



31 May 2019

Mr. Dean Tagliaferro
Project Manager
GE-Pittsfield/Housatonic River Site
USEPA – Region 1
5 Post Office Square – Suite 100
Boston, MA 02109-3912

Re: **2019 Phase 4C Floodplain Property Vernal Pool Survey**
Contract 912WJ-14-D-0003, Task Order 6 (W912WJ19F0029)
GE-Pittsfield/Housatonic River Site
DCN: AE-053119-AHAJ

Dear Mr. Tagliaferro:

Attached please find a summary memorandum titled “*2019 Phase 4C Floodplain Vernal Pool Survey — GE-Pittsfield/Housatonic River Site, Pittsfield, Massachusetts*” prepared by Stantec Consulting Services Inc. (Stantec) per request of Avatar Environmental LLC (Avatar).

Avatar subcontracted Stantec under contract W912WJ-14-D-0003, with the US Army Corps of Engineers, New England District Task Order 6 (W912WJ19F0029) to conduct a survey of the restored vernal pool at Parcel I6-1-106 within the Phase 4C Floodplain Properties Removal Action Area on April 23, 2019.

Should you have any comments or questions regarding this document, please contact me (508) 414-1762 or via e-mail at izapisek@avatarenviro.com

Sincerely,

A handwritten signature in blue ink that reads "Izabela Zapisek". The signature is enclosed in a thin black rectangular border.

Izabela Zapisek
Deputy Program Manager

Cc: DCN Files (Avatar)
Robert Leitch, USACE
Christopher Ferry, EPA
EPA Electronic Public Repository

To: Izabela Zapisek
Avatar Environmental LLC

From: Daniel G. Nein, CWB
Stantec Consulting Services Inc.

File: 195601048

Date: May 20, 2019

Reference: 2019 Phase 4C Floodplain Vernal Pool Survey — GE-Pittsfield/Housatonic River Site, Pittsfield, Massachusetts

On April 23, 2019, Stantec Consulting Services Inc. (Stantec), under contract with Avatar Environmental LLC (Avatar), under contract to the U.S. Army Corps of Engineers, conducted a survey of the restored vernal pool at Parcel I6-1-106 within the Phase 4C Floodplain Properties Removal Action Area (hereafter, Vernal Pool 4C) adjacent to the 1 ½ Mile Reach of the Housatonic River in Pittsfield, Massachusetts. Certified Wildlife Biologist Dan Nein of Stantec conducted the survey independently. Post remediation assessments of Vernal Pool 4C began in 2009 as outlined in General Electric's 2010 Final Completion Report (FCR)¹ for Removal Action for Housatonic River Floodplain – Non-Residential Properties and 2019 marks the eleventh year of the survey.

The April 23rd survey of the vernal pool began at approximately 10:15 AM under mostly sunny skies with a temperature of approximately 65°F. The vernal pool and surrounding landscape were free of snow and ice (Photo 1). Representative water depths within the vernal pool ranged from approximately 1 to 4 feet and were higher than past years' survey observations.

Survey methodology followed the Obligate Species Method of the March 2009 Natural Heritage and Endangered Species Program (NHESP) Guidelines for the Certification of Vernal Pool Habitat in Massachusetts (Guidelines)². The Guidelines require evidence of breeding activity by obligate vernal species or the presence of fairy shrimp (*Eubranchipus vernalis*) and evidence of no permanently flowing outlet for a vernal pool to meet certification criteria. Stantec methodically waded through the vernal pool to visually characterize and document biota and ecological conditions. Species identification and taxonomy follows Kenney and Burne (2001)³; however, frog and salamander taxonomy follows Crother (2017)⁴.

SURVEY RESULTS

Wood frog (*Lithobates sylvaticus*) breeding evidence including egg masses and tadpoles were documented in the pool during the April 23, 2019 survey. Fifteen-plus and 50-plus disassociated hatched and hatching egg masses, respectively, were observed near the eastern and northern edges of the pool (Photos 2–4). Hundreds to thousands of wood frog tadpoles were observed in the two areas. Based on their approximately

¹ Arcadis. 2010. *Final Completion Report for Removal Action for Housatonic River Floodplain – Non-Residential Areas*. General Electric Company. Pittsfield, Massachusetts. 1102 pgs. Document ID 462575.

² Massachusetts Natural Heritage and Endangered Species Program. 2009. *Guidelines for the Certification of Vernal Pool Habitat in Massachusetts*. Available at <http://www.mass.gov/eea/docs/dfg/nhesp/vernal-pools/vpcert.pdf>. Accessed May 15, 2019.

³ Kenney, L. and M. Burne. 2001. *A Field Guide to the Animals of Vernal Pools*. Massachusetts Division of Fisheries and Wildlife, Natural Heritage and Endangered Species Program, Westborough, MA. Vernal Pool Association, Peabody, MA.

⁴ Crother, B. I. (ed.). 2017. *Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico*, with Comments Regarding Confidence in Our Understanding pp. 1–102. SSAR Herpetological Circular 43. Available at <https://ssarherps.org/wp-content/uploads/2017/10/8th-Ed-2017-Scientific-and-Standard-English-Names.pdf>. Accessed May 15, 2019.

Reference: 2019 Phase 4C Floodplain Vernal Pool Survey — GE-Pittsfield/Housatonic River Site, Pittsfield, Massachusetts

0.5-inch size (Photo 5), the tadpoles likely hatched from egg masses a few weeks earlier. Approximately three adult and several dozen tadpole green frog (*Lithobates clamitans*) and two red-spotted newt (*Notophthalmus viridescens*) were observed during the survey. No fish or breeding evidence of spotted salamander (*Ambystoma maculatum*) were observed in 2019. Spotted salamander breeding activity can overlap with wood frogs, but can also occur later in the spring.

Macroinvertebrates observed during the survey included fairy shrimp (Photo 6), caddisflies (*Order Trichoptera*), phantom midge larvae (*Family Chaoboridae*), water striders (*Family Gerridae*), water mites (*Order Acariformes*), water boatmen (*Family Corixidae*), isopod (*Order Isopoda*), mosquito larvae (*Family Culicoidea*), predaceous diving beetle (*Family Dytiscidae*), and amphibious snails (*Class Gastropoda*).

Fairy shrimp have been observed within Vernal Pool 4C for seven consecutive years, suggesting that the pool completely or nearly dried out during the years prior to each survey. Fairy shrimp eggs laid in vernal pools require desiccation in the year (or years) following deposition for successful reproduction.⁵ Further evidence of complete or nearly complete dry pool conditions within Vernal Pool 4C is the wetland vegetation present in the pool, including uptight sedge (*Carex stricta*), cottongrass bulrush (*Scirpus cyperinus*)⁶, and purple loosestrife (*Lythrum salicaria*), all of which do not typically grow in permanently inundated habitats.

RESULTS AND RELATIONSHIP TO RESTORATION REQUIREMENTS

Section 7.2 of the FCR 2010 notes that the Obligate Species Method, as defined by the Massachusetts Division of Fisheries and Wildlife, will be used during surveys of Vernal Pool 4C. The Obligate Species Method specified in the Guidelines require evidence of breeding activity by obligate vernal species or the presence of fairy shrimp and evidence of no permanently flowing outlet in order to meet certification criteria.

Observations in 2019 indicate that Vernal Pool 4C met the physical certification criterion (lacking a permanently flowing outlet) and the biological criteria (presence of fairy shrimp and evidence of obligate amphibian breeding [wood frog egg masses and tadpoles]). The results of the April 2019 survey indicate that this vernal pool continues to be eligible for certification under the March 2009 NHESP Guidelines for the Certification of Vernal Pool Habitat in Massachusetts.

Stantec Consulting Services Inc.



Daniel G. Nein, CWB
Senior Associate
Phone: (207) 406-5465
Dan.Nein@stantec.com

Attachment: Photographs

⁵ Ward, M. and P. deMaynadier. 2009. Fairy Shrimp: Coming Soon to a Wetland near You? *The Maine Entomologist* 13(1):4–5.

⁶ Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. *The National Wetland Plant List: 2016 wetland ratings*. ISSN 2153 733X

Reference: 2019 Phase 4C Floodplain Vernal Pool Survey — GE-Pittsfield/Housatonic River Site, Pittsfield, Massachusetts



Photo 1. Vernal Pool 4C looking south from the northwest edge. Stantec. April 23, 2019.



Photo 2. Hatching wood frog egg mass at eastern edge of Vernal Pool 4C. Stantec. April 23, 2019.

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Photo 3. Hatching wood frog egg masses at northern edge of Vernal Pool 4C. Stantec. April 23, 2019.



Photo 4. Hatching wood frog egg mass at northern edge of Vernal Pool 4C. April 23, 2019.

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Photo 5. Wood frog tadpole captured in Vernal Pool 4C. Stantec. April 23, 2019.

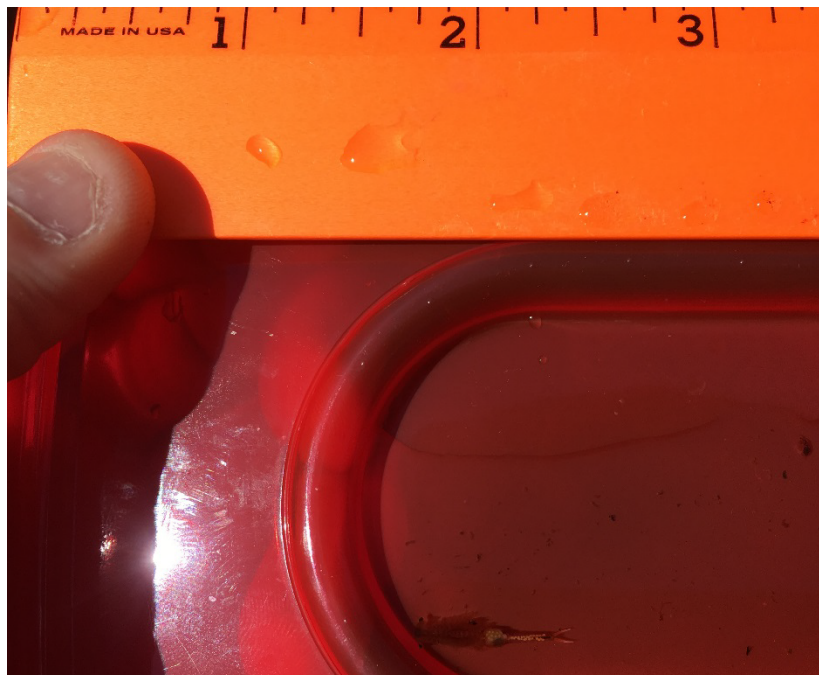


Photo 6. Fairy shrimp captured from Vernal Pool 4C (bottom center). Stantec. April 23, 2019.