

Arborist Tree Inventory Preliminary Report

Client: TEKIELA REVOCABLE INTER VIV

Job Site: 6520 82nd Ave SE Mercer Island, WA

Parcel: 6669200170

Subject: Arborist Tree Inventory Preliminary Report

Date: 12/27/2023

From: Adam C Harke, ISA Certified Arborist #PN-9506A, Tree Risk Assessor Qualified

Assignment

I walked the site to inspect the trees and document my findings.

A summary, tree table, site map, and photographic documentation can be found below under sections 1 - 5. I have also attached the relevant current King County tree code at the end of this report.

Where applicable, I have categorized risk based on the methodologies presented in the International Society of Arboriculture's Tree Risk Assessment (Best Management Practices).

My responsibilities were to provide the following:

A tree plan that includes a tree inventory, site plan, replanting information (if necessary), tree protection measures for on-site and off-site trees (where CRZ extends on-site), and recommendations that will meet the minimum King County tree code requirements.

Site Description: Residential House with established landscape.

Subject Trees – Several Cherry trees, Incense Cedar, Western Hemlock, Flowering Dogwood, and Holly.

1. Summary

This report is preliminary as I have not reviewed any design plans or construction details for the site. Tree locations are based on a provided survey, KC Parcel Viewer data, and conditions observed during my site visit.

Retained trees will require protection measures to ensure they are not significantly impacted by construction. City Of Mercer Island tree protection measures, fencing details, and ISA recommended tree protection guidelines can be found below.

2. Tree Protection Timeline and Site Recommendations

Prior to construction, the following measures should be taken to ensure that trees are not damaged.

1) Project managers should review the contents of this report, including the International Society of Arboriculture's recommended tree protection measures found below under section 6 of this report. Information contained herein should be relayed to workers and subcontractors.

2) To minimize soil compaction, 6 – 10 inches of medium fine mulch should be applied within the recommended tree protection zones of this report. It should be kept at a minimum of 12 inches from the protected tree's trunk.

Once the mulch has been applied, tree protection fencing should be installed per the **King County tree and vegetation protection detail** found below.

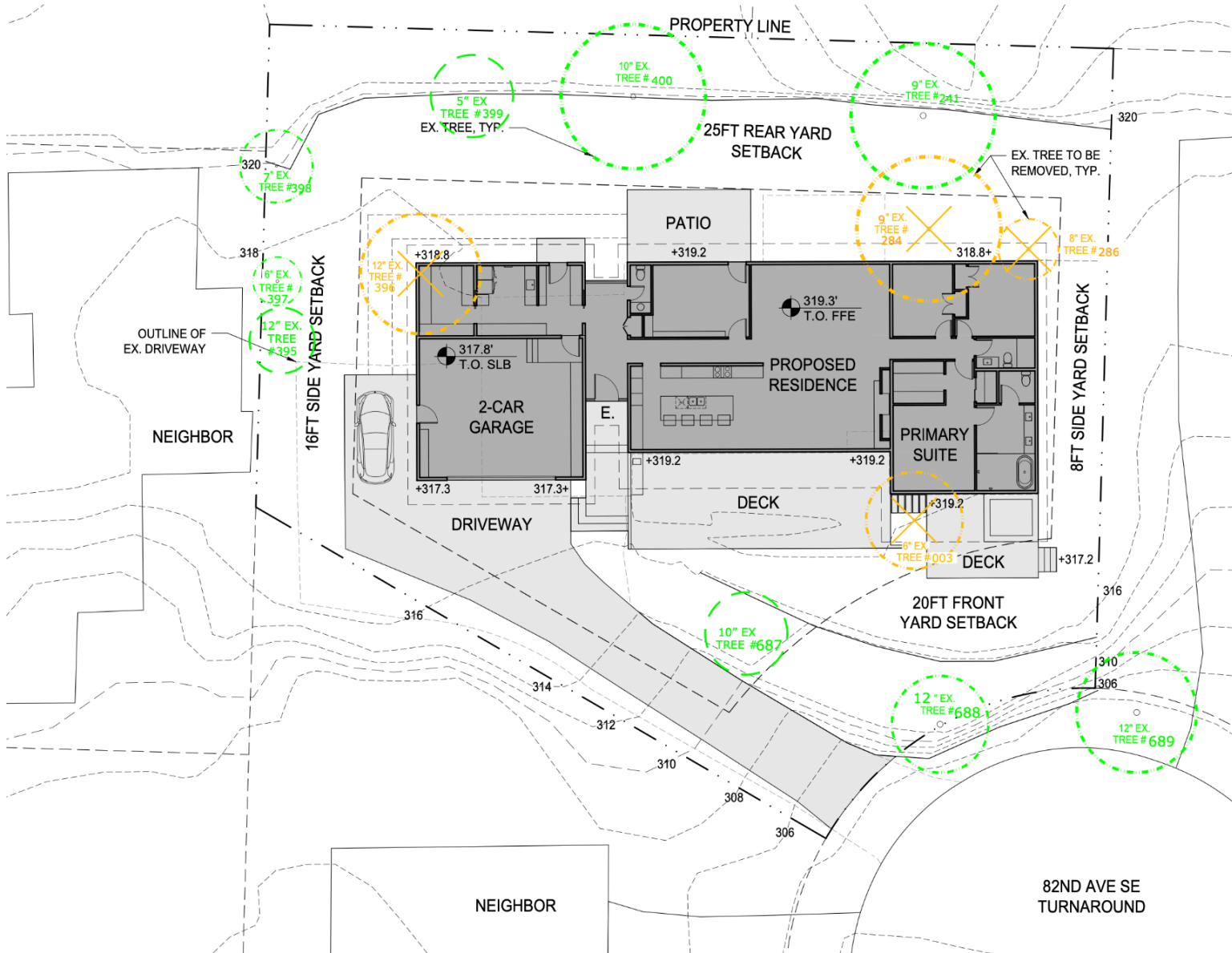
Additional site recommendations.

- Tree protection fencing and mulch should only be adjusted when access is required, such as, when scaffolding is utilized. Once the work has been completed, the fencing should return to its original placement.
- The following should be avoided within TPZ's: Stockpile construction materials or demolition debris, park vehicles or equipment, pile soil and/or mulch, contaminate soil from washing out equipment (especially concrete) and vehicle maintenance, and wound or break tree trunks or branches through contact with vehicles and heavy equipment.
- Post appropriate signage to help convey the importance of the TPZ to workers.
- **Make all necessary cuts to tree roots cleanly with sharp tools; never tear with a backhoe.** A clean cut encourages good wound closure and confines the spread of decay.
- All pruning should be conducted by an International Society of Arboriculture (ISA) certified arborist and following current ANSI A300 specifications.
- The project arborist shall supervise that the tree protection plan is being implemented.

3. Tree Inventory Table

Tree ID#	Parcel/ Location	Species	DBH Inches	Health Condition	Structural Condition	TRZ Radius	Overall Risk Rating	Proposed Action	Comment
395	6669200170	Incense Cedar <i>Calocedrus decurrens</i>	12",10"	GOOD	GOOD	10'	Low	Retain	
396	6669200170	Flowering Cherry <i>Prunus serrulata</i>	12"	GOOD	FAIR	12'	Low	Remove	Poorly pruned
397	6669200170	Star Magnolia <i>Magnolia stellularis</i>	6"	GOOD	GOOD	6'	Low	Retain	
398	6669200170	English Holly <i>Ilex aquifolium</i>	7"	GOOD	GOOD	7'	Low	Retain	
399	6669200170	Flowering Dogwood <i>Cornus florida</i>	5"	GOOD	GOOD	5'	Low	Retain	
400	6669200170	Western Hemlock <i>Tsuga heterophylla</i>	10"	GOOD	POOR	10'	Low	Retain	Tree Has been Topped.
003	6669200170	Flowering Cherry <i>Prunus serrulata</i>	9"	POOR	POOR	9'	Low	Remove	Damaged due to very poor pruning
241	6669200170	Black Tupelo <i>Nyssa sylvatica</i>	9"	GOOD	GOOD	9'	Low	Retain	
284	6669200170	Flowering Cherry <i>Prunus serrulata</i>	9",9"	POOR	POOR	9'	Low	Remove	Damaged due to very poor pruning
286	6669200170	Flowering Dogwood <i>Cornus florida</i>	8"	POOR	POOR	8'	Low	Remove	Damaged due to very poor pruning
687	6669200170	Japanese Maple <i>Acer palmatum</i>	10"	GOOD	GOOD	10'	Low	Retain	
688	6669200170	Flowering Cherry <i>Prunus serrulata</i>	12"	GOOD	GOOD	12'	Low	Retain	
689	6669200170	Flowering Cherry <i>Prunus serrulata</i>	12"	GOOD	GOOD	12'	Low	Retain	

4. Site Map



TEKIELA RESIDENCE

2023-11-22

SITE PLAN

1/16"=1'-0"

LOT AREA = 15,178 SF

LOT COVERAGE = 6,071 SF MAX

ROOF = 4,554 SF

DRIVE = 1,512 SF

TOTAL = 6,066 SF PROPOSED

GROSS FLOOR AREA = 6,071 SF MAX

TOTAL = 3,782 SF PROPOSED

HARDSCAPE MAX = 1,366 SF MAX

TOTAL = 842 SF PROPOSED

REQ'D LANDSCAPING = 9,107 SF MIN.

TOTAL = 10,204 SF PROPOSED

82ND AVE SE
TURNAROUND



5. Photographic Documentation

#395 Incense Cedar



#396 Flowering Cherry



#397 Star Magnolia



#398 English Holly



#399 Flowering Dogwood



#400 Western Hemlock



#003 Flowering Cherry



#241 Black Tupela



#284 Flowering Cherry



#286 Codominant Flowering Dogwood



#687 Japanese Maple



#688 Flowering Cherry



**ADDITIONAL PHOTO UPDATE
#689**



6. Details of Risk Assessment

Level 2: Basic Assessment

A level 2 basic assessment is the standard assessment performed for tree risk. The assessment includes a detailed visual inspection of a tree and its surrounding site, and a synthesis of the information collected. The basic assessment involves walking completely around the tree – looking at the site, buttress roots, trunk, and branches. The tree is viewed from a distance, as well as close up, to consider crown shape and surroundings.

Methodology – When identifying potential hazard trees, I must consider a variety of factors that could contribute to failure. This can include the following: previous history of site failures, topography, site changes, prevailing wind direction and exposure, tree size and species, growth habit, overall vigor, the density and health of the foliage and crown, examination of root and root collar health, dead wood, hanging or broken branches, and evidence of disease-causing bacteria, fungi, or virus.

Tools Utilized: Binoculars, compass, hammer, diameter tape, clinometer.

Timeline – This assessment covers a five-year period and is based on conditions present at the time of the assessment.

7. Definitions:

Diameter at Breast Height (DBH) – The diameter or thickness of a tree trunk measured at 4.5 feet above average grade. For trees with multiple trunks at 4.5 feet height, only trunks 3" DBH or greater shall be included. Where a tree splits into several trunks close to ground level, the DBH for the tree is the square root of the sum of the DBH for each individual stem squared (example with 3 trunks: $DBH = \sqrt{(stem1)^2 + (stem2)^2 + (stem3)^2}$). If a tree has been removed and only the stump remains that is below 4.5 feet tall, the size of the tree shall be the diameter of the top of the stump.

Significant – Trees with trunks greater than 6 inches in diameter, measured 4½ ft from the ground.

Landmark Tree – A regulated tree with a minimum 26-inch DBH.

Grove – A group of three or more viable regulated trees with overlapping or touching crowns that are located on a proposed development site; one of which is located in a required yard.

Dripline – The distance from the tree trunk that is equal to the furthest extent of the tree's crown. For trees with asymmetrical crowns, the dripline shall be measured in all four cardinal directions (North, South, East, West).

Tree Protection Zone (TPZ) – A defined area within and including an outer boundary, as determined by a Qualified Professional Arborist, in which certain activities are prohibited or restricted to prevent or minimize potential impacts from construction or development, applicable to individual trees or groups of tree trunks, roots and soil. TPZ is measured in feet from the face of the trunk and may be determined using Critical Root Zone, dripline, exploratory root excavations or other methodologies. The TPZ is variable depending on species, age and health of the tree, soil conditions and proposed construction. TPZ denotes the location of tree protection fencing.

Referenced City Of Mercer Island Code:

Tree Permits Related to Development Proposals

<https://www.mercerisland.gov/cpd/page/tree-permits-related-development-proposals>

Trees and construction

https://www.mercerisland.gov/sites/default/files/fileattachments/community_planning_amp_development/page/21988/treesandconstruction.pdf

Tree Submittal Checklist

https://www.mercerisland.gov/sites/default/files/fileattachments/community_planning_amp_development/page/21988/treessubmittalchecklist.pdf

8. ISA Recommended Tree Protection Information

The Pacific Northwest Chapter of the ISA Recommends the following for protecting trees from damage during construction.

<https://pnwisa.org/tree-care/damage/protecting-trees-from-damage/>

Critical Root Zone Protection

A critical step in retaining healthy trees is the protection of tree roots from disturbance. Each tree has a critical root zone (CRZ) that varies by species and site conditions. The International Society of Arboriculture defines CRZ as an area equal to a 1-foot radius from the base of the tree's trunk for each 1 inch of the tree's diameter at 4.5 feet above grade (referred to as diameter at breast height).

Another common rule of thumb is to use a tree's drip line to estimate the CRZ (see figure). Evaluate both of these and choose whichever provides the larger CRZ.

Under certain circumstances, disturbing or cutting roots in a CRZ may be unavoidable. In such cases, the work should be done only under the on-site supervision of an [ISA Certified Arborist](#).

Cutting or disturbing a large percentage of a tree's roots increases the likelihood of the tree's failure or death. Never cut tree roots that are more than four inches wide; roots that large are usually structural. Cutting them can destroy the stability of the tree, causing it to fall over!

If you must cut tree roots, do so cleanly with sharp tools. Never tear with a backhoe or other dull instrument. A clean cut encourages good wound closure and confines the spread of decay. If damage is severe, consider removing the tree because its stability may have been compromised.

Activities to Avoid in the Critical Root Zone

The CRZ that should be protected from negative interactions. Avoid the following activities:

- Stockpiling construction materials or demolition debris
- Parking vehicles or equipment
- Piling soil and/or mulch
- Trenching for utilities installation or repair, or for irrigation system installation
- Changing soil grade by cutting or filling
- Damaging roots by grading, tearing, or grubbing
- Compacting soil with equipment, vehicles, material storage, and/or foot traffic
- Contaminating soil from washing out equipment (especially concrete) and vehicle maintenance
- Installing impervious parking lots, driveways, and walkways
- Attaching anything to trees using nails, screws, or spikes
- Wounding or breaking tree trunks or branches through contact with vehicles and heavy equipment
- Wounding trunks with string weed trimmers and lawn mowers
- Causing injury by fire or excessive heat

During Construction

Monitor compliance with tree protection requirements and the impacts of construction activities on tree health regularly during construction. If there are incursions into the root zone, ensure roots have been severed cleanly, enforce penalties, and reestablish the protection zone. Confer with your contractors to make sure that construction offices, vehicular parking, worker break sites, concrete washout areas or other pollutants, and material storage will remain outside of protected areas. Diligence in maintaining barriers and in enforcing your protection plan will pay great dividends at the end of the project when the tree is still healthy.

Following the guidelines laid out above will serve in most situations, but occasionally construction plans will require impingement on the CRZ.

Trenching

Trenching is a standard way to install utilities. **It is best to entirely avoid trenching through the CRZ** (see figure); such practice could severely destabilize a tree, as well as adversely affect its health through loss of roots. Workers performing such operations should understand that 85% of the mass of a tree's root system is located within the CRZ and that most of a tree's roots are within the top 18 inches of soil. Alter routes of underground infrastructure or use alternate methods such as pipe boring. Tunneling at least 18 inches beneath the root zone will prevent loss of critical root mass if underground utilities must unavoidably be placed within the CRZ.

A decision must be made as to where best to locate utility trenches. Planners and designers must be made aware that trenches may not cross a CRZ and design alternate alignments accordingly; such realignments are not the responsibility of the construction crew.

Best practices for trenching include the following:

- Protect the trunks of high-value trees from scraping and gouging to a height of at least eight feet.
- Keep equipment and excavated backfill on the side furthest from the tree, not against the trunk.
- Place excavated backfill on a plastic or canvas tarp outside the CRZ.
- Prune away jagged roots back to the trench wall closest to the tree. Use a handheld pruner or pruning saw to make sharp, clean cuts.
- Replace the backfill on the same day if at all possible. Cover exposed roots with wet burlap to prevent them from drying out; in hot dry conditions, small roots may be injured in as little as 30 minutes.
- Do not allow chemicals, trash, or other foreign debris to become mixed with the backfill.
- If earthwork specifications allow it, firm the backfill to the same compaction as the surrounding soil and no more.
- Water the backfill to prevent excessive root drying.

Grade or Ground Level Changes

Grade changes should be avoided in order to prevent serious damage or death to a tree. Fill that is added over existing soils can smother and kill roots, or invite disease if piled around the trunk. Even temporary fills such as stockpiling mulch or soil in the CRZ of a tree for as little as several days during the construction process can have severe, long-term negative effects, though symptoms may not appear for several years.

The extent of injury from adding soil around a tree varies with the kind, age, and condition of the tree; the depth and type of fill; drainage; and several other factors. Maple, oak, and evergreens are most susceptible, while elm, ash, willow, sycamore, and locust are least affected.

Little can be done to save trees that have been suffering from soil added over an extended period of time. It is prudent to consider possible damage that may occur to a tree and take alternative action before the fill is made; prevention is less expensive and more effective than attempting to correct the situation after damage has been done.

Best practices for fill operations include the following:

- Never place any fill or organic materials directly against the tree.
- Never compact the soil within the CRZ.
- If using no more than two to four inches of fill around existing trees, significant damage may be avoided if the fill has a coarser texture than the existing soil.

Less damage to a tree's roots is likely with a lowered grade than when it is raised, unless exposing or removing a great deal of the root mass. A general rule-of-thumb used by landscape architects is to remove no more than six inches of soil from the existing grade in the CRZ; however, this is dependent on the soils in which the tree is growing. A tree's roots may all exist in the top foot of a shallow soil; removing the top six inches would have tremendous negative impact in that case.

Best practices for removing soil include the following:

- Consider removal and replacement if the tree is young, in poor condition, an undesirable species, or very susceptible to insects and disease.
- Plan grade changes well in advance of construction using the appropriate method to prevent injury to desirable trees.
- Use retaining walls or terraces to avoid excessive soil loss in the area of greatest root growth.
- Spread mulch over the exposed root area when possible, to help prevent soil erosion, reduce moisture loss, and keep soil temperatures lower.
- Provide supplementary water when rainfall is less than one inch per week.
- Prune roots to prepare the tree for root loss due to grade lowering. Root pruning is best left to an ISA Certified Arborist, who can take into account the variables necessary to reduce the stress of the pruning to the tree.

9. Certificate of Performance

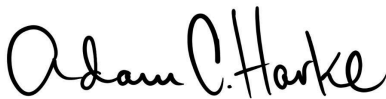
I, Adam C Harke, certify that:

- I have personally inspected the trees and the property referred to in this report and have stated my findings accurately.
- 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 respect to the parties involved.
- The analysis, opinion, and conclusions stated herein are my own and are based on current industry standards, scientific procedures, and facts.
- My analysis, opinion, and conclusions were developed, and this report has been prepared according to commonly accepted arboriculture practices.
- No one provided significant professional assistance to me, except as indicated within the report.
- My compensation is not contingent upon the reporting of predetermined conclusions 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 International Society of Arboriculture (ISA) and an ISA Certified Arborist (#PN-9506A) and Tree Risk Assessment Qualified.

If you have any questions about this report, please contact me at 360-739-5236 or artisttouch@mac.com.

Adam C Harke



References:

Dirr, Michael A. *Manual of Woody Landscape Plants Their Identification, Ornamental Characteristics, Culture, Propagation, and Use*. Stripes Publishing L.L.C., 2009

Smiley, E. Thomas, Nelda Matheny, and Sharon Lilly. *Tree Risk Assessment (Best Management Practices, Second Edition)*. Champaign: International Society of Arboriculture, 2017.

Dunster, Julian A., E. Thomas Smiley, Nelda Matheny, and Sharon Lilly. *Tree Risk Assessment Manual*. Champaign, Illinois: International Society of Arboriculture, 2013.

Shigo, Alex L. *A New Tree Biology: Facts, Photos, and Philosophies on Trees and Their Problems and Proper Care*. Shigo and Trees, Associates, 1986.

10. Credentials & Experience

Certified Arborist and Qualified Tree Risk Assessor, through the International Society of Arboriculture #PN-7375A.

To earn an ISA Certified Arborist® credential, you must be trained and knowledgeable in all aspects of arboriculture. ISA Certified Arborist® have met all requirements to be eligible for the exam, which includes three or more years of full-time, eligible, practical work experience in arboriculture and/or a degree in the field of arboriculture, horticulture, landscape architecture, or forestry from a regionally accredited educational institute. This certification covers a large number of topics giving the candidates flexibility in the arboricultural profession. A code of ethics for ISA Certified Arborists® strengthens the credibility and reliability of the work force. This certification is accredited by the American National Standards Institute, meeting, and exceeding ISO 17024.

11. Assumptions & Limiting Conditions

- a) A field examination of the site was made on **12/20/2023**. My observations and conclusions are as of that date.
- b) Care has been taken to obtain all information from reliable sources. All data has been verified insofar as possible; however, the consultant/arborist can neither guarantee nor be responsible for accuracy of information provided by others.
- c) Unless stated otherwise: 1) information contained in this report covers only those trees that were examined and reflects the conditions of those trees at the time of inspection; and 2) the inspection is limited to visual examination of the subject trees without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied that problems or deficiencies of the subject tree may not arise in the future.
- d) All trees possess the risk of failure. Trees can fail at any time, with or without obvious defects, and with or without applied stress. A complete evaluation of the potential for this (a) tree to fail requires excavation and examination of the base of the subject tree. Permission of the current property owner must be obtained before this work can be undertaken and the hazard evaluation completed.
- e) Other trees with similar defects are standing in the neighborhood and have been so for some time. Trees are living biological organisms, and I cannot predict nor guarantee their stability or failure.
- f) Sketches, drawings, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural report of surveys unless expressed otherwise. The reproduction of any information generated by architects, engineers, or other consultants on any sketches, drawings, or photographs is for the express purpose of coordination and ease of reference only. Inclusion of said information on any drawings or other documents does not constitute a representation by Tree Frog LLC as to the sufficiency or accuracy of said information.
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- h) Loss or alteration of any part of this report invalidates the entire report.
- i) Unless required by law otherwise, 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 expressed written or verbal consent of the consultant/appraiser.