



Ian T. Cole, LLC

Professional Registered Soil Scientist / Professional Wetland Scientist

PO BOX 619

Middletown, CT 06457

Itcole@gmail.com

860-514-5642

November 11, 2021

Maureen FitzGerald, WEO
Environmental Planner
Town of Waterford Conservation Commission
Waterford Town Hall
15 Rope Ferry Road,
Waterford, CT 06385

RE: Annual Wetland Mitigation Inspection Report – Year 1 (2021) - Inland Wetland Permit #C-20-14, 14B Shore Road, Waterford, Connecticut.

Dear Ms. FitzGerald:

On Behalf of the Applicant Mr. David Mortimer, I am providing the annual update on the success status of the created wetland required as mitigation for the development of the residential driveway to access 14B Shore Road as detailed in the Town's Permit #C 20-14. This report represents Year 1 of 3 consecutive monitoring years (2021, 2022 & 2023).

Background Summary

Permit #C 20-14 granted approval to conduct the filling of inland wetland for the construction of the residential driveway to access 14B Shore Road. To offset this impact the applicant was required to construct wetlands on-site and install enhancement buffer plantings to improve existing wetland habitat.

Wetland Creation Baseline Inventory

B & L Construction, Inc. started the excavation and the rough grading process in October 2020 to form the wetland creation area (Photos 1 & 2). B & L place 12" + of a rich organic topsoil consisting of a 1:1 mixture of clean topsoil and compost to provide the soil medium for the mitigation plantings (Photos 3 & 4). Wetland plants and seed mixtures were secured from New England Wetland Plants, Inc. out of South Hadley Massachusetts. A total of 84 shrubs were planted in the wetland creation area (Photo 5). Plantings were placed randomly to simulate natural variability. Below is a list of quantities and sizing of installed plantings along with seed mixtures:

Zone	Species	Quantity	Size
Transition / Side Slope	Spice Bush	12	2-3'
Transition / Side Slope	Bay Berry	12	2-3'
Transition / Side Slope	Conservation Mix	3	3 lbs
Basin	Silky Dogwood	30	2-3'
Basin	Winterberry	30	2-3'
Basin	Wetmix	3	3 lbs



Photo 1: October 8, 2020 – Rough Grading Inspection



Photo 2: October 8, 2021 – Rough Grading Inspection



Photo 3: October 15, 2020 – Topsoil Inspection 1:1 Mix of Clean Topsoil & Compost



Photo 4: October 20, 2020, Final Grading / Topsoil Inspection



Photo 5: October 27, 2021 – Planting and seed installation



Photo 6: November 5, 2021 –Inundation of wetland mitigation, photo taken from the outlet to the mitigation area

Annual Inspection Requirements

Per special conditions note #7 on the approved permit #C 20-14; the created wetland mitigation area will be assessed for a 3-year monitoring period using the following standards:

1. Inspection reports documenting the success of the wetland restoration plantings shall be submitted to the Conservation Commission on a yearly basis for three (3) year, with year 1 starting in 2021.
2. The inspection reports shall document a minimum 70% survivability of plantings.
3. The mitigation report shall record invasive species control measures implemented, and soil stabilization measures needed.
4. Yearly photographs of the mitigation area from established photo stations to best create sequential timeline photos of the development of the wetland mitigation area.
5. Any corrective actions required.
6. Annually reports shall be submitted to the Commission by October 30 of each of the 3 monitoring years.

Year 1 Annual Inspection

On September 21, 2021, I completed the year one inspection of the created wetland mitigation area.

1. All 47 shrub plantings were accounted for in various conditions, ranging from stressed too healthy. This ratio equates to a 55% survivability, which is below the target of 70% survivorship. Unaccounted prolonged hydrology has affected the long-term survivability and success of the planted shrub vegetation. To resolve the issue would require modifying the outlet structure to the created wetland to lower the standing water. However, the ability to do so is limited because the control to this structure is situated on the adjacent CTDEEP State owned property. Other engineering solutions would likely require introducing counterproductive new ground and wetland disturbance to the newly created wetland.

Within the next growing season, it is anticipated that the created area will transition to a cattail dominated wetland. Once Cattails take root, they can be a challenge to remove due to the robust fast growing underground rhizomes. This issue is compounded by the prolonged hydrology which attracts waterfowl which will continue the cycle of propagating the cattail seeds as the birds fly across the landscape landing in various waterbodies. The transition of the created wetland vegetation community to a cattail persistent emergent marsh, will have the unintended added improvement of water quality renovation as the thickly vegetated cattails retain sediments and nutrients at a higher function than the planned scrub-shrub wooded wetland. Because of these factors I do not recommend corrective shrub plantings to bring the count back to 84 shrubs but would alternatively suggest continued monitoring to ensure that no undesirable emergent species take root in the absence of the proposed shrub cover. The vegetated cover would be re-evaluated in the 2022 growing season.

2. No invasive species control measures were implemented or recommended for the wetland creation area.
3. No soil stabilization measures are needed, the site is stabilized.
4. My recommendation is the Town considers the natural recruitment of the Cattails to be satisfactory in replacement of additional shrub plantings and to continue to monitor and evaluate the vegetative community for compliance with the permit conditions of Inland Wetland Permit #C 20-14 in the 2022 growing season.



Photo 7: Wetland Creation Area September 2021 (north end)



Photo 8: Wetland Creation Area September 2021 (south end)

Buffer Enhancement Planting Area – Year 1 Inspection

The invasive vegetation and hazard trees around the wetland “former skating pond” were removed and the ground was scarified, and debris removed offsite. Coconut core logs were then installed around the ponds perimeter to stabilize the slopes.

During the long lead time securing plant stock during the pandemic and waiting for seasonal plugs stocks to grow large enough to be available for purchase; the site naturally revegetated, and all bare soil was sufficiently covered. This natural recruitment of vegetation was sufficient to stabilize the area and therefore negated the addition of seed and plugs.

60 Shrubs were planted around the upper perimeter to wetland:

Zone	Species	Quantity	Size
Top of bank	Butterfly Bush	12	2-3’
Top of bank	Bay Berry	12	2-3’
Top of bank	Ninebark	12	2-3’
Top of bank	Hydrangeas	12	2-3’
Top of bank	Silky Dogwood	12	2-3’

1. As of September 21, 2021, all 60 shrubs were installed and in good health.
2. A small patch of Mug wort was removed in the northwest corner of the pond. The area will be continued to be monitored and will actively remove this invasive weed. Because of the small discrete patch, the vegetation was removed by and bagged for disposal.
3. No corrective actions are required.
4. Site will be monitored during the 2022 growing season.



Photo 9: Wetland Upgradient of driveway crossing – area of proposed Buffer Enhancement Planting area pre-enhancement activities – November 2020

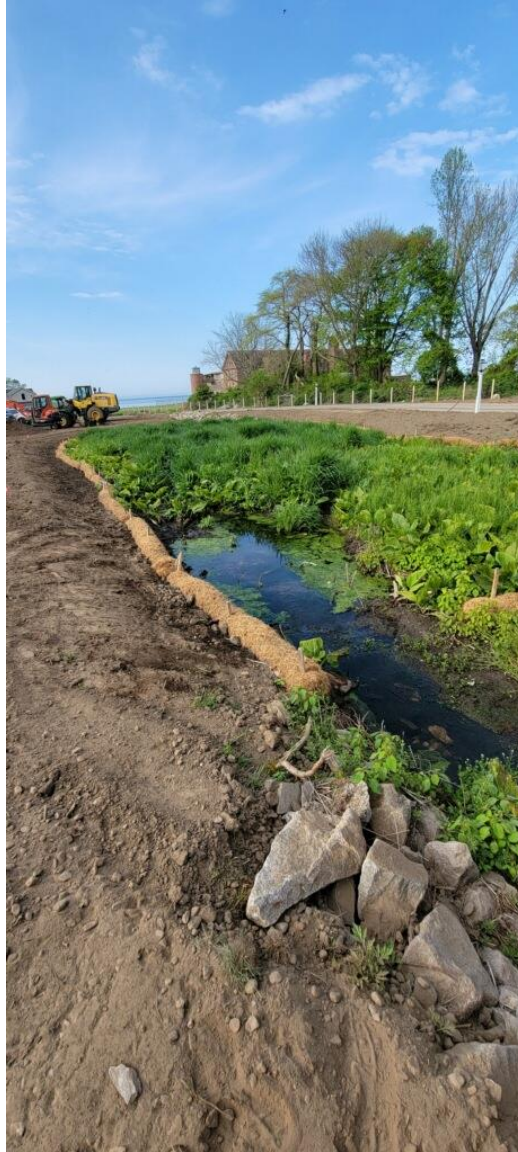


Photo 10: Vegetation Cleared and Core Logs installed May 2021



Photo 11: Example of Buffer Enhancement Plantings – September 2021



Photo 12: Wetland Placard September 2021



Photo 12: Final Vegetated Cover – September 2021



Photo 13: Wetland Prior to Enhancement Activities – November 2020

Year 2's annual report will be submitted to the Commission by October 30, 2022. Please do not hesitate to contact me at itcole@gmail.com; (860) 514-5642 if you have any questions or need any additional information.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Ian T. Cole'.

Ian T. Cole
Professional Registered Soil Scientist
Professional Wetland Scientist #2006