



Public Service of New Hampshire Seacoast Reliability Project

Madbury, Durham, Newington & Portsmouth, NH

Natural Resource Existing Conditions Report Amendment

Prepared For:
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d/b/a Eversource Energy
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1.0 Introduction

Since filing the Application on April 12, 2016, PSNH has secured contracts to acquire additional legal rights to construct the facility in three separate locations in the Town of Newington, NH: (1) underground at Gundalow Landing Circle; (2) Town owned land known as the Flynn Pit; and (3) underground at the Frink Farm, Newington Center Historic District and the Hannah Lane residential neighborhood. The changes in design have resulted in the following modifications to the Natural Resources Existing Conditions Report: Section 1.1, Site Description and Section 3.3, Vernal Pools.

1.1 Amended Site Description

After crossing the Bay, the Project will make land fall on property where PSNH has a contract to purchase a new easement. The line will leave the ROW at Gundalow Landing Circle and continue underground in the street and utilize a portion of private property until reaching Little Bay Road. PSNH has contracted with the residents in this area to acquire new easement rights for this section.

After crossing under Little Bay Road, the Project will continue underground across property owned by the Town of Newington, NH for approximately 440 feet where the Project will transition back to overhead on the northeast side of the existing ROW and rejoining the existing ROW in an overhead design. PSNH has contracted with the Town of Newington, NH to acquire new easement rights for this section, in the area commonly referred to as the Flynn Pit.

The Project will then travel overhead in the existing ROW, for 2,820 feet. After crossing onto property owned by the Frink Family Trust of 2004, Helen H. Frink and John D. Frink, individually, and William H. Ryder and Sara F. Ryder, as Trustees of The Ryder Family Revocable Trust (Frink Farm) the line will transition to an underground design. The Project will continue underground within the existing ROW across the Frink Farm property, crossing Nimble Hill Road underground and continuing in existing ROW beyond the Hannah Lane residential neighborhood for a total distance of approximately 2,680 feet where the project will transition back to an overhead design. A transition structure will be placed near an existing utility pole located on the first residential property east of the Hannah Lane neighborhood. PSNH has contracted to acquire new easement rights for underground construction for this section.

All overhead line design changes occur within the existing ROW previously described in the SEC application. No additional rights are required for those modifications.

3.3 Amended Vernal Pool Description

Continuing field studies of a water resource in the Newington Town Forest, locally referred to as the Flynn Pit, resulted in a recommended change in its classification from a permanent pond

to a vernal pool. The findings during the field studies that support the reclassification are provided below.

The SRP corridor was surveyed for potential vernal pools during wetland delineations. Each potential vernal pool encountered was visually inspected for egg masses and/or larvae of amphibian vernal pool indicator species during the spring 2014 vernal pool species breeding season. A follow-up review of specific areas was also conducted in the spring of 2015 and throughout 2016. A dip net was also used to survey for amphibian larvae and invertebrates. Vernal pools were identified in accordance with the NHDES Wetland Rules (Env-Wt) 101.106 and Env-Wt 301.01, and procedures described in *Identification and Documentation of Vernal Pools in New Hampshire*, published by the New Hampshire Fish and Game Department (NHFG 2004).

A vernal pool is defined (Env-Wt 101.106(a-b)) as:

a surface water or wetland, including an area intentionally created for purposes of compensatory mitigation, which provides breeding habitat for amphibians and invertebrates that have adapted to the unique environments provided by such pools and which:

(a) Is not the result of on-going anthropogenic activities that are not intended to provide compensatory mitigation, including but not limited to: (1) Gravel pit operations in a pit that has been mined at least every other year; and (2) Logging and agricultural operations conducted in accordance with all applicable New Hampshire statutes and rules; and

(b) Typically has the following characteristics: (1) Cycles annually from flooded to dry conditions, although the hydroperiod, size, and shape of the pool might vary from year to year; (2) Forms in a shallow depression or basin; (3) Has no permanently flowing outlet; (4) Holds water for at least 2 continuous months following spring ice-out; (5) Lacks a viable fish population; and (6) Supports one or more primary vernal pool indicators, or 3 or more secondary vernal pool indicators.

Primary and secondary vernal pool indicator species are described in Env-Wt 101.75 and Env-Wt 101.86, respectively. Under these rules, primary vernal pool indicators refer to:

*“the presence or physical evidence of breeding by marbled salamander (*Ambystoma opacum*), wood frog (*Rana sylvatica*), spotted salamander (*Ambystoma maculatum*), Jefferson-blue spotted salamander complex (*Ambystoma jeffersonianum/A. laterale* complex), or fairy shrimp (*Eubranchipus* sp.)”.* [Env-Wt 101.71]

Secondary vernal pool indicators are:

*“physical evidence used by wildlife biologists or certified wetlands scientists who are familiar with vernal pool habitats as evidence of the presence of a vernal pool, if primary vernal pool indicators are absent and other vernal pool characteristics suggest vernal pool habitat. Secondary vernal pool indicators include, but are not limited to, caddisfly larvae and cases (*Limnephilidae*, *Phyrganeidae*, or *Polycentropodidae*), clam shrimp and their shells (*Laevicaudata*, *Spinicaudata*), fingernail clams and their shells (*Sphaeriidae*), aquatic beetle larvae (*Dytiscidae*, *Gyrinidae*,*

Haliplidae, and Hydrophilidae), dragonfly larvae and exuviae (Aeshnidae, Libellulidae), spire-shaped snails and their shells (Physidae, Lymnaeidae), flat-spire snails exuviae (Coenagrionidae, Lestidae), and true fly larvae and pupae (Culicidae, Chaoboridae, and Chironomidae)." [Env-Wt 101.82]

During the initial wetland and stream delineation in the summer and fall of 2013, two potential vernal pools (PVPs) were identified. A follow-up survey was conducted in the spring of 2014, during the appropriate season for confirming vernal pool characteristics, to identify any other active vernal pools and verify the previously identified PVPs, neither of which met the definition of vernal pool habitat. Another vernal pool review was conducted in the spring of 2015 found a primary vernal pool indicator (wood frogs, *Rana sylvatica*) utilizing a portion of the Flynn Pit, a permanently inundated pond surrounded by a forested wetland (NW 4). It used to be maintained as a skating pond and still has a small warming hut. The pond did not meet the definition of a vernal pool because of its permanent hydrology.

In 2016, a wetland scientist for the Town of Newington informed us of his observations of fairy shrimp (presumably the common fairy shrimp *Eubranchipus vernalis*) in the Flynn Pit pond. Fairy shrimp are considered a primary indicator species of vernal pools in NH. He described them as abundant in the pool, and also described wood frog and spotted salamander (*Ambystoma maculata*) egg masses. Normandeau revisited the pond multiple times in 2016. On April 29, we recorded abundant fairy shrimp and 14 mature blue spotted salamander (*Ambystoma laterale*) egg masses. No wood frog egg masses or larvae, or fish were observed. We also recorded 2 adult green frogs (*Rana clamitans*) and 2 second-year green frog larvae. By May 11, the fairy shrimp and the blue spotted salamander egg masses were gone, and we did not record any blue spotted or other vernal pool larvae during 50 dip nets in a variety of habitats around the pool. We observed over 100 second-year green frog larvae, as well as leeches and many log-cabin caddisfly larvae. Water levels in both April and May ranged from very shallow along the edge to approximately 30 inches in the center. Normandeau revisited the pond several more times (June 8, July 8, July 21, August 11 and August 19, 2016), and found water in the pond through August 11, even in this time of severe drought, as designated for the NH Seacoast Region by both DES and US Department of Agriculture¹. On the June and early July dates, surface water extended to almost the full pool line. In late July the water had drawn down to the center (an estimated 18 inches deep) and the perimeter was exposed, but for a few isolated pools. On August 11, the center pool was very reduced in size and depth. By August 19, the center pool was dry.

Our conclusion is that the pond has a largely permanent hydrology in the center, given this year of severe drought and late drying. However, the pond appears to provide sufficient drawdown

¹ <http://droughtmonitor.unl.edu/Home/StateDroughtMonitor.aspx?NH;>
<http://des.nh.gov/organization/divisions/water/dam/drought/documents/droughtstatus.pdf>

in many years along the edges to expose fairy shrimp eggs to drying, which is a necessary part of their life cycle. Fairy shrimp eggs can persist in the substrate for multiple years, and await suitable conditions before hatching. The lack of wood frog and blue spotted larvae during sampling suggest that few survive to metamorphosis. The abundance of second-year green frog larvae and leeches indicates that permanent water persists in most years in a portion of the pond. The vegetation of the pond also reflects a range of hydrologic conditions, with buttonbush (*Cephalanthus occidentalis*) dominating the edges and narrow-leaf burreed (*Sparganium angustifolium*) and duckweed (*Lemna minor*) surrounding the open water in the center of the pond. A variety of sedges and grasses occur in the drawdown zone.

This water body appears to function as both a permanent pond and a vernal pool, supporting primary indicators of vernal pools (fairy shrimp, wood frogs and blue spotted salamanders), and permanent pond species (green frog larvae and leeches). Fairy shrimp can complete their life cycle in the early spring, before the typical pond predators are fully active. Although it may act as an ecological sink for wood frogs and blue-spotted salamanders in most years, sufficient larvae appear to succeed in metamorphosing to adults to maintain a breeding population. Because of the presence of three vernal pool indicator species and the lack of fish, Normandeau is considering the pond a vernal pool for regulatory purposes, but recognizes its dual functionality as both a vernal pool and a permanent pond. The functional value of the pond is only moderate because its vernal pool functions are limited by its mostly permanent hydrology, and its permanent pond functions are limited because it occasionally dries up.