

Gilles Consulting

— Brian K. Gilles —

4 2 5 - 8 2 2 - 4 9 9 4

FIELD REPORT:

Project Address: 4825 E. Mercer Way, Mercer Island, WA 98040

Prepared For: Mr. Sang Hao
7022 E. Mercer Way, Mercer Island, WA 98040

Date of Site Visit: November 7, 2018

Date of Report: January 11, 2019

REASON FOR THE SITE VISIT:

The City of Mercer Island has requested information on ensuring that trees 916 & 917 are adequately protected for the long-term.

Specifically, in a letter dated October 15, 2018 from Nicole Gaudette, Senior Planner for the Development Services Group the request is as follows:

2. Pursuant to MICC 19.07.080(C)(2), buffer widths can only be reduced if the reduced area is adequate to protect wetland functions and the reduction will result in no net loss. Any harm to the trees may result in net loss due to the habitat benefits currently provided by the trees. Please ask your arborist to review the proposed encroachments to the drip lines of Exceptional Trees 916 and 917 as reflected Table 1 Summary of Drip Line Encroachments and provide a report stating that the proposed encroachments will not harm the trees.

The wetland consultant has responded to the wetland issues. I was asked to respond to the tree issues.

The current proposal is to place the driveway within the dripline of both trees just feet from the base of the two *Exceptional Trees*.



fax: 425-822-6314

email: bkgilles@comcast.net

P.O. Box 2366 Kirkland, WA 98083

METHODOLOGY

The two trees were given an extensive root analysis several years ago. In 2017 a Level III Tree Risk Assessment was performed on the two trees including tomograph tests to determine if there was in rot in the lower trunks. The trees proved to be solid and healthy.

In my previous report I stated that it is my professional opinion that a driveway can be placed over the critical root zone of the two trees if it is suspended on pin piles or similar construction technique driving to the appropriate depth required for long-term stability and strategically placed in between the major roots.

I requested that the engineer “over design” the driveway to account for moving a few of the pins to avoid the major roots of both trees as needed. The concept is that the driveway is designed strong enough and during construction if the proposed location of a pin pile is right where a major buttress root is located, then the driveway design will allow for moving the pin pile a foot one way or another to avoid the root. This solution I believe to be doable. The home and driveway constructed will be enhanced by having one big Douglas Fir, # 917 43.5” DBH, and the largest Douglas Fir I have ever measured in lowland Puget Sound, # 916, 80+” DBH.

CONCLUSION AND RECOMMENDATIONS

There are two main issues as far as the two trees are considered: Damage to the trees during construction that can lead to long-term decline or death, and the covering of a portion of the root zone with a hard surface.

ISSUE # 1: The Construction of the Driveway:

As noted above, I believe that the driveway and home can be built and the trees retained without damage if extraordinary tree protection measures are carefully followed. They are outlined below.

ISSUE # 2: The Construction of the Driveway Over the Roots:

The placement of an impervious surface over several square yards of the critical root zone must be considered. And it is my professional judgment that the two trees will be just fine. The majority of the absorbing roots are located further away from the trunks and there will be adequate soil volume and moisture available for the trees to adapt and adjust to the new circumstances. Temporary irrigation of the two trees is to be installed prior to any construction to help alleviate any drought stress as a result of construction.

EXTRAORDINARY TREE PROTECTION MEASURES

In order for trees to survive the stresses placed upon them in the construction process, tree protection must be planned in advance of equipment arrival on site. If tree protection is not planned integral with the design and layout of the project, the trees will suffer needlessly and will possibly die. With proper preparation, often costing little, or nothing extra to the project budget, trees can survive and thrive after construction. This is critical for tree survival because damage prevention is the single most effective treatment for trees on construction sites. Once trees are damaged, the treatment options available are limited.

The following minimum Tree Protection Measures are included on three separate sheets so that they can be copied and introduced into all relevant documents such as site plans, permit applications and conditions of approval, and bid documents so that everyone involved is aware of the requirements. These Tree Protection Measures are intended to be generic in nature. They will need to be adjusted to the specific circumstances of your site that takes into account the location of improvements and the locations of the trees.

The key is that the driveway must be complete prior to any other work on the site. All supplies and debris must be brought in and removed via the driveway.

TREE PROTECTION MEASURES

1. Tree Protection Fencing:
 - a. Tree Protection Fences will need to be placed around each tree or group of trees to be retained.
 - i. Tree Protection Fences are to be placed just outside the *Limits of Development*.
 - ii. The area inside the fences is the *Tree Protection Zone*.
 - iii. The area outside the fences is the work zone or the construction zone.
 - iv. Tree Protection Fences must be inspected prior to the beginning of any clearing or construction work activities.
 - v. Nothing must be parked or stored within the Tree Protection Fences—no equipment, vehicles, soil, debris, or construction supplies of any sorts.

- b. Signs:
 - i. The Tree Protection Fences need to be clearly marked with the following or similar text in four inch or larger letters:

**“TREE PROTECTION FENCE
DO NOT ENTER THIS AREA
DO NOT PARK OR STORE MATERIALS
WITHIN THE PROTECTION AREA**

**Any questions, contact Mercer Island Code
Compliance at:
@ 206 275-7605. Or,
codeenforcement@mercergov.org**

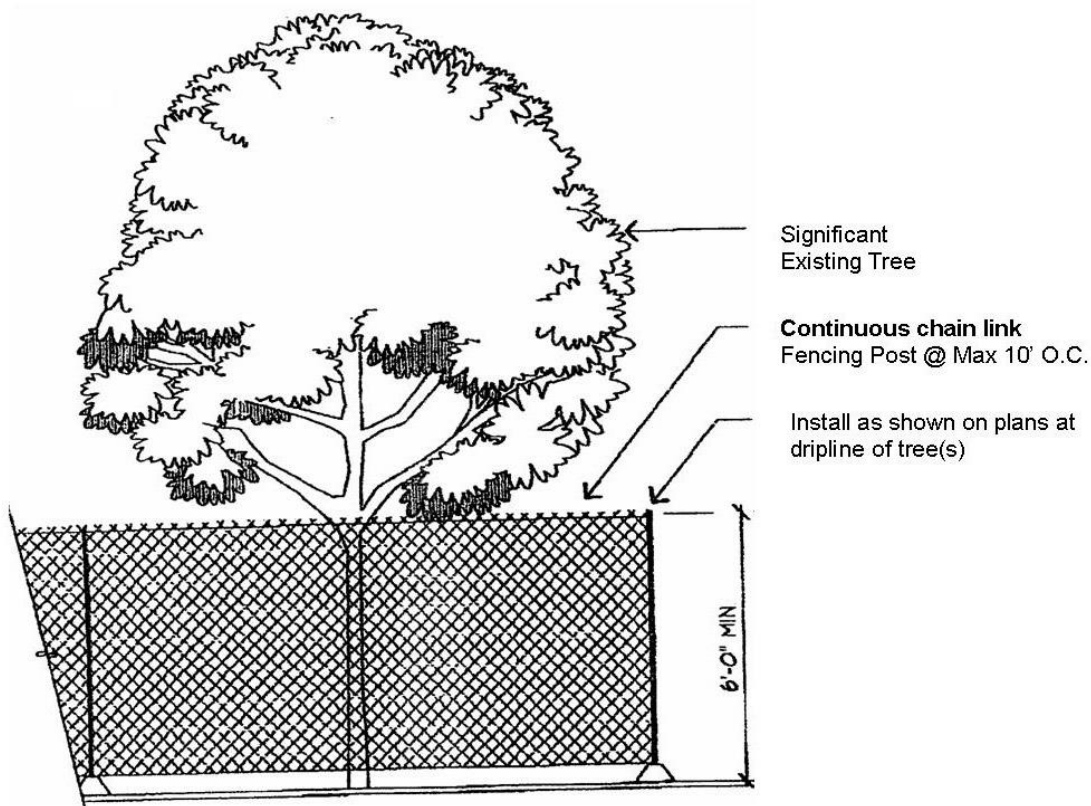
2. Cement Trucks:
 - a. Cement trucks must not be allowed to deposit waste or wash out materials from their trucks within the Tree Protection Fences.
3. Canopy Pruning:
 - a. If the canopies of any of the trees to be retained need to be pruned for clearance or safety, the work must be done properly.
 - b. “Properly: means that the pruning *must* be done by an International Society of Arboriculture, (ISA) Certified Arborist using current industry standard pruning techniques. (ANSI A300 Pruning Standards and ANSI Z131.1 Safety Standards as well as all OSHA, WISHA, and local standards must be followed.)

- c. The pruning *must* be done using clean climbing techniques to allow tip pruning and the smallest cuts possible.
 - d. Plant debris can be chipped and utilized on site for the mulch under the trees.
5. Excavation:
- a. When excavation occurs near trees that are scheduled for retention, the following procedure must be followed to protect the long term survivability of the tree:
 - b. An International Society of Arboriculture, (ISA) Certified Arborist must be working with all equipment operators.
 - i. The Certified Arborist should be outfitted with a shovel, hand pruners, a pair of loppers, a handsaw, and a power saw (a “sawsall” is recommended).
 - ii. The arborist must also have an *air spade* and compressor to blow the soil away and expose the roots.
 - c. Grubbing:
 - i. The area under the driveway and for one foot beyond each side, the ground cover plants will be removed by hand grubbing.
 - ii. No mechanical equipment is allowed within the dripline until the driveway is complete.
 - iii. Powered hand tools are acceptable.
 - d. Placement of Pin Piles or sonotubes:
 - i. Once roots are exposed, the position of each sonotube or pin pile within the driplines can be determined.
 - ii. Once determined, the Certified Arborist can cleanly cut any small roots to allow for the sonotubes or pin piles to be correctly installed.
 - e. Once the sonotubes are placed or the pin piles drilled, the rest of the root zone must be immediately filled back in and the disturbed ground watered.
 - i. The water needs to be applied slow and long to allow deep penetration and to help eliminate air pockets in the disturbed area.
6. Putting Utilities Under the Root Zone:
- a. If it is necessary to place utilities within the dripline, it must be accomplished with trenchless technology such as boring under the root systems of trees (and other vegetation). This work *shall* be done under the supervision of an ISA Certified Arborist or ASCA Registered Consulting Arborist.
 - b. This is to be accomplished by excavating a limited trench or pit outside each side of the critical root zone of the two trees.
 - c. The pits must be deep enough to allow the utility pipes to be placed at least 4.5 feet below the existing grade.

- d. Tunneling under the roots of trees shall be done under the supervision of an ISA Certified Arborist in an open trench by carefully excavating and hand digging around areas where large roots are exposed. No roots 1 inch in diameter or larger shall be cut.
- e. The contractor shall verify the vertical and horizontal location of existing utilities to avoid conflicts and maintain minimum clearances; adjustment shall be made to the grade of the new utility as required.

7. Watering:

- a. The trees will require significant watering throughout the summer and early fall in order to survive long-term.
- b. A temporary drip irrigation system will need to be installed.
- c. Installation and operation must be approved by the Project Arborist and the City of Mercer Island prior to the construction of the driveway.
- d. Irrigation needs to be slow to allow water penetration to a depth of 18 to 20 inches.
 - i. *Do not overwater.* Too much water can be disastrous on a steep slope.
- e. Once the water reaches the proper depth, turn off the irrigation for four weeks and then water again.
- f. Water more often when temperatures increase—every three weeks when temperatures exceed 80 degrees and every two weeks when temperatures exceed 90 degrees.
- g. This drying out of the soil in between watering is important to prevent soil pathogens from attacking the trees.



Six-foot high temporary chain link fence shall be placed as shown on plans. Fence shall completely encircle tree(s). Install fence posts using pier blocks only. Avoid driving posts or stakes into major roots.

Make a clean straight cut to remove damaged portion of root for all roots over 1" in diameter damaged during construction. **All** exposed roots shall be temporarily covered with damp burlap and covered with soils the same day, if possible, to prevent drying. If not possible, burlap must be kept moist at all times.

Work with the protection fencing shall be done manually. No stockpiling of materials, soil, debris, vehicle traffic, or storage of equipment or machinery shall be allowed within the limit of the fencing.

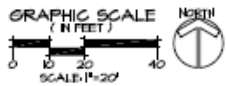
Cement trucks must not be allowed to deposit waste or wash out materials from their trucks within the Tree Protection Fences.

The area within the Tree Protection Fencing must be covered with wood chips, hog fuel, or similar materials to a depth of 8 to 10 inches. The materials should be placed prior to beginning construction and remain until the Tree Protection Fencing is taken down.

Proposed Site Plan, Impacts, & Mitigation Plan, provided by Talasaea Consultants,
 Approximate locations of *Tree Protection Fences* —————



PROPOSED SITE DEVELOPMENT PLAN



PLAN LEGEND

- PROPERTY LINE
- EXISTING WETLAND
- WETLAND BUFFER - STANDARD
- CENTERLINE OF STREAM + FLOW DIRECTION
- APPROXIMATE CHMM
- STREAM BUFFER - STANDARD
- PROPOSED CRITICAL AREAS BUFFER
- ⊗ EXISTING TREES TO REMAIN
- ⊗ EXISTING TREES TO BE REMOVED

BUFFER MITIGATION LEGEND

	PROPOSED BUFFER REDUCTION (PER HCC #07080022)	2471 SF
	NON-COMPENSATORY BUFFER ADDITION	716 SF
	PROPOSED BUFFER ENHANCEMENT*	11,260 SF
	PROPOSED BUILDABLE AREA	4,460 SF

*DURING CONSTRUCTION REDUNDANT TREES WILL BE FIELD LOCATED AND REMOVED IN ENHANCEMENT AREAS. ALL INVASIVE TREES WILL BE REMOVED OFF-SITE.

WAIVER OF LIABILITY

There are many conditions affecting the stability of a slope. The recommendations in this report are to help the Palladian Pointe Homeowners Association manage the property only. It is not a guarantee against severe erosion or landslide. Tree, shrub, and groundcover roots cannot prevent deep-seated landslides from occurring. If a severe landslide occurs, all trees and vegetation will be swept away as part of the landslide.

There are also many conditions affecting a tree's health and stability which may be present and cannot be ascertained, such as, root rot, previous or unexposed construction damage, internal cracks, stem rot and more which may be hidden. Changes in circumstances and conditions can also cause a rapid deterioration of slope stability. While I have used every reasonable means to examine the slope and all relevant factors, this tree management plan represents my opinion of the situation at this point in time. These findings do not guarantee future safety nor are they predictions of future events. It is the property owner/project manager's responsible to engage the services of a qualified geotechnical engineer to ascertain the conditions of the slope and actions that will enhance or destabilize the slope.

As conditions change, it is the responsibility of the property owners to schedule additional site visits by the necessary professionals to ensure that the long-term success of the project is ensured. It is the responsibility of the property owner to obtain all required permits from city, county, state, or federal agencies. It is the responsibility of the property owner to comply with all applicable laws, regulations, and permit conditions. It is the responsibility of each property owner to comply with all Codes, Covenants, and Restrictions (CC&R's) that apply to tree pruning and tree removal.

This tree evaluation is to be used to inform and guide the client in the management of their trees. This in no way implies that the evaluator is responsible for performing recommended actions or using other methods or tools to further determine the extent of internal tree problems without written authorization from the client. Furthermore, the evaluator in no way holds that the opinions and recommendations are the only actions required to insure that the tree will not fail. A second opinion is recommended. The client shall hold the evaluator harmless for any and all injuries or damages incurred if the evaluator's recommendations are not followed or for acts of nature beyond the evaluator's reasonable expectations, such as severe winds, excessive rains, heavy snow loads, etc.

This report and all attachments, enclosures, and references, are confidential and are for the use of the client concerned. They may not be reproduced, used in any way, or disseminated in any form without the prior consent of the client concerned and Gilles Consulting.

Thank you for calling Gilles Consulting for your arboricultural needs.

Sincerely,



Brian K. Gilles, Consulting Arborist
ASCA Registered Consulting Arborist # RCA-418
ASCA Tree & Plant Appraisal Qualified.
ASCA Tree & Plant Appraisal Certified Instructor
ISA TRAQ Qualified
ISA TRAQ Certified Instructor

