



Greenforest Incorporated



Consulting Arborist

TO: David Yeh

REFERENCE: Tree Limits of Disturbance

SITE ADDRESS: 7239 SE 27th Street, Mercer Island WA 98040

DATE: 12/27/2017

PREPARED BY: Favero Greenforest, ISA Certified Arborist # PN -0143A
ISA Tree Risk Assessment Qualified
ASCA Registered Consulting Arborist® #379

You contacted me and contracted my services as a consulting arborist. My assignment is to provide limits of disturbance for all the regulated trees on the site, plus 4 offsite trees. I visited the site 12/7/17 and visually assessed the trees.

Subsequent to my site visit and contract, you provided me a RFI (for File No. Sub16-011) dated 3/14/17, authored by Robin Proebsting, Senior Planner for the City of Mercer Island. This RFI requests limits of disturbance (LOD) specifically for 5 trees total, plus an additional full root zone analysis with an air excavation tool.

This report provides specific LOD for the 5 trees identified by City, and generic LOD for all trees (in order to fulfill my initial contracted assignment). Air excavation is not included in this scope of work.

The City's RFI identifies Five 5 on page 2, item 1. Trees. They include 13, 29, 32, C, D. The tree listed as 32 appears to be a error, and is likely tree 20 (shown on sheets as a 32 Fir, and in one instance as tree #15). Tree numbered 20 (rather than 32) is used in this report.

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LIMITS OF DISTURBANCE

Limits of Disturbance (LOD) are calculated for all the regulated trees. They are determined using rootplate¹ and trunk diameter,^{2,3} and ISA Best Management Practices.⁴ These are the minimum distances from the trees for any soil disturbance, and represent the area to be protected during construction.

The following table lists the 5 subject trees by number, common name, DBH, Dripline radius and LOD: first as the radius for a generic circular LOD surrounding the tree, then by cardinal direction based on the preferred use of the site. In all cases, the area delineated by the cardinal LODs provide, by far, more undisturbed area around each tree, though disturbance encroaches closer that the circular LOD on one side of the tree.

| Tree ID | Common Name | DBH | Dripline Radius | Limits of Disturbance | | | | | Area (SF) | |
|---------|------------------------------|-------|-----------------|-----------------------|---------|------|-------|------|-----------|----------|
| | | | | Circle | North | East | South | West | Circle | Cardinal |
| 13 | <i>Ponderosa pine</i> | 35.8" | 25' | 18' | 22' | 16' | 22' | 16' | 254 | 352 |
| 29 | <i>Ponderosa pine</i> | 28.5" | 15' | 15' | 18' | ND | 18' | 13' | 176 | 234 |
| 20 | <i>Pseudotsuga menzeisii</i> | 31" | 15' | 16' | 18' | ND | 18' | 14' | 200 | 252 |
| C | <i>Western red-cedar</i> | 40" | 15' | | 5' BSBL | DL | ND | DL | | |
| D | <i>Scarlet oak</i> | 25" | 25' | | PL | DL | ND | DL | | |

The data for the offsite trees is based on my observations, as I did not enter the adjoining parcel to touch the trees.

As I understand the RFI, these LOD must now be marked in the field, and, using an air excavation tool, verify that no structural roots will be impacted by these established LOD.

¹ Coder, Kim D. 2005. *Tree Biomechanics Series*. University of Georgia School of Forest Resources.

² Smiley, E. Thomas, Ph. D. *Assessing the Failure Potential of Tree Roots, Shade Tree Technical Report*. Bartlett Tree Research Laboratories.

³ Fite, Kelby and E. Thomas Smiley. 2009. *Managing Trees During construction; Part Two*. Arborist News. ISA.

⁴ Companion publication to the ANSI A300 Series, Part 5: *Managing Trees During Construction*. 2008. ISA.



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Attachments:

1. Assumptions and Limiting Conditions
2. Certification of Performance
3. Generic LOD for all regulated trees.

Assumptions & Limiting Conditions

- 1) A field examination of the site was made 12/7/2017. My observations and conclusions are as of that date.
- 2) Care has been taken to obtain all information from reliable sources. Tree identification, size (DBH) and condition are used from Tree Solutions Inc., report dated 8/31/2106.
- 3) Unless stated other wise: 1) information contained in this report covers only those trees that were examined and reflects the condition 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.
- 4) 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.
- 5) The consultant/appraiser shall not be required to give testimony or to attend court by reason of this report unless subsequent contractual arrangements are made.
- 6) Construction activities can impact trees in unpredictable ways. All retained trees should be inspected at the completion of construction, and regularly thereafter as part of ongoing maintenance.



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Attachment No. 2 - Certification of Performance

I, Favero Greenforest, 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 scientific procedures and facts.
- My analysis, opinion, and conclusions were developed and this report has been prepared according to commonly accepted arboricultural practices.
- No one provided significant professional assistance to me, except as indicated within the report.
- My compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client of 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 International Society of Arboriculture (ISA), and the ISA PNW Chapter, I am an ISA Certified Arborist (#PN-0143A) and am Tree Risk Assessment Qualified, and am a Registered Consulting Arborist® (#379) with American Society of Consulting Arborists. I have worked as an independent consulting arborist since 1989.

Signed:


GREENFOREST, Inc.

By Favero Greenforest, M. S.

Date: December 27, 2017

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Attachment No. 3 – Circular LOD for Regulated Trees

| Tree ID | Common Name | DBH (inches) | Dripline Radius | LOD |
|---------|-----------------------|--------------------------|-----------------|-----|
| 1 | Apple | 13 | 13' | 7' |
| 2 | Fraser photinia | 17.5 | 12' | 5' |
| 3 | Oregon ash | 10.8 | 15' | 5' |
| 4 | Oregon ash | 8 | 12' | 5' |
| 5 | Oregon ash | 8.7 | 15' | 5' |
| 6 | Western red-cedar | 14 | 10' | 7' |
| 7 | Common hawthorn | 9.8 | 15' | 6' |
| 8 | Common hawthorn | 7 | 10' | 5' |
| 9 | Western red-cedar | 5.7 | 9' | 5' |
| 10 | Western red-cedar | 13.8 | 10' | 7' |
| 11 | Willow | 7.4, 6.7, 6.7 | 20' | 6' |
| 12 | Arizona cypress | 10.6 | 9' | 5' |
| 13 | Ponderosa pine | 35.8 | 25' | 18' |
| 14 | Common plum | 11.5 | 14' | 6' |
| 15 | Privet | 5.1, 2.5, 2.5, 3, 3.5 | 15' | 5' |
| 16 | Bigleaf maple | 3.5, 3, 3, 2, 2, 3, 4, 7 | 18' | 5' |
| 17 | Common hawthorn | 13.3 | 15' | 7' |
| 18 | Excelsa cedar | 3, 3, 1, 4 | 6' | 6' |
| 19 | European mountain ash | 8.3, 9, 7.8, 7, 7 | 14' | 9' |
| 20 | Douglas-fir | 31 | 24' | 16' |
| 21 | Douglas-fir | 3.7 | 9' | 4' |
| 22 | European mountain ash | 26.4 | 16' | 13' |
| 23 | Western red-cedar | 23.4 | 19' | 13' |
| 24 | Western red-cedar | 25.5 | 19' | 13' |
| 25 | Western red-cedar | 21.5 | 16' | 13' |
| 26 | Western red-cedar | 29.4 | 24' | 15' |
| 27 | Douglas-fir | 18.4 | 23' | 10' |
| 28 | Douglas-fir | 24.5 | 23' | 12' |
| 29 | Ponderosa pine | 28.5 | 15' | 15' |
| 30 | Plum | (15) 2-6 | 15' | 8' |
| A | Japanese red pine | 15.8 | 22' | 8' |
| B | Western red-cedar | 16.8 | 10' | 8' |
| C | Western red-cedar | 40 | 15' | 20' |
| D | Scarlet oak | 25 | 25' | 13' |

