

From: DEEP Nddbrequest <DEEP.Nddbrequest@ct.gov>
Sent: Tuesday, January 15, 2019 12:06 PM
To: Gresock, Lynn
Cc: Jordan, Joseph; dbodendorf@ctmira.org; DEEP Nddbrequest
Subject: [EXT]:Re: Wallingford Renewable Energy - Nddb Final Determination No. 201801464 - False Mermaid Weed Conservation Plan

Lynn,

Happy New Year. Thank you for sending the conservation plan from Steve Johnson on *Florekea* (false mermaid weed) for the Wallingford Renewable Energy Project. I have placed it in our files and concur with the methods of conservation for this plant.

Take care,

Dawn

Dawn M. McKay
Wildlife Division
Bureau of Natural Resources
Connecticut Department of Energy and Environmental Protection
79 Elm Street, Hartford, CT 06106-5127
P: 860.424.3592 | E: dawn.mckay@ct.gov

From: Gresock, Lynn <Lynn.Gresock@tetrtech.com>
Sent: Monday, January 14, 2019 10:41 PM
To: DEEP Nddbrequest
Cc: Jordan, Joseph (Joseph.Jordan@lendlease.com); dbodendorf@ctmira.org
Subject: Wallingford Renewable Energy - Nddb Final Determination No. 201801464 - False Mermaid Weed Conservation Plan

Attached please find the False Mermaid Weed Conservation Plan for the above-referenced project, as recommended in the Nddb Final Determination letter dated July 27, 2018.

Lynn Gresock | Vice President – Energy Program
Office 978.203.5352 | Mobile 978.995.4450 | Fax 617.737.3480 | lynn.gresock@tetrtech.com

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January 14, 2019

Dawn McKay
Natural Diversity Data Base
Connecticut Department of Energy and Environmental Protection
79 Elm Street
Hartford, CT 06103

Subject: Wallingford Renewable Energy, Wallingford, Connecticut – NDDB Final Determination No. 201801464 – False Mermaid Weed Conservation Plan

Dear Dawn:

As recommended in the Final Determination dated July 27, 2018 Wallingford Renewable Energy LLC's (WRE's) project (the Project), attached please find a Conservation Plan for false mermaid weed (*Floerkea proserpinacoides*). Although no solar panel installation activities are proposed where it has been observed in the vicinity of the Project, this Conservation Plan addresses avoidance and monitoring activities to ensure that appropriate actions are taken to prevent impact to this known population.

We understand that you will retain this on file. We are pleased to be planning for the initiation of construction in the spring, and look forward to continued communications with regard to species issues as the Project progresses.

As always, feel free to reach out if you have any questions (978-203-5352; lynn.gresock@tetrtech.com).

Sincerely,

Tetra Tech, Inc.

A handwritten signature in black ink that reads "Lynn Gresock".

Lynn Gresock
Environmental Consultant

cc: Dave Bodendorf, MIRA; Joe Jordan, WRE



Amherst Office
15 Research Drive
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January 14, 2019

Lynn Gresock
Vice President – Energy Program
Tetra Tech
2 Lan Drive
Suite 210
Westford, MA 01886
Via email: Lynn.Gresock@tetratech.com

Re: *Floerkea proserpinacoides* Conservation Plan
Wallingford Renewable Energy
Wallingford, CT
SWCA Project No.: 50052

Dear Ms. Gresock:

SWCA Environmental Consultants (SWCA) is pleased to provide Tetra Tech with this Conservation Plan to protect the population of false mermaid weed (*Floerkea proserpinacoides*), an Endangered species observed by Oxbow Associates during their habitat assessment made in May of 2017. This is a previously unknown population of *F. proserpinacoides*. This Conservation Plan is designed to ensure that construction activities associated with the proposed Wallingford Renewable Energy project in Wallingford, Connecticut do not negatively impact this population of rare plants.

Please feel free to contact me with any questions you may have.

Sincerely,

SWCA Environmental Consultants

Steve Johnson, Ph.D.
Senior Ecologist

1.0 INTRODUCTION

The Wallingford Renewable Energy project (the Project) is a proposed solar energy facility proposed by Wallingford Renewable Energy LLC (WRE) that will be constructed on three parcels of land located in Wallingford, Connecticut, including the capped Wallingford Landfill (the Landfill Property) and two adjacent parcels owned by the Materials Innovation and Recycling Authority (MIRA; the MIRA Property). Detailed ecological studies have been completed for the Project, and coordination with the Connecticut Department of Energy and Environmental Protection (DEEP) Natural Diversity Database (NDDB) program has occurred to consider the potential for listed species to occur within or near the Project area, and incorporate appropriate measures.

Ecological characterization of the Quinnipiac River floodplain community included the discovery and documentation of a previously unknown population of false mermaid weed (*Floerkea proserpinacoides*). *F. proserpinacoides* is an Endangered Species in Connecticut. Observation data was submitted to the DEEP NDDB program. The plants observed within the Project area occurred primarily within the floodplain, along the banks of the Quinnipiac River, with some plants observed in the utility right-of-way also located within the floodplain. The observed population is outside of the area of the proposed solar development work area (Figure 1). No solar panel installation activities are proposed within the floodplain. This Conservation Plan details the measures that will be implemented to ensure awareness of these plants during construction activities, as well as best management practices to be implemented to ensure that impacts are avoided, and the plants are fully protected. The Conservation Plan includes: a review of the existing population; confirmation that Project-related construction activities will avoid the population; and avoidance, protection, and monitoring measures that will be implemented during and immediately following construction to support species protection.

2.0 EXISTING POPULATION

False mermaid weed is an early flowering, short-lived herbaceous annual that is classified as State Endangered within Connecticut. It germinates in late winter, emerges in late March-April, flowers in May, then produces seed and senesces in late May-early June; a life cycle of less than 60 to 70 days. The plants are undetectable through the summer, autumn and winter months. Plants produce relatively large seeds that are dispersed primarily by gravity but sometimes by water (Moorhead & Farnsworth, 2003). This species exhibits high site fidelity and only rare dispersal events. In addition, seeds of this species do not persist more than a year in the soil. These three characteristics leave *F. proserpinacoides* vulnerable to stochastic events such as sudden habitat or land-use changes.

False mermaid weed is found throughout much of North America but is rare in New England. According to the regional assessment of plant rarity, *Flora Conservanda*, the plant is only historically known from Vermont, Massachusetts, and Connecticut; all of the known New England populations have been extirpated except for four in Connecticut. In Connecticut, extant populations occur in the towns of Greenwich, Meriden, North Haven/Wallingford, and Southbury. In New England, populations of *F. proserpinacoides* occur within open or forested floodplains, riverside seeps, and limestone cliffs, generally on calcareous substrates underlain by marble, slate, or trap rock (Moorhead and Farnsworth, 2003).

A previously unrecorded robust population of *F. proserpinacoides* was identified by Oxbow Associates, Inc. during Project-related field visits (May 5 and May 23, 2017). This species was observed in many locations along the Quinnipiac River bank. More than 10,000 individuals were noted occurring throughout the area adjacent to the

Quinnipiac River (Figure 1) both within the Project study Area and southward to Toelles Road. Plants within the Project study area occur primarily in the floodplain along the banks of the Quinnipiac River throughout the western extent of the Study Area at elevations ranging between 20 and 25 feet above mean sea level. A more limited number of individuals were also documented in the open utility right-of-way within the floodplain, a somewhat atypical habitat for the species. The population is generally robust, with several hundred to several thousand plants occurring at each sub-location. Photographs 1 and 2 are representative images of the plants observed by Oxbow. It is possible the identified population is connected to, or part of the North Haven/Wallingford site described by Moorhead & Farnsworth (2003) as inhabiting “the floodplain of a stream that meanders across a large glaciofluvial sand plain supporting characteristic coastal plain species”.

The highest value habitat area appears to occur in closer proximity to the river, with habitat value decreasing as one moves away from the river and into upland habitats. Forested floodplain areas within the Project Site have been historically disturbed and are currently traversed by several utility corridors and unpaved roads that previously served as access to former development within the MIRA Property, some of which remain in current use.



Photograph 1. False Mermaid Weed growing within forested floodplain near SW corner of MIRA Property (5/4/2017).



Photograph 2. Close view of false mermaid weed in flower.

3.0 PROJECT SPECIES AVOIDANCE

Figure 1 illustrates the estimated Project work zone and layout based on final design. As can be seen, none of the panels are located within mapped floodplains. It is anticipated that shade management will not need to extend more than 30 feet beyond the work zone. On the Landfill Property, the panels are all located on portions of the capped landfill, and are not located on undeveloped land. Therefore, the Project will avoid the habitat within which populations of false mermaid weed have been found.

4.0 CONSTRUCTION PROTECTION METHODS

The Project will avoid the locations of known populations of false mermaid weed, and its identified habitat. In order to assure that no inadvertent intrusion into habitat areas occurs during Project construction, the following steps will be implemented:

- A DEEP approved botanist will provide training materials, maps, and mapping files in native content formats to the construction contractor about the species (photographs, known locations, typical habitat, etc.) to support awareness for species avoidance.

- Prior to use of construction equipment, silt fencing, as well as any other appropriate erosion control measures, will be placed between potential false mermaid weed habitat and the work areas (as shown on Figure 1). Additional attention to erosion protection and monitoring should occur along the area designated as “Barrier” in Figure 1. Prior to installation of protection measures, the Botanist will inspect the “Barrier” area to ensure that no rare plants will be impacted by the installation. Standard erosion control measures typically required for work done in proximity to wetlands will ensure that work done in areas beyond the focused “Barrier” will also avoid impacts to potential false mermaid weed habitat from sedimentation, etc. Within the MIRA Property, the protective barrier for *F. proserpinacoides* may be the same silt fencing required for work during the period from April 1 through November 1 as a turtle protection measure. If necessary, additional work delimiters will also be installed to provide a visible barrier between construction activities and the habitat of *F. proserpinacoides*.
- Should any questions or concerns arise, the Botanist will visit the work area to confirm that species habitat is excluded from the work area.
- The Botanist will have access to regular stormwater inspection records that document best management practices repairs and corrective actions in order to affirm that no indirect impact require actions.
- Corrective actions will be coordinated with the Botanist, as necessary, and the Botanist will remain on-call to respond to any issues or questions that may arise during the construction period.

5.0 POST-CONSTRUCTION PROTECTION MEASURES

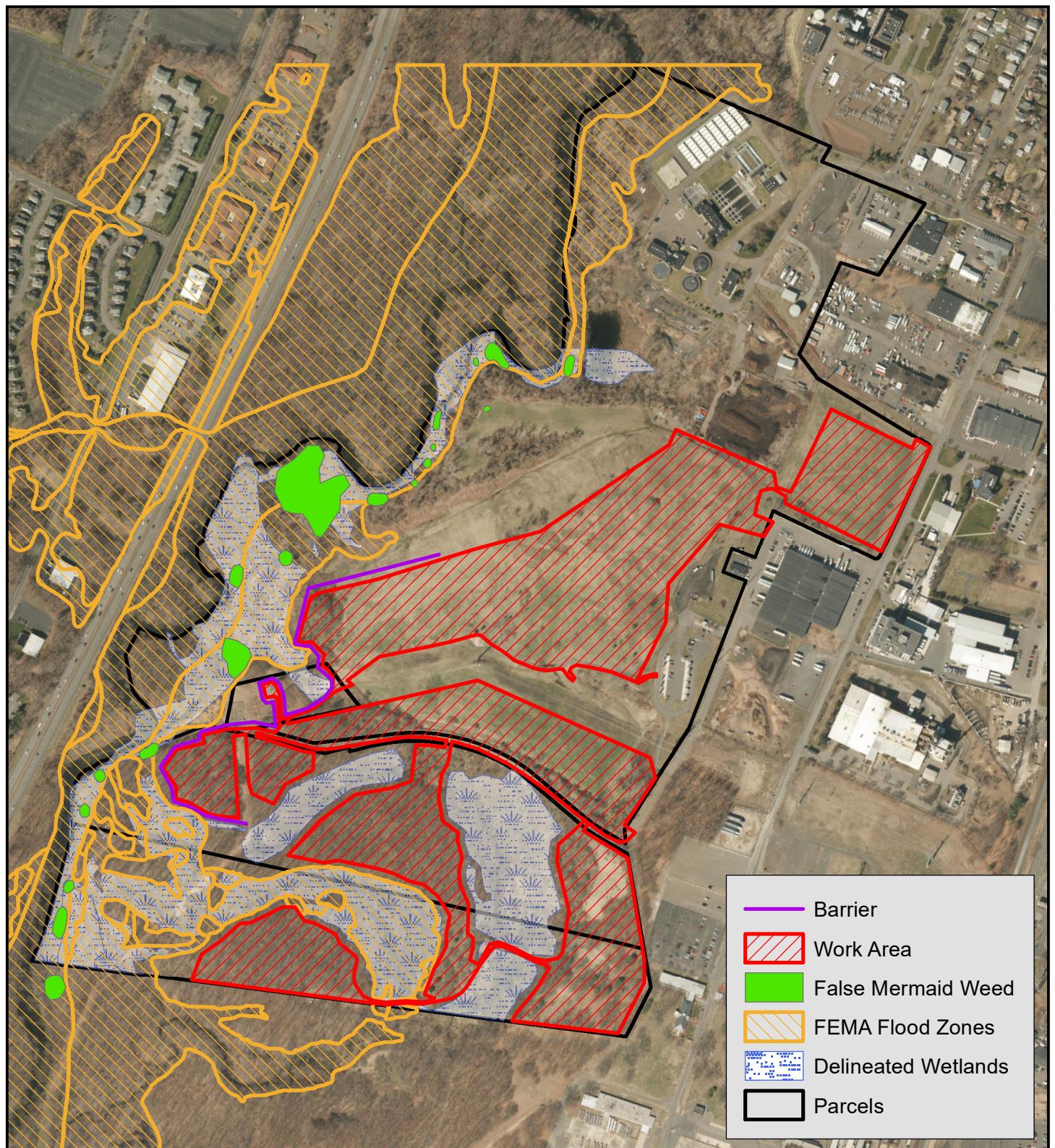
Once construction activities have been completed, including installation of security fencing and access roads, and ground stabilization has occurred, all barriers between the Project and false mermaid weed habitat will be removed. Prior to barrier removal, an on-site inspection will be made to confirm stabilization/revegetation and that no build-up of sediment exists with the potential to be released into the habitat area. The inspection will confirm that areas outside of the barrier remain unaffected. No further actions will be required upon completion of these activities, if no corrective actions are identified.

6.0 CONSERVATION PLAN MANAGEMENT AND REPORTING

Notification will be provided to the NDDB program indicating the anticipated date of commencement of construction and barrier installation. During the Botanist’s initial inspection of the “Barrier” area, photographs will be taken to document barrier installation locations. The Botanist will also create a brief memo that will be retained in WRE’s files. Should corrective actions be necessary, documentation will also be provided to demonstrate that appropriate actions were taken. A final memo will be prepared upon completion of construction and removal of the barrier. Notification will be provided to the NDDB program that work has been completed.

7.0 REFERENCES

Moorhead, W. H. III and E. J. Farnsworth. 2004. *Floerkea proserpinacoides* Willd. (False mermaid-weed) Conservation and Research Plan for New England. New England Wild Flower Society, Framingham, Massachusetts, USA.



 SWCA [®] <small>ENVIRONMENTAL CONSULTANTS</small>	Figure 1. False Mermaid Weed Observations and Proposed Solar Arrays Wallingford, CT 10 Jan 2019 SWCA Project No.: 50052.01	Data Source: Connecticut Department of Energy & Environment	 Latitude 41.43879° N Longitude 72.83899° W
	0 250 500 Feet	N	