

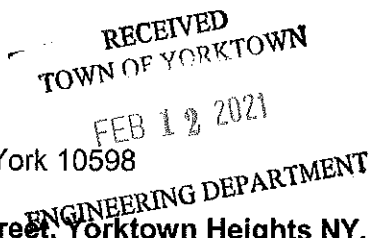


STEPHEN W. COLEMAN
ENVIRONMENTAL CONSULTING, LLC

Environmental Planning & Site Analysis
Wetland Mitigation & Restoration Plans
Wetland Delineation & Assessment
Natural Resource Management
Pond & Lake Management
Wildlife & Plant Surveys
Breeding Bird Surveys
Landscape Design

January 27, 2021

Mr. Chris Collier
2572 Gregory Street
Yorktown Heights, New York 10598



Re: 2572 Gregory Street, Yorktown Heights NY, tax map # 27.14-1-2, - Evaluation and Classification of existing wetland parallel to Gregory Street, Functional Assessment of Wetlands, Proposed Mitigation Measures

Dear Mr. Collier:

I have completed an evaluation and classification of the existing wetland closest to Gregory Street and, also performed a wetland functional assessment of both wetland areas that have been identified on the subject property. The wetlands were flagged on 02-25-20 by HydroEnvironmental Solutions, Inc., and survey located. The evaluation of existing wetlands including a functional assessment was completed on 09-21-20. The wetlands were evaluated according to "A Rapid Procedure for Assessing Wetland Functional Capacity" by Magee and Hollands, 1998.

Existing Conditions

The wetland community on the subject property is best described as a Forested Wetland Complex Ecological Community. The forested wetland complex includes a remnant forested depressional wetland in the front and a riparian stream corridor in the rear of the property. Both respective wetland areas merge into one wetland system on the adjoining parcel along the west to northwestern property line.

The forested depressional wetland in the front emanates from the adjoining property to the south. The wetland on the adjoining parcel has been altered and culverted near the property line. Water flows through the wetland and outlets on the adjoining property to the western side of the parcel. The wetland exhibits typical wetland vegetation including red maple, American elm in the tree canopy and shrubs including spicebush and winterberry. The understory includes skunk cabbage, ferns and scattered common rush and sedges. The soils consist of a histic epipedon (12-16 inches) which is typical of leiscester soils, a wetland soil. Hydrology is evident with extensive buttressing of tree trunks, tree roots at the surface and saturated clay soils. A question was raised whether this wetland exhibited vernal pool characteristics. The wetland shows an inlet and an outlet which is not typical of vernal pools. Sufficient hydrology is present – even in drought conditions – to function more as a depressional forested wetland.

The second wetland feature in the rear of the property consists primarily of a stream complex with some fringe wetland areas immediately adjacent to the stream where the topography slopes down towards the stream. The wetland areas adjacent to the stream consisted of typical wetland vegetation including red maple, green ash, American elm, spicebush and winterberry. Phragmites grass, tussock sedge, common rush, clearweed and sensitive and cinnamon fern were observed within the ground layer. Hydric soils were represented within the wetland area and consisted of leiscester soils. Hydrological features included saturated soils at the surface or immediately below the test holes, buttressing of tree trunks and roots, and positive drainage patterns.

A large percentage of the property consists of wetland and regulated wetland buffer. The middle section of the property rises in elevation and the buffer is dominated by upland plant species in all strata layers. Common upland species include American beech, ironwood, black birch and red and black oak.

Functional Assessment

The wetlands were evaluated according to "A Rapid Procedure for Assessing Wetland Functional Capacity" by Magee and Hollands, 1998. This method is based on the Hydrogeomorphic Classification system (HGM) as developed by the Army Corps of Engineers. The wetlands on the property are classified as a combination of a depressional wetland (upper wetland), and the wetland/stream in the rear of the property as a slope wetland.

This Magee and Holland's model examines the functions and values of freshwater wetlands based upon biological characteristics, landscape position, geology, hydrology, and vegetation present. The majority - of the wetland system occurs on slopes ranging from 1% to 3%. Within the model, several key attributes of wetlands are evaluated that relate to specific wetland values and functions, including:

- o Modification of groundwater discharge
- o Modification of groundwater recharge
- o Storm and flood-water storage
- o Modification of stream flow
- o Modification of water quality
- o Export of detritus
- o Contribution to abundance and diversity of wetland vegetation
- o Contribution to abundance and diversity of wetland fauna

The above functions are evaluated based upon the existing site conditions that are present within the wetland area. The data collected is used to evaluate the functional capacity of the existing wetland (rated from 0 to 1) and allows the investigator to make preliminary planning decisions on wetland functions and values as it related to future conditions and proposed changes. Functions are rated low to high with low levels 0 to 0.33, moderate levels from 0.34 to 0.66, and high levels from 0.67 to 1.0.

The wetland complex consisted of two HGMs: 1.) A depressional wetland along the front portion of the property and 2.) slope wetlands consisting of the stream and riparian forested wetlands. These HGMs were evaluated based upon the depressional and sloped wetland characteristics and criteria. Each of the functions performed by these HGMs is briefly described below. This discussion is based on the wetland assessment model scores achieved from collecting site-specific data on the wetland system. The scores represent the potential for this wetland type to perform that specific function. It is important to evaluate the data based upon the size of the wetland, its landscape setting and not just the numerical scores. The wetland functional model scores have been summarized in the tables below.

Depressional Wetland -Ponds and Emergent Wetland – Functional Model Scores Summary			
WETLAND FUNCTION	RANGE	SITE-SPECIFIC SCORE	FUNCTIONAL CAPACITY INDEX (FCI)
Modification of Groundwater Discharge	3-18	10	0.55
Modification of Groundwater Recharge	4-21	9	0.43
Storm and Flood Water Storage	4-27	13	0.48
Modification of Stream Flow	1-9	4	0.44
Modification of Water Quality	4-18	12	0.66
Export of Detritus	5-18	10	0.55
Contribution to Abundance and Diversity of Wetland Vegetation	2-15	8	0.53
Contribution to Abundance and Diversity of Wetland Fauna	4-33	21	0.63

Slope Wetland – streams, vernal pool and forested wetland- Functional Model Scores Summary			
WETLAND FUNCTION	RANGE	SITE-SPECIFIC SCORE	FUNCTIONAL CAPACITY INDEX (FCI)
Modification of Groundwater Discharge	2-15	11	0.73
Modification of Groundwater Recharge	N/A	N/A	N/A
Storm and Flood Water Storage	4-21	15	0.71
Modification of Stream Flow	1-9	6	0.67
Modification of Water Quality	3-15	11	0.73
Export of Detritus	4-15	8	0.53
Contribution to Abundance and Diversity of Wetland Vegetation	2-15	10	0.66
Contribution to Abundance and Diversity of Wetland Fauna	4-33	22	0.66

Description of Functional Summary Scores (for both wetland types):

Modification of Groundwater Discharge

Depressional wetlands collect surface and groundwater from many directions and may or may not have specific outlets. This wetland exhibits a well-defined outlet and can collect and discharge groundwater on the site. The wetland model scores for this function of the depressional wetland are considered moderate (55%). Slope wetlands serve as areas that discharge groundwater (water intersecting the land surface). The slope wetland areas are a combination of sloping hillside watercourse, sloping forested wetland and other intermittent areas which collects water from characteristics such as seasonal hillside seeps, intermittent watercourse channels and springs where the groundwater emerges at the surface and is transmitted as surface flows. The wetland model scores for this function are considered moderate to high (73%).

Modification of Groundwater Recharge

Depressional wetlands on glacial till can often intercept with groundwater and function in groundwater recharge. The wetland model scores for this function are considered moderate (43%). Hillside seeps were observed in several areas within the wetland. Consistent with the HGM model for sloped wetlands, this area of the wetland is not capable of modifying groundwater recharge.

Storm and Flood Water Storage

Depressional wetlands are often good sources for retaining and detaining storm and flood water. The forested wetland collects water and stores it before it leaves via intermittent and perennial outlets. In general, slope wetlands do not typically provide for storm and floodwater storage but the slope wetlands around the edges of the stream are also storing some storm and flood waters. The wetland area is relatively small - but does increase the ability of this type of wetland to serve a higher degree of storm and flood water storage. The wetland model scores for this function are shown to be at moderate levels (48% and 71% respectively).

Modification of Stream Flow

The sloping wetland and the juxtaposition of the forested wetland helps to modify the outlet stream flow and provide preliminary storage and treatment. The storage of storm and flood waters does serve to modify stream flow, due to storage capacity and fringe wetland areas. The wetland model scores were considered high (66%) for the depressional ponds, and, also for the sloping wetlands (67%) for this function.

Modification of Water Quality

To modify water quality requires the wetland to be able to trap and dissolve sediments and other elements that are transported from surface water flows. The depressional wetland allows some settling of sediments and other debris, so there does exist a greater ability to modify water quality. The wetland's ability at storm and flood water retention, and the slowing of surface flow due to the microtopography within the wetland does allow for some sediments to settle and biochemical transformations to occur thus increasing the water quality potential. As a result, the wetland model scores were moderate for this function for both the depressional wetland and the sloping wetlands (66% and 73% respectively).

Export of Detritus

The depressional wetland and fringe wetlands adjacent to the stream system does provide the potential for some export of detritus during larger storm events. The wetland model scores for this wetland function were moderate (55%). The flowing hillside streams normally transport detritus more rapidly, however, the forested wetland and dense vegetation and clay soils serve to trap more detritus, and therefore the wetland model scores for the sloping wetlands onsite were lower (53%) for this function.

Contribution to Abundance and Diversity of Wetland Vegetation

Plant species diversity and density are important factors for this function. Slope wetlands in general are unpredictable in their ability to retain soil saturation or standing water during the growing season. However, a variety of plant communities are present on site within the sloping wetland areas including forested wetlands, and the stream. The diversity and density of plant strata layers at the site increase the attractiveness and species diversity. The plant community is considered of medium diversity and the juxtaposition within the landscape is fairly, intact in this rural setting and support a moderate abundance and diversity of wetland vegetation. The wetland model scores for this wetland function were moderate (53%) for the depressional and (66%) for the sloping wetlands.

Contribution to Abundance and Diversity of Wetland Fauna

The moderate land use impacts, well defined vegetation layers and percent cover increase this system's ability to maintain habitat conditions utilized by a variety of species. The combination of wetlands on the property and their offsite connection contribute to the potential for contributing to an abundance and diversity of wetland fauna. The wetland model for this function reflect a moderate (63%) for depressional and (66%) for the sloping wetland.

Summary

The model scores for both the depressional and slope wetlands represent a moderate functioning wetland system. The unique combination of wetland assemblage and location within the landscape combine to provide important functional attributes and have the capacity to provide beneficial water quality treatment measures and provide valuable habitat services for wetland dependent plant and animal species. The property does exhibit impacts from adjacent land use practices including minor amounts of invasive plant species, and fragmentation of the forested community.

References

D.W.Magee and G.G.Hollands. 1998. A Rapid Procedure for Assessing Wetland Functional Capacity based on Hydrogeomorphic (HGM) Classification. Normandeau Associates and ENSR. 190 pg.

Wetland and Wetland Buffer Impacts and Mitigation Measures

The majority, of the property, includes wetlands and the regulated 100 ft. wetland buffer. Access to the upland portion of the lot, where the house will be constructed, will require a minor wetland encroachment (325 sq.ft., or .007 acre) for the proposed driveway. To minimize as much as feasible, the driveway has been placed along the southern boundary where it would minimize the amount of wetland encroachment. Disturbance will also be required within the regulated wetland buffer for most of the site improvements, including the residence, most of the driveway, patios, walks and utility trenches for connections to the Town's utility services. The amount of wetland buffer disturbance represents 22,736 sq. ft., or 0.522 acres.

To mitigate disturbance to the wetland and wetland buffer areas, a Mitigation Planting Plan has been prepared. (Please refer to Site Plan and Mitigation Planting Plan as prepared by J.D. Barrett & Associates, LLC, dated 01-27-21, for specific details of proposed impacts and mitigation measures).

Mitigation of the permanent wetland disturbance for the driveway will be creation of new wetland area immediately adjacent to the edge of the wetland that is parallel to the proposed driveway. This area (highlighted in yellow on the Mitigation Plan) will consist of extending the wetland to the edge of the driveway. A low boulder retaining wall will be constructed along the western edge of the driveway to create a permanent barrier to protect the wetland. The grade within this area will be lowered to the existing grade of the wetland and then re-planted with a combination of native wetland ground covers and shrubs. The lowering of the grade will provide important hydrology support for the new wetland area.

To mitigate the proposed disturbance within the wetland buffer, the forested depressional wetland will be enhanced with new native plantings to improve the functional habitat value and provide additional water quality maintenance functions. The interface between the new plantings and the existing soils will allow for additional nutrient uptake that can be stored within the wetland. Enhancement and restoration of the wetland with additional plantings represents approximately 8,820 sq. ft.

As part of the site improvements, a total of 54 trees are proposed to be removed. To mitigate the tree removal, a total of 35 new trees and 260 shrubs are proposed (eight, two-gallon shrubs is equivalent to 1- 2.5 caliper tree) to replace the impact from the loss of the existing trees.

This completes the wetland report. Please let me know if you have any questions or require additional information.

Sincerely,

Stephen W. Coleman

Stephen W. Coleman

cc: J.D. Barrett & Associates, LLC
J. Greenburgh, R.A.