



# TERAGAN & ASSOCIATES, INC. ARBORICULTURAL CONSULTANTS

## MEMORANDUM

**DATE:** April 14, 2022  
**TO:** Todd Hoffman  
**FROM:** Todd Prager, RCA #597, ISA Board Certified Master Arborist  
**RE:** Tree Plan for The Riffles Food Carts

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### Summary

This report includes tree removal, retention, and protection recommendations for the proposed The Riffles Food Carts project in Sandy, Oregon.

### Background

Todd Hoffman is proposing to construct The Riffles Food Carts project at 37115 and 37133 Highway 26 in Sandy, Oregon. The preliminary site and grading plans with tree locations are provided in Attachment 1 and the inventory of existing trees is provided in Attachment 2.

The assignment requested of our firm for this project was to:

- Assess the trees within and near the development site;
- Identify the trees to be removed and retained; and
- Provide tree protection recommendations for the trees to be retained.

### Tree Assessment

In March and June of 2021, I completed the inventory of existing trees at the site.

The complete inventory data for each tree is provided in Attachment 2 and includes the tree number, common name, scientific name, trunk diameter (DBH), crown radius, health condition, structural condition, pertinent comments, and whether it is an onsite 11-inch DBH or greater tree in good condition.<sup>1</sup>

The tree numbers in the inventory in Attachment 2 correspond to the tree numbers on the tree plan sheet C8 in Attachment 1. The trees were also tagged with their corresponding numbers in the field.

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<sup>1</sup> Section 17.102.50 of the City of Sandy Code requires three onsite trees over 11-inch DBH that are in good condition to be retained.

## Tree Removal and Retention

This section of the report includes tree removal and retention recommendations based on the proposed site plan.

The standard tree protection requirements in the City of Sandy Code range from at least 10 feet from the trunks of retained trees (SDC 17.102.50.B.1) to five feet beyond the driplines (SDC 17.92.10.D) unless otherwise approved by the Planning Director.

A typical alternative minimum protection zone allows encroachments no closer than a radius from a tree of .5 feet per inch of DBH if no more than 25 percent of the critical root protection zone area (estimated at one foot radius per inch of DBH) is impacted. Figure 1 illustrates this concept.

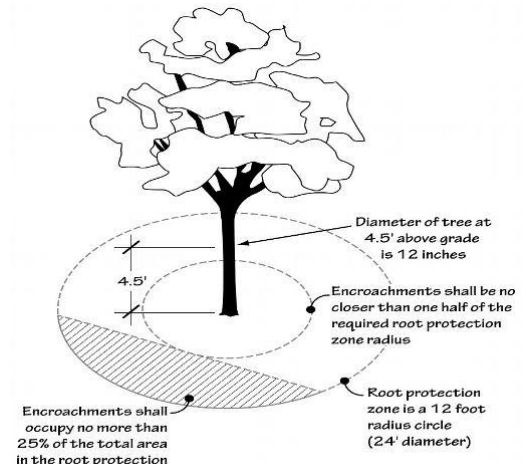


Figure 1: Alternative minimum protection zone

Using these criteria, while considering the tree conditions and their locations relative to construction and other site improvements, the following trees are proposed for removal:

- **Trees 11 through 16:** Parking lot construction at south-east portion of the site.
- **Tree 57:** Retaining wall and building construction.
- **Trees 60 and 61:** Driveway entry for new west parking lot.
- **Trees 63 through 67:** New west parking lot construction.

The remaining trees that were assessed within and adjacent to the site will be retained and protected according to the protection recommendations in the next section of this report.

## Tree Protection Recommendations

The trees to be retained can be adequately protected by placing tree protection fencing as shown in Attachment 1. The tree protection fencing will protect at least 75 percent of their critical roots zones and avoid any encroachments closer than a radius of .5 feet per inch of DBH to a tree to be retained. No grading, stockpiling, storage, disposal, or any other construction related activity shall occur in the tree protection zones unless specifically reviewed and approved by the project arborist.

The following additional protection measures shall apply to the trees at the site:

- **Tree Protection Fencing:** Establish tree protection fencing in the locations shown in Attachment 1. Required fencing shall be a minimum of six feet tall supported with metal posts placed no farther than ten feet apart installed flush with the initial undisturbed grade. Fence installation may be delayed until immediately after tree removal is complete.

- *Directional Felling*: Fell the trees to be removed away from the trees to be retained so they do not contact or otherwise damage the trunks or branches of the trees to be retained. No vehicles or heavy equipment shall be permitted within the tree protection zones during tree removal operations.
- *Stump Removal*: The stump of tree 11 to be removed from within the tree protection zone shall either be retained in place or carefully stump ground to protect the root systems of the trees to be retained.
- *Protect Tree Crowns*: Care will need to be taken to not contact or otherwise damage the crowns of the trees that may extend into the construction area.
- *Arborist Oversight*: The project arborist shall be onsite to oversee the excavation of the retaining wall adjacent to trees 1, 49, and 50 to ensure the proper protection or pruning of roots.
- *Soil Treatment for Trees 1 and 9*: Four inches of wood chips or compost should be placed within the critical root zones of trees 1 and 9 prior to construction to help retain soil moisture and compensate for root removal with construction.
- *Retain Sidewalks Adjacent to Trees*: The existing sidewalk adjacent to the preserved trees should be retained to provide additional protection of their root zones.
- *Soft Surface Path*: The soft surface path proposed within the tree protection zone shall be constructed by hand without excavation of the existing ground surface.
- *Sediment Fencing*: Shift sediment fencing to outside the tree protection zones. If erosion control is required inside the tree protection zones, use straw wattles to minimize root zone disturbance of the trees to be retained.

Additional tree protection recommendations for the trees to be retained are provided in Attachment 3.

## Conclusion

Fourteen (14) trees are proposed for removal and the remaining trees will be retained with construction of The Riffles Food Carts project.

The trees to be retained will be adequately protected by adhering to the recommendations in this report.

Please contact me if you have questions, concerns, or need any additional information.

Sincerely,



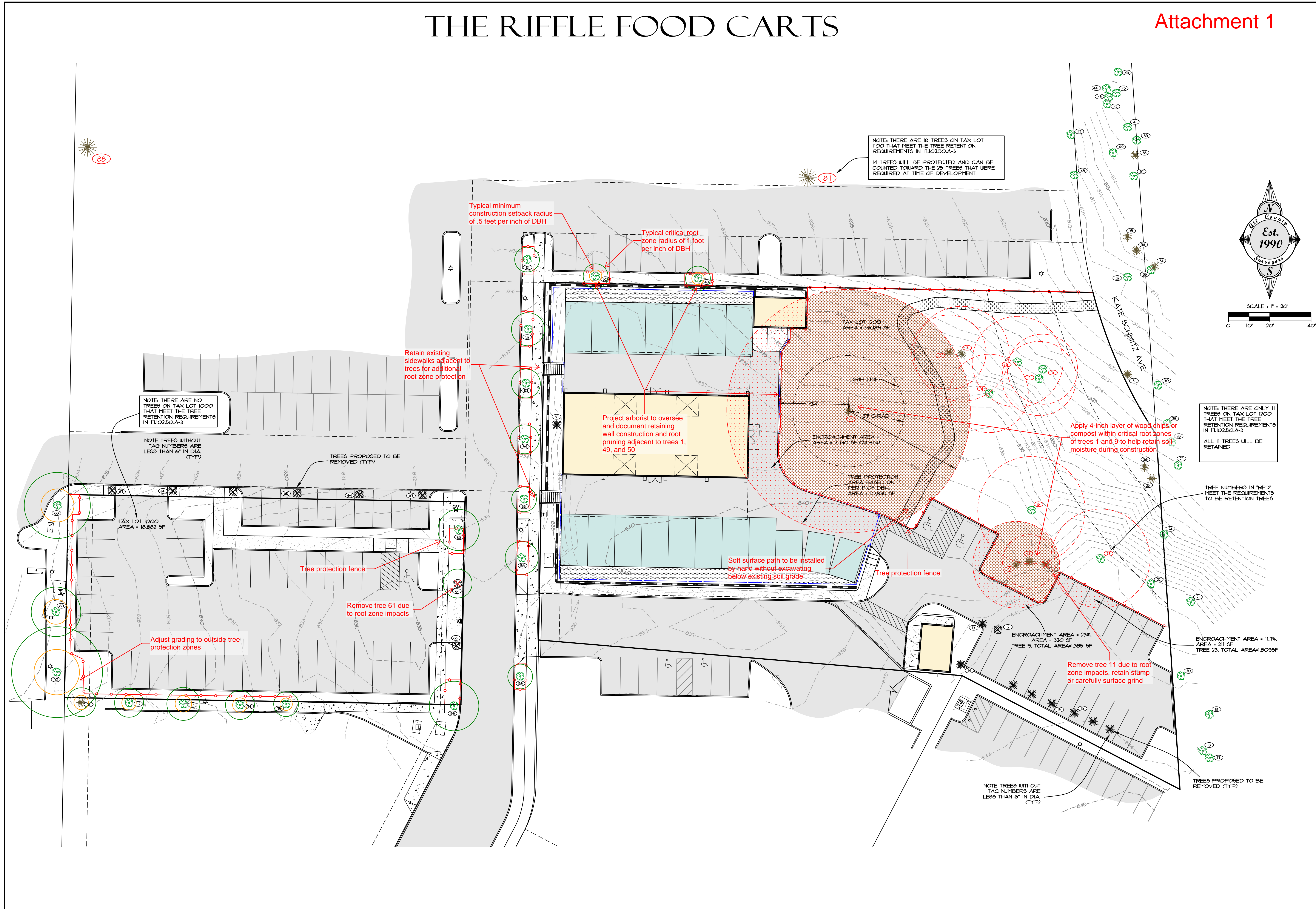
**Todd Prager**

*ASCA Registered Consulting Arborist #597  
ISA Board Certified Master Arborist, WE-6723B  
ISA Qualified Tree Risk Assessor  
AICP, American Planning Association*

Attachments: Attachment 1 - Site and Grading Plans w/ Tree Removal, Retention and Protection  
Attachment 2 - Tree Inventory  
Attachment 3 - Tree Protection Recommendations  
Attachment 4 - Assumptions and Limiting Conditions

# THE RIFFLE FOOD CARTS

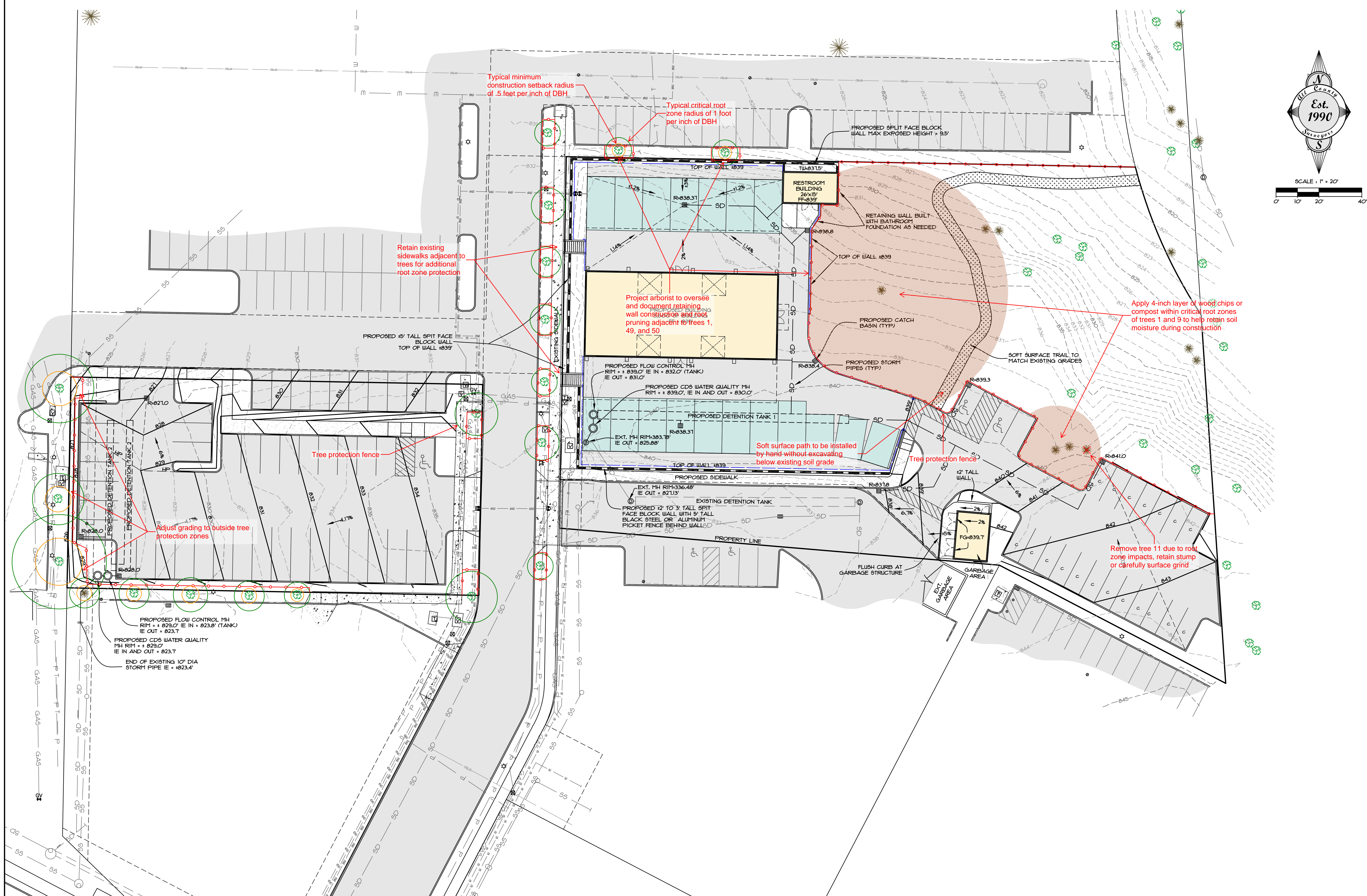
Attachment 1



DATE		REVISION		BY		SHEET	
						C8	
DESIGNED: RLM		DRAWN: RLM		CHECKED: DLH		APPROVED: RLM	
DATE		NO.		REVISION		OF 10	
SCALE		VERT. N/A		HORIZ. 1" = 20'		DATE: 3-18-22	
FILE: 21-092 - Planning.dwg		LEGAL		SECTION		TWP. RANGE	
14		29		4E			
PROJECT:		THE RIFFLE FOOD CARTS		TREE SURVEY (ONSITE)		TWIN CEDARS CENTER, SANDY, OREGON	
LOCATION:		TWIN CEDARS CENTER, SANDY, OREGON					
DATE OF PLOT:		3-18-22					
CLIENT:		TODD HOFFMAN		PO BOX 1016		SANDY, OR 97055	
PHONE:		503-863-1131					
PROJECT:		Surveyors & Planners, Inc.		Surveying, Planning and Civil Engineering		P.O. Box 925, Sandy, OR 97055 Phone: (503) 668-4751 Fax: (503) 668-4720	

# THE RIFFLE FOOD CARTS

Attachment 1



DATE	NO.	REVISION	BY	SHEET
				<b>C7</b>
DESIGNED:	RLM	DRAWN:	RLM	OF 10
CHECKED:	DLH	APPROVED:	RLM	
RENEWAL DATE:	12/31/2022			
SCALE	VERT. N/A	HORIZ. 1" = 20'	DATE	3-18-22
FILE:	21-092 - Planning.dwg			
SECTION	TWP.	RANGE	LEGAL	
14	29	4E		
PROJECT: <b>THE RIFFLE FOOD CARTS</b>				
PRELIMINARY GRADING AND STORMWATER PLAN				
LOCATION: TWIN CEDARS CENTER, SANDY, OREGON				
CLIENT: TODD HOFFMAN PO BOX 1016 SANDY, OR 97055 PHONE: 503-863-1131				

# Attachment 2

Tree No	Common Name	Scientific Name	DBH <sup>1</sup>	C-Rad <sup>2</sup>	Condition <sup>3</sup>	Structure <sup>3</sup>	Tree Retention Option <sup>4</sup>	Comments
1	western redcedar	<i>Thuja plicata</i>	59	27	good	fair	yes	codominant at 6' with included bark, multiple leaders in crown
2	bigleaf maple	<i>Acer macrophyllum</i>	18	21	good	fair	yes	one sided
3	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	19	good	fair	yes	one sided
4	bigleaf maple	<i>Acer macrophyllum</i>	19	20	good	fair	yes	one sided, upright competing leaders, sloughing bark at lower trunk
5	bigleaf maple	<i>Acer macrophyllum</i>	22	29	good	fair	yes	one sided, upright competing leaders, surface root damage
6	bigleaf maple	<i>Acer macrophyllum</i>	17	22	good	fair	yes	one sided
7	bigleaf maple	<i>Acer macrophyllum</i>	18,7	22	good	fair	yes	one sided, upright competing leaders, codominant at ground level, wound at lower trunk and surface roots
8	bigleaf maple	<i>Acer macrophyllum</i>	26	24	good	fair	yes	multiple upright leaders with included bark, bark damage at lower trunk
9	western redcedar	<i>Thuja plicata</i>	21	17	good	fair	yes	overtopped by adjacent trees
10	western redcedar	<i>Thuja plicata</i>	13	11	good	fair	yes	overtopped by adjacent trees, codominant at 7' with included bark
11	bigleaf maple	<i>Acer macrophyllum</i>	23,16,16,15,13	26	fair	fair	no	stump sprout with decay at lower trunk
12	black cottonwood	<i>Populus trichocarpa</i>	23	15	poor	poor	no	codominant at 18', east stem failed, visible decay
13	Douglas-fir	<i>Pseudotsuga menziesii</i>	27	27	fair	fair	no	moderately one sided, dead top
14	Douglas-fir	<i>Pseudotsuga menziesii</i>	23	15	fair	fair	no	lost top, moderately thin crown
15	Douglas-fir	<i>Pseudotsuga menziesii</i>	6	10	good	good	no	
16	incense cedar	<i>Calocedrus decurrens</i>	7	7	good	good	no	
17	black cottonwood	<i>Populus trichocarpa</i>	7,7,6	17	fair	fair	no	multiple leaders at ground level, one sided, significant lean southwest
18	black cottonwood	<i>Populus trichocarpa</i>	6	7	fair	fair	no	overtopped by adjacent trees
19	black cottonwood	<i>Populus trichocarpa</i>	16,12	18	fair	fair	no	codominant at ground level
20	black cottonwood	<i>Populus trichocarpa</i>	16,14	12	poor	poor	no	codominant at ground level, west stem failed at 6', east stem top failed
21	bigleaf maple	<i>Acer macrophyllum</i>	13	22	good	fair	yes	one sided
22	black cottonwood	<i>Populus trichocarpa</i>	23	24	fair	fair	no	moderately thin crown, large wound with decay at lower trunk
23	bigleaf maple	<i>Acer macrophyllum</i>	24	25	good	fair	yes	moderately one sided, multiple upright competing leaders
24	bigleaf maple	<i>Acer macrophyllum</i>	24	19	good	fair	yes	multiple upright competing leaders
25	Douglas-fir	<i>Pseudotsuga menziesii</i>	8	7	fair	fair	no	overtopped by adjacent trees, moderately suppressed
26	sweet cherry	<i>Prunus avium</i>	15	15	good	fair	no	one sided
27	sweet cherry	<i>Prunus avium</i>	13	12	good	fair	no	one sided, 35% live crown ratio
28	sweet cherry	<i>Prunus avium</i>	9	12	good	fair	no	one sided, marginal trunk taper
29	bigleaf maple	<i>Acer macrophyllum</i>	17	17	good	fair	yes	multiple upright competing leaders
30	sweet cherry	<i>Prunus avium</i>	17	13	good	fair	no	one sided
31	Douglas-fir	<i>Pseudotsuga menziesii</i>	17	15	good	fair	yes	moderately one sided
32	sweet cherry	<i>Prunus avium</i>	10	11	fair	fair	no	overtopped by adjacent trees, significant lean
33	sweet cherry	<i>Prunus avium</i>	6	6	fair	fair	no	overtopped by adjacent trees, significant lean
34	bigleaf maple	<i>Acer macrophyllum</i>	26,19,11,11,9,9	26	fair	fair	no	multiple leaders at ground level, one sided, smaller failed leaders
35	western redcedar	<i>Thuja plicata</i>	21	19	good	fair	yes	bowed lower trunk
36	sweet cherry	<i>Prunus avium</i>	9	10	fair	fair	no	one sided, overtopped by adjacent trees, significant lean
37	sweet cherry	<i>Prunus avium</i>	10	7	fair	fair	no	one sided, overtopped by adjacent trees, significant lean
38	Douglas-fir	<i>Pseudotsuga menziesii</i>	30	15	good	fair	yes	moderately one sided
39	sweet cherry	<i>Prunus avium</i>	6	6	fair	fair	no	one sided, overtopped by adjacent trees, significant lean
40	bigleaf maple	<i>Acer macrophyllum</i>	10	13	fair	fair	no	one sided, overtopped by adjacent trees, wound at lower trunk

TREE SURVEY COMPLETED BY: TERAGAN & ASSOCIATES, INC.

41	bigleaf maple	<i>Acer macrophyllum</i>	10	15	fair	fair	no	overtopped by adjacent trees, moderately suppressed
42	bigleaf maple	<i>Acer macrophyllum</i>	11	20	good	fair	yes	one sided, significant lean west
43	bigleaf maple	<i>Acer macrophyllum</i>	16	20	good	fair	yes	one sided, significant lean west
44	bigleaf maple	<i>Acer macrophyllum</i>	8	12	fair	fair	no	overtopped by adjacent trees, one sided, significant lean west
45	bigleaf maple	<i>Acer macrophyllum</i>	19	23	good	fair	yes	moderately one sided, multiple leaders
46	bigleaf maple	<i>Acer macrophyllum</i>	14	28	good	fair	yes	one sided
47	Freeman maple	<i>Acer x freemanii</i>	6	15	good	fair	no	one sided, multiple leaders
48	Freeman maple	<i>Acer x freemanii</i>	7	17	good	fair	no	one sided, multiple leaders, wounded at lower trunk
49	Norway maple	<i>Acer platanoides</i>	6	8	fair	fair	no	multiple leaders, significant sunscald
50	Norway maple	<i>Acer platanoides</i>	6	10	good	fair	no	multiple leaders, significant sunscald
51	Freeman maple	<i>Acer x freemanii</i>	6	9	good	fair	no	multiple leaders
52	Freeman maple	<i>Acer x freemanii</i>	8	11	good	fair	no	multiple leaders
53	Freeman maple	<i>Acer x freemanii</i>	7	9	good	fair	no	multiple leaders
54	Freeman maple	<i>Acer x freemanii</i>	7	9	good	fair	no	multiple leaders
55	Freeman maple	<i>Acer x freemanii</i>	6	7	good	fair	no	multiple leaders
56	Freeman maple	<i>Acer x freemanii</i>	8	15	good	fair	no	multiple leaders
57	Douglas-fir	<i>Pseudotsuga menziesii</i>	8	8	good	good	no	
58	Freeman maple	<i>Acer x freemanii</i>	6	8	good	fair	no	multiple leaders
59	Freeman maple	<i>Acer x freemanii</i>	12	12	good	fair	yes	multiple leaders
60	Freeman maple	<i>Acer x freemanii</i>	9	13	good	fair	no	multiple leaders
61	Freeman maple	<i>Acer x freemanii</i>	10	13	good	fair	no	multiple leaders
62	Freeman maple	<i>Acer x freemanii</i>	7	11	good	fair	no	multiple leaders
63	Freeman maple	<i>Acer x freemanii</i>	6	8	good	fair	no	multiple leaders
64	Freeman maple	<i>Acer x freemanii</i>	8	11	good	fair	no	multiple leaders
65	Freeman maple	<i>Acer x freemanii</i>	7	9	good	fair	no	multiple leaders
66	Freeman maple	<i>Acer x freemanii</i>	6	8	good	fair	no	multiple leaders
67	Freeman maple	<i>Acer x freemanii</i>	6	7	good	fair	no	multiple leaders
68	pin oak	<i>Quercus palustris</i>	16	20	good	fair	yes	branches with high aspect ratios, small twig dieback
69	linden	<i>Tilia sp.</i>	12	14	good	fair	yes	multiple leaders at 3' with included bark
70	pin oak	<i>Quercus palustris</i>	22	20	good	good	yes	
71	incense cedar	<i>Calocedrus decurrens</i>	7	9	good	good	no	
72	redbud	<i>Cercis canadensis</i>	7	10	good	fair	no	multiple leaders
73	redbud	<i>Cercis canadensis</i>	8	11	good	fair	no	multiple leaders
74	redbud	<i>Cercis canadensis</i>	7	9	good	fair	no	multiple leaders
75	redbud	<i>Cercis canadensis</i>	6	10	good	fair	no	multiple leaders

<sup>1</sup>DBH is the trunk diameter in inches measured in accordance with International Society of Arboriculture standards.

<sup>2</sup>C-Rad is the approximate crown radius in feet.

<sup>3</sup>Condition and Structure ratings range from very poor, poor, fair, to good.

<sup>4</sup>Tree meets the requirements to be a Retention Tree Per 17.102.50.A-3 Trees proposed for retention shall be healthy and likely to grow to maturity. Per City of Sandy, only trees in good health condition are eligible to meet this standard.

REVISION
BY

NO.
DATE

DESIGNED: RLM
DRAWN: RLM
CHECKED: DLH
APPROVED: RLM

SCALE
VERT: N/A
HORIZ: 1" = 20'

DATE: 3-18-22
FILE: 21-092 - Planning.dwg

SECTION
TWP.
RANGE

14
29
4E

PROJECT
LOCATION

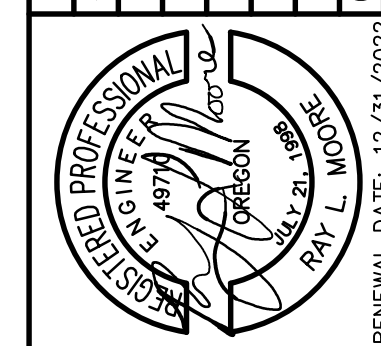
THE RIFFLE FOOD CARTS
TWIN CEDARS CENTER, SANDY, OREGON

DETAILED TREE INFORMATION

CLIENT:  
TODD HOFFMAN  
PO BOX 1016  
SANDY, OR 97055  
PHONE: 503-863-1131

Surveyors & Planners, Inc.  
Surveying, Planning and  
Civil Engineering  
P.O. Box 925, Sandy, OR 97055  
Phone: (503) 668-4720  
Fax: (503) 668-4720

DATE OF PLOT
3-18-22



### **Attachment 3**

## **Additional Tree Protection Recommendations**

The following recommendations meet or exceed City of Sandy Code requirements:

#### Before Construction Begins

1. Notify all contractors of tree protection procedures. For successful tree protection on a construction site, all contractors must know and understand the goals of tree protection.
  - a. Hold a tree protection meeting with all contractors to explain the goals of tree protection.
  - c. Have all contractors sign memoranda of understanding regarding the goals of tree protection. The memoranda should include a penalty for violating the tree protection plan. The penalty should equal the resulting fines issued by the local jurisdiction plus the appraised value of the tree(s) within the violated tree protection zone per the current Trunk Formula Method as outline in the current edition of the *Guide for Plant Appraisal* by the Council of Tree & Landscape Appraisers. The penalty should be paid to the owner of the property.
2. Fencing
  - a. Trees to remain in the grove should be protected by installation of tree protection fencing as shown in Attachment 1.
  - b. The fencing should be put in place before the ground is cleared to protect the trees and the soil around the trees from disturbances.
  - c. Fencing should be established by the project arborist based on the needs of the trees to be protected and to facilitate construction.
  - d. Fencing should consist of 6-foot high steel fencing on concrete blocks or 6-foot metal fencing secured to the ground with 8-foot metal posts placed no farther than ten feet apart to prevent it from being moved by contractors, sagging, or falling down.
  - e. Fencing should remain in the position that is established by the project arborist and not be moved without approval from the project arborist until final project approval.
3. Signage
  - a. All tree protection fencing should have signage as follows so that all contractors understand the purpose of the fencing:

**TREE PROTECTION ZONE**

**DO NOT REMOVE OR ADJUST THE APPROVED  
LOCATION OF THIS TREE PROTECTION FENCING.**

Please contact the project arborist if alterations to the approved location of the tree protection fencing are necessary.

Todd Prager, Project Arborist - 971-295-4835

- b. Signage should be placed every 75-feet or less.



### During Construction

1. Protection Guidelines Within the Tree Protection Zones:
  - a. No new buildings; grade change or cut and fill, during or after construction; new impervious surfaces; or utility or drainage field placement should be allowed within the tree protection zones.
  - b. No traffic should be allowed within the tree protection zones. This includes but is not limited to vehicle, heavy equipment, or even repeated foot traffic.
  - c. No storage of materials including but not limiting to soil, construction material, or waste from the site should be permitted within the tree protection zones. Waste includes but is not limited to concrete wash out, gasoline, diesel, paint, cleaner, thinners, etc.
  - d. Construction trailers should not to be parked/placed within the tree protection zones.
  - e. No vehicles should be allowed to park within the tree protection zones.
  - f. No other activities should be allowed that will cause soil compaction within the tree protection zones.
2. The trees should be protected from any cutting, skinning or breaking of branches, trunks or woody roots.
3. The project arborist should be notified prior to the cutting of woody roots from trees that are to be retained to evaluate and oversee the proper cutting of roots with sharp cutting tools. Cut roots should be immediately covered with soil or mulch to prevent them from drying out.
4. Trees that have roots cut should be provided supplemental water during the summer months.
5. Any necessary passage of utilities through the tree protection zones should be by means of tunneling under woody roots by hand digging or boring with oversight by the project arborist.
6. Any deviation from the recommendations in this section should receive prior approval from the project arborist.

### After Construction

1. Carefully landscape the areas within the tree protection zones. Do not allow trenching for irrigation or other utilities within the tree protection zones.
2. Carefully plant new plants within the tree protection zones. Avoid cutting the woody roots of trees that are retained.
3. Do not install permanent irrigation within the tree protection zones unless it is drip irrigation to support a specific planting or the irrigation is approved by the project arborist.
4. Provide adequate drainage within the tree protection zones and do not alter soil hydrology significantly from existing conditions for the trees to be retained.
5. Provide for the ongoing inspection and treatment of insect and disease populations that can damage the retained trees and plants.
6. The retained trees may need to be fertilized if recommended by the project arborist.
7. Any deviation from the recommendations in this section should receive prior approval from the project arborist.

## **Attachment 4**

### **Assumptions and Limiting Conditions**

1. Any legal description provided to the consultant is assumed to be correct. The site plans and other information provided by Todd Hoffman and his consultants was the basis of the information provided in this report.
2. It is assumed that this property is not in violation of any codes, statutes, ordinances, or other governmental regulations.
3. The consultant is not responsible for information gathered from others involved in various activities pertaining to this project. Care has been taken to obtain information from reliable sources.
4. Loss or alteration of any part of this delivered report invalidates the entire report.
5. Drawings and information contained in this report may not be to scale and are intended to be used as display points of reference only.
6. The consultant's role is only to make recommendations. Inaction on the part of those receiving the report is not the responsibility of the consultant.
7. The purpose of this report is to:
  - Assess the within and near the development site;
  - Identify the trees to be removed and retained; and
  - Provide tree protection recommendations for the trees to be retained.