

June 29, 2013

Mr. David Judd
Studio 39
6416 Grovedale Drive
Suite 100-A
Alexandria, Virginia 22310

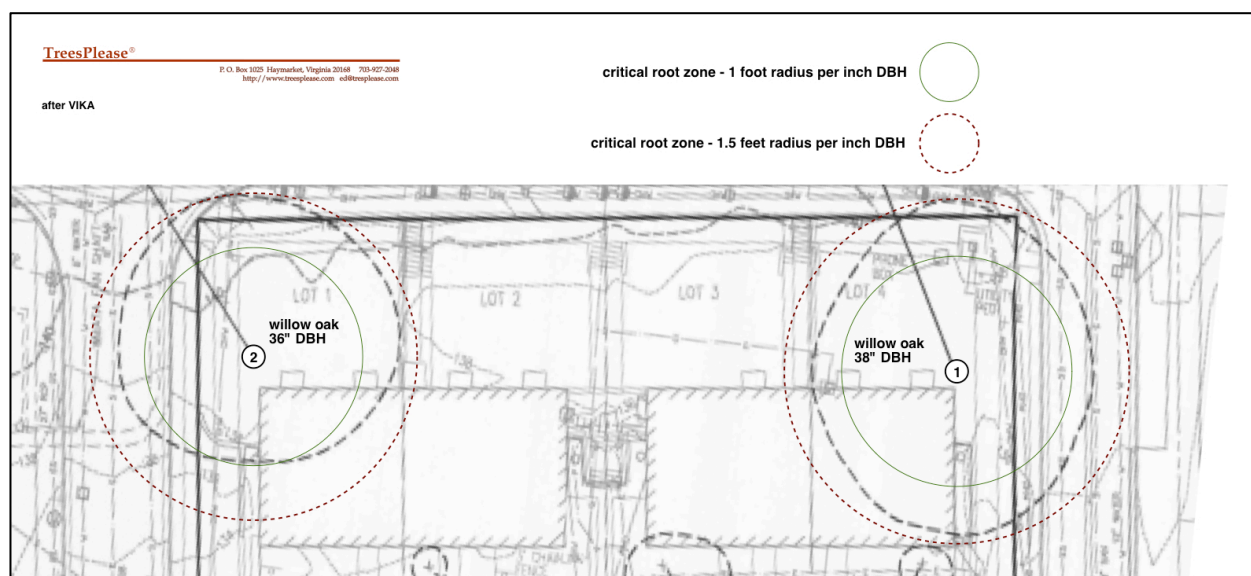
Re: trees at Pierce Queen

Dear David:

At your request, I visited the Pierce Queen project site to make observations about two large willow oaks (*Quercus phellos*). These were the only trees I inspected during my visit. You asked me to examine these trees and suggest procedures for preserving them when the site is upgraded. We met with Vince Verweij, Arlington County Urban Forester, to discuss these two trees and the project.

I am of the opinion that the two trees have little to no chance of surviving the changes that will be necessary to redevelop this site. One tree exhibits signs of root and butt rot and perhaps should be removed regardless of what is done at the site.

The two trees are shown in this drawing, along with their critical root zones (CRZ). While one cannot know exactly where a tree's roots have grown without removing all the



soil around the tree, the concept of the CRZ is useful for predicting where the majority of the tree's roots are likely to be found. The CRZ is generally defined as a circle with the tree at the center, which is one foot in radius for each inch of tree diameter at breast height (DBH)¹. A young tree may have a smaller critical root zone; an older, larger tree may have a larger critical root zone. In Arlington County, the CRZ for a tree 30 inches or larger DBH is specified by ordinance as 1.5 feet per inch of diameter. Changes to this area raise a red flag and require considerable judgment about the tree's ability to withstand the changes. As a general rule, a healthy, vigorous tree that loses 40 percent of its CRZ is unlikely to survive. An unhealthy tree, or one that is intolerant of change, can withstand less.

It is apparent that these two trees have their CRZs constrained by pavement and building footprints. An analogy that may be useful to understand the ramifications of this is to think of a tree's CRZ as a balloon. If walls and pavement inhibit the balloon's expansion, it still occupies the same volume – it simply bubbles out into the open space.

In such a situation, experience is that the trees' roots grow preferentially into whatever open ground is available. Therefore, when grading alters such open ground, one must assume that tree roots are being damaged or destroyed even though the changes occurred outside that theoretical CRZ.

From what I can tell about the plans, the public and entrance sidewalk layouts will change; the sloped ground between the trees and 16th Street will change; there will be electrical utility work that trenches through and changes the grade. I do not see how all this can be done without seriously compromising the health of these two trees.

A question to consider as well is whether these two trees even should be preserved. Tree #1 has a fungal fruiting body² at its base. It was degraded by age when I saw it, but it appears to be *Inonotus dryadeus*. This fungus causes decay at the base of and in the roots of

¹ A standard place to measure the diameter of a tree "too large to transplant" is at breast height, defined as 4.5 feet above the soil line; in actual practice, some trees, such as a multi-stem tree or one that has a swollen trunk at this height, should be measured either higher or lower on the trunk in order to most effectively represent the tree's size.

² Structure of a fungus that produces spores for reproduction; called, among other things, mushrooms, conks, sporophores; indicative of decay.

oaks (and other species). Without doing a root collar excavation³ and other advanced testing, it is not possible to say how much damage has occurred. However, there is no effective treatment for decay, and it is wise to assume that the problem is not going to get better.

In addition to the decay issue, the two trees have been drastically pruned to clear utility lines. If these lines are placed underground, this pruning can be curtailed; but restoration pruning will be needed two or three times over a period of five to ten years.

All things considered, it seems that taking out these two trees and replanting with high quality species is a good option.

If you have any questions, please give me a call.

Best wishes,

A handwritten signature in black ink that reads "Ed Milhous". The signature is written in a cursive, slightly slanted style.

Ed Milhous
Registered Consulting Arborist® #350

³ A procedure where, for purposes of inspection, the soil is removed from around the area on a tree where the root system becomes trunk; this area includes the flare at the base of the tree and the main roots that are under the soil surface near the tree.