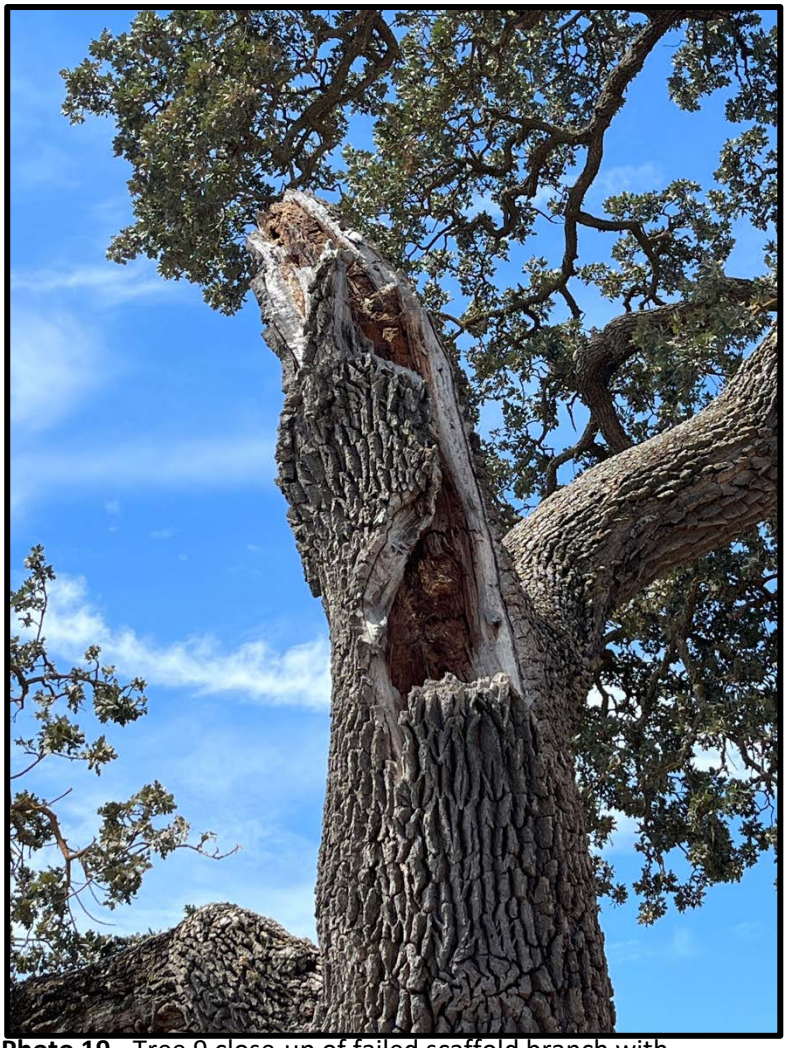


Photo 19 - Tree 9 close-up of failed scaffold branch with internal decay.

Photo 20 - View of Tree 10 to south.

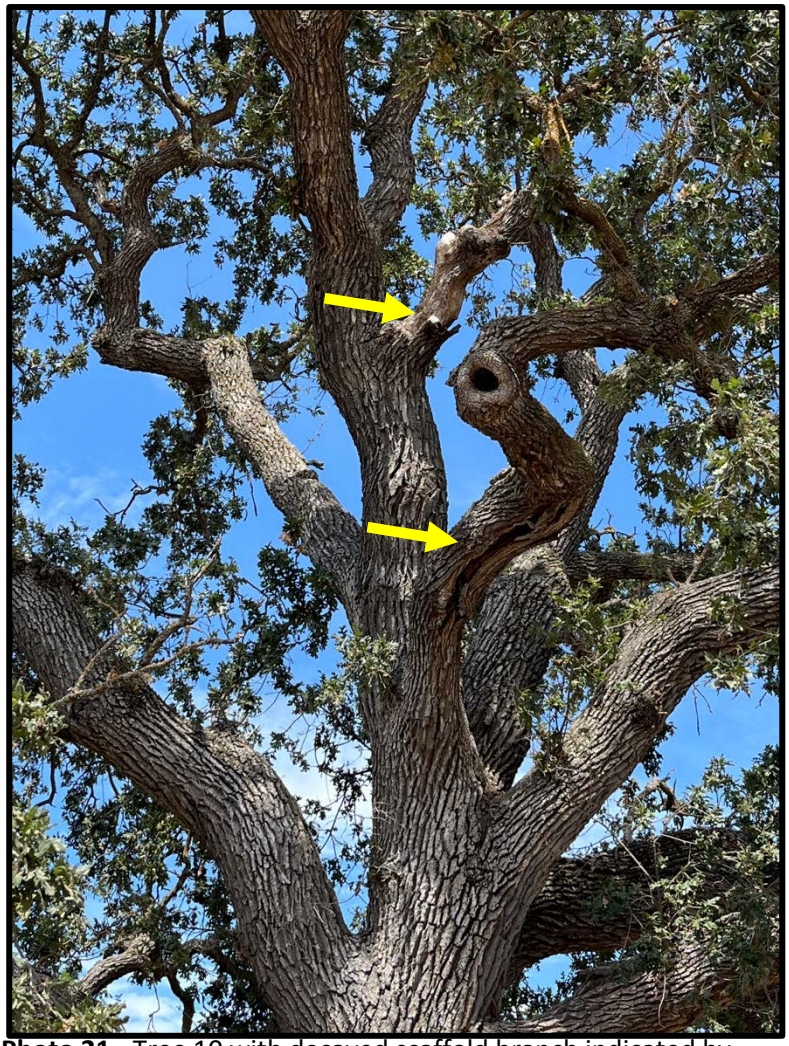


Photo 21 - Tree 10 with decayed scaffold branch indicated by yellow arrows.

Photo 22 - View of Tree 11 to north. At least 5 decayed scaffold branches would be removed which would reduce the tree at least 50%. Arrows indicate branch removal points.

Photo 23 - Tree 11 close up of declining canopy, decayed branches, and dead wood indicated by arrows.

Photo 24 - Tree 11 close up of root crown decay at southwest side of tree indicated by yellow arrow. Ant nest discovered here which indicates dead and rotting wood.

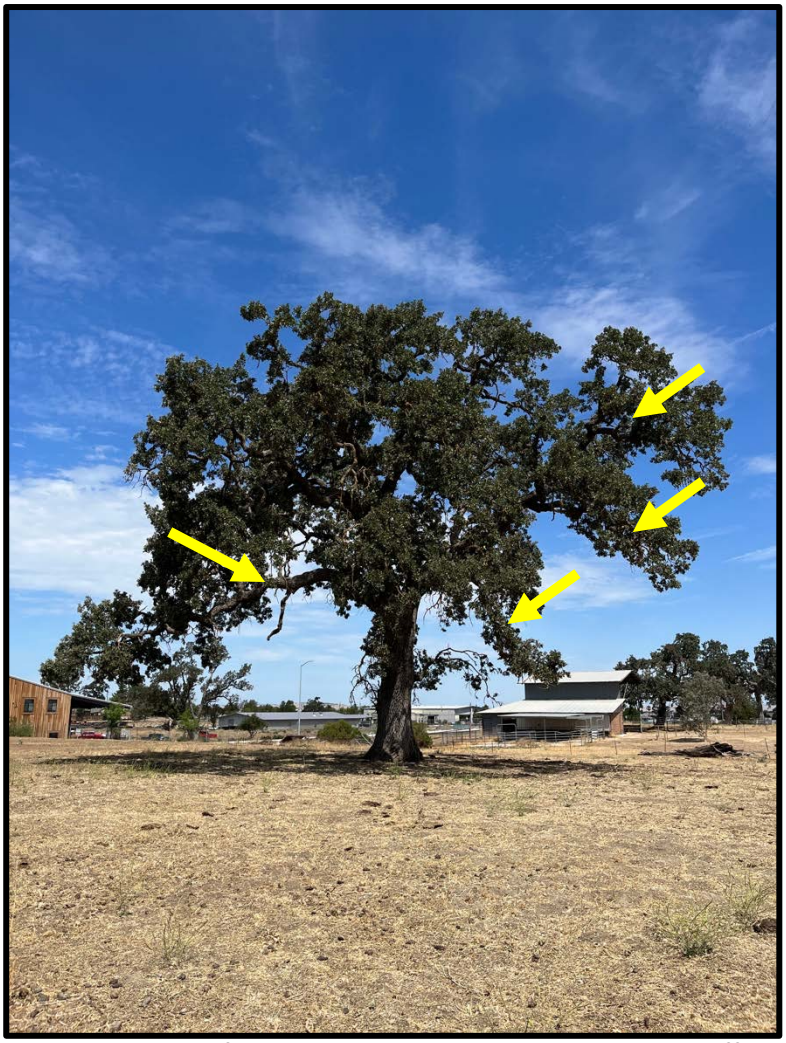


Photo 25 - View of Tree 13 to north. Note overextended scaffold branches indicated by arrows.

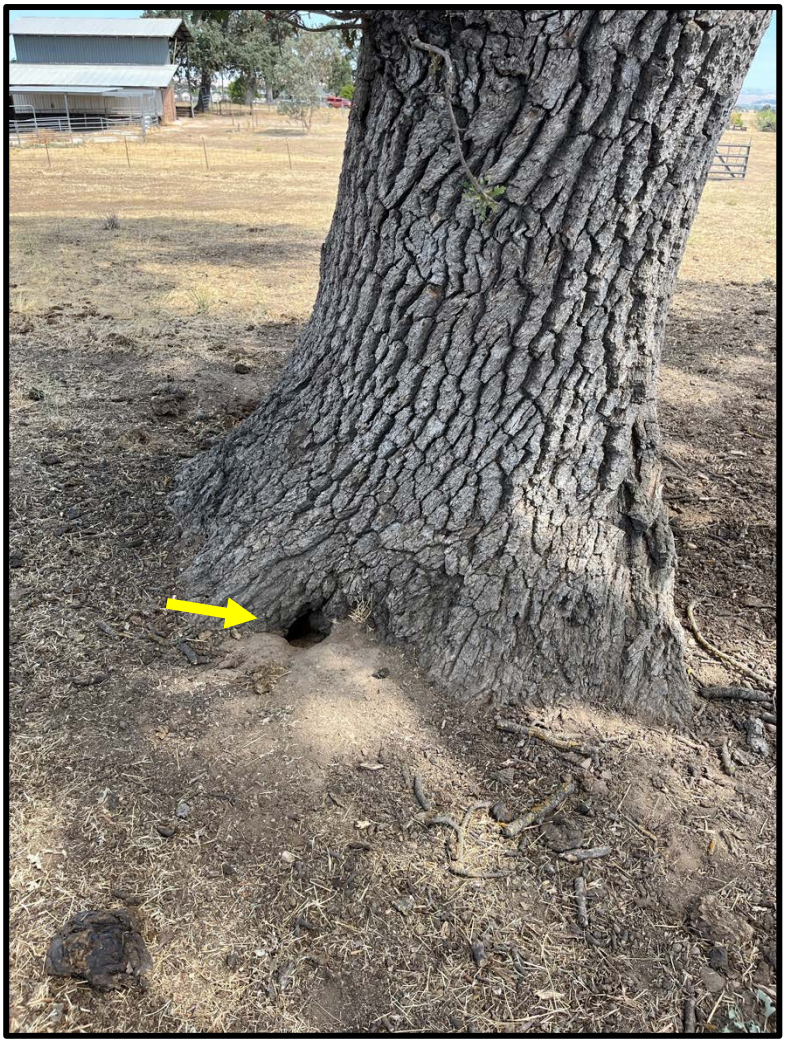


Photo 26 - Tree 13 with root decay cavity on south side of tree indicated by arrow.

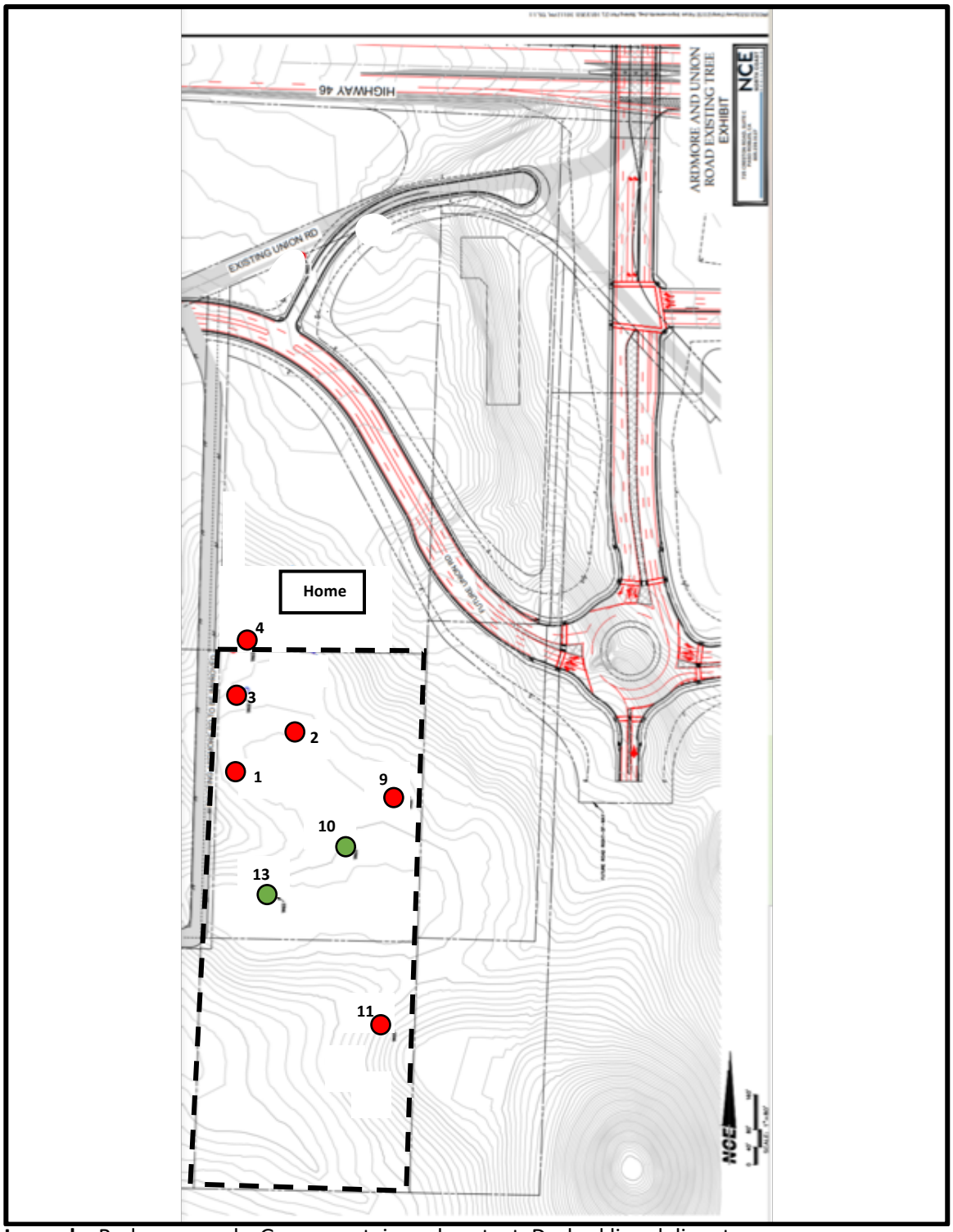
Photo 27 - Tree 13 with bulging root-crown indicating possible butt-rot.

Photo 28- Tree 13 with decaying scaffold branch east side of canopy indicated by arrow. Line indicates locations for removal

Photos 29 & 30 - Example of oak tree that failed due to root and butt-rot. Photo 29 shows failed roots. Photo 30 shows internal decay of trunk.

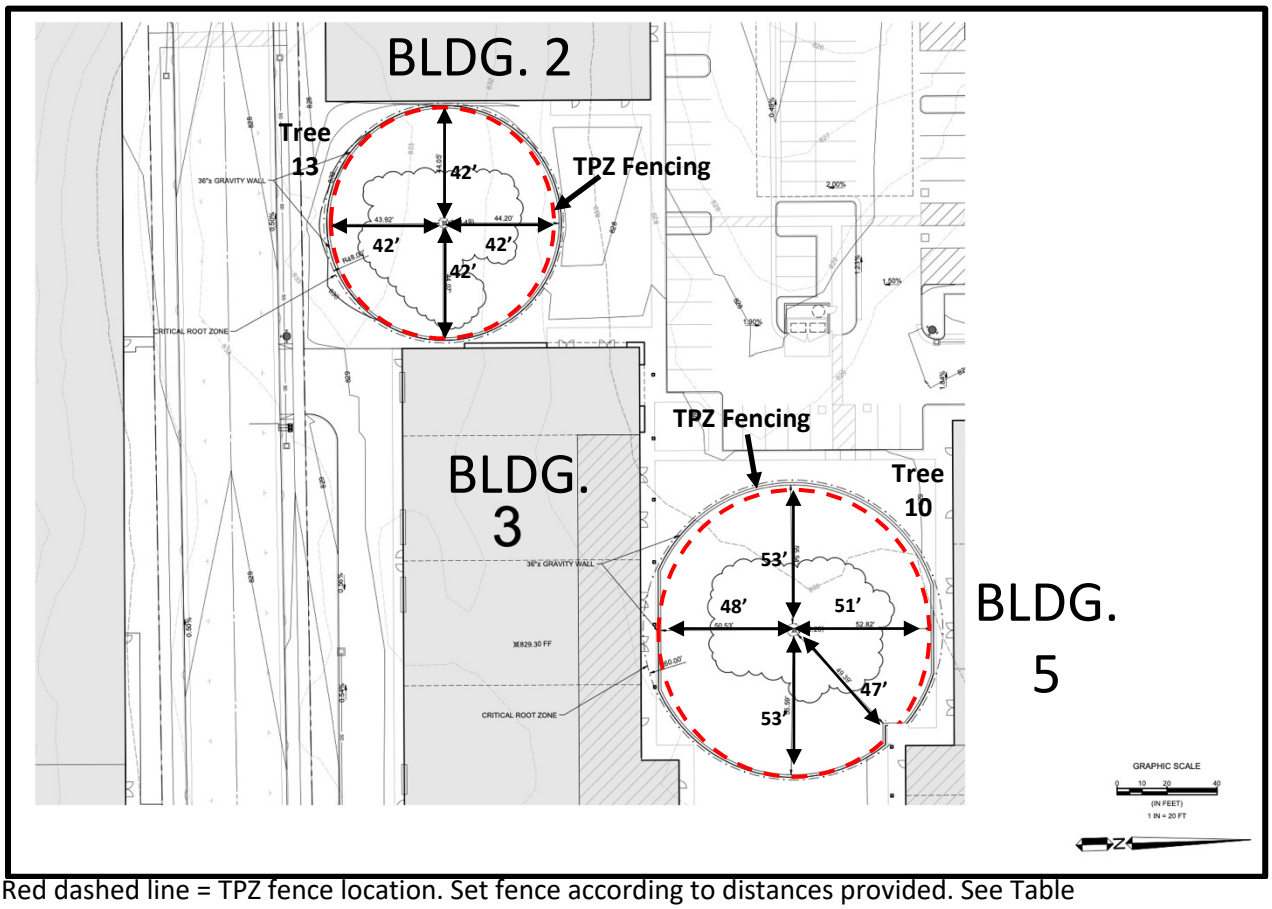
Appendix B – Maps

Map 1 - Tree Locations



Legend – Red = removals, Green = retain and protect, Dashed line delineates property boundaries.

Map 2 - Tree Protection Zones



Red dashed line = TPZ fence location. Set fence according to distances provided. See Table 1 - Tree Protection Zone Measurements in this report as well as full sized Tree Protection Zone Map in plan set for more detail. *This map has been cropped from the original provided by Wallace Group.*

Appendix C – Tree Protection Diagrams & Photos

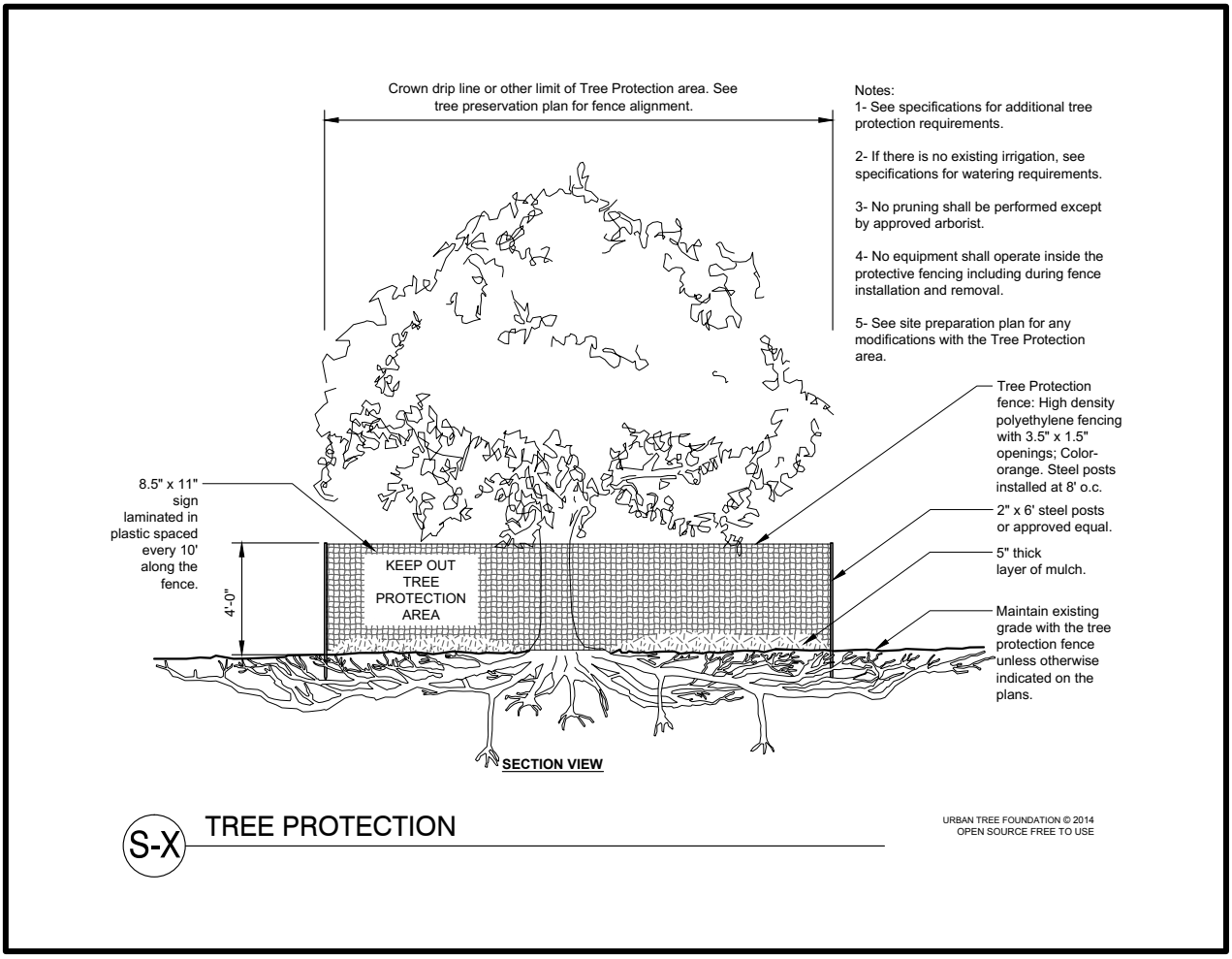


Diagram 1 –Vinyl Tree Protection Fencing

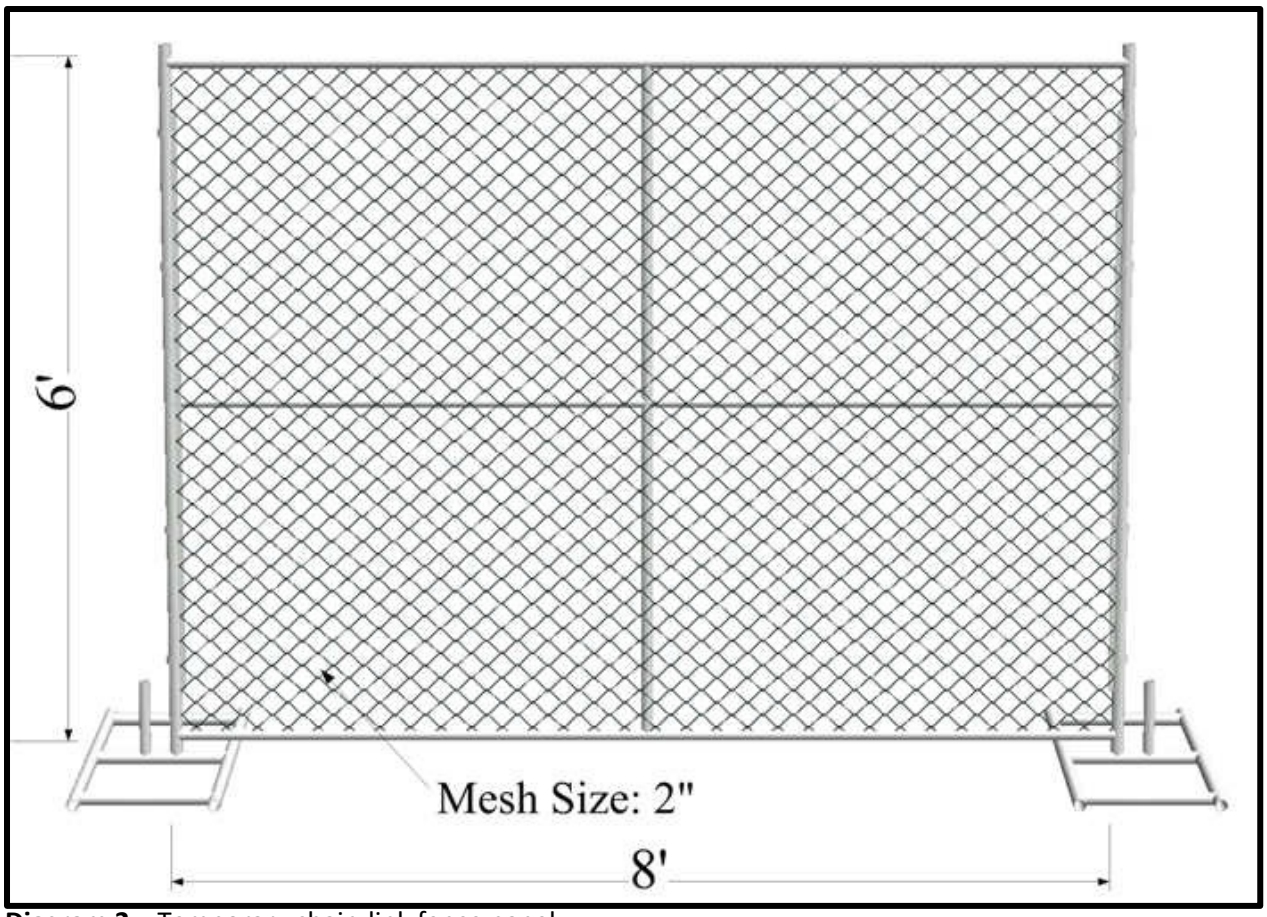


Diagram 2 – Temporary chain-link fence panel

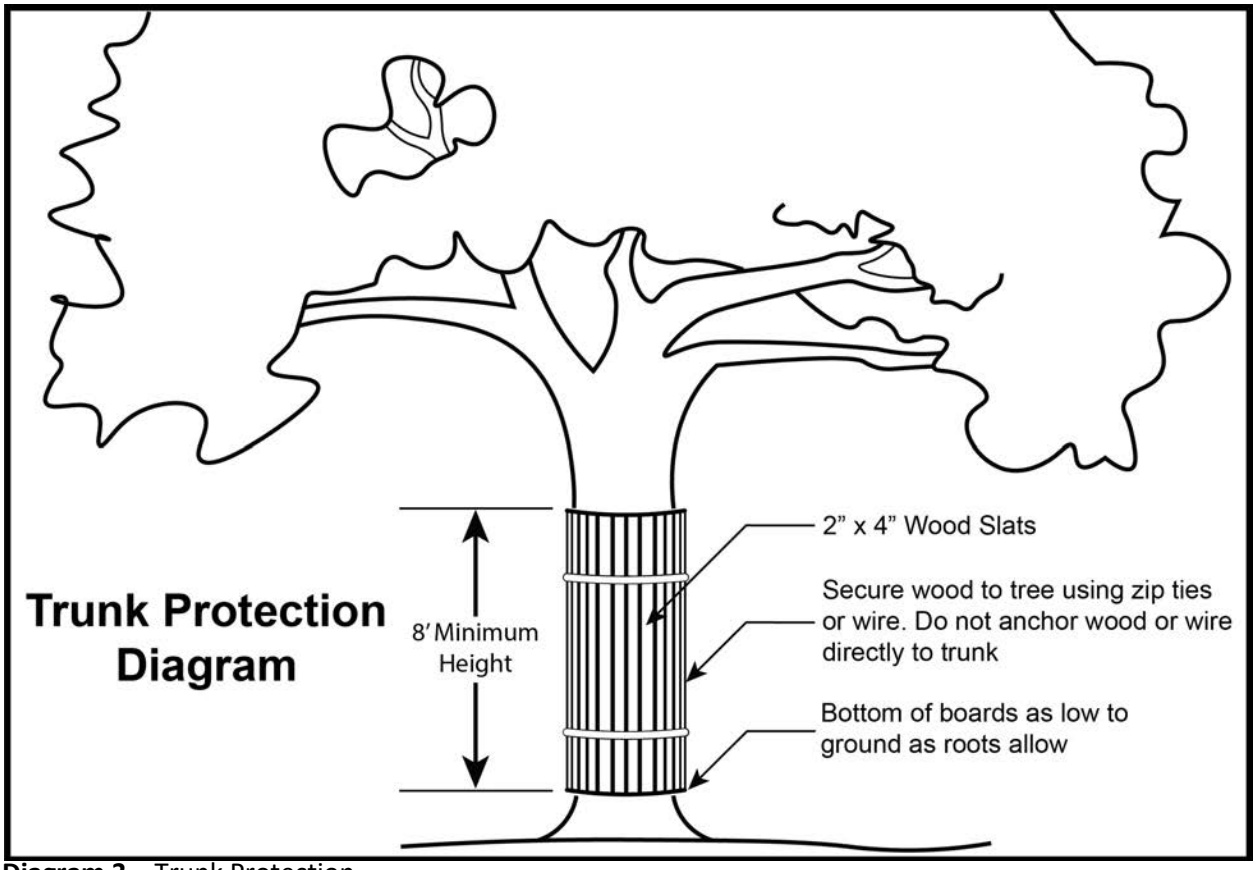


Diagram 3 – Trunk Protection

Photo A – Example of permanent fencing to exclude human activity beneath tree.

Appendix D - Tree Protection Requirements - Quick Reference List

Tree Protection During Construction - Tree protection shall be provided during the entire time construction activities occur. A Tree Protection Zone (TPZ) shall be established and maintained to ensure protected roots remain undisturbed.

Tree Protection Fencing - Tree protection fencing is required to be in place for the duration of the construction project and shall be installed before starting any ground disturbing activities. Do not remove any tree protection fencing or enter the TPZ without approval of the project arborist. The fencing shall delineate and protect the tree protection zone. The fencing shall be at minimum, 4 feet tall and made of orange, high density, polyethylene with 3.5" x 1.5" openings. It shall be installed on steel posts 8 feet on center and tightly stretched to prevent sagging. I **STRONGLY** recommend installing 6' X 8' temporary, chain-link, fence panels secured to driven steel post. This is a more secure and less moveable option than vinyl fencing that can easily be moved by hand or run over by vehicles. See Appendix C - Tree Protection Diagrams & Photos- Diagrams 1 & 2 – Tree Protection Fencing.

Trunk Protection - Trunk protection is required. The trunk shall also be protected by installing 2x4's against the trunk and securing them with zip-ties or wire. Do not anchor wood or wire directly to trunk. See Appendix C - Tree Protection Diagrams & Photos- Diagram 3 – Trunk Protection.

Tree Protection Signage - Weatherproof, tree protection signs stating, "Tree Protection Zone – Do Not Enter" shall be placed on the fencing & be spaced 10 feet apart. The Project Arborist's and General Foreman's contact numbers shall also be included on the sign. Signs shall remain in place until completion of the project. See Appendix C - Tree Protection Diagrams & Photos- Diagram 1 – Tree Protection Fencing.

Pre-Construction Meeting - A meeting with all contractors involved in the project shall occur with the project arborist before beginning construction activities. Any new contractors brought on site shall also meet or communicate with the project arborist to ensure they are aware of tree protection measures.

Preparing Tree Protection Zone - If construction occurs during the months of June through November, the TPZ's shall be irrigated to a depth of 12 inches before construction begins. This will ensure the trees are properly hydrated. Additional irrigations during "heat-waves" may be recommended by the project arborist.

Root Protection - No grading, trenching, paving or any other soil disturbance shall occur within or adjacent to the TPZ of the tree without permission and supervision by the project arborist. No trenching or excavation for footings, foundations, utilities or roadways shall occur within or adjacent to the TPZ without first, hand trenching the location and exposing roots.

If possible, conduit or other utilities shall be "fished" below roots larger than 1-inch diameter. Any roots 1-inch diameter or larger that are approved for pruning shall be hand cut with a clean pruning saw or Sawzall. Once roots are hand cut, machinery can remove the severed roots. Cutting any roots 1-inch diameter or larger requires supervision by the project arborist.

Root Pruning - If the project arborist determines that a root over 1-inch diameter needs to be cut, it shall be cut by hand with a pruning saw or reciprocating saw "Sawzall". After cutting a root, the area shall be backfilled as soon as possible with moist soil or covered with wet burlap until backfill can be completed. Burlap shall be kept wet the entire time it is in use for cut-root protection.

Dumping, Cleanout or Storage of Materials - No construction materials, soils, or debris shall be stored in the TPZ. No concrete, plaster, paint or chemical washout shall be allowed within the Tree Protection Zone (TPZ) or Critical Root Zone (CRZ).

Monitoring - An initial inspection shall be completed by the project arborist prior to commencement of construction activities to ensure that all tree protection measures have been put in place. Weekly inspections of the TPZ and associated fencing shall also be completed by the project arborist until construction is complete. Any root pruning, excavation, grading or filling within 5 feet of the TPZ shall a be monitored by the project arborist.

Project Arborist Contact Information - Rodney Thurman – Heritage Tree Arboricultural Consulting – Cell: 805 234 8760 – Email: rodney@heritagetreeconsulting.com