PITCHFORDASSOCIATES
arboriculture + environmental consulting

April 21, 2015

Mr. Pete Osborne
3676 River Road
Faber, VA 22938-2002

Dear Mr. Osborne:

This report will detail my April 19, 2015 inspection of your property, and in particular, observations pertaining to the impact of the proposed preliminary alignment route of the Atlantic Coast Pipeline to your forest and soil resources. Your property is identified as Tax Parcel, 23-A-19, Nelson County, Virginia. It comprises 101.2 acres.

Forest characterization:

The forest stands on your property are consistent with the mid- and lower-elevation forests of the Appalachian Mountain-Blue Ridge forest region. They are mesophytic (adapted to a moist environment), and are dominated by the Appalachian oak group. The forest types in this group consist of over 30 canopy species, and are amongst the world's richest temperate deciduous forests in terms of biodiversity.

The stands on your property fall within the intermediate productivity levels of the mesophytic forest types. They are uneven aged due to the periodic forest management you have conducted over the past several decades. I understand that singletree selective thinning has occurred here on a 10-year rotation. The primary species harvested include tulip poplar (*Liriodendron tulipifera*), oak and hickory. This has resulted in stands that appear to support at least three different age classes. This stage is an excellent one for the long-term promotion of additional hardwood species.

Most stands I surveyed are mid-successional, except for one area in close proximity to a stream valley near the northern edge of the property. Here there are larger diameter trees including American beech (*Fagus grandifolia*), and common persimmon (*Diospyros virginiana*) whose diameter sizes suggest a remnant portion of a climax stage stand. You mentioned that there are additional stands in these older successional stages at higher elevations. Those stands were not included in this survey.

The dominant overstory species include white oak (*Quercus alba*), northern red oak (*Q. rubra*), southern red oak (*Q. falcata),* chestnut oak (*Q. prinus*), shagbark hickory (*Carya ovata*), pignut hickory (*C. glabra*), bitternut hickory (*C. cordiformis*), tulip poplar (*Liriodendron tulipifera*), Virginia pine (*Pinus virginiana*), red maple (*Acer rubrum*) and Sycamore (*Platanus occidentalis*). Most trees are in the 12"-24" diameter class, except for an American beech, which was 28" of diameter, and a common persimmon, which measures 20" of diameter.

The understory is comprised of tulip poplar, redbud (*Cercis canadensis*), red maple, shagbark hickory, flowering dogwood (*Cornus florida*), musclewood (*Carpinus caroliniana*), persimmon, white oak and northern red oak. Some groupings of Amur honeysuckle (*Lonicera maackii*), an invasive shrub, have

taken hold along the forest edges. I also saw a few Paulownia trees (*Paulownia tomentosa*) in several clearings. These are also considered to be invasive. However, aside from these few invasive species, the stands are generally free of undesirable trees and shrubs.

The proposed pipeline alignment would bisect several of the stands surveyed, and remove large swathes of the trees that you have preserved, and managed, as a forest products and wildlife resource.

Soil resource:

The soils on your property in descending order of percentage include the following:

14E - Edneytown-Peaks complex, 35-55% slopes, extremely stony. This soil association comprises approximately 65-70% of your property. It is the soil type most highly impacted by the proposed pipeline alignment. The erosion hazard rating is 'severe' for un-surfaced roads and trails. Their numerical index is 0.95 in a range of 0.01 to 1.00. This index puts it near the extreme limit of soil erodibility, which implies that unsurfaced roads and trails would require frequent maintenance, and that costly erosion-control measures are needed.

22D – Hayesville loam, 25-50% slopes. This soil type is the next most prevalent. It comprises approximately 10-15% of the property, and is concentrated on the slopes below your home. It also has an erosion hazard rating of 'severe', and an index of 0.95 on the erodibility scale.

35E – Occoquan loam, 25-50% slopes, very stony. This soil type comprises approximately10% of your land, and is located uphill from the grazing pastures. A section of the proposed pipeline alignment cuts through this soil type. It, too, has a erosion hazard rating of 'severe', and an index of 0.95 on the erodibility scale.

52C – Wintergreen loam, 7-15% slopes. This final soil type also comprises approximately 10% of the property. It is underlying most of the open pastures, and your home site. The erosion hazard rating is 'severe', and with an index value of 0.95 on the erodibility scale.

Summary:

All of the soils on your property have an erosion hazard rating of severe, and are near the top of the erodibility scale. As such, the maintenance needs of any unsurfaced clearing, or trail will be frequent, and must include costly erosion-control measures. Therefore, it is my professional opinion that if land clearing is conducted anywhere on your property, there is a high likelihood of significant damage from soil erosion. The potential is severe in all locations. If large areas of soil are disturbed from tree removal, excavation and blasting, to accommodate this pipeline alignment, and are not maintained on a nearly seasonal basis, over land soil erosion can threaten the two natural springs on your property, a livestock pond located at the base of a steep slope, and your home itself.

Additionally, this proposed pipeline route would remove large swathes of hardwoods, which you have carefully managed over three decades, and which comprise some of the most diverse and ecologically important found in the world today.

Sincerely,

Keith C. Pitchford
ISA Certified Arborist, MA-0178
ISA Certified Tree Risk Assessor, #922
MD Licensed Tree Expert, #589
MD Licensed Forester, #675