LUCAS ENVIRONMENTAL, LLC

500A Washington Street, Quincy, MA 02169

September 19, 2024

RJO'Connell & Associates, Inc.
Attn: Roy Smith
80 Montvale Avenue, Suite 201
Stoneham, MA 02180

Re: Wetland Impact Assessment
2268-2284 Route 32
Montville, CT

Dear Mr. Smith,

As requested, Lucas Environmental, LLC (LE) has prepared a wetland impact assessment for the proposed multi-family residential development located at 2268 – 2284 Route 32 in Montville, Connecticut. As currently proposed, the project will permanently impact a Vegetated Wetland and associated 50-Foot Upland Review Area. The following is intended to describe the existing wetland area, and well as a description and overall assessment of the proposed wetland impacts.

1.0 WETLAND RESOURCE AREAS

A Registered Professional Soil Scientist (RPSS) from LE conducted a site investigation on July 19, 2024, to determine if wetland resources or watercourses were present on or near the property located at 2268 – 2284 Route 32 in Montville, Connecticut (i.e., Study Area). A separate Wetland Summary Letter has been prepared by LE, dated August 23, 2024, with a more detailed description of the site and wetland resource areas. The following describes the wetland identified in the Study Area.

Wetland A

Wetland A is an emergent wetland located along the northern property line. It is densely vegetated primarily with common reed (*Phragmites australis*), hedge bindweed (*Calystegia sepium*), multiflora rose (*Rosa multiflora*), jewelweed (*Impatiens capensis*), and fowl grass (*Poa palustris*). Wetland A was delineated with pink survey tape numbered sequentially from WFA-1 to WFA-14.

The wetland is located at the bottom of a rocky hillside and likely has formed as a result of accumulated stormwater originating from an upgradient stormwater outfall. The outfall conveys untreated and unmitigated stormwater from Cedar Lane and discharges it down the hillside north of the property. The stormwater collects at the bottom of the hill then water dissipates outward over a flat area over where it infiltrates into stratified drift outwash material. As a result, the wetland has accumulated several inches of sediment and there is evidence of surface scour and erosion throughout. The wetland is geographically isolated from downgradient wetlands and lacks connectivity and overall function. The wetland is filled with sediment and therefore does not appear to store or detain surface flows. It is possible that the wetland would not exist if not for the stormwater outfall discharging water to this location.

Soils within the wetland are characterized as Aquents, and consist of an organic rich mineral surface horizon (sand and loamy sand) overlying fine sandy loam. The Aquent soils are characterized by a seasonal to prolonged high ground water table and either support or are capable of supporting wetland vegetation. Aquent soils are recently formed soils which have an aquic moisture regime. In this location, it appears the hydrology supporting the wetland is largely due to accumulation of stormwater as a result of the upgradient discharge pipe. The subsoil consists of a depleted matrix and redoximorphic features (i.e., soft masses of iron accumulation in the matrix). The wetland/upland boundary is diffuse and corresponds to a transition to a non-hydrophytic plant community and absence of hydric soils/wetland hydrology.

2.0 PROPOSED WETLAND IMPACTS

Project wide wetland impacts are associated with construction of a proposed parking area and construction of a drainage pipe to collect and convey the stormwater flows from the upgradient stormwater outfall at Wetland A.

The site layout has been designed to avoid wetlands and watercourses to the extent practicable. Where impacts are unavoidable, measures such as retaining walls have been implemented to minimize impacts.

Despite considerable efforts to avoid and minimize direct wetland impacts, work is required in wetland resource areas for a variety of different types of activities. Table 2-1 summarizes the location, type of activity, and impacts necessary to construct the Project.

TABLE 2-1
SUMMARY OF WETLAND IMPACTS

Resource Area	Impacts	Surface Area (SF)	Comments
WFA Vegetated Wetland	Temporary	432 SF	Temporary impacts are related to minor regrading to allow for off-site stormwater to enter the proposed drainage pipe.
	Permanent	636 SF	Permanent impacts are the result of the proposed retaining wall, and paved parking areas.
Upland Review Area		9,770	Includes grading, drainage, and paved areas.

***Impact calculations provided by RJOC.**

3.0 WETLAND FUNCTIONAL ASSESSMENT

This section details the wetland functional assessment methodology, results, and discussion. LE conducted a functional assessment using the procedures described in the U.S. Army Corps of Engineers (USACE) Highway Methodology Workbook (USACE, 1993), and the Highway Methodology Workbook Supplement (USACE, 1999). The assessment evaluated whether any of the functions and values of the wetlands could be deemed principal functions and values. To be considered a principal function or value, the function or value must be deemed an important component of the wetland ecosystem and/or considered of special value to society from a local, regional, and/or national perspective. The assessment concluded that Groundwater Recharge/Discharge is the principal function; however; this function is rather limited as described below.

The proposed wetland impact area was evaluated considering the presence or absence of the 13 wetland functions and values defined in the Introduction. A "yes" or "no" column is checked and documentation supporting the presence or absence of a particular function and/or value is recorded. A USACE Wetland Function-Value Evaluation Form was filled out to categorize the wetland (See Attached Wetland Function-Value Evaluation Form).

A standard list of rationale factors for each function and value, numbered for reference, is included in the "Wetland Evaluation Supporting Documentation; Reproducible Forms" (See Section A-V). The data form requires the evaluator to check the column regarding the principal function(s) and values as defined by the methodology document. The evaluation included both an office and field component. The field component incorporates observations made in July 2024.

The USACE Highway Methodology identifies 13 functions and values considered by the Regulatory Branch, which include the following:

1. Groundwater Recharge/Discharge – This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area. Recharge should relate to the potential for the wetland to contribute water to an aquifer. Discharge should relate to the potential for the wetland to serve as an area where groundwater can be discharged to the surface.

2. Floodflow Alteration – This function considers the effectiveness of the wetland in reducing flood damage by attenuation of floodwaters for prolonged periods following precipitation events, and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas.

3. Fish and Shellfish Habitat – This function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

4. Sediment/Toxicant/Pathogen Retention – This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens.

5. Nutrient Removal/Retention/Transformation – This function relates to the effectiveness of the wetland to prevent adverse effects of excess nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers, or estuaries.

6. Production Export (Nutrient) – This function relates to the effectiveness of the wetland to produce food or usable products for humans or other living organisms.

7. Sediment/Shoreline Stabilization – This function relates to the effectiveness of a wetland to stabilize streambanks and shorelines against erosion.

8. Wildlife Habitat – This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge.

9. Recreation (Consumptive and Non-Consumptive) – This value considers the effectiveness of the wetland and associated watercourses to provide recreational opportunities such as canoeing, boating, fishing, hunting, and other active or passive recreational activities. Consumptive activities consume or diminish the plants, animals, or other resources that are intrinsic to the wetland, whereas non-consumptive activities do not.

10. Educational/Scientific Value – This value considers the effectiveness of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

11. Uniqueness/Heritage – This value relates to the effectiveness of the wetland or its associated waterbodies to produce certain special values. Special values may include such things as archaeological sites, unusual aesthetic quality, historical events, or unique plants, animals, or geologic features.

12. Visual Quality/Aesthetics – This value relates to the visual and aesthetic qualities of the wetland.

13. Endangered Species Habitat – This value relates to the effectiveness of the wetland or associated waterbodies to support threatened or endangered species.

The principal function identified for the wetland as a result of the USACE functional assessment is described below. It should be noted, with the exception of reporting principal function and/or value, the forms do not report weighted or biased data. Therefore, each can be interpreted from the perspective and independent judgment of each reviewer. The form provides space for additional narrative descriptions, including unusual or noteworthy conditions. The objective of the form is to document an unbiased record of the wetland, including its location, function, appearance and relationship to its adjacent land use. The USACE Wetland Function-Value Evaluation Form is included with this letter.

Principal Function: Groundwater Recharge/Discharge

This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area. Recharge should relate to the potential for the wetland to contribute water to an aquifer. Discharge should relate to the potential for the wetland to serve as an area where groundwater can be discharged to the surface.

The principal function as determined by the functional analysis is Groundwater Recharge primarily because the wetland and surrounding upland is underlain by stratified drift, and loamy-sandy soils. The water discharged from the stormwater outfall infiltrates into the groundwater at this location. Though it is important to note that this function is rather limited because it does not overly an aquifer and the small size of the wetland.

Other functions, Floodflow Alteration and Sediment/Toxicant Retention were considered due to the dense vegetation in the wetland which can slow storm flows, but were dismissed because the wetland cannot store or detain stormwater flows due to accumulated sediment. In addition, the wetland does not support wetland dependent wildlife or plant diversity.

4.0 CONCLUSION

The proposed project proposes construction of a multi-family residential building, associated parking, and drainage. The project proposes to impact approximately 1,068 square feet of a Vegetated Wetland in order to construct the parking lot, and to reroute the off-site stormwater drainage.

It is LE's opinion, based on our professional education, training, and familiarity with the project site, that the proposed work will not result in a *Significant Impact* as defined by the Inland Wetlands and Watercourses Regulations, as follows:

- The proposed impacted wetland appears to have formed due to the accumulation of stormwater which is being discharged from an upgradient stormwater outfall. The wetland is vegetated primarily with invasive species, and has accumulated sediment with evidence of surface scour and erosion. The wetland is geographically isolated from downgradient wetlands and lacks connectivity and overall function.

- The wetland does not appear to significantly contribute to surface and underground water; to the hydrological stability and control of flooding and erosion; to the recharging and purification of ground water; or to the existence of animal, aquatic and plant life.

- The wetland does provide valuable aquatic, plant or animal life and habitats, nor does it prevent flooding, protect supply water, assimilate waste, facilitate drainage, or provide recreation or open space or other functions.

- The proposed project will correct a long-term drainage issue in this neighborhood of Montville. The proposed drainage system will result in an improvement to the overall quality of the untreated stormwater.

- Erosion controls will be installed prior to the start of construction and be maintained throughout construction until the site is stabilized.

If you have any questions, please do not hesitate to contact me at 617.405.4053 or tel@lucasenviro.com.

Sincerely,
LUCAS ENVIRONMENTAL, LLC

Thomas E. Liddy, CWS/PWS, CESSWI
Environmental Consultant/Soil Scientist

Enclosures:
1. Wetland Functional Assessment Information
2. Photographic Documentation

LUCAS ENVIRONMENTAL, LLC

PHOTOGRAPHIC DOCUMENTATION

DATE: July 19, 2024

Photograph 1: View of site looking west from Route 32.

Photograph 2: View of interior of site looking north.

Photograph 3: View of Wetland A along northern property line looking north.

Photograph 4: View of Wetland A looking south.

Wetland Function-Value Evaluation Form

Total area of wetland 1,068 sq ft Human made? Yes Is wetland part of a wildlife corridor? No or a "habitat island"? Yes

Adjacent land use Residential/Commercial Distance to nearest roadway or other development 100

Dominant wetland systems present PEM Contiguous undeveloped buffer zone present Yes

Is the wetland a separate hydraulic system? Yes If not, where does the wetland lie in the drainage basin? Mid

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. WFA

Latitude 41.4873 Longitude 72.1011

Prepared by: Lucas Env. Date July 24, 2024

Wetland Impact:
Type Fill Area 636 sq. ft.

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	3, 5, 15	Y	Groundwater recharge is possible due to presence of stratified drift and stormwater input.
Floodflow Alteration	Y	5, 9,13, 18	N	Floodflow alteration is limited since the area cannot store or retain stormwater due to sediment.
Fish and Shellfish Habitat	N		N	Wetland does not provide fish or shellfish habitat.
Sediment/Toxicant Retention	Y	1, 4	N	Dense vegetation may trap sediment, but there is limited retention function.
Nutrient Removal	Y	3, 8, 9, 10	N	Dense vegetation may remove nutrients, but overall function is limited.
Production Export	N	7	N	Very limited production and export function provided.
Sediment/Shoreline Stabilization	N		N	Wetland does not stabilize streams or shorelines.
Wildlife Habitat	N	3	N	Wetland does not support wetland dependent wildlife.
Recreation	N		N	Wetland does not provide recreational opportunities.
Educational/Scientific Value	N		N	Wetland does not provide educational or scientific value.
Uniqueness/Heritage	N		N	Wetland provides no unique or cultural value.
Visual Quality/Aesthetics	N		N	Wetland is not visually appealing or interesting.
ES Endangered Species Habitat	N		N	Wetland does not provide habitat or rare, threatened or endangered species.
Other				

Notes:

* Refer to backup list of numbered considerations.

Appendix A

Wetland evaluation supporting documentation; Reproducible forms.

Below is an example list of considerations that was used for a New Hampshire highway project. Considerations are flexible, based on best professional judgment and interdisciplinary team consensus. This example provides a comprehensive base, however, and may only need slight modifications for use in other projects.

GROUNDWATER RECHARGE/DISCHARGE— This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area. It refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

CONSIDERATIONS/QUALIFIERS

1. Public or private wells occur downstream of the wetland.
2. Potential exists for public or private wells downstream of the wetland.
3. Wetland is underlain by stratified drift.
4. Gravel or sandy soils present in or adjacent to the wetland.
5. Fragipan does not occur in the wetland.
6. Fragipan, impervious soils, or bedrock does occur in the wetland.
7. Wetland is associated with a perennial or intermittent watercourse.
8. Signs of groundwater recharge are present or piezometer data demonstrates recharge.
9. Wetland is associated with a watercourse but lacks a defined outlet or contains a constricted outlet.
10. Wetland contains only an outlet, no inlet.
11. Groundwater quality of stratified drift aquifer within or downstream of wetland meets drinking water standards.
12. Quality of water associated with the wetland is high.
13. Signs of groundwater discharge are present (e.g., springs).
14. Water temperature suggests it is a discharge site.
15. Wetland shows signs of variable water levels.
16. Piezometer data demonstrates discharge.
17. Other

FLOODFLOW ALTERATION (Storage & Desynchronization) — This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas.

CONSIDERATIONS/QUALIFIERS

1. Area of this wetland is large relative to its watershed.
2. Wetland occurs in the upper portions of its watershed.
3. Effective flood storage is small or non-existent upslope of or above the wetland.
4. Wetland watershed contains a high percent of impervious surfaces.
5. Wetland contains hydric soils which are able to absorb and detain water.
6. Wetland exists in a relatively flat area that has flood storage potential.
7. Wetland has an intermittent outlet, ponded water, or signs are present of variable water level.
8. During flood events, this wetland can retain higher volumes of water than under normal or average rainfall conditions.
9. Wetland receives and retains overland or sheet flow runoff from surrounding uplands.
10. In the event of a large storm, this wetland may receive and detain excessive flood water from a nearby watercourse.
11. Valuable properties, structures, or resources are located in or near the floodplain downstream from the wetland.
12. The watershed has a history of economic loss due to flooding.
13. This wetland is associated with one or more watercourses.
14. This wetland watercourse is sinuous or diffuse.
15. This wetland outlet is constricted.
16. Channel flow velocity is affected by this wetland.
17. Land uses downstream are protected by this wetland.
18. This wetland contains a high density of vegetation.
19. Other

FISH AND SHELLFISH HABITAT (FRESHWATER) — This function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

CONSIDERATIONS/QUALIFIERS

1. Forest land dominant in the watershed above this wetland.
2. Abundance of cover objects present.

STOP HERE IF THIS WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE

3. Size of this wetland is able to support large fish/shellfish populations.
4. Wetland is part of a larger, contiguous watercourse.
5. Wetland has sufficient size and depth in open water areas so as not to freeze solid and retain some open water during winter.
6. Stream width (bank to bank) is more than 50 feet.
7. Quality of the watercourse associated with this wetland is able to support healthy fish/shellfish populations.
8. Streamside vegetation provides shade for the watercourse.
9. Spawning areas are present (submerged vegetation or gravel beds).
10. Food is available to fish/shellfish populations within this wetland.
11. Barrier(s) to anadromous fish (such as dams, including beaver dams, waterfalls, road crossing) are absent from the stream reach associated with this wetland.
12. Evidence of fish is present.
13. Wetland is stocked with fish.
14. The watercourse is persistent.
15. Man-made streams are absent.
16. Water velocities are not too excessive for fish usage.
17. Defined stream channel is present.
18. Other

Although the above example refers to freshwater wetlands, it can also be adapted for marine ecosystems. The following is an example provided by the National Marine Fisheries Service (NMFS) of an adaptation for the fish and shellfish function.

FISH AND SHELLFISH HABITAT (MARINE) — This function considers the effectiveness of wetlands, embayments, tidal flats, vegetated shallows, and other environments in supporting marine resources such as fish, shellfish, marine mammals, and sea turtles.

CONSIDERATIONS/QUALIFIERS

1. Special aquatic sites (tidal marsh, mud flats, eelgrass beds) are present.
2. Suitable spawning habitat is present at the site or in the area.
3. Commercially or recreationally important species are present or suitable habitat exists.
4. The wetland/waterway supports prey for higher trophic level marine organisms.
5. The waterway provides migratory habitat for anadromous fish.
6. Essential fish habitat, as defined by the 1996 amendments to the Magnuson-Stevens Fishery & Conservation Act, is present (consultation with NMFS may be necessary).
7. Other

SEDIMENT/TOXICANT/PATHOGEN RETENTION — This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

CONSIDERATIONS/QUALIFIERS

1. Potential sources of excess sediment are in the watershed above the wetland.
2. Potential or known sources of toxicants are in the watershed above the wetland.
3. Opportunity for sediment trapping by slow moving water or deepwater habitat are present in this wetland.
4. Fine grained mineral or organic soils are present.
5. Long duration water retention time is present in this wetland.
6. Public or private water sources occur downstream.
7. The wetland edge is broad and intermittently aerobic.
8. The wetland is known to have existed for more than 50 years.
9. Drainage ditches have not been constructed in the wetland.

STOP HERE IF WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE.

10. Wetland is associated with an intermittent or perennial stream or a lake.
11. Channelized flows have visible velocity decreases in the wetland.
12. Effective floodwater storage in wetland is occurring. Areas of impounded open water are present.
13. No indicators of erosive forces are present. No high water velocities are present.
14. Diffuse water flows are present in the wetland.
15. Wetland has a high degree of water and vegetation interspersion.
16. Dense vegetation provides opportunity for sediment trapping and/or signs of sediment accumulation by dense vegetation is present.
17. Other

NUTRIENT REMOVAL/RETENTION/TRANSFORMATION — This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers, or estuaries.

CONSIDERATIONS/QUALIFIERS

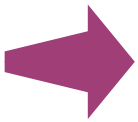
1. Wetland is large relative to the size of its watershed.
2. Deep water or open water habitat exists.
3. Overall potential for sediment trapping exists in the wetland.

4. Potential sources of excess nutrients are present in the watershed above the wetland.
5. Wetland saturated for most of the season. Ponded water is present in the wetland.
6. Deep organic/sediment deposits are present.
7. Slowly drained fine grained mineral or organic soils are present.
8. Dense vegetation is present.
9. Emergent vegetation and/or dense woody stems are dominant.
10. Opportunity for nutrient attenuation exists.
11. Vegetation diversity/abundance sufficient to utilize nutrients.

STOP HERE IF WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE.

12. Waterflow through this wetland is diffuse.
13. Water retention/detention time in this wetland is increased by constricted outlet or thick vegetation.
14. Water moves slowly through this wetland.
15. Other

PRODUCTION EXPORT (Nutrient) — This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.



CONSIDERATIONS/QUALIFIERS

1. Wildlife food sources grow within this wetland.
2. Detritus development is present within this wetland
3. Economically or commercially used products found in this wetland.
4. Evidence of wildlife use found within this wetland.
5. Higher trophic level consumers are utilizing this wetland.
6. Fish or shellfish develop or occur in this wetland.
7. High vegetation density is present.
8. Wetland exhibits high degree of plant community structure/species diversity.
9. High aquatic vegetative diversity/abundance is present.
10. Nutrients exported in wetland watercourses (permanent outlet present).
11. “Flushing” of relatively large amounts of organic plant material occurs from this wetland.
12. Wetland contains flowering plants that are used by nectar-gathering insects.
13. Indications of export are present.
14. High production levels occurring, however, no visible signs of export (assumes export is attenuated).
15. Other

SEDIMENT/SHORELINE STABILIZATION — This function considers the effectiveness of a wetland to stabilize streambanks and shorelines against erosion.

CONSIDERATIONS/QUALIFIERS

1. Indications of erosion or siltation are present.
2. Topographical gradient is present in wetland.
3. Potential sediment sources are present up-slope.
4. Potential sediment sources are present upstream.
5. No distinct shoreline or bank is evident between the waterbody and the wetland or upland.
6. A distinct step between the open waterbody or stream and the adjacent land exists (i.e., sharp bank) with dense roots throughout.
7. Wide wetland (>10’) borders watercourse, lake, or pond.
8. High flow velocities in the wetland.
9. The watershed is of sufficient size to produce channelized flow.
10. Open water fetch is present.
11. Boating activity is present.
12. Dense vegetation is bordering watercourse, lake, or pond.
13. High percentage of energy-absorbing emergents and/or shrubs border a watercourse, lake, or pond.
14. Vegetation is comprised of large trees and shrubs that withstand major flood events or erosive incidents and stabilize the shoreline on a large scale (feet).
15. Vegetation is comprised of a dense resilient herbaceous layer that stabilizes sediments and the shoreline on a small scale (inches) during minor flood events or potentially erosive events.
16. Other

WILDLIFE HABITAT — This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered. Species lists of observed and potential animals should be included in the wetland assessment report.[1]

CONSIDERATIONS/QUALIFIERS

1. Wetland is not degraded by human activity.
2. Water quality of the watercourse, pond, or lake associated with this wetland meets or exceeds Class A or B standards.
3. Wetland is not fragmented by development.
4. Upland surrounding this wetland is undeveloped.
5. More than 40% of this wetland edge is bordered by upland wildlife habitat (e.g., brushland, woodland, active farmland, or idle land) at least 500 feet in width.
6. Wetland is contiguous with other wetland systems connected by a watercourse or lake.
7. Wildlife overland access to other wetlands is present.
8. Wildlife food sources are within this wetland or are nearby.
9. Wetland exhibits a high degree of interspersion of vegetation classes and/or open water.
10. Two or more islands or inclusions of upland within the wetland are present.
11. Dominant wetland class includes deep or shallow marsh or wooded swamp.
12. More than three acres of shallow permanent open water (less than 6.6 feet deep), including streams in or adjacent to wetland, are present.
13. Density of the wetland vegetation is high.
14. Wetland exhibits a high degree of plant species diversity.
15. Wetland exhibits a high degree of diversity in plant community structure (e.g., tree/shrub/vine/grasses/mosses)
16. Plant/animal indicator species are present. (List species for project)
17. Animal signs observed (tracks, scats, nesting areas, etc.)
18. Seasonal uses vary for wildlife and wetland appears to support varied population diversity/abundance during different seasons.
19. Wetland contains or has potential to contain a high population of insects.
20. Wetland contains or has potential to contain large amphibian populations.
21. Wetland has a high avian utilization or its potential.
22. Indications of less disturbance-tolerant species are present.
23. Signs of wildlife habitat enhancement are present (birdhouses, nesting boxes, food sources, etc.).
24. Other

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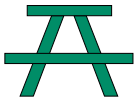
[1]In March 1995, a rapid wildlife habitat assessment method was completed by a University of Massachusetts research team with funding and oversight provided by the New England Transportation Consortium. The method is called WEThings (wetland habitat indicators for non-game species). It produces a list of potential wetland-dependent mammal, reptile, and amphibian species that may be present in the wetland. The output is based on observable habitat characteristics documented on the field data form. This method may be used to generate the wildlife species list recommended as backup information to the wetland evaluation form and to augment the considerations. Use of this method should first be coordinated with the Corps project manager. A computer program is also available to expedite this process.

RECREATION (Consumptive and Non-Consumptive) — This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting, and other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals, or other resources that are intrinsic to the wetland. Non-consumptive opportunities do not consume or diminish these resources of the wetland.



CONSIDERATIONS/QUALIFIERS

1. Wetland is part of a recreation area, park, forest, or refuge.
2. Fishing is available within or from the wetland.
3. Hunting is permitted in the wetland.
4. Hiking occurs or has potential to occur within the wetland.
5. Wetland is a valuable wildlife habitat.
6. The watercourse, pond, or lake associated with the wetland is unpolluted.
7. High visual/aesthetic quality of this potential recreation site.
8. Access to water is available at this potential recreation site for boating, canoeing, or fishing.
9. The watercourse associated with this wetland is wide and deep enough to accommodate canoeing and/or non-powered boating.
10. Off-road public parking available at the potential recreation site.
11. Accessibility and travel ease is present at this site.
12. The wetland is within a short drive or safe walk from highly populated public and private areas.
13. Other

EDUCATIONAL/SCIENTIFIC VALUE — This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

CONSIDERATIONS/QUALIFIERS

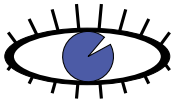
1. Wetland contains or is known to contain threatened, rare, or endangered species.
2. Little or no disturbance is occurring in this wetland.
3. Potential educational site contains a diversity of wetland classes which are accessible or potentially accessible.
4. Potential educational site is undisturbed and natural.
5. Wetland is considered to be a valuable wildlife habitat.
6. Wetland is located within a nature preserve or wildlife management area.
7. Signs of wildlife habitat enhancement present (bird houses, nesting boxes, food sources, etc.).
8. Off-road parking at potential educational site suitable for school bus access in or near wetland.
9. Potential educational site is within safe walking distance or a short drive to schools.
10. Potential educational site is within safe walking distance to other plant communities.
11. Direct access to perennial stream at potential educational site is available.
12. Direct access to pond or lake at potential educational site is available.
13. No known safety hazards exist within the potential educational site.
14. Public access to the potential educational site is controlled.
15. Handicap accessibility is available.
16. Site is currently used for educational or scientific purposes.
17. Other

UNIQUENESS/HERITAGE — This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation, and habitat diversity.

CONSIDERATIONS/QUALIFIERS

1. Upland surrounding wetland is primarily urban.
2. Upland surrounding wetland is developing rapidly.
3. More than 3 acres of shallow permanent open water (less than 6.6 feet deep), including streams, occur in wetlands.
4. Three or more wetland classes are present.
5. Deep and/or shallow marsh or wooded swamp dominate.
6. High degree of interspersion of vegetation and/or open water occur in this wetland.
7. Well-vegetated stream corridor (15 feet on each side of the stream) occurs in this wetland.
8. Potential educational site is within a short drive or a safe walk from schools.
9. Off-road parking at potential educational site is suitable for school buses.
10. No known safety hazards exist within this potential educational site.
11. Direct access to perennial stream or lake exists at potential educational site.
12. Two or more wetland classes are visible from primary viewing locations.
13. Low-growing wetlands (marshes, scrub-shrub, bogs, open water) are visible from primary viewing locations.
14. Half an acre of open water or 200 feet of stream is visible from the primary viewing locations.
15. Large area of wetland is dominated by flowering plants or plants that turn vibrant colors in different seasons.
16. General appearance of the wetland visible from primary viewing locations is unpolluted and/or undisturbed.
17. Overall view of the wetland is available from the surrounding upland.
18. Quality of the water associated with the wetland is high.
19. Opportunities for wildlife observations are available.
20. Historical buildings are found within the wetland.
21. Presence of pond or pond site and remains of a dam occur within the wetland.
22. Wetland is within 50 yards of the nearest perennial watercourse.
23. Visible stone or earthen foundations, berms, dams, standing structures, or associated features occur within the wetland.
24. Wetland contains critical habitat for a state- or federally-listed threatened or endangered species.
25. Wetland is known to be a study site for scientific research.
26. Wetland is a natural landmark or recognized by the state natural heritage inventory authority as an exemplary natural community.
27. Wetland has local significance because it serves several functional values.
28. Wetland has local significance because it has biological, geological, or other features that are locally rare or unique.
29. Wetland is known to contain an important archaeological site.
30. Wetland is hydrologically connected to a state or federally designated scenic river.
31. Wetland is located in an area experiencing a high wetland loss rate.
32. Other

VISUAL QUALITY/AESTHETICS — This value considers the visual and aesthetic quality or usefulness of the wetland.



CONSIDERATIONS/QUALIFIERS

1. Multiple wetland classes are visible from primary viewing locations.
2. Emergent marsh and/or open water are visible from primary viewing locations.
3. A diversity of vegetative species is visible from primary viewing locations.
4. Wetland is dominated by flowering plants or plants that turn vibrant colors in different seasons.
5. Land use surrounding the wetland is undeveloped as seen from primary viewing locations.
6. Visible surrounding land use form contrasts with wetland.
7. Wetland views absent of trash, debris, and signs of disturbance.
8. Wetland is considered to be a valuable wildlife habitat.
9. Wetland is easily accessed.
10. Low noise level at primary viewing locations.
11. Unpleasant odors absent at primary viewing locations.
12. Relatively unobstructed sight line exists through wetland.
13. Other

ENDANGERED SPECIES HABITAT — This value considers the suitability of the wetland to support threatened or endangered species.

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CONSIDERATIONS/QUALIFIERS

1. Wetland contains or is known to contain threatened or endangered species.
2. Wetland contains critical habitat for a state or federally listed threatened or endangered species.