

Study Area SO-2 Shrub Oak Watershed

Site Location and Context

This wetland is located in the NE corner of Town at the confluence of three tributaries to Shrub Oak Brook. The area has no public road frontage. It was accessed from the Navajo Street cul-de-sac. The principal stream enters the site from the north. Two secondary tributaries merge at the south end of the study area. The single discharge stream flows to the west, approximately 1,000 ft., to Shrub Oak Brook.

The watershed draining through this site is about 300 ac. Approximately half of this watershed is located to the north in the Town of Carmel, Putnam County. This area is almost entirely single family residential development. The southwest tributary watershed has both commercial/industrial development along Navajo St. and Route 6, and residential development south of Route 6. The southeastern quarter of the watershed is located mostly in the Town of Somers. Development north of Route 6 is commercial agriculture in the form of landscape plant materials growing and sales as well as landscape contractor materials and equipment storage. South of Route 6 the land is second growth hardwood forest and old fields. The southwest tributary watershed is entirely within the Town of Yorktown. North of Route 6 the rear yards of the light industrial development on the east side of Navajo St. drain into this wetland. South of Route 6, the watershed is primarily old field and second growth hardwoods with only a minor area of residential development.

Site Description

This site is approximately 16.84 acres, bounded for the most part by old stone walls. The site is roughly rectangular in shape; about 600 ft. average in an east-west direction and 1,300 ft. in the north-south direction. The northern boundary is the Town and County line. Adjoining land use is residential west of the inflow stream. The western property line abuts the commercial/industrial development of Navajo Street and upland mixed hardwoods. The eastern property line adjoins open fields which appear to be used, at least occasionally for equestrian purposes.

Wetlands

The site is primarily wetlands of two distinct hydrogeomorphic (HGM) types. The wetlands are predominantly sloping in nature. The secondary wetland type is riverine. These comprise 10.21± ac., 30%. Because riverine constitute more than 25% of the on-site wetlands are evaluated separately for wetland functions.

The wetland delineations shown on the map have been estimated in the field. They correspond roughly with the Soil Survey of Putnam and Westchester Counties, New York. Riverine wetlands are generally within the soil area mapped as Sun loam. The sloping wetlands are in the general area of the mapped Ridgebury loam.

The central part of the wetland, closest to the watercourses, is riverine. This area is periodically inundated by high flows from the watercourses. There has been no

attempt to restrict flow from this wetland. However, the high banked narrow outflow channel may create a backwater condition. Any increase in depth and duration of flooding due to this natural condition would be minimal.

These riverine wetlands are characterized by densely vegetated hummocky areas separated by low lying, often flooded, areas with sparse to no vegetation. The areas often show recent sediment deposition. The low areas nearest the principal watercourses act as alternate channels during high flow. Some have acted as principal channels in recent times until channel blockage, erosion, creation of a more direct route or a combination of these conditions shift the low flow channel. Older abandoned channels are generally further from the current channel and often at somewhat higher elevations. Although many of these old channels hold water as undrained depressions, after flood waters recede, they are still being considered as riverine wetlands.

The hummocks vary in size and vegetative cover. Many are mounds formed by a single Tussock Sedge, ranging from 6-8" diameter and rising 6-8" above the substrata to large single plants 3 ft. in diameter and growing from a perennial root 12-18" above the substrata. Other hummock areas center around woody plants. These may be a single Highbush Blueberry bush or a single Red Maple or River Birch tree. The hummock limits seem to be described by the root systems of the central tree or shrub. These form a cage-like structure to contain soil for the ground level vegetation, which is frequently limited to mosses, ferns, grasses and an occasional runner of vines such as Virginia Creeper, Poison Ivy or Oriental Bittersweet.

Larger hummocks contain a full compliment of swamp structures, as illustrated below. The canopy is predominantly Red Maple, River Birch, American Elm, White and Green Ash are common constituents. In several locations more upland species are found on the higher edges of hummocks with large portions of their root systems extending into flooded areas. These include but are not limited to Oaks, Red, White and Pin and Sweet Birch. Understory is dominated by Spicebush and Multiflora Rose, Winterberry, Silky Dogwood and Arrowwood Viburnum are commonly found.



Sloping wetlands occupy the area between the relatively flat centrally located riverine wetland and the surrounding uplands. They form a relatively narrow band along the west side where the adjoining upland is small in area and nearly level. East of the principal watercourse the land is moderately sloped for a substantial distance. The length of this slope and the relatively low permeability of the underlying soil have created a broad band of sloping wetlands that extend an undetermined distance off-site.

These sloping wetlands are characterized by sheet flow runoff. Small channels of concentrated flow occur occasionally but none of significant size or length that they might be considered intermittent streams. These wetlands have a more or less full canopy cover of predominantly Red Maple and White Ash with scattered American Elm. The drier areas of sloping wetlands, along the entire west side, at the southern half of the east side and the south have Sweet Birch, River Birch, Red Oak and other hardwood components. The understory is predominantly Spicebush and the young of canopy species. Silky Dogwood, Arrowwood Viburnum and Summersweet Clethra form locally dense stands. Winterberry occurs occasionally in the wetter areas. Multiflora Rose is present throughout, but predominates in the northeast where the canopy cover is lightest.

The following photographs illustrate the character of these wetlands. Their approximate location is indicated on the plan.

Human Activity

Historically, the site was used for agricultural purposes. Old stone walls are located around the perimeter of the site and also extend into the site. Several of these have been reinforced more recently with barbed wire. Remnants of old farm roads can be seen crossing water courses at the northern and southern ends of the site as well as entering the site near the middle of the eastern boundary. . All terrain vehicle activity is evident in the southern part of the site. The observed vegetation also reflects human activity. Multiflora Rose and Garlic Mustard, both common throughout, and Winged Euonymus are invasive, non indigenous species taking the place of less aggressive native species. Currently, upstream development has produced urban debris, such as beverage containers, balls, plastic bags, etc., as well as sediments deposited within the low flow as well as high flow channels. Residential development has encroached on this wetland system on the property adjoining to the north.

Wetlands Function Assessment

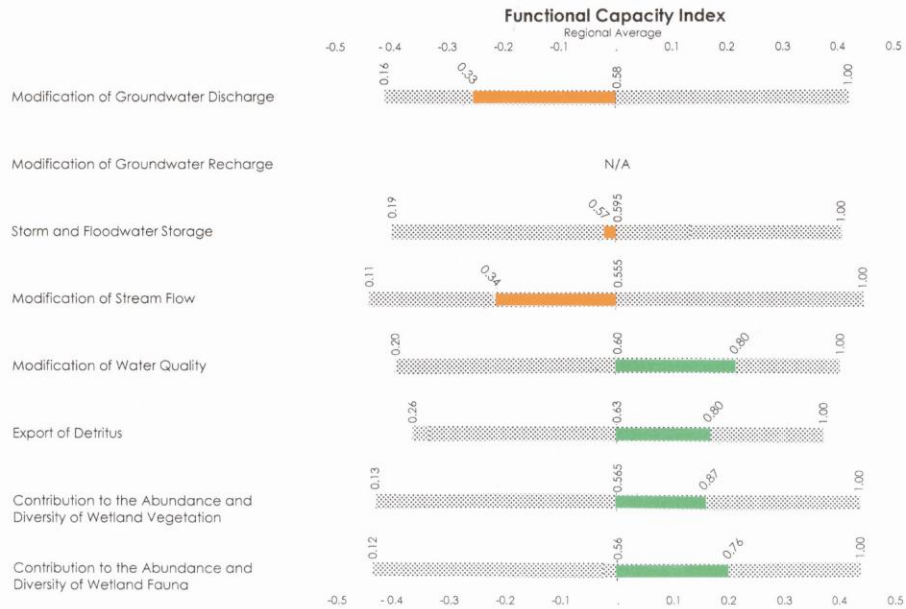
Wetland function capacity for the sloping and riverine components of the on-site wetlands are graphically displayed below. The Function Capacity Index (FCI) is shown as the range of potential FCI values found in the reference base. The calculated FCI scores for the specific study area are shown referenced to the average potential score.

Peekskill Hollow Brook
Shrub Oak Brook

Sloping Wetland

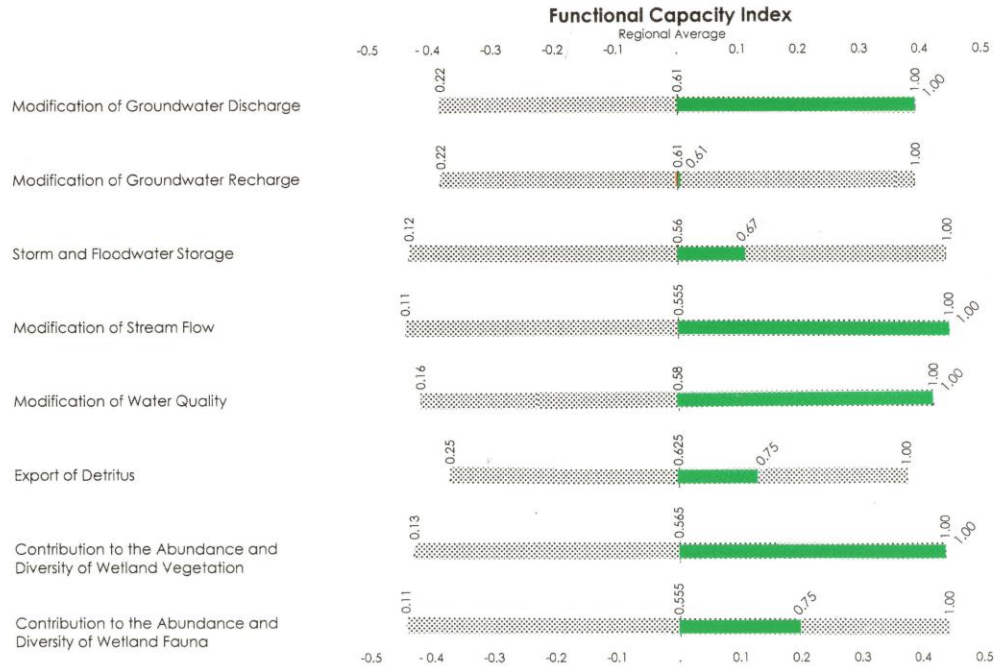
Study Area: SO-2

111.2 ac. - 71% of total 15.8 ac. wetlands



Sloping wetlands comprise 70% of the on-site wetlands. The wetland function capacity indices varied from average. In general, the southeast sloping wetlands have below average potential for affecting the hydrology as expressed by ground water discharge and recharge, runoff storage, and stream flow. However, the wetland functions related to the quality of water on-site and down-stream as well as to the biological abundance and diversity are well above the average.

The riverine wetlands comprise 30% of the on-site wetlands. The potential for modifying groundwater discharge and recharge is about average. The remainder of the assessed wetland function capabilities were found to be above average, with the potential to modify water quality well above average.



These two wetland types work well together to provide a good wetland system. With the exception of affecting ground water discharge and recharge, the other six wetland function capabilities were found to be well above average.

Land Use Planning Implications

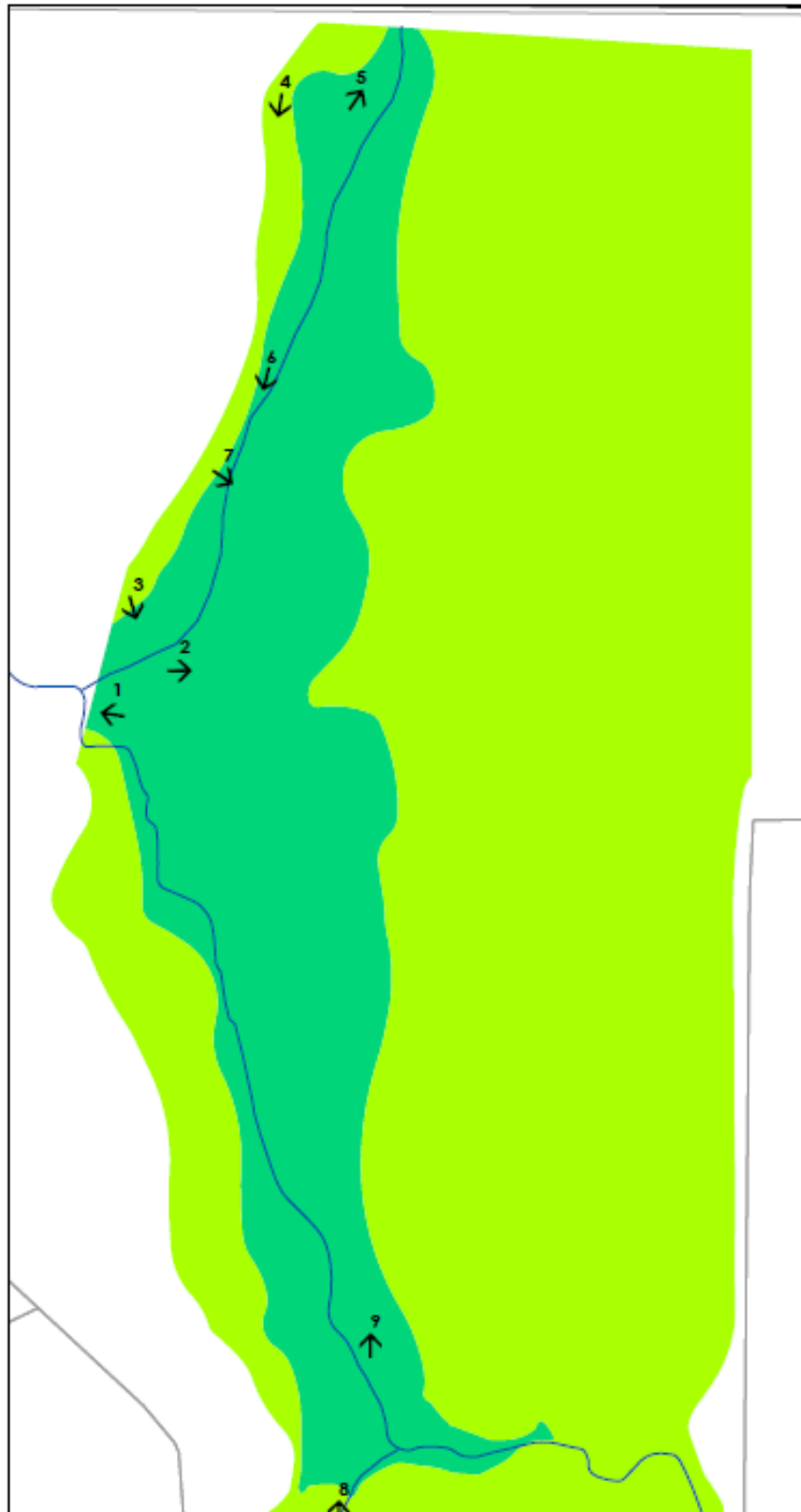
These wetlands are above average in their beneficial effects on water quality and wildlife. The riverine portion exerts above average influence on stream flow conditions, including flood water storage. Modification of groundwater conditions are the only wetland functions for which below average conditions were found.

The functions performed at an above average level provide benefits to the downstream waters. These include the swimming and fishing activities occurring in Lake Osceola, flooding in the Jefferson Valley area, and even the maintenance of the high water quality found in Peekskill Hollow Brook, a designated trout breeding stream, which in turn provides a portion of the drinking water supply for the City of Peekskill.

Human activity has influenced the conditions of these wetlands. Approximately half of the watershed is already developed, primarily as single family residential but with the noted amount of commercial agriculture and light industry. The remainder retains the potential for similar development in the future. Only about a third of the watershed is within the Town of Yorktown. Only a small portion of the Town regulated watershed is already developed. Field investigations indicate that development is imminent. Because most of the watershed is located in neighboring towns, there is little that municipal land use regulating activity can do to preserve these wetlands. However, intermunicipal watershed planning could be applied for the future protection of this wetland.

Town of Yorktown, New York

Peekskill Hollow Brook Watershed - Shrub Oak Study Area 2



Legend

Wetlands by Hydrogeomorphic Type

- Depression
- Lacustrine
- Riverine
- Slope

Waterbody

Watercourses'

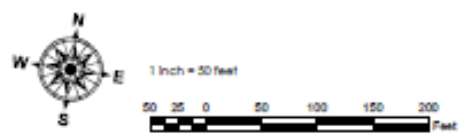
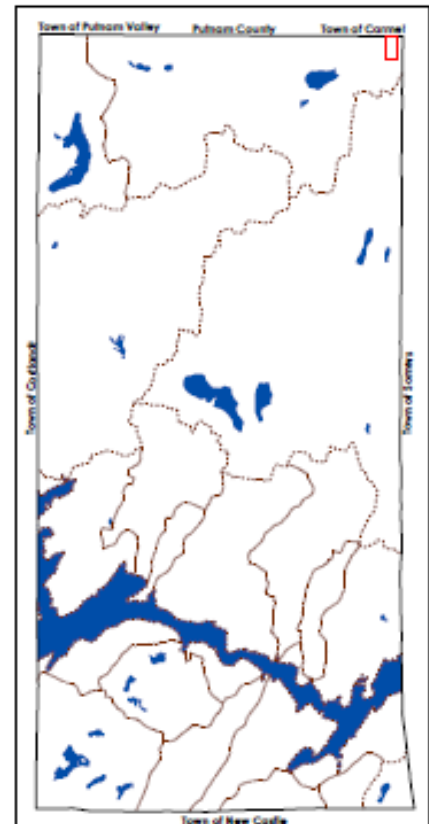
Watershed'

Sub-Watershed'

Tax Lots'

Study Areas'

1 Derived from the hydrology information in the 2001 USDA-NRCS Soil Survey of Westchester County.
 2 Taken from the GIS mapping as modified in the Westchester County GIS Database.
 3 Modified from the Westchester County GIS Database by addition of EIT hydrogeomorphic and paleontological data mapping provided by the Civilian Engineering Department.
 4 Taken from the Westchester County GIS Database.
 5 The soil data provided by the Westchester Planning Department, March, 2007.
 6 Areas studied in conjunction with the Westchester Wetland Functional Assessment Study, 2007, prepared by Environmental Design Consulting and Captain W. Colburn.



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As part of the Freshwater Wetlands Functional Assessment Study, 2007.

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