

To: Andover Conservation Commission **Date:** July 22, 2024
From: Matt Burne, PWS **Proj. No.** 89985.01
Re: Haggetts Pond Rail Trail
Vernal Pool evaluation

cc: Janet Nicosia
Ann Marton, LEC

Evaluating the function of vernal pool habitat is sensitive to the current drought status in the region of the state where evaluations are occurring. The State of Massachusetts is currently in Normal drought conditions statewide (i.e., there is no drought declared for any portion of the state), see attached drought status report. This spring/summer represents a “normal” year for wetland hydrological conditions.

On June 7, BSC conducted a survey of the Haggetts Pond Project Site to verify the function of several wetlands along the trail route that have been identified as vernal pool habitat either by BSC Group or by members of the public. The following summarizes the results of this survey.

Wetland W9

The Applicant has maintained that Wetland W9 is likely vernal pool given its general characteristics, though there has been no vernal pool indicator wildlife or other evidence observed by the Applicant or recorded by any other parties from the jurisdictional wetland throughout the permitting process.

On April 11, 2024 BSC conducted both visual encounter and dip net surveys of Wetland W9 and found no amphibian evidence. Amphipods, fingernail clams, and phantom midge larvae were observed. These observations were reported in BSC’s response to peer review comments, dated 4/16/2024.

On June 7, 2024 BSC conducted a site visit and found that Wetland W9 was dry (Fig 1 and 2). A small pool of water approximately two feet by two feet (2’x2’) was located at the outlet end of the culvert under the trail that feeds this wetland.



Figure 1: Wetland W9 in dry condition, *facing south from trail.*



Figure 2: Wetland W9, *facing northward from culvert.*

Based upon seasonally appropriate surveys conducted at Wetland W9 and observations of dry conditions during a Normal drought status well before vernal pool dependent wildlife can typically accomplish metamorphosis, there is no evidence to support designation of this wetland as a vernal pool. For purposes of permitting the proposed project, however, BSC recommends retaining the assumption that this is a vernal pool.

Wetland WF 193 – WF 198, “The Tunnel Pool”

An isolated wetland is flagged at STA 20+05 – 22+03 (approx), on the west side of the existing trail. This is a historic drainage ditch that does not function well and has been observed to hold water at various points throughout the year.

Members of the public have expressed concern that this ditch provides vernal pool habitat, and have provided photographs of a Spotted Salamander tail and one (1) Spotted Salamander egg mass. BSC has evaluated the ditches regularly during field work, including in our egg mass surveys conducted 4/11/2024 and again in our site visit June 7, 2024.

During the site visit conducted in April, as reported in BSC’s response to peer review comments, we evaluated all of the ditches along the side of the trail immediately north of Haggetts Pond where poor drainage affects the trail surface and found no evidence of breeding by vernal pool dependent wildlife.

During our site visit conducted on June 7, 2024, the ditch system was observed dry (Fig. 3 – 9). There is a remnant puddle of water approximately 15 feet long located at the two up-rooted trees that had a depth of approximately six inches (6”). No amphibians were found in a dipnet survey of the remnant standing water, though several species of amphipod were observed (Fig. 9).



Figure 3: “Tunnel Pool” in ditch.



Figure 4: “Tunnel Pool” in ditch.



Figure 5: “Tunnel Pool” in ditch.



Figure 6: “Tunnel Pool” in ditch.



Figure 7: “Tunnel Pool” in ditch with remnant standing water.



Figure 8: “Tunnel Pool” in ditch with remnant standing water.



Figure 9: Amphipods found in dipnet survey.

Based upon seasonally appropriate surveys conducted in remnant standing water associated with the drainage ditches just north of Haggetts Pond, referred to as the “Tunnel Pool(s),” observations of primarily dry conditions during a Normal drought status well before vernal pool dependent wildlife can typically accomplish metamorphosis, and lack of documentation of vernal pool amphibian breeding consistent with the

Guidelines for the Certification of Vernal Pool Habitat (2009), it is BSC’s opinion that the wetland demarcated by Wetland Flags 193 – 198 is not a vernal pool.

“Rainbow Pool”

A report has been made of Wood Frogs breeding in the scrub-shrub wetland that is physically connected to Haggetts Pond north of the culvert crossing and proposed spur trail location (i.e., “the rainbow pool”). BSC notes that this is clearly physically connected to the reservoir by surface water connection, observed at the time of our April 11 site visit, and that it therefore does not meet the definition of “Vernal Pool” in the Andover Bylaw (Section 7(5)(b)) or the Wetlands Protection Act regulations or *Guidelines for the Certification of Vernal Pool Habitat* but rather is a vegetated wetland bordering on a Lake or Pond (i.e., Bordering Vegetated Wetland, or BVW). Given the physical condition of this wetland area, it is BSC’s opinion that the wetland area referred to as the “Rainbow Pool” is not a vernal pool.

Wetland W4

Wetland W4 has not been identified as a vernal pool previously, but an egg mass survey conducted on April 11, 2024 resulted in the observation of many Wood Frog (*Lithobates sylvaticus*) egg masses, adequate to determine that the pool is a functional vernal pool.



Figure 10: Wetland W4.

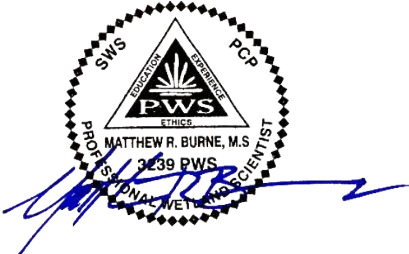


Figure 11: Wood Frog egg masses.

Wetland W3

Wetland W3 is one of the previously identified vernal pools. No amphibian evidence was observed during the April 11, 2024 egg mass survey, but it is a large and treacherous wetland in which to conduct survey. The lack of evidence found therefore does not suggest any change in the presumptive vernal pool status of Wetland W3.

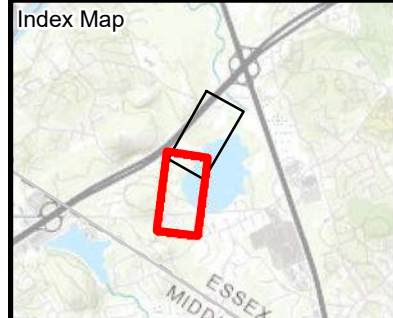
If there are further questions about this report, please feel free to contact me.



6/21/2024



Resource Areas Reviewed:
 MADEP Tier Classified Oil and/or Hazardous Material Sites (21E); MADEP Oil and/or Hazardous Material Sites with Activity and Use Limitations; Certified Vernal Pools; Potential Vernal Pools; NHESP Priority Habitats; NHESP Estimated Habitats; NHESP Restricted Data; Wild & Scenic Rivers; NHD Hydrography; Census 2000 Streams; MADEP Hydrologic Connections; MADEP Wetlands; FEMA 100yr Floodplain; NRCS Hydric Soils; Public Water Supply; Zone II Wellhead Protection Area; Interim Wellhead Protection Area; Surface Water Protection Zone; Outstanding Resource Water; Areas of Critical Environmental Concern; Watershed Protection Act Zones; Ch. 91 Tidelands Jurisdiction; Article 97 Land; Landfills ([Not]Capped, [Un]Lined, [In]Active, Closed)



Trail Access	Perennial Stream	Surface Water Protection Zone
Delineated Stream Bank	MADEP Hydrologic Connections	Outstanding Resource Water
Delineated Stream Centerline	MADEP Wetlands*	NHESP Priority & Estimated Habitats
Delineated Edge of Pond	MADEP Open Water*	MHC Historic Point
Delineated Stream*	50ft No-Disturb Area	Culvert
Delineated Wetland Boundary	100ft Buffer to Wetlands & Streams	Gate
Delineated Wetland*	200ft Riverfront Area	Fence
Delineated Vernal Pool*	FEMA 100yr Floodplain*	

1 inch = 250 feet
 0 125 250
 Feet
 *Indicates Layers Set to Transparency

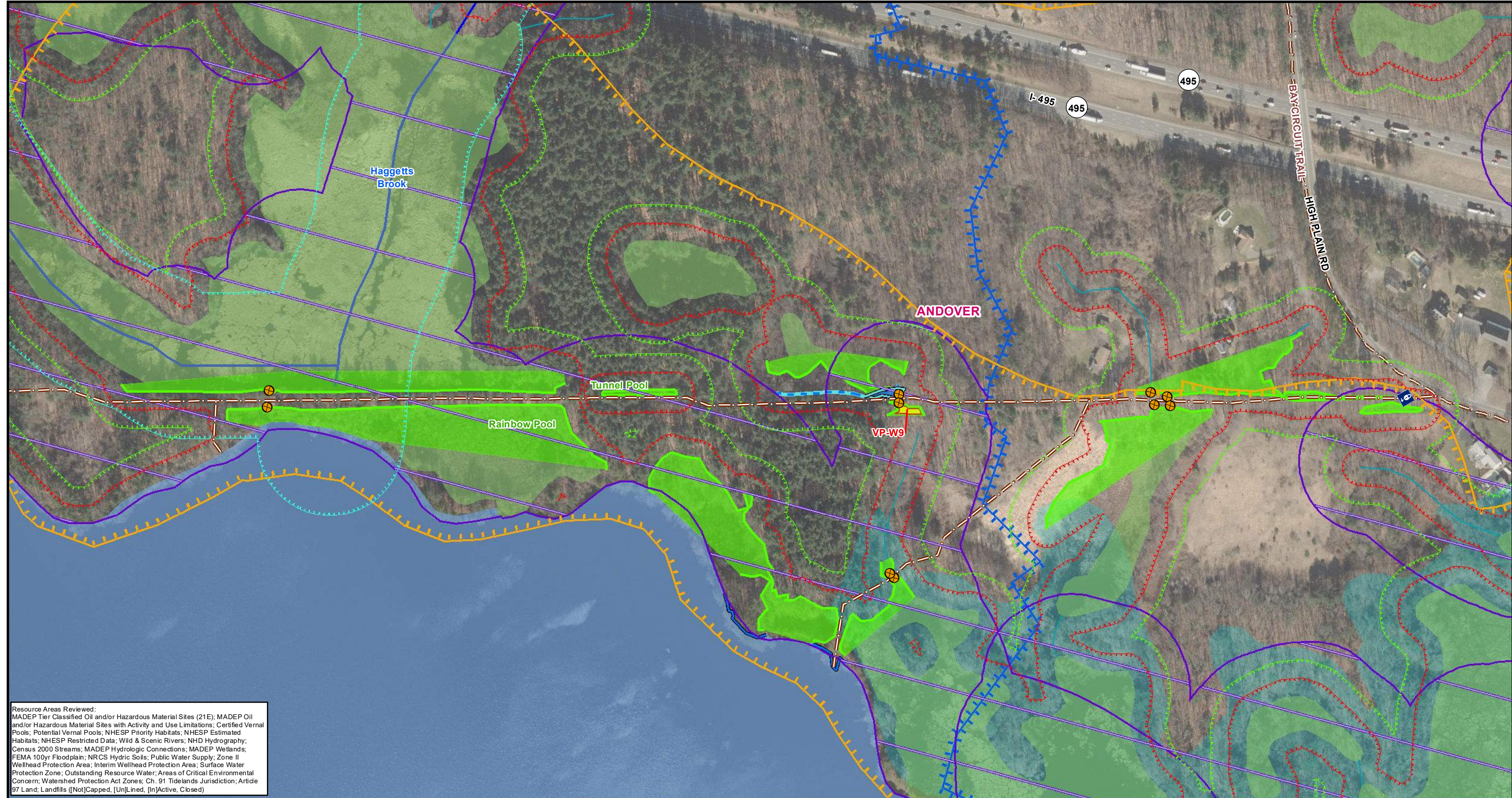
HAGGETTS POND RAIL TRAIL

Environmental Resources Map

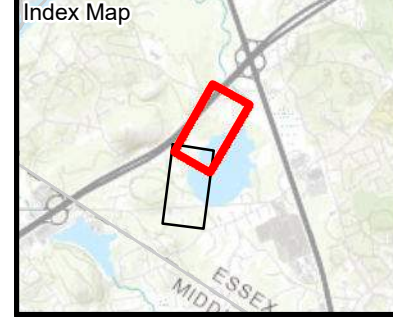
Andover, MA
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Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community





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Legend	
	Trail Access
	Delineated Stream Bank
	Delineated Stream Centerline
	Delineated Edge of Pond
	Delineated Stream*
	Delineated Wetland Boundary
	Delineated Wetland*
	Delineated Vernal Pool*
	Perennial Stream
	MADEP Hydrologic Connections
	MADEP Wetlands*
	MADEP Open Water*
	50ft No-Disturb Area
	100ft Buffer to Wetlands & Streams
	200ft Riverfront Area
	FEMA 100yr Floodplain*
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	Fence

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HAGGETTS POND RAIL TRAIL

Environmental Resources Map

Andover, MA
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DROUGHT STATUS HISTORY: 2001 - 2023

Month	Year	Western	CT River Valley	Central	Northeast	Southeast	Cape & Islands
11/1/2001 through 1/31/2002							
November	2001	Advisory	Advisory	Advisory	Advisory	Advisory	Advisory
December	2001	Advisory	Advisory	Advisory	Advisory	Advisory	Advisory
January	2002	Advisory	Watch	Watch	Watch	Advisory	Advisory
February	2002	Watch	Watch	Watch	Watch	Watch	Watch
March	2002	Watch	Watch	Watch	Watch	Watch	Watch
April	2002	Watch	Watch	Watch	Watch	Watch	Watch
May	2002	Advisory	Advisory	Advisory	Advisory	Advisory	Advisory
June	2002	Advisory	Advisory	Advisory	Advisory	Advisory	Advisory
July	2002	Advisory	Advisory	Advisory	Advisory	Watch	Watch
August	2002	Advisory	Advisory	Advisory	Advisory	Watch	Watch
September	2002	Advisory	Advisory	Advisory	Advisory	Watch	Watch
October	2002	Advisory	Advisory	Advisory	Advisory	Advisory	Advisory
November	2002	Normal	Normal	Normal	Normal	Normal	Advisory
December	2002	Normal	Normal	Normal	Normal	Normal	Advisory
January	2003	Normal	Normal	Normal	Normal	Normal	Normal
9/1/2007 through 2/29/2008							
September	2007	Normal	Advisory	Advisory	Advisory	Advisory	Normal
October	2007	Normal	Advisory	Advisory	Advisory	Advisory	Normal
November	2007	Normal	Advisory	Advisory	Advisory	Advisory	Normal
December	2007	Normal	Advisory	Advisory	Advisory	Advisory	Normal
January	2007	Normal	Advisory	Advisory	Advisory	Advisory	Normal
February	2008	Normal	Normal	Normal	Normal	Normal	Normal
7/1/2010 through 10/31/2010							
July	2010	Normal	Normal	Advisory	Advisory	Normal	Normal
August	2010	Normal	Normal	Advisory	Advisory	Normal	Normal
September	2010	Normal	Advisory	Advisory	Advisory	Normal	Normal
October	2010	Normal	Normal	Normal	Normal	Normal	Normal
9/1/2014 through 12/31/2014							
September	2014	Normal	Normal	Normal	Normal	Advisory	Advisory
October	2014	Normal	Normal	Normal	Normal	Advisory	Advisory
November	2014	Normal	Normal	Normal	Normal	Advisory	Advisory
December	2014	Normal	Normal	Normal	Normal	Normal	Normal
6/1/2016 through 4/30/2017							
June	2016	Normal	Advisory	Watch	Watch	Advisory	Normal
July	2016	Advisory	Watch	Warning	Warning	Watch	Advisory
August	2016	Advisory	Watch	Warning	Warning	Warning	Watch
September	2016	Watch	Warning	Warning	Warning	Warning	Watch
October	2016	Warning	Warning	Warning	Warning	Warning	Advisory
November	2016	Warning	Warning	Warning	Warning	Warning	Advisory
December	2016	Warning	Warning	Warning	Watch	Warning	Advisory
January	2017	Watch	Warning	Watch	Advisory	Warning	Advisory
February	2017	Advisory	Watch	Advisory	Advisory	Watch	Advisory
March	2017	Normal	Advisory	Advisory	Advisory	Advisory	Advisory
April	2017	Normal	Normal	Normal	Normal	Normal	Normal

DROUGHT STATUS HISTORY: 2001 - 2023

The Drought Mangement Plan was revised in 2019. All following entries reflect these changes.								
Drought Level by Region								
Month	Year	Western	CT River Valley	Central	Northeast	Southeast	Cape Cod	Islands
9/1/2019 through 10/31/2019								
September	2019	Normal	Mild Drought	Normal	Normal	Normal	Normal	Normal
October	2019	Normal	Normal	Normal	Normal	Normal	Normal	Normal
5/1/2020 through 12/31/2020								
May	2020	Significant Drought	Significant Drought	Significant Drought	Significant Drought	Normal	Normal	Normal
June	2020	Significant Drought	Significant Drought	Significant Drought	Mild Drought	Normal	Mild Drought	Normal
July	2020	Significant Drought	Significant Drought	Significant Drought	Significant Drought	Significant Drought	Significant Drought	Significant Drought
August	2020	Significant Drought	Significant Drought	Significant Drought	Significant Drought	Significant Drought	Significant Drought	Significant Drought
September	2020	Significant Drought	Significant Drought	Significant Drought	Significant Drought	Critical Drought	Significant Drought	Significant Drought
				Millers Basin-Critical Drought	Charles Basin-Critical Drought			
October	2020	Mild Drought	Mild Drought	Mild Drought	Mild Drought	Significant Drought	Significant Drought	Mild Drought
		Mild Drought	Mild Drought	Nashua Basin-Significant Drought		Significant Drought	Significant Drought	
November	2020	Mild Drought	Mild Drought	Mild Drought	Mild Drought	Mild Drought	Mild Drought	Mild Drought
December	2020	Normal	Normal	Normal	Normal	Normal	Normal	Normal
2/1/2021 through 9/30/2021								
February	2021	Mild Drought	Normal	Normal	Normal	Normal	Normal	Normal
March	2021	Mild Drought	Mild Drought	Mild Drought	Mild Drought	Significant Drought	Mild Drought	Normal
April	2021	Mild Drought	Mild Drought	Mild Drought	Normal	Normal	Mild Drought	Normal
May	2021	Mild Drought	Normal	Normal	Normal	Mild Drought	Mild Drought	Normal
June	2021	Normal	Normal	Normal	Normal	Normal	Mild Drought	Normal
July	2021	Normal	Normal	Normal	Normal	Normal	Mild Drought	Normal
August	2021	Normal	Normal	Normal	Normal	Normal	Mild Drought	Normal
September	2021	Normal	Normal	Normal	Normal	Normal	Normal	Normal
4/1/2022 through 1/31/2023								
April	2022	Normal	Normal	Normal	Normal	Mild Drought	Normal	Mild Drought
May	2022	Normal	Mild Drought	Mild Drought	Significant Drought	Significant Drought	Normal	Mild Drought
June	2022	Mild Drought	Significant Drought	Significant Drought	Significant Drought	Significant Drought	Normal	Mild Drought
mid-July (7/20/23)	2022	Mild Drought	Significant Drought	Critical Drought	Critical Drought	Significant Drought	Mild Drought	Mild Drought
July	2022	Mild Drought	Critical Drought	Critical Drought	Critical Drought	Critical Drought	Significant Drought	Mild Drought
mid-August (7/17/2023)	2022	Significant Drought	Critical Drought	Critical Drought	Critical Drought	Critical Drought	Critical Drought	Significant Drought
August	2022	Significant Drought	Critical Drought	Critical Drought	Critical Drought	Significant Drought	Critical Drought	Significant Drought
September	2022	Normal	Mild Drought	Mild Drought	Significant Drought	Mild Drought	Significant Drought	Significant Drought
October	2022	Normal	Mild Drought	Normal	Mild Drought	Normal	Mild Drought	Significant Drought
November	2022	Normal	Mild Drought	Normal	Significant Drought	Normal	Significant Drought	Significant Drought
December	2022	Normal	Normal	Normal	Mild Drought	Normal	Mild Drought	Significant Drought
January	2023	Normal	Normal	Normal	Normal	Normal	Normal	Normal

DROUGHT STATUS HISTORY: 2001 - 2023

5/1/2023 through 6/30/2023								
May	2023	Mild Drought	Normal	Normal	Normal	Normal	Mild Drought	Normal
June	2023	Normal	Normal	Normal	Normal	Normal	Normal	Normal
11/1/2023 through 03/31/24								
November	2023	Normal	Normal	Normal	Normal	Normal	Normal	Significant Drought
December	2023	Normal	Normal	Normal	Normal	Normal	Normal	Significant Drought
January	2024	Normal	Normal	Normal	Normal	Normal	Normal	Significant Drought
February	2024	Normal	Normal	Normal	Normal	Normal	Normal	Mild Drought
March	2024	Normal	Normal	Normal	Normal	Normal	Normal	Normal
		Level 0-Normal	Level 1-Mild Drought	Level 2-Significant Drought	Level 3-Critical Drought	Level 4 - Emergency		