

ENVIRONMENTAL ASSESSMENT OF WETLAND/WATERCOURSE AREA

LOCATED AT

25 SHADY KNOLL DRIVE, STAMFORD, CT



PREPARED BY:

ALEKSANDRA MOCH

SOIL & WETLAND SCIENTIST
GEOLOGIST/HYDROGEOLOGIST
LANDSCAPE DESIGNER
CPESC

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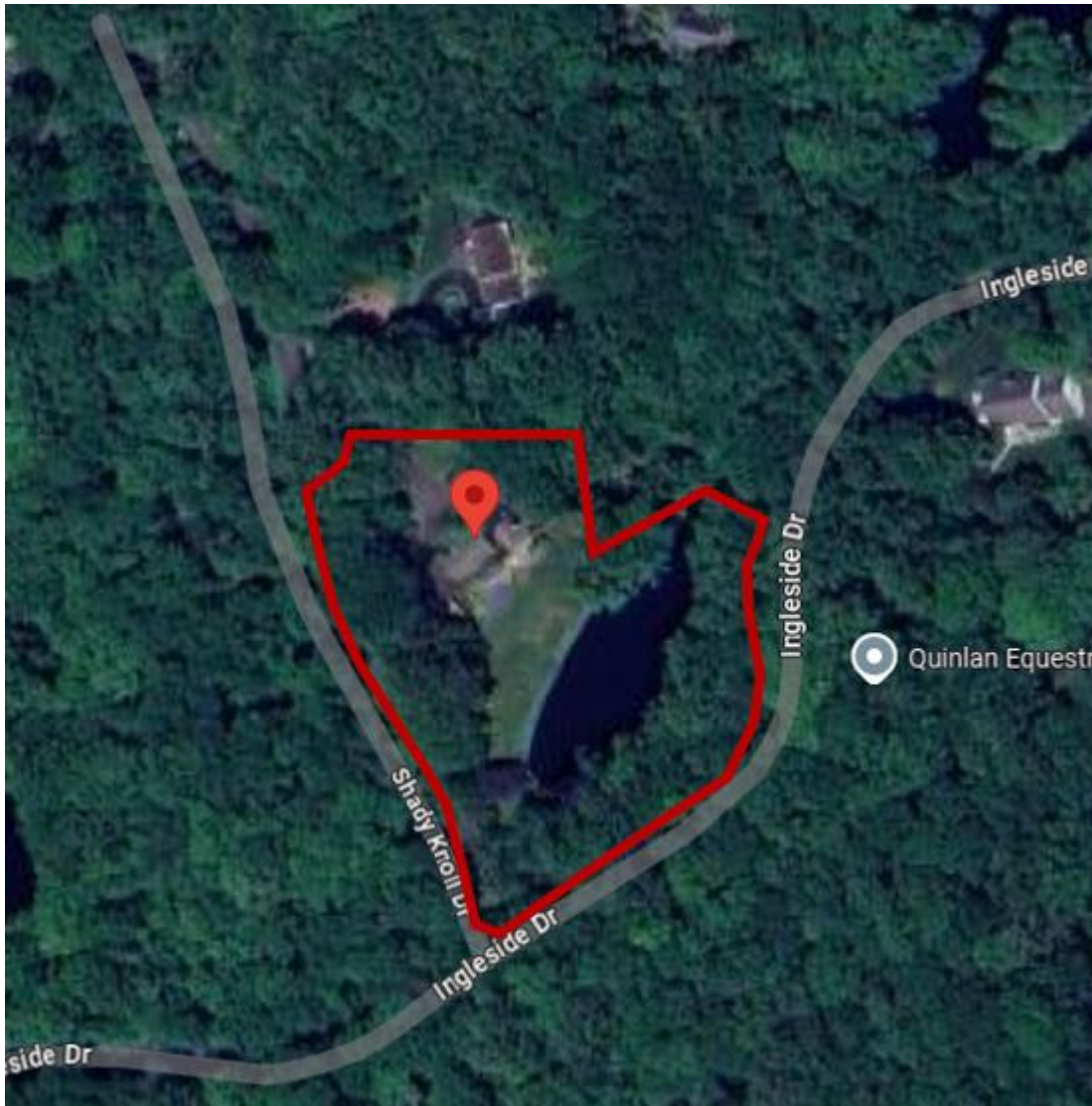
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LOCATION AND SITE PHYSICAL CHARACTERISTICS

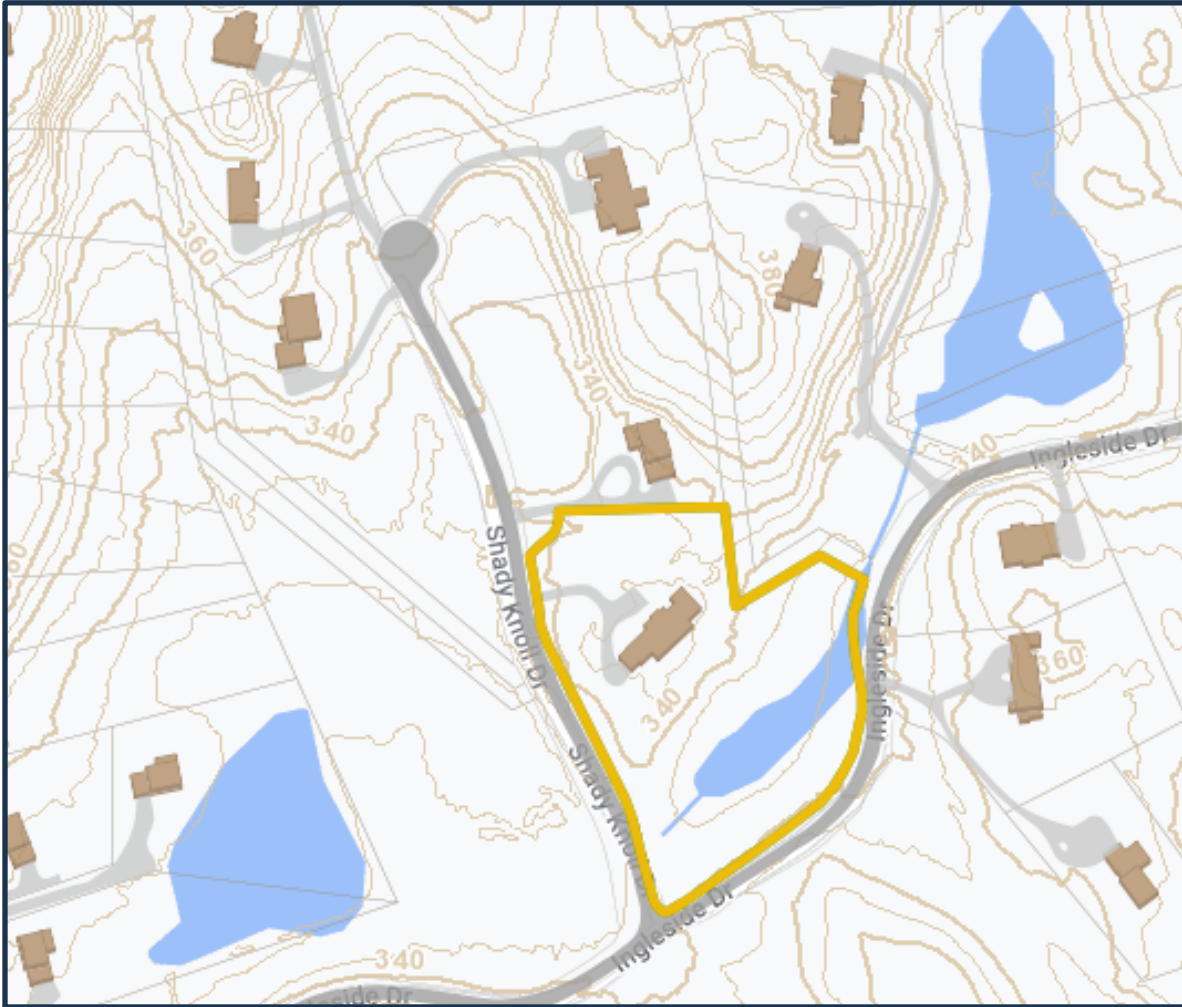
The property is located at the northern corner of Shady Knoll Drive and Ingleside Drive in Stamford, CT. This 3.62-acre site supports a single-family residence with a driveway, a septic system, a well and a shed. The area consist of wooded edges enclosing the lawn area associated with the residence and a man-made pond situated within the northeastern section of the site. The grade is gentle around the residence with steeper edges along the pond and the property perimeter. The site is located within RA2 residential zone and within the Poorhouse Brook watershed.



Google maps dated 2024

WETLAND/WATERCOURSE AREA

The regulated area at the site consist of a man-made pond (0.86ac), associated narrow wetland (0.03ac) fringe and 25-foot wide upland review area (URA) (0.53ac). The pond is connected by a brook to a pond located off-site to the northeast and by piped overflow to a pond also located off-site to the southwest.



Pond connection to the adjacent waterbodies.

The wetland area is very narrow and only present outside of the stone wall. A stone retaining wall is defining the edge of the pond viewed from the residence. This area was filled in the past most likely when the existing septic system was installed. The wetland edges along the northern and southern edge of the pond are maintained in their natural state supporting trees, shrubs and herbaceous ground cover. The area behind the stone retaining wall is maintained as a lawn with two islands of ornamental grasses and flowering herbaceous ground cover. A Japanese maple is the only tree shading the pond within this area. Two small ledge outcrops piercing through the lawn.



Edge of the pond behind the stone retaining wall, view from the residence.

SOILS AND HYDROLOGY

Wetland soils were identified as consisting of Leicester soil unit. This unit consists of a very deep, poorly drained soils formed in coarse-loamy till. They are nearly level or gently sloping soils in drainageways and low-lying positions on hills. The surface layer is a black fine sandy loam. The subsoil is brown, mottled fine sandy loam and gravelly fine sandy loam. The substratum is olive brown, mottled gravelly fine sandy loam.

Wetland hydrology is fed by ground water. Intensive precipitation during the wet season rises the ground water level which breaks through the ground surface feeding the wetland edge and the pond. Sheet flow initiated over the land during a storm event sheds to the lower point which is the pond. Developed watershed contributes to increased runoff and more rapid runoff concentration. Fast movement of water and limited ground absorption may cause flush flooding during the intensive storm events. The size of the overflow pipe to the west limits the amount of the water able to pass to the lower pond. The pond and the associated wetland has a sizable storm water holding capacity.

VEGETATIVE COVER

Site investigation was performed on September 10, 2024. During the investigation a plant inventory was taken to better understand the wildlife habitat supported by the vegetative cover.

As indicated above, the wetland fringe is narrow, but supports a well vertically diversified plant community. The tree canopy is supported by Red maple (*Acer rubrum*), Yellow birch (*Betula alleghaniensis*), Tulip (*Liriodendron*), Black cherry (*Prunus serotina*), Swamp oaks (*Quercus bicolor*), American hornbeam (*Carpinus caroliniana*), Norway maple (*Acer platanoides*), White ash (*Fraxinus americana*), Pignut hickory (*Carya glabra*), etc. Dense tree cover around the northern and eastern edge of the pond provide an important shade which moderates the water temperature during the summer month. Cooling effect helps detain more oxygen within the water column, crucial for aquatic life to survive. Deeply rooted trees support and stabilize the edge of the pond and minimize erosion within the wetland fringe.

The understory growth is sparse due to deer browsing and dense shade created by the tree canopy. Along the edges of the pond where there is more sun penetration stretching their branches are shrubs like Burning bush (*Euonymus alatus*), Gray dogwood (*Cornus racemosa*), Border privet (*Ligustrum obtusifolium*), Arrowwood viburnum (*Viburnum dentatum*), Spice bush (*Lindera benzoin*) and Sweet pepperbush (*Clethra alnifolia*).

The herbaceous ground cover denser along the water's edge includes: Skunk cabbage (*Symplocarpus foetidus*), Cinamon fern (*Osmundastrum cinnamomeum*), sphagnum moss, Jack-in-the-pulpit (*Arisaema triphyllum*), Crested wood fern (*Dryopteris cristata*), Sensitive fern (*Onoclea sensibilis*), Wrinkleleaf goldenrod (*Solidago rugosa*), Tussock sedge (*Carex stricta*), Spotted touch-me-not (*Impatiens capensis*), White wood aster (*Eurybia divaricate*), Fringe sedge (*Carex crinita*), Giant goldenrod (*Solidago gigantea*) Common rush (*Juncus effusus*), Clearweed (*Pilea pumila*), etc.

Vines are not common, but found here and there. The species include Poison ivy (*Toxicodendron*), Oriental bittersweet (*Celastrus orbiculatus*), etc.

WETLAND HABITATS

Wildlife study was performed on September 10, 2024. The work included evaluation of plant communities, their structure and stratification, water availability, soil types, presence of cavities, woody debris, boulders, and other natural features.

There are two prominent wildlife habitats:

- Aquatic associated with the pond
- Terrestrial and wetland fringe associated with the woodland

On the surface of the pond supports small closures of duck weed, filamentous algae, water meal and pond weed piercing through the water column. The lack of more dense cover may be due to the chemical pond treatment.

No wildlife study was performed within the pond; therefore, the species described below are based on a typical pond ecosystem. In a pond, the highest species diversity is concentrated in the littoral zone, near the shore. This zone supports algae and plants which thrive in the abundant light needed for them to photosynthesize. Living within the plant matter is a wealth of animals including snails, amphibians, crustaceans, insects, and fish.

In the deeper portion of the open water (Limnetic zone), the light is able to penetrate and support photosynthetic algae. Life here consists of large, free-swimming aquatic organisms like fish and plankton community. Phytoplankton and zooplankton, the tiny plants and animals drift suspended in the water.

At the bottom of the pond there is a benthic zone supported by the fine grained sediment and organic material which either moved from the edges, accumulated from the atmospheric fallout, derived from wind-blown particles and/or resulted from the decomposition of plants and organisms in the pond. This area is preferred by invertebrates

such as protozoans (single cell animals), freshwater sponges, various types of worms, mollusks (snails, clams, freshwater mussels), and arthropods (animals with jointed legs such as spiders, mites, crustaceans, and insects).

Based on vegetative cover, the wetland fringe and upland forest is utilized by a variety of wildlife that is known to use the existing plants as their primary food source. Red maple that dominates the vegetated cover provides flowers that are pollinated by variety of bees, flies, and moths. The fruits provide food for squirrels and many other rodents. Rabbits and deer eat the shoots and leaves while the seeds are enjoyed by gray squirrels, eastern chipmunks, voles, and white-footed mice. American hornbeam is the second prominent tree in this area. Its seeds, buds, and catkins are eaten by a variety of birds, including ruffed grouse and yellow-rumped warblers. Gray squirrels and wild turkeys also eat the nutlets and buds. Cottontails and white-tailed deer eat the leaves, twigs, and larger stems. The American hornbeam is a host plant for the caterpillars of several butterfly species, including the Eastern Tiger Swallowtail, the Striped hairstreak, and the Red-spotted Purple. Birds use the American hornbeam as a nesting habitat either building among its branches or taking up residence in small cavities of older trees. The tree also supports beaver habitat. Some signs of their past activities were seen in the nearby area.

The understory growth is enhanced with Gray dogwood. When in bloom, the flowers attract bees and butterflies for pollen and nectar. Birds eat the berries. Spicebush is another prominent wetland shrub within the wetland fringe. In early spring, the flowers of this shrub attract small bees and flies, which pollinate the plant. The fruits of the spicebush are a high-energy food source for many birds, including wood thrushes, catbirds, cardinals, kingbirds, and vireos. The leaves, twigs, and bark are eaten by white-tailed deer, rabbits, opossums, and small rodents. Spicebush is a host plant for caterpillars of the spicebush swallowtail and tiger swallowtail, as well as several species of moths which eat the leaves.

The herbaceous ground cover supports Skunk cabbage which is the first source of pollen in spring for honeybees. The leaves of skunk cabbage are eaten by slugs, which feed also on the spathes. The amber snail grazes on the foliage. During summer and fall, rotting leaves attract tiny flies and moths. Caterpillar of the ruby tiger moth uses skunk cabbage leaves as its primary food source. Along the edges the area is densely covered by Cinamon fern, a good nesting material. The downy wool from the fern's stems is used by hummingbirds and songbirds to line their nests. Its wide spreading fronds provide shelter and nesting spots for birds such as brown thrashers and veeries. The young fiddleheads are eaten by herbivores, such as ruffed grouse.

The forested cover expands though the neighborhood providing migratory connections for wildlife traveling from one waterbody to the next. As stated above, the narrow wetland fringe is well connected to the upland. The varying moisture content of this environments provide water source a transitional saturated wetland area to a dry upland. This variety attract a diversity of life.

No mammal limits its life to the wetland area; they utilize both the wetland and the upland in search for food and shelter. The subject wetland/watercourse area is most likely visited

by white tailed deer, which feeds in swamps and uses them for refuge. Wild turkey, cayote, and bobcat may walk the corridor. Small mammals most likely are represented by shrews, moles, squirrels, voles and mice.

OPEN SPACE PRESERVE

Almost the entire regulated area including the pond, the wetland fringe and most of the 25-foot upland review area has been deed restricted and protected as an open space. The area consist of 1.34 acre and is shown on the attached site plan by dashed line.

PROPOSED ACTIVITES

The proposed activities within the 25-foot upland review area include installation of the fill needed for the septic system. Soil testing in this area had detected shallow ledge; therefore, the leaching fields will have to be raised up to allow for proper distribution of the effluent. The septic system is being proposed to accommodate additional bedroom. The footprint of the existing residence will be expanded. Two additions will be constructed, one over the existing patio and one on the southeastern section of the residence. The existing detached garage will be included into the living space and a new detached garage will be build over the existing driveway. To mitigate for the increase in impervious surface, an in-ground infiltration system is being proposed to the west of the residence.

POTENTIAL IMPACT

During any construction activities there is always a potential for short- and long-term impacts. The short-term is associated with the soil disturbance, fill installation and partial loss of lawn cover. The long-term potential impacts could be caused by increase of impervious cover and tree loss.

The proposed site development will avoid any short-term impacts to the wetland or watercourse. Properly installed soil erosion and sediment control measures shown on the site plan in form of silt fence and anti-tracking path will eliminate any potential for a short-term impact. The potential for long-term impact will be alleviated by the installation of the storm water detention system which will mitigate any increase of storm water runoff. There will be no tree loss. All activities will be performed either within the lawn area or the existing hard surface.

The area of the open space preserve will be affected short- and long-term. The needed fill to support the septic system will be partially located within this area. Approximately 864.16 sf will be disturbed and topographically altered. This area is currently maintained as a lawn and it will be restored as a lawn. The long-term change will be the topography which will be steeper than the existing.

ALTERNATIVES

Several alternative locations for the septic system were considered, but none of them seemed to work. The front of the residence is limited by the easement owned by the Stamford Water Company and the well location. The back of the residence is limited by the existing septic system and the pool. The only space which met the health criteria was the approved septic replacement area. This is the area where the new septic is being proposed.