1146 Route 9 - BJ's Gas

WETLAND FUNCTIONS

An assessment of wetland functions and values was conducted on the small wet meadow identified on the southern side of the site. I have delineated the same wetlands on the site several times in the past 12-15 years in accordance with both the Town of Wappinger code and US Army Corps of Engineers Wetland Delineation Manual. The wet meadow on the southern section of the site is man made and due to the compression of the soil in this area via past truck/vehicle movement and existing wheel ruts which traps precipitation and isolates this wetland from other wetland. The compacted soil then acts as a barrier to infiltration whereas the other upland section of the field on the site that was not compacted allows infiltration. The wetland at the eastern side of the site is a forested wetland that has old fill material along its western boundary.

Using a widely accepted method for wetland functions and values assessment developed by the New England District, U.S. Army Corps of Engineers, 13 distinct wetland functions and values were assessed for only this wetland on the site since there is proposed impact to the Town of Wappinger regulated 100 foot buffer to this wetland. This method yielded an objective, descriptive quality index of each wetland rather than a subjective quantified rating of each wetland.

This assessment had two major objectives:

1. Objectively identify the functions and values provided by the wetland identified on the southern section of the site.

2. Provide baseline data with which the Applicant could work in planning land uses, and against which the Applicant could assess potential impacts of proposed development of the site.

The descriptive quality index of each wetland, based on this methodology, is summarized in this report.

Wetlands are legally protected because of the functions they perform and the benefits that society reaps from those functions. Wetland functions are chemical, physical, and biological processes that wetlands naturally perform as a matter of course, such as absorption of nutrients or floodwaters, or provision of habitat for fish and wildlife. Wetland values are the benefits that society derives from wetland functions, such as flood abatement, or water quality maintenance.

The functions and values assessment conducted on the property was based on the method outlined in *The Highway Methodology Workbook Supplement: Wetland Functions and Values, A Descriptive Approach*, by the U.S. Army Corps of Engineers New England District. This method was selected over an arbitrary numeric quantifying assessment scheme because it provides an objective, descriptive approach to functions and values assessment based on professional observation and judgment rather than a simple numeric value rating system. Quantified functions and values assessments do not always provide for descriptive information about wetlands and therefore may overlook important aspects of wetland functions

and values. The Highway Method provides for assessment of the wetland for thirteen defined functions and values. Of these, the first eight are considered wetland functions, and the last five are considered to be wetland values.

Findings of the assessment for the are outlined below.

Functions and values provided by the wet meadow is limited to wildlife habitat. The following functions were reviewed:

1. **Groundwater Recharge/Discharge –** the potential for a wetland to serve as a recharge area for an aquifer or as a surface discharge point for groundwater.

As described previously this wetland is man made and due to the compression of the soil in this area via past truck/vehicle movement and existing wheel ruts which traps precipitation and isolates this wetland from other wetland. The compacted soil then acts as a barrier to infiltration whereas the other upland section of the field on the site that was not compacted allows infiltration. There is no groundwater recharge or discharge function provided by this wet meadow.

2. **Floodflow Attenuation–** A wetland's ability to store and attenuate floodwaters during prolonged precipitation events, thereby reducing or preventing flood damage.

This small wet meadow is not connected or associated with a tributary that could overflow and trap rapidly rising water during storm events from watershed areas. This wetland is small in size and generally only hold very low amounts of water during storms because it just isn't that large in size and there is no large watershed that it serves. Water that enters this wetland is not slowly released to the watershed to attenuate flooding. There is no floodflow attenuation function provided by this wet meadow.

3. **Fish and Shellfish Habitat –** The ability of permanent or temporary water bodies to provide suitable habitat for fish or shellfish.

There is no fish or shellfish habitat provided by the wet meadow.

4. **Sediment/Toxicant/Pathogen Retention –** The effectiveness of the wetland in trapping sediments, toxicants or pathogens, thereby protecting water quality.

As with floodflow attenuation there is no flow from the surrounding watershed to this wetland where water could be cleansed of pollutants or water quality enhanced through infiltration by this wet meadow.

5. **Nutrient Removal/Retention/Transformation –** The effectiveness of the wetland at absorbing, retaining, and transforming or binding excess nutrients, thereby protecting water quality.

There currently is no source of excess nutrients that flow to the site or this wetland in particular to provide nutrient retention functions.

6. **Production Export –** The wetland's ability to produce food or usable products for humans or other living organisms.

There is no impact to this function because the wet meadow is not connected to other waters where export of material can occur.

7. **Sediment/Shoreline Stabilization –** The wetland's ability to prevent erosion and sedimentation by stabilizing soils along stream banks or the shorelines of water bodies.

This wet meadow does not contain a shoreline and there is currently no source of sedimentation that requires stabilization so this function is not currently provided by this wetland.

8. **Wildlife Habitat** – The ability of wetlands to provide food, water, cover, or space for wildlife populations typically associated with wetlands or their adjacent areas, both resident and migratory.

This is one of the functions provided by the wet meadow albeit in a limited way given the wetland location and it's small size. Mammal tracks and nesting birds were observed here.

9. **Recreation –** The value placed on a wetland by society for providing consumptive and non-consumptive as well as active or passive recreational opportunities such as canoeing/boating, fishing, hunting, bird/wildlife watching, hiking, etc.

This wet meadow does not provide this function.

10. **Education/Scientific Value –** The value placed on a wetland by society for providing subjects for scientific study or research or providing a teaching resource for schools.

This wet meadow does not provide this function.

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11. **Uniqueness/Heritage –** The value placed on a wetland by society for having unique characteristics such as archaeological sites or sites of historical events, unusual aesthetic qualities, or unique plants, animals, or geologic features, etc.

The wet meadow is not unique or of high value.

12. **Visual Quality/Aesthetics –** The value placed on a wetland by society for having visual and/or other aesthetic qualities.

There is no impact to this function. Visually this wet meadow does not resemble most wetlands in that there is no standing water and few vegetative indicators usually associated with dominant wetlands.

13. **Threatened or Endangered Species Habitat –** The value placed on a wetland by society for effectively harboring or providing habitat for threatened or endangered species.

This wet meadow provide no habitat for known threatened or endangered species.

WETLAND IMPACTS

The proposed BJ's Gas development on this site shows no wetland impact but does have approximately 1 acre of impact to the Town regulated 100 foot buffer to the northern side of this wetland. As shown on the proposed plan the southern buffer of this wetland was previously impacted and contains a parking lot adjacent to its boundary on the south. The impact proposed to the existing buffer on the site from the project will occur to successional field and sparsely wooded area adjacent to Route 9. This buffer which in reality is only half a buffer provides virtually no protection to the wetland that barely functions as a typical wetland would. Especially since the buffer has already been compromised to the south.

WETLAND MITIGATION

An approach to consider is to connect this wet meadow to the forested wetland on the eastern section of the site in a contiguous way by removing old fill material and constructing a wetland mitigation area (by grading and planting of wetland vegetation) allows for an increase the wildlife habitat function of this wetland and provides functions that this wetland currently does not provide.

The use of stormwater basin from the proposed development area that allows clear water to flow to the wet meadow which after mitigation efforts is connected to the eastern wetland would create and more functioning wetland complex then currently exists on the site. There would be a net increase in function and therefore benefits provided to the Town.