



FUSS & O'NEILL

November 22, 2022

Ms. Miriam DeFant, Chair  
Shutesbury Conservation Commission  
Town Hall  
PO Box 276  
Shutesbury, MA 01072

RE: Applicant Response to Wetland Consultant Peer Review (WE 286-0297)  
66 Leverett Road, Shutesbury, MA 01072  
Fuss & O'Neill Reference No. 20091032.A22

Dear Ms. DeFant and Members of the Commission:

This letter serves as the Town of Shutesbury's (the Applicant) responses to the Wetland Consultant Peer Review letter provided by Ms. Emily Stockman of Stockman Associates LLC dated November 3, 2022 for 66 Leverett Road, Shutesbury, Massachusetts. This letter also addresses follow-up email correspondence from Ms. Stockman dated November 8, 2022.

Please find the comments received by the applicant on November 3, 2022, and the applicant's responses in bold below. The Stockman Associates LLC letter and email correspondence is provided in Attachment A. The Wetland Site Investigation Memorandum is provided in Attachment B. Updated Figure 2 and 3 are provided in Attachment C, and Wetland Determination Data Forms are provided in Attachment C.

- 1) Based on information provided by Fuss & O'Neill during the site visit, delineation flagging depicted on ANRAD Figure 3. "Wetland Flag Locations" was located via submeter GPS. The Commission should note that Figures 1 through 3 accompanying the ANRAD include a disclaimer stating that "This map is not the product of Professional Land Surveyor. It was created by Fuss & O'Neill, Inc. for general reference, information, planning and guidance use, and is not a legally authoritative source as to location of natural or manmade features. Proper interpretation of this map may require the assistance of appropriate professional services. Fuss & O'Neill makes no warranty, express or implied, related to the spatial accuracy, reliability, completeness or correctness of this map." The Commission has the authority to require supporting documentation regarding the GPS accuracy, or the submittal of a site plan prepared by a Professional Land Surveyor to ensure that the final plans of record accurately depict the site and the resource area boundaries.

**Applicant Response 1: Although the location of the flags were collected via a submeter GPS unit, it should be noted that some had accuracy exceeding 1 meter due to tree canopy**

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**interference. The Town agrees to obtain a Professional Land Survey of the wetland flagging following the agreement of the applicant, peer reviewer, and the Conservation Commission of a consensus delineation and any subsequent flag relocation as a result of that consensus. Final wetland mapping submitted to the Conservation Commission under the ANRAD process will reflect the professionally surveyed flag locations.**

BVW 1

- 2) Stockman Associates LLC concurs with the boundary of BVW 1 depicted by flags 1A-100 through and including 1A-133.

**Applicant Response 2: In the November 8, 2022 email correspondence (Attachment A), Ms. Stockman suggested during the (October 28, 2022) site visit, areas upgradient of the demarcated BVW 1 may actually be upland, and the applicant has the right to perform additional investigation to ascertain a more detailed BVW boundary.**

**The wetland site investigation of BVW 1 was conducted on November 10, 2022. BVW 1 was delineated in accordance with delineation methodologies for altered areas: 310 CMR 10.55(2)(c)3. and the delineation methodology presented in “Section 5 Difficult Situations” of the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center (Version 2.0), US Army Corps of Engineers, 2012.**

**Descriptions of the results of the wetland site investigation are provided in the Wetlands Site Investigation Memo in *Attachment B* and supporting documentation is provided in *Attachment C and D*. Based on the results of the wetland site investigation, an updated ANRAD will be submitted to the Conservation Commission.**

- 3) Stockman Associates LLC concurs with the boundary of BVW 3 depicted by flags 3A-100 through and include 3A-118 and 3B-100 through and including 3B-133 with the exception of the boundary along flags 3A-114 and 3A-115. This portion of the boundary appears to have been altered by historic fill and dumping (observed buried debris, surface litter and breakout fill).

Stockman Associates LLC recommends that the BVW boundary along flags 3A-114 and 3A-115 be revisited using the criteria presented in “Section 5 Difficult Situations” of the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble.

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ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center (Version 2.0), US Army Corps of Engineers, 2012.

Based on review historical aerials, alterations to the area appear to have occurred after 1972. Unpermitted fill and dumping within protected BVW is a violation of the MA Wetlands Protection Act (MA WPA). It is our understanding that the Shutesbury Conservation Commission is currently working with the landowner to address the violation. A BVW restoration plan is anticipated.

Based on the observed depth of fill, further boundary assessment within the area will likely require the use of machinery. The Commission may consider allowing the assessment of the BVW boundary to occur during approved restoration efforts. If so, this should be reflected in the findings of the ORAD.

**Applicant Response 3: The Applicant will update the ANRAD to exclude the boundary between 3A-114 and 3A-115. The Town of Shutesbury is in the process of defining a restoration plan for BVW 3. The Applicant is respectfully requesting to allow the assessment of the BVW boundary between 3A-114 and 3A-115 to occur during restoration efforts. The updated Figure 2 and 3-1 excludes the boundary between these flags.**

IVW 2

- 4) Subsequent to the original delineation by Fuss & O'Neill, landowner permission was obtained to assess the abutting property to the east (#62 Leverett Road). Based on an observed wetland plant community, hydric soils, and hydrologic connections, IVW 2 depicted on the ANRAD Figure 2 and 3 is a Bordering Vegetated Wetland. The delineated wetland system continues to the east within the abutting property and borders on a drop inlet connected to an open water BVW (small, anthropogenic depression/impoundment). The open water BVW within #62 Leverett Road is connected to an intermittent stream and additional BVW to the east via an overflow outlet pipe and culvert.

**Applicant Response 4: IVW 2 has been updated to BVW 2. Refer to Figures 2 and 3 for updated maps.**

- 5) Soils to the west of IVW (BVW) 2 flags 2A-101 through 2A-104 were examined. The presence of fill (sand, gravel) and buried A horizon (Ab) indicate disturbed soils. Depth of examination was limited by the use of hand tools (soil auger). Subsequent to the site review, Stockman Associates evaluated historic/past aerials and reporting pertaining to the site.

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**Applicant Response 5: The additional site investigation with a spade indicated buried horizons. Refer to *Attachment B* for a summary of findings.**

- a. Based on a review of historic aerials from 1938 through 1962, a portion of the aerial to the west of the IVW (BVW) 2 was altered prior to the Hatch Act, Chapter 220, Acts of 1965, adopted March 25, 1965 and the MA Wetlands Protection Act (MA WPA) of 1972.

**Applicant Response 5a: The Applicant agrees with this assessment. In addition, the access road is visible within the 1962 historic aerial.**

- b. Stockman Associates review groundwater data obtained from the 2011 Cold Spring Environmental Consulting, Inc. (CSE) report. Boring GP-3 is located between the flood drain line and easterly access way (approximately 50-LF west of the property line). Groundwater data for GP-3 was reported at 1.85-LF during December 22, 2011. Groundwater reporting for GP-3 indicates that wetland hydrology was not present at the time of the CSEC assessment.

**Applicant Response 5b: GP-3 appears to be located in the vicinity of the 1962 disturbance.**

- 6) Buried hydric soils, mounded fill piles and an access way were observed east of the CSEC assessment area (proximal to flags 2A-101 through 2A-101). Based on a review of historic aerials the access way was established circa 1987. Based on the presence of more recent anthropogenic debris within the dump piles and the age of the saplings and shrubs, these impacts appear to post-date the “Hatch” Act and the MA WPA.

**Applicant Response 6: The access way is visible within the 1962 historic aerial. The dump piles do appear more recent to post-date the “Hatch” Act and the MA WPA. The pile was included in the re-delineation of BVW 2.**

- a. Stockman Associates LLC recommends that the westerly boundary of IVW (BVW) 2 (proximal to the access way, dump piles, and the wood line) be revisited.

**Applicant Response 6a: The westerly boundary of BVW 2 was revisited and the boundary extended to the west approximately by 12 feet. Refer to the Wetland Site Investigation Memo (*Attachment B*) and updated Figures (*Attachment C*) for reference.**

- b. The westerly boundary should be revisited using the criteria required under: 310 CMR 10.55(2)(c)3. and the delineation methodology presented in “Section 5

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Difficult Situations” of the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center (Version 2.0), US Army Corps of Engineers, 2012.

**Applicant Response 6b: This criteria was used to delineate BVW 2 during the November 10, 2022 wetland site investigation.**

#### IVW 4

- 7) Overall, Stockman Associates LLC concurs with the boundary of IVW 4 depicted by flags 4A-100 through and including 4A-109. The IVW appears anthropogenic in origin, resultant of historic grading and the establishment of an access way (rutting). It should be noted that based on observed vegetation, the overall IVW boundary encapsulates areas of internal, isolated uplands. A more detailed delineation of that area would likely reduce the overall square footage of the IVW.

**Applicant Response 7: IVW 4 was re-delineated to exclude the upland areas. This re-delineation resulted in splitting IVW 4 into 2 separate wetlands, IVW 4 and IVW 5. Both of these wetlands are less than 1,000 square feet.**

#### SUBJECT PROPERTY REVIEW

- 8) A disturbed landscape was observed within the woodlands to the south of the open field. Excavated channels (linear), berms, piles, and shallow A horizons underlain by C-horizons indicate past earthmoving. These observations are further supported by reviewed aerial imagery from 1986 through 2009.

**Applicant Response 8: The applicant concurs with disturbance observed across the site. The earliest historic aerial, 1938, also shows the site was cleared. The 1958 aerial shows the driveway, a building on-site, and faint markings of the access way. The 1962 aerial shows more defined disturbance from the access way and additional disturbance in the vicinity of BVW 2.**

- 9) An area of inundation was observed within the access way south of IVW 4. Portions of the inundated area were dominated by a wetland indicator species (Cranberry, *Vaccinium oxycoccos*). Proximal areas contained upland plant species as well as areas void of vegetation (exposed soils). Additional photographic documentation of inundation was obtained by the

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Shutesbury Conservation Commission during a September 7, 2022 site visit. [Note: Inundation was observed within the compacted access way and after a recent rain event, therefore, other indicators of hydrology should be assessed to confirm the presence of wetland hydrology).]

**Applicant Response 9: This area was assessed during the November 10, 2022 wetland site investigation and delineated as IVW 6.**

- a. Stockman Associates LLC observed hydric soils proximal to rutting and a population of Cranberry, *Vaccinium oxycoccos* (OBL). Based on a preliminary assessment the area presented as too small to meet the 1,000-SF size criteria for protection under the Town of Shutesbury General Wetlands Protection Bylaw as an isolated wetland. However, given the disturbed nature of the area, a more in-depth assessment is recommended. The Commission should consider a request that the area be made formally assessed and delineated by the applicant to confirm the square footage of the isolated vegetated wetland and assess jurisdiction under the local bylaw.

**Applicant Response 9a: This area was delineated as IVW 6 during the November 10, 2022 wetland site investigation. This IVW is less than 1,000 square feet. Refer to the attached Wetland Site Investigation Memo for more details.**

- 10) The current ANRAD submittal defined the review area as the entire parcel. The USDA NRCS published soil survey indicates a mapped hydric soil towards the rear of the property. This area was evaluated during the site visit. The majority of the observed soils were not consistent with the mapped hydric soil type, Pillsbury loam. Hydric soils were observed along the southwesterly property line. The property line was approximated by Fuss & O'Neill by GPS. The forested BVW (Hemlock, *Tsuga canadensis*, Red Maple, *Acer rubrum*, Yellow Birch, *Betula alleghaniensis*) observed within this area appeared predominantly located within the abutting property. [Note: There is a limitation of scale associated with the USDA NRCS soil survey maps. Mapped soil units may contain inclusions of other soil series, both hydric and nonhydric].

For approval of all BVW boundaries under the ANRAD further assessment of the BVW boundary and property line is recommended. Alternatively, the subject area under the ANRAD may be redefined by the applicant to exclude the southerly portion of the property.

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**Applicant Response 10: The ANRAD review area has been updated to exclude the southerly portion of the property (approximately 790 linear feet from the southern boundary). The ANRAD cover letter will be updated to reflect this. Refer to Figure 2 for an overview of the ANRAD review area. The aforementioned forested BVW is excluded from the ANRAD review area.**

- 11) Based on field review of the westerly property boundary line, a large BVW is located on the abutting property. The boundary of the BVW meanders east and west proximal to the approximated property line. The 100-foot Buffer Zone associated with the BVW projects into the subject property.

The Commission and applicant should be aware that the 100-foot Buffer Zone is protected as a resource area under the local Town of Shutesbury General Wetlands Protection Bylaw. Currently, the ANRAD is requesting approval of BVW and IVW boundaries. The Commission should consider a finding that the 100-foot Buffer Zone exists on the property; the boundary of which has not been depicted on the plans, reviewed, or approved.

**The updated ANRAD will include approval of BVW and IVW boundaries, and the 100-foot Buffer Zone. The 100-foot Buffer Zone is shown within the ANRAD Review Area from delineated wetland resource areas within the subject parcel and from MassDEP mapped wetlands (see Figures 2 and 3). For wetland resource areas located outside of the subject parcel, the 100-foot Buffer Zone is shown from the DEP-mapped wetlands. DEP-mapped wetlands are only shown outside of the ANRAD Review Area in Figures 2 and 3 since these areas were not delineated in the field.**

c: Mary Anne Antonellis; Director, M.N. Spear Memorial Library  
Ms. Mary Grover, MassDEP WERO

## **ATTACHMENTS**

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- A**      **Stockman Associates LLC Correspondence**
- B**      **Wetland Site Investigation Memorandum**
- C**      **Updated Figures**
- D**      **Wetland Determination Data Forms**



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**Attachment A**

**Stockman Associate LLC Correspondence**

November 3, 2022

Ms. Miriam DeFant, Chair  
Shutesbury Conservation Commission  
Town Hall  
P.O. Box 276  
1 Cooleyville Road  
Shutesbury, MA 01072

Re: Abbreviated Notice of Resource Area Delineation (ANRAD)  
66 Leverett Road  
Shutesbury, MA  
(Parcel ID O-32)  
DEP File # 286-0297  
Wetland Consultant Peer Review

Dear Ms. DeFant and Commissioners:

Per request of the Shutesbury Conservation Commission, Stockman Associates LLC has performed a wetland consultant peer review of the Abbreviated Notice of Resource Area Delineation (ANRAD) submitted by Fuss and O'Neill on behalf of their client, the Town of Shutesbury, for the review of delineated resource area boundaries located within the property at 66 Leverett Road in Shutesbury, MA (Parcel ID O-31). Based on the submitted WPA Form 4A prepared by Fuss and O'Neill dated September 30, 2022, 1,921 linear feet of Bordering Vegetated Wetland (BVW) boundary and 445 linear feet of Isolated Vegetated Wetland boundary were reviewed. At the Commission's request and with landowner permission, Stockman Associates LLC also evaluated the potential connection between resource areas within an abutting property (#62 Leverett Road) and the Isolated Vegetated Wetland (IVW 2) depicted on the ANRAD "Wetland Delineation Overview" figure. The peer review also included an evaluation of the entire subject property to determine the presence of any additional unmapped, protected wetland resource areas.

### **Materials Reviewed**

- ANRAD WPA Form 4A, "*Massachusetts Inland Resource Area Delineation Report*", and other supporting documents within the September 2022 submittal prepared by Fuss and O'Neill.
- October 10, 2022 Applicant Response to Initial DEP Comments
- Revised October 10, 2022 ANRAD cover letter,

### **Site Visit**

- 1) On October 28, 2022 Ms. Emily Stockman (Stockman Associates LLC) conducted a site visit to review the subject property presented under the September 2022 ANRAD filing.

Ms. April Doroski (Fuss & O'Neill), Ms. Miriam DeFant (SCC), Ms. Mary Anne Antonellis (Library Director), and Ms. Penny Jaques (Library Building Committee) were also present during the site visit. Ms. Nancy Dihlmann (abutter) was present for the portion of the site visit within #62 Leverett Road.

### Review Comments

- 1) Based on information provided by Fuss and O'Neill during the site visit, delineation flagging depicted on ANRAD Figure 3. "Wetland Flag Locations" was located via submeter GPS. The Commission should note that Figures 1 through 3 accompanying the ANRAD include a disclaimer stating *"This map is not the product of Professional Land Surveyor. It was created by Fuss & O'Neill, Inc. for general reference, information, planning and guidance use, and is not a legally authoritative source as to location of natural or manmade features. Proper interpretation of this map may require the assistance of appropriate professional services. Fuss & O'Neill makes no warrantee, express or implied, related to the spatial accuracy, reliability, completeness or currentness of this map."*

The Commission has the authority to require supporting documentation regarding the GPS accuracy, or the submittal of a site plan prepared by a Professional Land Surveyor to ensure that the final plans of record accurately depict the site and the resource area boundaries.

#### BVW 1

- 2) Stockman Associates LLC concurs with the boundary of BVW 1 depicted by flags 1A-100 through and including 1A-133.

#### BVW 3

- 3) Stockman Associates LLC concurs with the boundary of BVW 3 depicted by flags 3A-100 through and including 3A-118 and 3B-100 through and including 3B-133 with the exception of the boundary along flags 3A-114 and 3A-115. This portion of the boundary appears to have been altered by historic fill and dumping (observed buried debris, surface litter and breakout fill).

Stockman Associates LLC recommends that the BVW boundary along flags 3A-114 and 3A-115 be revisited using the criteria required under 310 CMR 10.55(2)(c)3. and the delineation methodology presented in "Section 5 Difficult Situations" of the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center (Version 2.0), US Army Corps of Engineers, 2012.

Based on reviewed historical aeriels, alterations to the area appear to have occurred after 1972. Unpermitted fill and dumping within protected BVW is a violation of the MA Wetlands Protection Act (MA WPA). It is our understanding that the Shutesbury Conservation Commission is currently working with the landowner to address the violation. A BVW restoration plan is anticipated.

Based on the observed depth of fill, further boundary assessment within the area will likely require the use of machinery. The Commission may consider allowing the assessment of

the BVW boundary to occur during approved restoration efforts. If so, this should be reflected in the findings of the ORAD.

#### IVW 2

- 4) Subsequent to the original delineation by Fuss & O'Neill, landowner permission was obtained to assess the abutting property to the east (#62 Leverett Road). Based on an observed wetland plant community, hydric soils, and hydrologic connections, IVW 2 depicted on the ANRAD Figures 2 and 3 is a Bordering Vegetated Wetland. The delineated wetland system continues to the east within the abutting property and borders on a drop inlet connected to an open water BVW (small, anthropogenic depression/impoundment). The open water BVW within #62 Leverett Road is connected to an intermittent stream and additional BVW to the east via an overflow outlet pipe and culvert.
- 5) Soils to the west of IVW (BVW) 2 flags 2A-101 through 2A-104 were examined. The presence of fill (sand, gravel) and buried A horizons (Ab) indicate disturbed soils. Depth of examination was limited by the use of hand tools (soil auger). Subsequent to the site review, Stockman Associates evaluated historic/past aeriels and reporting pertaining to the site.
  - a. Based on a review of historic aeriels from 1938 through 1962, a portion of the area to the west of the IVW (BVW) 2 was altered prior to the "Hatch" Act, Chapter 220, Acts of 1965, adopted March 25, 1965 and the MA Wetlands Protection Act (MA WPA) of 1972.
  - b. Stockman Associates reviewed groundwater data obtained from the 2011 Cold Spring Environmental Consulting, Inc. (CSEC) report. Boring GP-3 is located between the floor drain line and easterly access way (approximately 50-LF west of the property line). Groundwater data for GP-3 was reported at 1.85-FT during December 22, 2011. Groundwater reporting for GP-3 indicates that wetland hydrology was not present at the time of the CSEC assessment.
- 6) Buried hydric soils, mounded fill piles and an access way were observed east of the CSEC assessment area (proximal to flags 2A-101 through 2A-104). Based on a review of historic aeriels the access way was established circa 1987. Based on the presence of more recent anthropogenic debris within the dump piles and the age of saplings and shrubs, these impacts appear to post-date the "Hatch" Act and the MA WPA.
  - a. Stockman Associates LLC recommends that the westerly boundary of IVW (BVW) 2 (proximal to the access way, dump piles, and the wood line) be revisited.
  - b. The westerly boundary should be revisited using the criteria required under 310 CMR 10.55(2)(c)3. and the delineation methodology presented in "Section 5 Difficult Situations" of the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center (Version 2.0), US Army Corps of Engineers, 2012.

#### IVW 4

- 7) Overall, Stockman Associates LLC concurs with the boundary of IVW 4 depicted by flags 4A-100 through and including 4A-109. The IVW appears anthropogenic in origin, resultant of historic grading and the establishment of an access way (rutting). It should be noted that based on observed vegetation, the overall IVW boundary encapsulates areas of internal, isolated uplands. A more detailed delineation of the area would likely reduce the overall square footage of the IVW.

#### SUBJECT PROPERTY REVIEW

- 8) A disturbed landscape was observed within the woodlands to the south of the open field. Excavated channels (linear), berms, piles, and shallow A horizons underlaid by C-horizons indicate past earthmoving. These observations are further supported by reviewed aerial imagery from 1968 through 2009.
- 9) An area of inundation was observed within the access way south of IVW 4. Portions of the inundated area were dominated by a wetland indicator species (Cranberry, *Vaccinium oxycoccos*). Proximal areas contained upland plant species as well as areas void of vegetation (exposed soils). Additional photographic documentation of inundation was obtained by the Shutesbury Conservation Commission during a September 7, 2022 site visit. [Note: Inundation was observed within the compacted access way and after a recent rain event, therefore, other indicators of hydrology should be assessed to confirm the presents of wetland hydrology.]
  - a. Stockman Associates LLC observed hydric soils proximal to rutting and a population of Cranberry, *Vaccinium oxycoccos* (OBL). Based on a preliminary assessment the area presented as too small to meet the 1,000-SF size criteria for protection under the Town of Shutesbury General Wetlands Protection Bylaw as an isolated wetland. However, given the disturbed natural of the area, a more in-depth assessment is recommended. The Commission should consider a request that the area be formally assessed and delineated by the applicant to confirm the square footage of the isolated wetland and assess jurisdiction under the local bylaw.
- 10) The current ANRAD submittal defines the review area as the entire parcel. The USDA NRCS published soil survey indicates a mapped hydric soil towards the rear of the property. This area was evaluated during the site visit. The majority of the observed soils were not consistent with the mapped hydric soil type, Pillsbury loam. Hydric soils were observed along the southwesterly property line. The property line was approximated by Fuss & O'Neill via GPS. The forested BVW (Hemlock, *Tsuga canadensis*, Red Maple, *Acer rubrum*, Yellow Birch, *Betula alleghaniensis*) observed within this area appeared predominately located within the abutting property. [Note: There is a limitation of scale associated with the USDA NRCS soil survey maps. Mapped soils units may contain inclusions of other soil series, both hydric and nonhydric.]

For approval of all BVW boundaries under the ANRAD further assessment of the BVW boundary and property line is recommended. Alternatively, the subject area under the ANRAD may be redefined by the applicant to exclude the southerly portion of the property.

- 11) Based on the field review of the westerly property line, a large BVW is located on the abutting property. The boundary of the BVW meanders east and west proximal to the

approximated property line. The 100-FT Buffer Zone associated with the BVW projects into the subject property.

The Commission and applicant should be aware that 100-FT Buffer Zone is protected as a resource area under the local Town of Shutesbury General Wetlands Protection Bylaw. Currently, the ANRAD is requesting approval of BVW and IVW boundaries. The Commission should consider a finding that 100-FT Buffer Zone exists on the property; the boundary of which has not been depicted on the plans, reviewed, or approved.

I trust that the above comments will assist the Commission in their review of the previously referenced ANRAD application. Please do not hesitate to contact me with any questions.

Sincerely,



Emily Stockman, M.S., P.W.S.  
Senior Scientist/Principal  
Stockman Associates LLC



## April Doroski

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**From:** Miriam DeFant <mdefant.shutesbury@gmail.com>  
**Sent:** Tuesday, November 8, 2022 4:54 PM  
**To:** Matthew Kissane; April Doroski; Library Director; Rita Farrell; Penny Jaques; Conservation Commission  
**Subject:** Fwd: 66 Leverett Road ANRAD TPR Comments

I've included for you below Emily Stockman's comments.

Thanks,

Miriam

**Miriam DeFant**  
Shutesbury Conservation Commission, Chair  
Shutesbury Historical Commission

*Please be advised that the Secretary of the Commonwealth has determined that all email messages and attached content sent from and to this email address are public records unless qualified as an exemption under the Massachusetts Public Records Law (MGL c.4 § 7(26)).*

----- Forwarded message -----

From: <[emily@stockmanassociates.com](mailto:emily@stockmanassociates.com)>  
Date: Tue, Nov 8, 2022 at 4:43 PM  
Subject: RE: 66 Leverett Road ANRAD TPR Comments  
To: Miriam DeFant <[mdefant.shutesbury@gmail.com](mailto:mdefant.shutesbury@gmail.com)>

Hello Miriam,

Thank you for forwarding the email from Fuss and O'Neill.

Below I have provided the three questions from Fuss and O'Neill (*italics*) followed by responses from Stockman Associates.

Best,

Emily

- 
1. *BVW 1*: Based on discussions of soil compaction in disturbed areas during the October 28, 2022 Site Visit, the Applicant understood that findings from an additional soils investigation of BVW 1

*with a spade may indicate a different wetland boundary than originally delineated. The Applicant understood documentation with photographs and soil profile descriptions from soil investigations with a spade could be provided for additional review by Ms. Stockman. If an additional soils investigation of BVW 1 indicate a different wetland boundary of BVW, is Ms. Stockman amendable to reviewing the new BVW 1 wetland boundary?*

Stockman Associates LLC concurred with the boundary of BVW 1 based on observations made during the October 28, 2022 site visit and data provided by Fuss & O'Neill on Wetland Determination Data Forms 1A-129 and UPL 1-2. During the site visit, areas upgradient of the demarcated BVW 1 boundary were examined. Based on the lack of observed hydric soils and wetland hydrology, Stockman Associates concurred that areas upgradient of the delineated BVW 1 were uplands.

Stockman Associates agrees that portions of the delineated BVW 1 have been disturbed (vegetation mowing, potential compaction, grading to the north, etc.). Under the open ANRAD process, the applicant has the right to perform additional investigation to ascertain a more detailed BVW boundary. Within altered areas, investigations should be performed under 310 CMR 10.55(2)(c)3. and the delineation methodology presented in "Section 5 Difficult Situations" of the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center (Version 2.0), US Army Corps of Engineers, 2012.

Stockman Associates LLC recommends that findings from additional investigation be documented on completed Wetland Determination Data Forms (minimum of hydrology and soils) and accompanied by color photographs.

Regarding the ACOE Hydric Soil Indicator F6 Redox Dark Surface, Stockman Associates LLC recommends that Fuss & O'Neill review the User Notes which state (in part), *"In soils that are wet because of subsurface saturation, the layer immediately below the dark epipedon will likely have a depleted or gleyed matrix (see the Glossary for definitions). Soils that are wet because of ponding or have a shallow, perched layer of saturation may not always have a depleted/gleyed matrix below the dark surface. This morphology has been observed in soils that have been compacted by tillage and other means. It is recommended that delineators evaluate the hydrologic source and examine and describe the layer below the dark-colored epipedon when applying this indicator."*

Upon request by the Shutesbury Conservation Commission, Stockman Associates LLC is amendable to reviewing revised supplemental information.



2. *BVW 3: The Town of Shutesbury will initiate the restoration of a portion of BVW 3A between flags 3A-114 and 3A-115 after the ongoing environmental investigations have been completed. Because the wetland boundary determination between BVW 3A-114 and 3A-115 may require the use of heavy equipment, as stated by Ms. Stockman in the November 3, 2022 letter, the Town proposes to exclude the boundary between 3A-114 and 3A-115 from the ANRAD. This boundary will be confirmed during future restoration work at this location. Is Ms. Stockman amenable to excluding the wetland boundary between BVW 3A-114 and 3A-115 as part of the ORAD? Additionally, the Town would like to inform the Commission that they intend to submit a standalone Notice of Intent (NOI) in the near future for the clean-up and restoration of the impacted portion of BVW 3.*

Under the ANRAD process, the applicant has the right to request specified boundaries for review and approval. The Conservation Commission responds accordingly under a subsequent ORAD. Stockman Associates LLC recommends that the Commission include findings with the ORAD to clearly address any special circumstances such as excluded boundaries.

3. *BVW 2: Will Ms. Stockman clarify which regulations, and where in those regulations, it indicates jurisdiction of wetlands filled and/or disturbed after the Hatch Act, adopted 1965?*

310 CMR 10.02(1)(a) states that any freshwater inland wetland, marsh, or swamp bordering on any creek, river, stream, pond, or lake is an area subject to protection under M.G.L. c. 131, § 40.

310 CMR 10.02(2)(a) states, "Any activity proposed or undertaken within an area specified in 310 CMR 10.02(1), which will remove, fill, dredge or alter that area, is subject to Regulation under M.G.L. c. 131, § 40..."

The existing Wetlands Protection Act passed in 1972 is the result of two earlier statutes. The Jones Act of 1963 (M.G.L. c. 426), which protected coastal wetlands and the Hatch Act of 1965 (M.G.L. c. 220), which extended protection to freshwater inland wetlands, were combined in 1972 to create the present Wetlands Protection Act which protects both coastal and freshwater wetlands.

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**Attachment B**

**Wetland Site Investigation Memorandum**

## MEMORANDUM

**TO:** Shutesbury Conservation Commission

**FROM:** Town of Shutesbury

**DATE:** November 22, 2022

**RE:** November 11, 2022 Wetland Site Investigation Memorandum  
WE 286-0297  
66 Leverett Road (Parcel O-32)  
Shutesbury, Massachusetts

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The purpose of this memorandum is to provide documentation of the additional site investigation conducted by Fuss & O'Neill in response to the Wetland Consultant Peer Review letter provided by Ms. Emily Stockman of Stockman Associates LLC dated November 3, 2022.

### November 2022 Site Investigation

On November 10, 2022 April Doroski, PWS, CPSS, and Andrew Rossoshanskiy of Fuss & O'Neill conducted a site visit of 66 Leverett Road, Shutesbury MA. The goal of the site visit was to perform additional investigations of wetland areas and soil characteristics in response to the Peer Review letter provided by Stockman Associates LLC. This site investigation was completed as part of the Abbreviated Notice of Resource Area Delineation process. Wetland and upland areas were reviewed, soils and vegetation were documented, wetland boundaries were refined, and one new wetland was delineated.

### Investigation Methodology

Due to the disturbed nature of BVWs 1 and 2 and IVWs 4, 5, and 6, these wetlands were delineated in accordance with methodologies for altered areas including:

- 310 CMR 10.55(2)(c)3
- “Delineating BVWs where hydrology or vegetation has been altered” Section, Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act Handbook, MassDEP, 1995
- “Section 5 Difficult Situations” of the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/EL TR-12-1. Vicksburg, MS: U.S. Army Engineer Research and Development Center (Version 2.0), US Army Corps of Engineers, 2012.

November 11, 2022 Wetland Site Investigation Memo (WE 286-0297)

November 22, 2022

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## Results of Investigation

### **BVW 1**

Three (3) soil test pits were dug with a spade to an approximate depth of 24 inches within the mowed portions of BVW 1, generally between flags 1A-118 and 1A-129. The three test pits were dug in the following locations:

- BVW 1, Soil Test Pit #1: 42.450979, -72.416337
- BVW 1, Soil Test Pit #2: 42.450949, -72.416476
- BVW 1, Soil Test Pit #3: 42.450708, -72.416273

In addition, soils were observed in multiple locations with a hand auger. Soil test pits were dug to better understand the source of hydrology and soil morphology while considering the User Notes of the hydric soil indicator Redox Dark Surface. As indicated in the email from Emily Stockman dated November 8, 2022, we have reviewed the User Notes of the hydric soil indicator Redox Dark Surface which state (in part),

*“In soils that are wet because of subsurface saturation, the layer immediately below the dark epipedon will likely have a depleted or gleyed matrix (see the Glossary for definitions). Soils that are wet because of ponding or have a shallow, perched layer of saturation may not always have a depleted/gleyed matrix below the dark surface. This morphology has been observed in soils that have been compacted by tillage and other means. It is recommended that delineators evaluate the hydrologic source and examine and describe the layer below the dark-colored epipedon when applying this indicator.”*

Refer to attached wetland determination data forms associated with Test Pits #1 and #3. Findings from a review of historic aerials and from the soil evaluation of three test pits in BVW 1 are summarized below:

1. The earliest aerial photograph available (1938) on Historic Aerials.com shows the site, including location of BVW 1, with land cover as a field potentially used for agricultural purposes.
2. The A horizon in Test Pits #1 through #3 ranged from 9-10 inches with a clear boundary.
3. Based on the historic aerials, depth of the A horizon, and clear boundary observed in all three test pits in BVW 1, the A horizon is likely an Ap horizon (i.e., plowed A horizon). Refer to the photographs 1 through 3 below for reference.
4. Redoximorphic concentrations were observed within the Ap horizon at all three soil test pits. Percentages of concentrations ranged from 3% - 7%. These concentrations are believed to be the result of historic tilling, not fluctuations of groundwater fluctuations.
5. No restrictive layers were observed within the three test pits.
6. The following colors were observed beneath the consisted of the following colors: 10YR 4/4 and 10YR 4/6.
7. Based on soil colors and presence of redoximorphic concentrations in the B horizons, the groundwater table likely ranges from 20 -26 inches in the test pits.

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8. Based on the presence of the Ap horizon, colors of the horizon directly beneath the Ap indicative of 'upland soils', observations of depths of soil horizon indicating groundwater table at 20 -26 inches, this area does not support wetland hydrology.
9. The August 5, 2022 wetland delineation found hydric soil indicator Redox Dark Surface (F6). Test Pits #1 and #2, dug during the November 10, 2022 investigation, met the criteria of redox dark surface but based on the F6 user notes, this is considered a false positive because of the absence of wetland hydrology. The horizon directly beneath the Ap horizon in Test Pits #1 and #2 were 10YR 4/4. Test Pit #3 did not meet the criteria of Redox Dark Surface.
10. Buried soils were not observed within these three test pits.
11. Based on this investigation, the boundary of BVW was refined to remove the area generally between flags 1A-118 and 1A-129 which lacked hydric soils and evidence of hydrology. The updated BVW 1 boundary is provided in Figures 2 and 3.
12. Original flags 1A-100 to 1A-118 remained. Original flags 1A-119 to 1A-127 were removed. Original Flags 1A-128 through 1A-133 remained, but were renamed to 1A-121 through 1A-126.
13. The 100-foot Buffer Zone to BVW was added to Figure 2 and 3.



**Photographs 1-3** View of BVW 1 test pits from left to right: Test Pit #1, Test Pit #2, Test Pit #3. View of dark yellowish brown colors (yellow arrows) indicative of upland soils directly beneath the Ap horizon. BVW 1 was re-delineated to exclude this area, which did not exhibit evidence of wetland hydrology based on observations from test pits.

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**Photographs 4-6** View of BVW 1 test pit locations (yellow arrow) from left to right: Test Pit #1, Test Pit #2, Test Pit #3. BVW 1 was re-delineated to exclude this area, which did not exhibit hydric soils or evidence of wetland hydrology based on observations from test pits.

## **BVW 2**

The ANRAD for 66 Leverett Road, Shutesbury submitted to the Conservation Commission on September 30, 2022, and subsequently updated cover letter dated October 10, 2022 indicated the wetland 2 generally east of the former three-car garage as an isolated vegetated wetlands. After the October 28, 2022 site visit with Ms. Stockman, this wetland has been updated to be a bordering vegetated wetland. Refer to Figures 2 and 3 for the updated representation of BVW 2.

As recommended by Ms. Stockman, the western boundary of BVW 2 was revisited during the November 10, 2022 site investigation. On test pit, BVW 2, Test Pit # 4, was dug approximately 13 feet west of the original BVW 2 boundary. The test pit, dug with a spade was advanced to 34 inches at the location below:

- BVW 2, Test Pit #4: 42.450713, -72.415545

Findings from a review of historic aerials and from the soil evaluation of one test pit in BVW 2 are summarized below:

14. The earliest aerial photograph available (1938) on Historic Aerials.com shows the land cover as a field within the vicinity of BVW 2. The 1962 historic aerial shows disturbance within the vicinity of BVW 2. In addition, an access route is visible in the 1962 aerial. These areas were altered prior to the “Hatch” Act, Chapter 220, Acts of 195, adopted March 25, 1965 and the MA Wetlands Protection Act of 1972. The soil test pit was advanced within the vicinity of the disturbance visible on the 1962 aerial.

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15. Within Test Pit #4, a darker horizon was observed between 16 inches and 26 inches. Based on known past disturbance, this horizon is likely a buried A horizon.
16. A buried hydric soil (Problem Hydric Soils, Three Chroma Sands NE-S1) was observed within the Test Pit #4 (see yellow arrow in Photograph 7 below). Although the review of the 1962 aerial shows disturbance within the vicinity of the BVW 2 was prior to pertinent regulations, the location of Test Pit #4 was conservatively included in the updated BVW 2 delineation.
17. As recommended by Ms. Stockman, the mounded fill pile originally excluded from the BVW 2 delineation is included in the updated BVW 2 delineation. It is assumed the pile was placed after 1965 and in the absence of the pile, a wetland would be present.
18. The updated BVW 2 delineation generally follows the toe of access road slope. Original flag 2A-100 remained. Original flags 2A-101 through 2A-103 were generally moved to the west to increase the wetland size. Original flags 2A-104 and 2A-105 remained and were renamed to 2A-105 and 2A-106, respectively.
19. The 100-foot Buffer Zone to BVW 2 was added to Figures 2 and 3.



*Photographs 7-8* View of BVW 2, Test Pit #4. Buried A horizon indicated by the yellow arrow.

### **BVW 3**

No additional investigation of BVW 3 was conducted during the site visit. Due to the depth of potential fill between flags 3A-114 and 3A-115, it is anticipated heavy equipment will be used to excavate this area during wetland restoration efforts. The boundary of 3A-114 and 3A-115 will be determined during the

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restoration efforts and therefore this portion of BVW 3 boundary will be excluded from the ANRAD. The 100-foot Buffer Zone to BVW 3 was added to Figures 2 and 3.

#### **IVWs 4 and 5**

As noted by Ms. Stockman in comment #7, the overall IVW area encapsulates areas of internal, isolated uplands. During the November 2022 investigation, IVW 4 was re-delineated to exclude these isolated uplands. The re-delineation resulted in IVW being split into two separate IVWs (i.e., IVW 4 and IVW 5). IVW 4 is 820 sf and IVW 5 is 174 sf. Because these wetlands are less than 1,000 square feet, they are not considered jurisdictional under the Town of Shutesbury General Wetlands Protection Bylaw (Shutesbury Wetlands Bylaw). IVW's 4 and 5 are shown on Figures 2 and 3 for reference. Because IVW's 4 and 5 are not jurisdictional under the Shutesbury Wetlands Bylaw and Massachusetts Wetlands Protection Act (MAWPA), no buffer zone is associated with these IVW's.



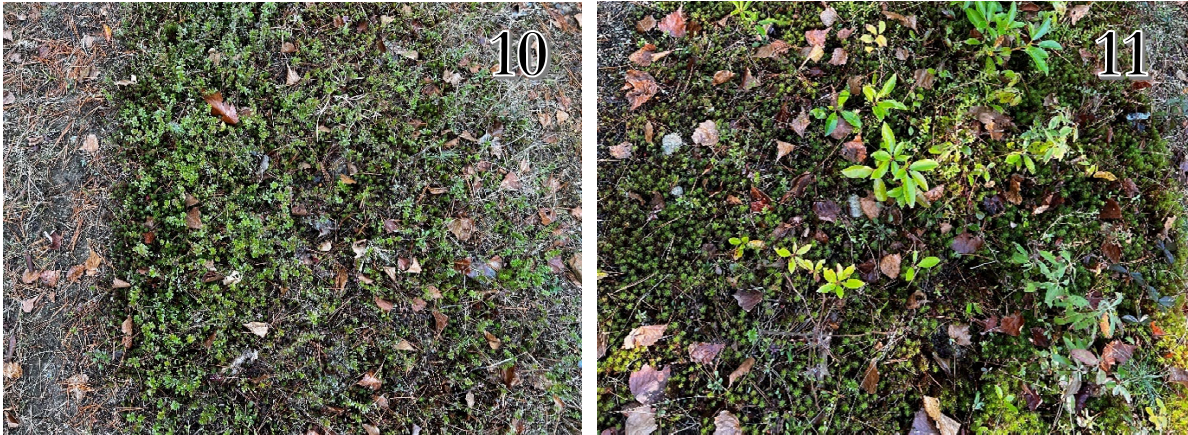
*Photograph 9* View of IVW 4 after re-delineation on November 10, 2022.



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**Photographs 10 and 11** View of IVW 5 vegetation dominated by cranberries (left) compared to upland area (right) dominated by hairy cap moss and some mountain laurel. This upland area, originally included in IVW 4, now separates IVW 4 and IVW 5.

#### IVW 6

IVW 6 is a new isolated wetland delineated south of IVW's 4 and 5. Hydric soil indicator Depleted Matrix (F3) was observed at the base of the ruts. Vegetation included cranberry (*Vaccinium oxycoccus*; OBL), sedges (*Rhynchospora* spp.), and sheep laurel (*Kalmia angustifolia*; FAC). BVW 6 is 233 sf, and is therefore not considered jurisdictional under the Shutesbury Wetlands Bylaw. IVW 6 is shown on Figures 2 and 3 for reference. Because IVW 6 is not jurisdictional under the Shutesbury Wetlands Bylaw and MAWPA, no buffer zone is associated with it.



**Photograph 12** View northeast of IVW 6 within the access route delineated on November 10, 2022

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## Summary

- 4 shovel test pits were advanced
- Wetland delineation boundaries of BVW 1, BVW 2, and IVW 4 were refined
- IVW 4 was divided into two separate wetlands (IVW 4 and IVW 5)
- The boundaries of one new IVW (IVW 6) was also delineated.
- IVW's 4, 5, and 6 are each below 1,000 sf and therefore are not jurisdictional under the Shutesbury Wetlands Bylaw

We have conducted an additional site investigation and provided a detailed description of findings within this memorandum to address feedback provided by Ms. Stockman during the October 28, 2022 site visit and in the November 3, 2022 Wetland Consultant Peer Review letter. We hope we have provided sufficient information to the Peer Reviewer and Conservation Commission to move forward with the ANRAD process. The following section outlines next steps anticipated to submit an updated/finalized ANRAD for the Commission's review.

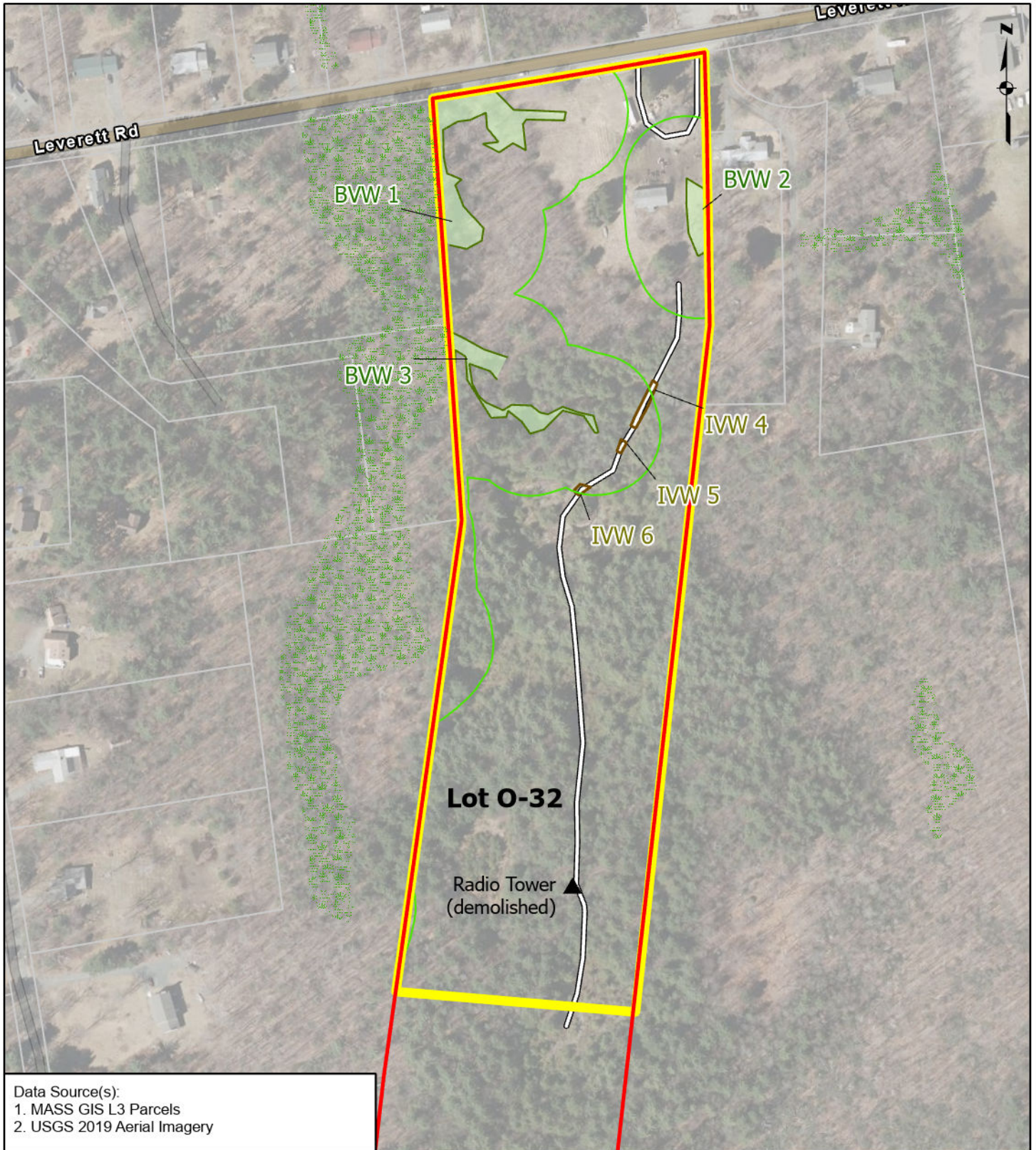
## Next Steps

The following next steps are anticipated:

- Respond to additional comments provided by Ms. Stockman or the Conservation Commission
- Conduct a follow-up site visit with Peer Reviewer to confirm revised wetland boundaries prior to the next Conservation Commission meeting
- Present the findings the next Shutesbury Conservation Commission meeting
- Perform a survey of the flags to be included in the finalized ANRAD upon concurrence of the wetland boundaries by the Peer Reviewer, Ms. Stockman
- Submit updated ANRAD including updated wetland report and plans
- Continue to coordinate restoration efforts with the Town of Shutesbury including, but not limited to:
  - Restoration of BVW 3 between flags 3A-114 and 3A-115
  - Pile removal from BVW 2

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**Attachment C**  
**Updated Figures**



Data Source(s):  
 1. MASS GIS L3 Parcels  
 2. USGS 2019 Aerial Imagery



- Subject Parcel
- ANRAD Review Area
- BVW Boundary (Delineated)
- IWV Boundary (Delineated; Not Jurisdictional)
- Wetland Area
- ▲ Radio Tower (demolished)
- Access
- 100-ft Buffer Zone (MAWPA & Local)
- MassDEP Mapped Wetland

0 50 100 200 Feet

Disclaimer: This map is not the product of a Professional Land Survey. It was created by Fuss & O'Neill, Inc. for general reference, informational, planning and guidance use, and is not a legally authoritative source as to location of natural or manmade features. Proper interpretation of this map may require the assistance of appropriate professional services. Fuss & O'Neill, Inc. makes no warrantee, express or implied, related to the spatial accuracy, reliability, completeness, or currentness of this map.  
 Wetland Delineation conducted by Fuss & O'Neill on August 5, 16, and November 10, 2022.

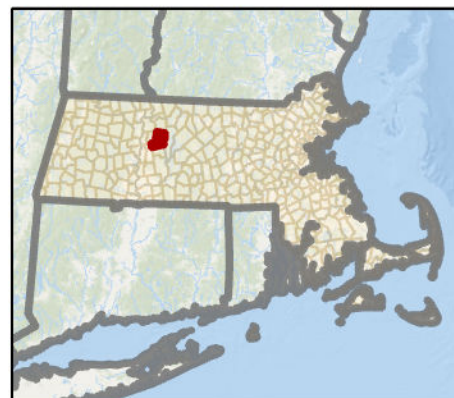
**Wetland Delineation Overview**  
 66 Leverett Road  
 Shutesbury, Massachusetts  
 November 2022

**FUSS & O'NEILL**  
 1550 Main Street, Suite 400  
 Springfield, MA 01103  
 413.452.0445 | www.fando.com

**Figure 2**



Data Source(s):  
 1. MASS GIS L3 Parcels  
 2. USGS 2019 Aerial Imagery



- Wetland Flags
- ▭ Subject Parcel
- ▭ ANRAD Review Area
- ▭ Parcel Boundary
- BVW Boundary (Delineated)
- ▭ Wetland Area
- Soil Test Pit
- ▭ 100-ft Buffer Zone (MAWPA & Local)
- ▭ MassDEP Mapped Wetland

0 25 50 100 Feet

Disclaimer: This map is not the product of a Professional Land Survey. It was created by Fuss & O'Neill, Inc. for general reference, informational, planning and guidance use, and is not a legally authoritative source as to location of natural or manmade features. Proper interpretation of this map may require the assistance of appropriate professional services. Fuss & O'Neill, Inc. makes no warranty, express or implied, related to the spatial accuracy, reliability, completeness, or currentness of this map.

Wetland Delineation conducted by Fuss & O'Neill on August 5, 16, and November 10, 2022.

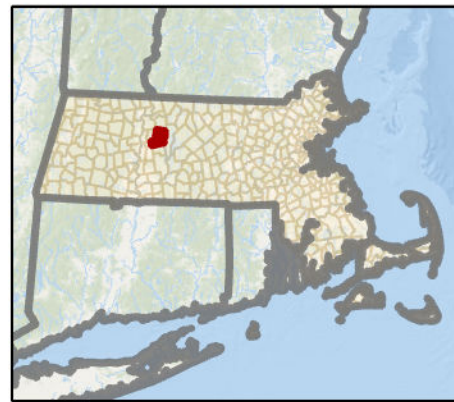
**Wetland Flag Locations**  
 66 Leverett Road  
 Shutesbury, Massachusetts  
 November 2022

**FUSS & O'NEILL**  
 1550 Main Street, Suite 400  
 Springfield, MA 01103  
 413.452.0445 | www.fando.com

**Figure 3-1**



Data Source(s):  
 1. MASS GIS L3 Parcels  
 2. USGS 2019 Aerial Imagery



- Wetland Flags
- ▭ Subject Parcel
- ▭ ANRAD Review Area
- ▭ Parcel Boundary
- ▭ MassDEP Mapped Wetland
- BVW Boundary (Delineated)
- IVW Boundary (Delineated; Not Jurisdictional)
- ▭ Wetland Area
- ▭ 100-ft Buffer Zone (MAWPA & Local)

0 25 50 100 Feet

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Wetland Delineation conducted by Fuss & O'Neill on August 5, 16, and November 10, 2022.

**Wetland Flag Locations**  
 66 Leverett Road  
 Shutesbury, Massachusetts  
 November 2022

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**Figure 3-2**

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**Attachment D**  
**Wetland Determination Data Forms**

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 66 Leverett Road City/County: Shutesbury Sampling Date: 11/10/22  
 Applicant/Owner: Town of Shutesbury State: MA Sampling Point: Test Pit #1  
 Investigator(s): April Doroski, PWS, CPSS, Fuss & O'Neill Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): none Slope (%): 0-3  
 Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: 42.450979 Long: -72.416337 Datum: NAD83  
 Soil Map Unit Name: 368B - Metacomet fine sandy loam and 368A - Metacomet fine sandy loam NWI classification: \_\_\_\_\_  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation X, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No X  
 Are Vegetation X, Soil X, or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>0</u> No _____ Hydric Soil Present? Yes <u>0</u> No <u>0</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u> If yes, optional Wetland Site ID: <u>Test Pit #1</u>
Remarks: (Explain alternative procedures here or in a separate report.) Due to drought conditions reported for the Connecticut River Valley Region since May, hydrologic conditions are not typical for this time of year. According to the Massachusetts Department of Conservation and Recreation (DCR) the Connecticut River Valley Region experienced drought conditions starting in May 2022 and continuing through November 2022. At the time of delineation, drought status was at Level 1 - Mild Drought.	

### HYDROLOGY

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) <u>X</u> Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: The plot was taken within the disturbed (mowed) portion of the the original BVW 1 delineated in August 2022, approximately 22 feet south of the vegetated swale. Based on investigation of the soil profile in a test pit dug with a spade to a depth of approximately 26 inches, it does not appear that this area is fed by wetland hydrology. Based on color or 2.5Y 6/3 with many redoximorphic concentrations, the water table is likely at a depth of 21 inches at this location. Based on the results of this assessment, this area was re-delineated during the November 10, 2022 investigation to exclude this area from BVW 1.	



**VEGETATION** – Use scientific names of plants.

Sampling Point: Test Pit #1

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30</u> )				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
	=Total Cover			
<b>Sapling/Shrub Stratum</b> (Plot size: <u>15</u> )				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
	=Total Cover			
<b>Herb Stratum</b> (Plot size: <u>5</u> )				
1.	<u>Onoclea sensibilis</u>	20	Yes	FACW
2.	<u>Rubus hispidus</u>	2	No	FACW
3.	<u>Sedges spp.</u>	2	No	
4.	<u>Grass spp.</u>	60	Yes	
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
	84 =Total Cover			
<b>Woody Vine Stratum</b> (Plot size: <u>5</u> )				
1.				
2.				
3.				
4.				
	=Total Cover			

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

---

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>22</u>	x 2 = <u>44</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>22</u> (A)	<u>44</u> (B)
Prevalence Index = B/A = <u>2.00</u>	

---

**Hydrophytic Vegetation Indicators:**

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0<sup>1</sup>

4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

---

**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

---

**Hydrophytic Vegetation Present?**      Yes       No

Remarks: (Include photo numbers here or on a separate sheet.)  
 Area of wetland plot is problematic due to regular mowing. Identification of grass species is not possible. Sensitive fern observed in pockets.

**SOIL**

Sampling Point: Test Pit #1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10	10YR 2/1	93	7.5YR 3/4	7	C	M	Loamy/Clayey	Prominent redox concentrations
10-14	10YR 4/4	70						mixed with Ap horizon
	10YR 2/2	30						
14-21	10YR 4/4	98	10YR 4/6	3	C	M	Loamy/Clayey	Distinct redox concentrations
21-26	2.5Y 6/3	80	10YR 4/6	20	C	M	Loamy/Clayey	Prominent redox concentrations

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)
- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- High Chroma Sands (S11) (LRR K, L)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR K, L)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: NA  
 Depth (inches): \_\_\_\_\_

**Hydric Soil Present?**      Yes       No

Remarks:  
 This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. ([http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_051293.docx](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)). Although this soil meets the criteria of the Redox Dark Surface hydric soil indicator, this was considered a false positive because of the absence of wetland hydrology. The user notes for this indicator say: "In soils that are wet because of subsurface saturation, the layer immediately below the dark epipedon will likely have a depleted or gleyed matrix (see the Glossary for definitions). Soils that are wet because of ponding or have a shallow, perched layer of saturation may not always have a depleted/gleyed matrix below the dark surface. This morphology has been observed in soils that have been compacted by tillage and other means. It is recommended that delineators evaluate the hydrologic source and examine and describe the layer below the dark-colored epipedon when applying this indicator." Based on a review of aeriels, depth of this layer, and clear boundary, it is likely this soil was previously tilled and may be exhibiting redoximorphic concentrations from that past activity. The layer directly beneath the Ap horizon was a dark yellowish brown color, indicative of upland soils.

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 66 Leverett Road City/County: Shutesbury Sampling Date: 11/10/22  
 Applicant/Owner: Town of Shutesbury State: MA Sampling Point: Test Pit #3  
 Investigator(s): April Doroski, PWS, CPSS, Fuss & O'Neill Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): hillside Local relief (concave, convex, none): none Slope (%): 0-3  
 Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: 42.450949 Long: -72.416476 Datum: NAD83  
 Soil Map Unit Name: 368B - Metacomet fine sandy loam and 368A - Metacomet fine sandy loam NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation X, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No X  
 Are Vegetation X, Soil X, or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No _____ Hydric Soil Present? Yes <u>0</u> No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b> Yes _____ No <u>X</u> If yes, optional Wetland Site ID: <u>Test Pit #3</u>
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Remarks: (Explain alternative procedures here or in a separate report.)  
 Due to drought conditions reported for the Connecticut River Valley Region since May, hydrologic conditions are not typical for this time of year. According to the Massachusetts Department of Conservation and Recreation (DCR) the Connecticut River Valley Region experienced drought conditions starting in May 2022 and continuing through November 2022. At the time of delineation, drought status was at Level 1 - Mild Drought.

### HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
<b>Primary Indicators (minimum of one is required; check all that apply)</b> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)

<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
 The plot was taken within the disturbed (mowed) portion of the of the the original BVW 1 delineated in August 2022, approximately 125 feet south of the vegetated swale. Based on investigation of the soil profile in a test pit dug with a spade to a depth of approximately 24 inches, it does not appear that this area is fed by wetland hydrology. Based on color or 2.5Y 6/3 with many redoximorphic concentrations, the water table is likely at a depth of 26 inches at this location. Based on the results of this assessment, this area was re-delineated during the November 10, 2022 investigation to exclude this area from BVW 1.

**VEGETATION** – Use scientific names of plants.

Sampling Point: Test Pit #3

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30</u> )				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
		=Total Cover		
<b>Sapling/Shrub Stratum</b> (Plot size: <u>15</u> )				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
		=Total Cover		
<b>Herb Stratum</b> (Plot size: <u>5</u> )				
1.	<u>80</u>	Yes		
2.	<u>2</u>	No		
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
	<u>82</u>	=Total Cover		
<b>Woody Vine Stratum</b> (Plot size: <u>5</u> )				
1.				
2.				
3.				
4.				
		=Total Cover		

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

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**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>0</u> (A)	<u>0</u> (B)
Prevalence Index = B/A = _____	

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**Hydrophytic Vegetation Indicators:**

   1 - Rapid Test for Hydrophytic Vegetation

   2 - Dominance Test is >50%

   3 - Prevalence Index is ≤3.0<sup>1</sup>

   4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

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**Definitions of Vegetation Strata:**

**Tree** – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

**Sapling/shrub** – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

**Herb** – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

**Woody vines** – All woody vines greater than 3.28 ft in height.

---

**Hydrophytic Vegetation Present?**      Yes         No

Remarks: (Include photo numbers here or on a separate sheet.)  
 Area of wetland plot is problematic due to regular mowing. Identification of grass species is not possible. Hairy cap moss also observed.

SOIL

Sampling Point: Test Pit #3

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10	10YR 2/2	97	5YR 4/6	3	C	M	Loamy/Clayey	Prominent redox concentrations
10-26	10YR 4/6	99						
	10YR 2/2	1						worm cast mixed down from Ap
26-28	2.5Y 6/3	98	10YR 4/6	3	C	M	Sandy	Prominent redox concentrations

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- High Chroma Sands (S11) (LRR K, L)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR K, L)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: NA

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. ([http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_051293.docx](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)).

## WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: 66 Leverett Road City/County: Shutesbury Sampling Date: 11/10/22  
 Applicant/Owner: Town of Shutesbury State: MA Sampling Point: Test Pit #4  
 Investigator(s): April Doroski, PWS, CPSS, Fuss & O'Neill Section, Township, Range: \_\_\_\_\_  
 Landform (hillside, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): none Slope (%): 0-3  
 Subregion (LRR or MLRA): LRR R, MLRA 144A Lat: 42.450713 Long: -72.415545 Datum: NAD83  
 Soil Map Unit Name: 368B - Metacomet fine sandy loam and 368A - Metacomet fine sandy loam NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No X (If no, explain in Remarks.)  
 Are Vegetation X, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No X  
 Are Vegetation X, Soil X, or Hydrology X naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No _____ Hydric Soil Present? Yes <u>X</u> No <u>0</u> Wetland Hydrology Present? Yes _____ No _____	<b>Is the Sampled Area within a Wetland?</b> Yes <u>X</u> No _____ If yes, optional Wetland Site ID: <u>Test Pit #4</u>
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Remarks: (Explain alternative procedures here or in a separate report.)  
 Due to drought conditions reported for the Connecticut River Valley Region since May, hydrologic conditions are not typical for this time of year. According to the Massachusetts Department of Conservation and Recreation (DCR) the Connecticut River Valley Region experienced drought conditions starting in May 2022 and continuing through November 2022. At the time of delineation, drought status was at Level 1 - Mild Drought.

### HYDROLOGY

<b>Wetland Hydrology Indicators:</b> <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
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<b>Field Observations:</b> Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	<b>Wetland Hydrology Present?</b> Yes _____ No _____
--	--

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
 The plot was taken within the historical disturbed (mowed and other site activities) portion adjacent to the original BVW 2 boundary delineated in August 2022. The test pit was dug with a spade to a depth of approximately 34 inches. This test pit area was included within the re-delineated BVW 2 boundary.

**VEGETATION** – Use scientific names of plants.

Sampling Point: Test Pit #4

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30</u> )				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
		=Total Cover		
<b>Sapling/Shrub Stratum</b> (Plot size: <u>15</u> )				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
		=Total Cover		
<b>Herb Stratum</b> (Plot size: <u>5</u> )				
1.	<u>90</u>	<u>Yes</u>		
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
	<u>90</u>	=Total Cover		
<b>Woody Vine Stratum</b> (Plot size: <u>5</u> )				
1.				
2.				
3.				
4.				
		=Total Cover		

<b>Dominance Test worksheet:</b>	
Number of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u> (A)
Total Number of Dominant Species Across All Strata:	<u>1</u> (B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>0.0%</u> (A/B)
<b>Prevalence Index worksheet:</b>	
Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>0</u> (A)	<u>0</u> (B)
Prevalence Index = B/A = _____	
<b>Hydrophytic Vegetation Indicators:</b>	
<u>  </u> 1 - Rapid Test for Hydrophytic Vegetation	
<u>  </u> 2 - Dominance Test is >50%	
<u>  </u> 3 - Prevalence Index is ≤3.0 <sup>1</sup>	
<u>  </u> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
<input checked="" type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<b>Definitions of Vegetation Strata:</b>	
<b>Tree</b> – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.	
<b>Sapling/shrub</b> – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.	
<b>Herb</b> – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.	
<b>Woody vines</b> – All woody vines greater than 3.28 ft in height.	
<b>Hydrophytic Vegetation Present?</b> Yes <u>  </u> No <u>  </u>	

Remarks: (Include photo numbers here or on a separate sheet.)  
 Area of wetland plot is problematic due to regular mowing. Identification of grass species is not possible. Sensitive fern observed in pockets.

**SOIL**

Sampling Point: Test Pit #4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	10YR 3/2	100					Sandy	
9-16	2.5Y 5/3	98	10YR 4/6	2	C	M	Sandy	
16-26	10YR 3/2	60	2.5Y 5/4	20	C	M	Sandy	Buried A horizon (Ab)
			10YR 5/8	35	C	M		
26-34	2.5Y 5/3	80	10YR 5/8	20	C	M	Sandy	Prominent redox concentrations

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) (LRR R, MLRA 149B)
- Thin Dark Surface (S9) (LRR R, MLRA 149B)
- High Chroma Sands (S11) (LRR K, L)
- Loamy Mucky Mineral (F1) (LRR K, L)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Marl (F10) (LRR K, L)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) (LRR K, L, MLRA 149B)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3) (LRR K, L, R)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12) (LRR K, L, R)
- Piedmont Floodplain Soils (F19) (MLRA 149B)
- Mesic Spodic (TA6) (MLRA 144A, 145, 149B)
- Red Parent Material (F21)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: NA  
 Depth (inches): \_\_\_\_\_

**Hydric Soil Present?**      Yes       No \_\_\_\_\_

**Remarks:**

This data form is revised from Northcentral and Northeast Regional Supplement Version 2.0 to reflect the NRCS Field Indicators of Hydric Soils version 7.0 March 2013 Errata. ([http://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs142p2\\_051293.docx](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_051293.docx)). This soil meets the definition of the New England Hydric Soil Technical Committee, Field Indicators for Identifying Hydric Soils in New England (ver 4), NE-S1 Three Chroma Sands hydric soil indicator for both the horizons 0-16" and the buried horizons 16" and deeper.