

NHDES WETLANDS BUREAU WETLAND RESTORATION PLAN

**60 Shaw Drive
Rochester, NH 03867
Map 240, Lot 49
&
Shaw Drive
Rochester, NH 03867
Map 240, ROW**

Prepared for:
GNM Solar 17, LLC
123 Washington Street
Rochester, NH 03867

Prepared by:
Damon E. Burt, CWS, CPESC
Fraggle Rock Environmental
38 Garland Road
Strafford, NH 03884



**November 15, 2022
Updated December 15, 2022**



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December 15, 2022

To: NHDES Wetlands Bureau
Land Resource Management Program
29 Hazen Drive, PO Box 95
Concord, NH 03302-0095

From: Damon E. Burt, Fraggle Rock Environmental
38 Garland Road
Strafford, NH 03884

**Re: NHDES Proposed Wetland Restoration Plan
Shaw Drive, Rochester, NH 03867**

Please find the Updated Wetland Restoration Plan which has been prepared for your review for the proposed wetland restoration off of Shaw Drive in the Town of Rochester, NH (Map 240, Lot 49 and Map 240, ROW).

Sincerely,

Damon E. Burt
Fraggle Rock Environmental, LLC
NH Certified Wetland Scientist
Certified Professional in Erosion and Sediment Control

1.0 PROJECT INFORMATION

1.1 Project Name, Plans, and Maps

Project Name: Shaw Drive Wetland Restoration

Project Location: 60 Shaw Drive
Rochester, NH 03867
Tax Map 240, Lot 49

Shaw Drive
Rochester, NH 03867
Tax Map 240, ROW

Project Applicant: GNM Solar 17, LLC
Attn: Packy Campbell
123 Washington Street
Rochester, NH 03867

Property Owner: Map 240, Lot 49
GNM Solar 17, LLC
Attn: Packy Campbell
123 Washington Street
Rochester, NH 03867

Map 240, ROW
City of Rochester
31 Wakefield Street
Rochester, NH 03867

Site Plans/Maps: Wetland Restoration Plan

2.0 TECHNICAL STANDARDS

- a) Wetlands were delineated by Fraggie Rock Environmental on May 13, 2022 according to the 1987 Corps of Engineers Wetlands Delineation Manual, U.S. Army Corps of Engineers, January 1987 and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Regions, U.S. Army Corps of Engineers, January 2012.
- b) Hydric soils were identified using the Field Indicators of Hydric Soils in the United States, A guide for identifying and Delineating Hydric Soils, Version 7.0, 2010 and Field Indicators for Identifying Hydric Soils in New England, Version 3. NEIWPCC Wetlands Work Group (May 2004).
- c) Wetlands were classified by Fraggie Rock Environmental utilizing the criteria of the US Fish & Wildlife Services Manual FWS/OBS-79/13 Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et. al. 1979).

- d) Dominance of wetland vegetation was assessed by Fraggie Rock Environmental, utilizing the *National List of Plant Species That Occur in Wetlands: Northeast (Region 1)*. U.S. Fish and Wildlife Service (May 1988).

3.0 INTRODUCTION

This Wetland Restoration Plan was prepared for impacted wetlands located off of Shaw Drive in the Town of Rochester, NH (Map 240, Lot 49 and Map 240, ROW). The project area includes 2 areas of wetland which have been impacted without a permit for forestry work (NHDES File No. 2022-00571). Wetland restoration area #1 is located in the middle of the site in Wetland B where the wetland has been impacted during forestry activity and impacted by the installation of Shaw Drive. Wetland restoration area #2 is located in the southwest of the site in Wetland C which has been impacted during forestry activity and along Shaw Drive. Total proposed wetland restoration area is 135,379 sq. ft. (3.1 Acres). Restoration is divided into two areas (Restoration Area #1 and Restoration Area #2). Detailed descriptions of the restoration activities follow.



Photo 1 – Wetland Restoration Area #1 – View southeast from the west side of Shaw Drive in Wetland B and along Wetland Restoration Area #1, which proposes restoration work along Shaw Drive and within Wetland B on the property (Map 240, Lot 49) (photo taken 11/10/22).



Photo 2 – Wetland Restoration Area #1 – View north into Wetland B in the center of the property (Map 240, Lot 49) where the majority of Wetland B has been disturbed and requires restoration to regrade, seed, and plant shrubs (photo taken 11/10/22).



Photo 3 – Wetland Restoration Area #1 – Additional view northeast into Wetland B which has been greatly disturbed with the property (Map 240, Lot 49) (photo taken 11/10/22).



Photo 4 – Wetland Restoration Area #1 – Continued view to the northeast of disturbance of Wetland B on the property (Map 240, Lot 49) (photo taken 11/10/22).



Photo 5 – Wetland Restoration Area #1 – Continued view to the northeast of disturbance of Wetland B on the property (Map 240, Lot 49) (photo taken 11/10/22).



Photo 6 – Wetland Restoration Area #1 – View north along Wetland B south edge and towards proposed Wetland B impact on Shaw Drive (photo taken 11/10/22).



Photo 7 – Wetland Restoration Area #1 – View north along Wetland B south edge and towards proposed Wetland B impact on Shaw Drive (photo taken 11/10/22).



Photo 8 – Wetland Restoration Area #1 – Additional view to the south of the disturbance in Wetland B in the center of the property (Map 240, Lot 49) (photo taken 11/10/22).



Photo 9 – Wetland Restoration Area #1 – Additional view of disturbance near end of Wetland B in the center of the property (Map 240, Lot 49) (photo taken 11/10/22).



Photo 10 – Wetland Restoration Area #1 – Additional view south across Wetland B which requires a large area of restoration (photo taken 11/10/22).



Photo 11 – Wetland Restoration Area #1 – Additional view south across wetland B disturbance (photo taken 11/10/22).



Photo 12 – Wetland Restoration Area #1 – View northeast along the west side of Shaw Drive of where restoration is proposed as part of Restoration Area #1 (photo taken 11/10/22).



Photo 13 – Wetland Restoration Area #2 – View northeast along Shaw Drive near the southwest corner of the property (Map 240, Lot 49) and Restoration Area #2 which proposes restoration along the edges of Shaw Drive (photo taken 11/10/22).



Photo 14 – Wetland Restoration Area #2 – View southwest along Shaw drive near the southwest corner of the property (Map 240, Lot 49) and across proposed Wetland Impact Area C. Restoration is proposed along the edges of Shaw Drive (Restoration Area 2) (photo taken 11/10/22).



Photo 15 – Wetland Restoration Area #2 – View west across proposed Restoration Area #2 in Wetland C (photo taken 11/10/22).



Photo 16 – Wetland Restoration Area #2 – View east across at Restoration Area # 2 in the (photo taken 12/13/22).



Photo17 – Wetland Restoration Area #2 – View south along proposed Wetland Restoration Area #2 Wetland C (photo taken 12/13/22).



Photo18 – Wetland Restoration Area #2 – View north along proposed Wetland Restoration Area #2 (photo taken 12/13/22).



Photo19 – Wetland Restoration Area #2 – View along Wetland Restoration Area #2 in Wetland C along forestry activities (photo taken 12/13/22).



Photo 20 – Wetland Restoration Area #2 – View within Wetland Restoration Area #2 in Wetland C (photo taken 12/13/22).



Photo 21 – Wetland Restoration Area #2 – View within Wetland Restoration Area #2 in Wetland C along impacts by forestry activities (photo taken 12/13/22).

4.0 WETLAND RESTORATION MONITORING

Restoration Area #1:

Proposed wetland restoration area #1 is located within the middle of the site in Wetland B and extends to and across Shaw Drive. The restoration area includes significant disturbance from forestry work (NHDES File No. 2022-00571) and the installation of Shaw Drive through Shaw Drive. The total area of proposed wetland restoration area #1 51,675 square feet (1.19 Acres). The proposed wetland restoration will remove fill along Shaw drive, regrade the area of impacted wetland, seed the wetland area with native seed mix, and plant native shrubs. Restoration along Shaw Drive will restore wetland edges along the roadway that were disturbed during the installation. Restoration of forestry impacts will involve grading of rutting from forestry equipment. For more details see below.

Plantings:

Twenty-five (25) native shrubs/trees will be planted within restoration area #1 as specified below:

- 10 - High Bush Blueberry (*Vaccinium corymbosum*)
- 5 - Red osier-dogwood (*Cornus stolonifera*)
- 5 - Northern Arrowwood (*Viburnum dentatum*)
- 5 - Sweet pepperbush (*Clethra alnifolia*)

All shrubs shall be at least size #3 container (3 gallons) and will be the above species or alternatives as approved by NHDES and/or the monitoring wetland scientist.

Restoration Sequence:

1. Erosion control shall be implemented under the direction of the monitoring wetland scientist during the extent of the restoration project. The main concern is sediment and turbidity flow downstream of wetland. Silt soxx (erosion control logs or equivalent) will be installed under the direction under the monitoring wetland scientist.
2. Ruts and disturbed soil areas will be re-graded under the direction of the wetland scientist. Wetland restoration area soils will be re-graded to match existing grade as determined in the field by the monitoring wetland scientist.
3. Care shall be taken in removal of sediment as to not disturb natural soils.
4. Restoration will occur with a backhoe or excavator. Care will be taken as to not rut or disturb native soils and/or vegetation including trees and wetland along adjacent areas.
5. Exposed soils will be seeded with wetland seeds collected by the monitoring wetland scientist. The area will then be mulched with straw.
6. Restoration areas will be planted with native shrubs as defined above. Additional shrubs/trees may be planted along the wetland to be determined by wetland monitoring scientist on site.

7. Inspecting wetland scientist to issue an Initial Restoration Monitoring Report following the completion of the restoration activities.
8. Erosion control shall be removed following the completion of all proposed work and agreement from NHDES.

Restoration Area #2:

Proposed wetland restoration area #2 is located within the ROW in Wetland B along of Shaw Drive and along the edge of Lot 49 in the southwest corner of the site. Shaw Drive has been installed across a portion of Wetland B and requires restoration along the edges of the road. The total area of proposed wetland restoration area #2 83,704 square feet (1.9 AC). The proposed wetland restoration will remove fill, regrade the area of impacted wetland, seed the wetland area with native seed mix. For more details see below.

Plantings:

Twenty-five (25) native shrubs/trees will be planted within restoration area #1 as specified below:

- 10 - High Bush Blueberry (*Vaccinium corymbosum*)
- 5 - Red osier-dogwood (*Cornus stolonifera*)
- 5 - Northern Arrowwood (*Viburnum dentatum*)
- 5 - Sweet pepperbush (*Clethra alnifolia*)

All shrubs shall be at least size #3 container (3 gallons) and will be the above species or alternatives as approved by NHDES and/or the monitoring wetland scientist.

Restoration Sequence:

1. Erosion control shall be implemented under the direction of the monitoring wetland scientist during the extent of the restoration project. The main concern is sediment and turbidity flow downstream of wetland. Silt soxx (erosion control logs or equivalent) will be installed under the direction under the monitoring wetland scientist.
2. Fill will be removed down to native, dark, hydric soils under the direction of the wetland scientist and placed outside NHDES Jurisdictional Areas. The sediment material will be removed and re-graded to match existing grade as determined in the field by the monitoring wetland scientist.
3. Care shall be taken in removal of sediment as to not disturb natural soils below.
4. Restoration will occur with a backhoe or excavator. Care will be taken as to not rut or disturb native soils and/or vegetation including trees and wetland along adjacent areas.
5. Exposed soils will be seeded with wetland seeds collected by the monitoring wetland scientist. The area will then be mulched with straw.

6. Restoration areas will be planted with native shrubs as defined above. Additional shrubs/trees may be planted along the wetland to be determined by wetland monitoring scientist on site.
7. Inspecting wetland scientist to issue an Initial Restoration Monitoring Report following the completion of the restoration activities.
8. Erosion control shall be removed following the completion of all proposed work and agreement from NHDES.

5.0 WETLAND RESTORATION MONITORING

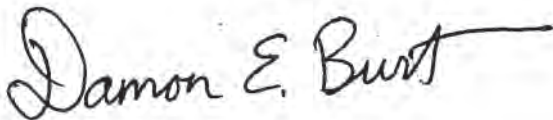
The wetland restoration will be monitored by a certified wetland scientist. Wetland restoration monitoring, as requested by NHDES, shall occur during construction. A report documenting stages of construction including photographs, items completed, items remaining will be submitted to NHDES following restoration.

The inspecting wetland scientist will perform inspections of the restoration and submit a report with photographs to NHDES following the completion of the restoration. Photographs will depict stages of the restoration activities. The restoration report shall include:

- Erosion control and site stabilization
- Description of restoration;
- Description of activities;
- Documentation of soils;
- Documentation of planting and seeding;
- Construction sequencing and methods;
- Status of the restoration and remaining items.

6.0 SCHEDULE

Restoration will begin in the spring of 2023 following approval from NHDES.



Damon E. Burt
Fraggle Rock Environmental
NH Certified Wetland Scientist #163
Certified Professional in Erosion and Sediment Control (CPESC) #3213

