Vermont Agency of Natural Resources
Department of Environmental Conservation
Watershed Management Division

Class I Determination Rulemaking Decision
Issued Pursuant to Section 7 of the Vermont Wetland Rules

In the matter of:

Ripton Conservation Commission
Petition for the reclassification of the Beaver Meadows Wetland Complex from Class II to Class I with a 400-foot buffer zone.
Located off FR 90C off Upper Notch Road in Ripton, Vermont

File #: 2017-396.P

The Secretary may, upon a petition or on his or her own motion, determine whether any wetland is a Class I wetland, pursuant to 29 V.S.A. § 410. The Secretary may establish the necessary width of a buffer zone of any Class I wetland as part of any wetland determination pursuant to the Vermont Wetland Rules. Section 4.2 of the VWR

As required under 29 V.S.A. § 410 and Section 7 VWR, this wetland determination is based on an evaluation of the extent to which the wetland serves the functions and values of Rules, is **exceptional or irreplaceable in its contribution to Vermont's natural heritage** and, therefore, merits the highest level of protection. Public notice of this wetland determination has been given in accordance with Section 8.3 of the VWR.

Petition

1. A complete petition was received from the Ripton Conservation Commission for a Wetland Determination 2016-396.P on 9/18/2017 (Attachment 1). The Wetland Determination was put on notice from 10/26/2017 until 12/11/2017.

2. The subject wetland is located at a height of land located within the towns of Ripton and Bristol, wholly within the Green Mountain National Forest (GMNF) at the intersection of the Ripton, Bristol and Middlebury town lines. The site can be accessed from GMNF road FR 90C, which is off Upper Notch Road in Ripton. A map showing the approximate location of the Class I wetland is attached (Attachment 2).

3. The Beaver Meadows wetland complex occupies a narrow valley that sits on a high plateau above the steep western escarpment of the Green Mountains. The complex is approximately 66 acres in size and consists of a mosaic of wetland types. Examples of natural communities include dwarf shrub bog, Black Spruce Woodland Bog, Emergent/Shrub Marsh, Hardwood/Shrub Swamp, and a forest seepage swamp. Beaver

Brook serves as the complex's main hydrological influence. Beaver Meadows drains to the northeast into the Middlebury River and southwest into the New Haven River watershed.

4. Julie Follensbee, Charlie Hohn, and Zapata Courage visited the wetland on September 13, 2016.

5. The wetland in question is currently identified as a Class II wetland on the Vermont Significant Wetlands Inventory (VSWI) map. The petition is to reclassify this wetland from Class II to Class I, and to update the VSWI map to define the general location of the Class I wetland. A map of the proposed Class I wetland boundary and associated 400-foot buffer zone is provided as Attachment 3.

6. In brief, the wetland in question is described as a complex that is approximately 66 acres in size and comprises multiple natural wetland community types, including Black Spruce Woodland Bog, Emergent/Shrub Marsh, and Hardwood/Shrub Swamp. These wetlands are associated with Beaver Brook. The Beaver Brook Meadows wetland is part of, and surrounded by, the Green Mountain National Forest (GMNF), which is an intact and unfragmented landscape along the spine of the Green Mountains.

7. Beaver Meadows occupies a narrow valley that sits on a high plateau above the steep western escarpment of the Green Mountains. It is approximately 66 acres with additional wetland areas connected via stream hydrology draining in three directions. Middlebury River in particular has high flood risk and is protected in part by this headwater wetland. Beaver activity has provided natural damming to hold back water from storms and snow melt. The deep peaty muck and surrounding wetlands allow for the absorption and slow release of water which reduces flooding potential downstream and helps to off-set or delay drought conditions. The thick layer of peat and living vegetation in the wetland complex also provide long-term carbon storage, playing an important role in mitigating climate change.

8. This wetland is a dynamic system offering a variety of habitats for different wetland-dependent species and supports several rare, threatened or endangered species. Numerous wildlife surveys over the decades has provided a unique baseline dataset.

9. The US Forest Service already recognizes the area as being worthy of protection and recognition. They have designated the area as an Ecological Special Area within the Green Mountain National Forest Land and Resources Management Plans in 1986 and in 2006 (Attachment 1 – Appendices J & K).

10. Public comments were received from during the public comment period. A responsiveness summary is provided as Attachment 4 which includes a summary of comments and Agency responses. Letters of support were received from the Town of Ripton and a resident of Ripton.

Findings

As required by 10 V.S.A. § 914 and Section 8 of the VWR, this wetland determination is based on an evaluation of the functions and values of the subject wetland as described in Section 5 of the VWR. Section 5 provides that in evaluating whether a wetland is a Class II or a Class I

wetland, the Secretary shall evaluate the functions that the wetland serves both as a discrete wetland and in conjunction with other wetlands by considering detailed functional criteria. Consideration shall be given to the number of and/or extent to which protected functions and values are provided by a wetland or wetland complex.

1. The protected functions of the Beaver Meadows wetland complex include the following: water storage for flood water and storm runoff as described in Section 5.1 of the VWR; surface and groundwater protection (Section 5.2); fisheries habitat (Section 5.3); wildlife and migratory bird habitat (Section 5.4); exemplary wetland natural community (Section 5.5); rare, threatened and endangered species habitat (Section 5.6); education and research in natural science (Section 5.7); recreational value and economic benefits (Section 5.8); open space and aesthetics (Section 5.9); and erosion control through binding and stabilizing the soil (Section 5.10).

2. The following protected functions are considered exemplary or irreplaceable: water storage for flood water and storm runoff as described in Section 5.1 of the VWR; exemplary wetland natural community (Section 5.5); and education and research in natural science (Section 5.7).

3. **Water Storage for Flood Water and Storm Runoff**

   Wetlands that provide for the temporary storage of floodwater or stormwater runoff to the extent that they make an important contribution to reducing risks to public safety, reducing damage to public or private property reducing downstream erosion or enhancing the stability of habitat for aquatic life are significant wetlands.

   The wetland is significant for the water storage for flood water and storm runoff function due to its ability to retain and slowly release water from its headwater location to two downstream receiving waters, and as demonstrated in Section 6 of the petition and as confirmed through a site visit by Agency staff.

   The Beaver Meadows complex is an assortment of different natural wetland community types, including bogs, deep and shallow emergent marshes, and scrub-shrub swamps that contribute to this functions to retain waters. This large wetland complex has physical space for floodwater storage and dense, persistent and woody vegetation that slows down floodwaters, releases it slowly or facilitates water removal by evaporation and transpiration. The wetlands of the complex are important for the retention and slow release of floodwater going to the flood prone Middlebury River. Beaver Meadows is a high elevation wetland complex that drains into both New Haven and Middlebury Rivers. Middlebury River in particular has high flood risk and is protected in part by this wetland. Beaver activity has provided natural damming to hold back water from storms and snow melt. The deep peaty muck and surrounding wetlands allow for the absorption and slow release of water which reduces flooding potential downstream and helps to off-set or delay drought conditions.

For these reasons, the Beaver Meadows wetland complex is exceptional and irreplaceable for the storage of floodwater and storm water runoff.

4. **Surface and Ground Water Protection**

Wetlands that make an important contribution to the protection or enhancement of the quality of surface or of ground water are significant wetlands.

The wetland is a headwater wetland with high amounts of microtopography and springs that contribute to this function. The wetland is significant for the surface and ground water function as demonstrated in Section 7 of the petition and as confirmed through a site visit by Agency staff.

5. **Fish Habitat**

Wetlands that are used for spawning by northern pike or that are important for providing fish habitat are significant wetlands.

The wetland contains woody vegetation that overhangs banks of a stream, providing refuges and food sources for instream fish, as well as providing cold water recharge to downstream fisheries. The wetland is significant for the fish habitat function as demonstrated in Section 8 of the petition and as confirmed through a site visit by Agency staff.

6. **Wildlife Habitat**

Wetlands that support a significant number of breeding waterfowl, including all species of ducks, geese and swans, or broods of waterfowl or that provide important habitat for other wildlife and migratory birds are significant wetlands.

The wetland is a large complex of varying wetland types including surface waters with the habitats to support numerous wetland dependent species from birds to mammals to amphibians. Additionally, several wetland dependent species have been documented by various State, Federal and conservation entities. The wetland is significant for the wildlife habitat function as demonstrated in Section 9 of the petition and as confirmed through a site visit by Agency staff.

7. **Exemplary Wetland Natural Community**

Wetlands that make an important contribution to Vermont's natural heritage are significant wetlands. These include wetlands that are identified as high-quality examples of one of Vermont's recognized natural community types.

The wetland complex includes documented wetland natural communities. The wetland is significant for the exemplary wetland natural community function as demonstrated in Section 10 of the petition and as confirmed through a site visit by Agency staff.

According to ANRs Natural Heritage Inventory Project, Beaver Brook Meadows has at least four community types present including: Dwarf shrub bog, Black Spruce Woodland Bog, Emergent/Shrub Marsh, and Hardwood/Shrub Swamp (Attachment 1 – Appendix I). Only one state significant natural community, dwarf shrub bog, is currently documented on the Natural Heritage Information Project, though the black spruce woodland bog likely would be state significant if surveyed. There is a seepage forest in north end of the complex that is a type not yet described by the Natural Heritage Information Project but has exemplary qualities. As described in "Wetland, Woodland, Wildland-A Guide to the Natural Communities of Vermont", by E.H. Thompson and E. R. Sorenson "*Dwarf shrub bogs are considered rare in Vermont, both because there are relatively few sites known and the total acreage of bogs in the state is low*.(pg. 316)" (Attachment 1 – Appendix M)

The Beaver Brook Meadows wetland complex is exceptional and irreplaceable for the exemplary wetland natural community function.

8. **Rare, Threatened, and Endangered Species Habitat**

Wetlands that contain rare, threatened, or endangered species of plants or animals are significant wetlands.

The presence of several rare species has been documented in the wetland complex. The wetland is significant for the rare, threatened and endangered species habitat function as demonstrated in Section 11 of the petition and as confirmed through a site visit by Agency staff.

9. **Education and Research in Natural Sciences**

Wetlands that provide or are likely to provide valuable resources for education or scientific research are significant wetlands.

The wetland complex is located on federal land and has a history of being used for research studies. The wetland is significant for the education and research in natural sciences function as demonstrated in Section 12 of the petition and as confirmed through a site visit by Agency staff.

Under management prescription -8.1 in the GMNF plan (Attachment 1 – Appendix), Beaver Meadows and Abbey Pond was designated a Special Area. In 1989, Beaver Meadows and Abbey Pond was considered for the designation of it being a Research Natural Area by the Natural Heritage Program and an Establishment Record was drafted (Attachment - Appendix N). In this draft document the wetland complex is described as an important natural area of state and national significance; it was later decided that it did not meet all the criteria for that federal designation; although data and information still support the areas as an Ecological Special Area. In the 2006 GMNF Land and Resources Management Plan, Beaver Meadows and Abbey Pond are designated as an Ecological Special Area (Section 8.7) identifying the wetland complex, pond, rare plants and heron rookeries as the special values. Numerous surveys have been conducted in Beaver

Meadows including "Keeping Track Surveys" for mammal usage, amphibian and reptile surveys, and RTE surveys. Some of the data from these surveys may serve as baseline monitoring data to help monitor for population changes; therefore, this wetland complex is considered irreplaceable for this function. At the time of the amphibian and reptile studies in the 1990's, it was only one of three locations in the GMNF where amphibian populations were being monitored and was the only site in the GMNF that had a reptilian inventory Attachment 1 – Appendix J.

The Beaver Meadows wetland complex is exceptional for education and research in natural sciences.

10. **Recreational Value and Economic Benefits**

Wetlands that provide substantial recreational values or economic benefits are significant wetlands.

The wetland complex is remote, but has reasonable access on public land for recreation, as well as a history of use for such. The wetland is significant for the recreational value and economic benefits function as demonstrated in Section 13 of the petition and as confirmed through a site visit by Agency staff.

11. **Open Space and Aesthetics**

Wetlands that contribute substantially to the open-space and aesthetic character of the landscape are significant wetlands.

The wetland is a distinct and public feature on the landscape that is significant for the open space and aesthetics function as demonstrated in Section 14 of the petition and as confirmed through a site visit by Agency staff.

12. **Erosion Control through Binding and Stabilizing Soil**

Wetlands that are important for erosion control are significant wetlands. Such wetlands are typically located along stream, river, pond or lake shorelines, where erosive forces are present.

The wetland complex contains sinuous streams that are flanked by dense vegetation that reduces the actual and potential streambank erosion, as well as downstream erosion. The wetland is significant for the erosion control through binding and stabilizing soil function as demonstrated in Section 15 of the petition and as confirmed through a site visit by Agency staff.

The Secretary shall also determine whether the wetland is exceptional or irreplaceable based on an evaluation of the extent to which the wetland contributes to Vermont’s natural heritage. In determining whether a wetland is exceptional and/or irreplaceable in its contribution to

Vermont's natural heritage the Secretary shall, at a minimum, consider the whether the wetland is categorized as one or more of the following:

13. The exceptional or irreplaceable characteristics of the wetland include the following: Representative Example of Wetland Type; Rare Community Type; Community Assemblage/Wetland Complex; and Landscape Association.

14. **Representative Example of Wetland Type**

Wetlands that are considered exceptional for this criterion exhibit a reference condition for the wetland type(s) with minimal evidence of human disturbance. Based on size, condition, quality and function, these wetlands represent a reference condition for wetland type, and are therefore exceptional.

The wetland is a representative example of a dwarf shrub bog and is in reference condition. The wetland complex is 66 acres, 3-4 of which are dwarf shrub bog and ranks high on the VRAM with very little human disturbance.

The Beaver Meadows wetland complex is representative of a dynamic system influenced by beaver activity and the natural succession that takes place after beaver have left an area. The complex contains several wetland community types, each representative of the community type based on species present; including the dwarf shrub bog, as described below. It is dominated by leatherleaf and contains peat at depths between 3 and over 15 feet. The Dwarf shrub bog has been identified by the VT NHIP. As described in "Wetland, Woodland, Wildland-A Guide to the Natural Communities of Vermont" by E.H. Thompson and E. R. Sorenson, a dwarf shrub bog as contains tall hummocks and moist hollows. The text lists dominant vegetation, many of which were documented within the Beaver Brook Meadows wetland community during site visits. The related communities to the dwarf shrub bog were also described in the book, including the black spruce woodland bog "Dwarf shrub bogs often grade into black spruce woodland bogs...within the cooler regions of Vermont" (pgs. 314-319). Beaver Meadows contains a black spruce bog area and it is representative of that community type.

15. **Rare Community Type**
Wetlands that are considered irreplaceable for this criterion contain unique or rare wetland community type(s) which may be slow-forming or near the extent of its natural range.

The wetland complex contains dwarf shrub bog and black spruce woodland bog that are uncommon and slow forming. The wetland complex is large with small bog inclusions and ranks high on the Vermont Rapid Assessment Methodology (VRAM) with very little human disturbance.

Dwarf Shrub bog is an S2 community type as identified by the VT Natural Heritage Inventory Program. The Beaver Meadows wetland complex contains approximately a 3-4-acre dwarf shrub bog community. It is dominated by leatherleaf and contains peat at depths between 3 and over 15 feet. Although not listed as rare, it also contains a small black

spruce swamp. As described in Wetland, Woodland, Wildland-A Guide to the Natural Communities of Vermont by E.H. Thompson and E. R. Sorenson "Dwarf shrub bogs are considered rare in Vermont, both because there are relatively few sites known and the total acreage of bogs in the state is low" (pg. 316). In addition, "Black spruce woodland bogs are rare in Vermont and most of the examples are small" (pg. 318).

16. **Community Assemblage/Wetland Complex**

Wetlands that are considered exceptional for this criterion are larger wetland complexes usually associated with, multiple wetland community types and bodies of water, which have high species diversity and function. These provide exceptional function and value.

The wetland complex comprises several representative wetland types as listed below and is in reference condition. The wetland is 66 acres in size and ranks very high on the VRAM with very little human disturbance.

The Beaver Meadows wetland complex occupies a narrow valley that sits on a high plateau above the steep western escarpment of the Green Mountains. The valley drains in three directions. While Abbey Pond has its own drainage, Beaver Meadows drain to the northeast and southwest; into the Middlebury River and New Haven River watersheds. The wetland is underlain by metamorphosed sedimentary rocks. Thick layers of peat, hydric soils and in some locations a layer of grey sand were documented. The wetland communities within the Beaver Meadows complex include dwarf shrub bog, Black Spruce Woodland Bog, Emergent/Shrub Marsh, Hardwood/Shrub Swamp, and a forest seepage swamp. Specific species lists for plants, birds, amphibians/reptiles and mammals are provided as supplemental materials with the Petition. A draft map of community types has also been provided with the Petition to show approximations of community types and location within the wetland complex (Attachment 1 – Appendix D).

17. **Landscape Association**

These wetlands are irreplaceable because of the critical nature of their landscape position, and the corresponding functions in that landscape. They are often exceptional because of their size, function and value.

The wetland is a large headwater complex that occupies a unique and important place on the landscape. The wetland is 66 acres in size and ranks extremely high on the Vermont Rapid Assessment Methodology with very little human disturbance.

The Beaver Meadows wetland complex occupies a narrow valley that sits on a high plateau above the steep western escarpment of the Green Mountains. Beaver Meadows drain to the northeast and southwest; into the Middlebury River and New Haven River watersheds; thus, its function for providing water storage and water quality is critical in relation to its landscape position as a large headwaters wetland although not located at the highest elevation on the landscape.

In addition to the above criteria, when determining whether a wetland is exceptional and/or irreplaceable in its contribution to Vermont's natural heritage the Secretary may also consider the following qualities, functions and values that would contribute to a wetland being exceptional and irreplaceable:

18. **Undisturbed Condition**

Those wetlands in a relatively undisturbed condition.

The wetland is recovered and undisturbed as demonstrated by a VRAM score of 100 out of 100.

Historic data indicates that this area had undergone land clearing, pasturing and then subsequent logging. However, in the last 50 to 75 years, little to no human activity has occurred, allowing the land to succeed to a regenerated forested landscape. The wetland complex has been influenced by beaver activity which is part of its natural regime. There are no known invasive species present in the complex. Continued ownership and management by the USFS, as well as the remote location, has resulted in the wetland remaining in an overall undisturbed condition.

19. **Intact Landscape**

Those wetlands that are part of an intact and unfragmented landscape.

The wetland is within a landscape which is intact and in a high-quality condition. The Beaver Meadows wetland is part of, and surrounded by, the Green Mountain National Forest, which is an intact and unfragmented landscape along the spine of the Green Mountains. On a broad scale this is a very large habitat block that includes Abbey Pond and Elephant Mountain, with a diversity of habitat types including old-growth hemlock forest, some very good condition seepage swamps, and beaver meadows. The Robert Frost Mountain area contains 8,000 acres of mostly undisturbed, intact and unfragmented landscape. The Beaver Meadows wetland is part of this larger intact landscape.

20. **Connectivity**

Those wetlands that serve as important wildlife or waterfowl corridors, connecting natural areas and/or serving in migration.

The wetland is used as a corridor connecting habitat blocks. The Beaver Meadows wetland is part of and surrounded by the Green Mountain National Forest, which is an intact and unfragmented landscape along the spine of the Green Mountains. On a broad scale this is a very large habitat block that includes Abbey Pond and Elephant Mountain, with a diversity of habitat types including old-growth hemlock forest, some very good condition seepage swamps and beaver meadows. This habitat block, inclusive of the large 66-acre Beaver Meadows complex, provides good connectivity to the greater Green Mountain National Forest habitat blocks.

Determination of Wetland Classification

Based on the petition dated September 18, 2017, information obtained during a site visit by Wetlands Program staff, comments received during the public notice period and an evaluation of the functions and values of the wetland and the natural heritage value of the wetland, the Secretary has determined that the wetland under consideration is a Class II wetland.

Required Buffer Zone

In order to protect the functions that make the wetland exceptional or irreplaceable, the Secretary has determined that a 400-foot buffer zone is required for the wetland.

Based on the review of the 2007 management comments for the wetland by NHIP (Attachment 1 – Appendix L)., a minimum of a 400-foot buffer was recommended to maintain at least a 75% canopy, in order to maximize the protection of the ecological integrity of this very significant peatland complex and the wildlife habitat it provides, and to minimize adverse effects on the quality of surface water entering the wetland. Recommendations for a larger 600-900-foot buffer to provide a protected suitable habitat for foraging and overwintering by reptiles and amphibians as well as maintaining water quality were included within a report by Jim Andrews at Middlebury College (Attachment 1 – Appendix K. Given the historic data available, lack of invasive species, and public ownership, this complex has high value as a reference site for future studies. Preserving the intact nature of the wetland and therefore buffer is critical to its utility as a reference site. For these reasons, a 400 ft. buffer is proposed to protect the intact nature of the natural communities and functions of the wetland.

Effect of Class I Wetland Determination

Activity in a Class I wetland or its associated buffer zone is prohibited unless it is an allowed use under the VWR, or unless it is authorized by a permit, conditional use determination or order issued by the Secretary. The Secretary may impose any permit conditions as necessary to achieve the purposes of the VWR. Section 9.1 of the VWR. This Determination does not relieve the petitioner or any other person of the responsibility to comply with all other applicable federal, state or local laws.

Attachments

Petition and Petition Appendices (Attachment 1)
Location Map (Attachment 2)
Class I Boundary Map (Attachment 3)
Public Comment Responsiveness Summary (Attachment 4)

Other Reference Documents as Appendices to Petition in Attachment 1

Functions and Values Checklist (Attachment 1 - Petition)
Heritage/F&W Surveys (Petition Appendices F, H, I, L, N)
Photos (Petition – Appendix B)
VRAM (Petition – Appendix S)
Abutter Map and List (Petition Form)

Vermont Wetlands Program Determination and Class I Rulemaking Petition Database Form

Under Sections 7 and 8
of the Vermont Wetland Rules

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
WETLANDS PROGRAM

Petition Submittal Instructions

- If submitting via US post:

Mail to:
Vermont Wetlands Program
Watershed Management Division
One National Life Drive, Main 2
Montpelier, VT 05620-3522

  - ***Please submit a CD for petitions that contain large files (1 MB or greater).***

- Petitions can also be submitted via email to the following address: ANR.WSMDWetlands@vermont.gov

  - ***It is not necessary to mail in a copy of the complete petition if submitting via email***

Petitioner Name: Ripton Conservation Commission	**Petition Preparer Name:** Ripton Conservation Commission C/O Zapata
Town Where Wetland is Located: Ripton	**County:** Addison
Span#:	**Vermont Wetlands Project (VWP)# if Known:** 2017-396

Wetland Location Description:
911 street address or direction from nearest intersection

See location map (APPENDIX A): Topo Quad 4407311; centered near 44 02'08" N Latitude and 73 03'23'W Longitude
Take FR 90 South from the Upper Bristol Notch Road. Take FR 90C south where FR bends west. Note that FR90C skirts the eastern part

Brief Petition Summary:

Based on the size of the Beaver Meadow wetland complex and the functions and values it provides at a significant level or deemed exception and/or irreplaceable, this wetland complex meets the criteria for a Class I designation. Based on the assessment by the VT Natural Heritage Program, a 400 ft. buffer is determined to be ecologically sound. Given the remote nature and ownership of the wetland

Petition Type: ☒Class I Wetland Rulemaking Petition ☐Wetland Determination to Class II ☐Wetland Determination to Class III

Existing Land Use Type(s): *(Check all that apply)* ☐Residential (single family) ☐Residential (subdivision) ☒Undeveloped
☐Agriculture ☐Transportation ☐Forestry ☐Parks/Rec/Trail ☐Institutional ☐Industrial/Commercial

Proposed Land Use Type(s): *(Check all that apply)* ☐Residential (single family) ☐Residential (subdivision) ☒Undeveloped
☐Agriculture ☐Transportation ☐Forestry ☐Parks/Rec/Trail ☐Institutional ☐Industrial/Commercial

Wetland Delineation Date(s): Not applicable; mapping accomplished by aerial imagery and historic records with some field verification

Vermont Wetlands Program
Determination and Class I
Rulemaking Petition

Under Sections 7 and 8
of the Vermont Wetland Rules

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
WETLANDS PROGRAM

Petitioner Information: *If the Petitioner is someone other than the landowner, the landowner information must be included below*			
Petitioner Name: Ripton Conservation Commission C/O Mark Nelson, Chair of Ripton Conservation Commission			
Address: PO Box 207	City/Town: Ripton	State VT	Zip: 05766
Phone Number: 802-388-2857	Email Address: m.a.nelson@live.com		

Petitioner Certification:
By signing this petition, you are certifying that all of the information contained within is true, accurate, and complete to the best of your knowledge. Original signature is required.

Petitioner Signature: _____ Date: 9-14-2017

Landowner: U.S. Forest Service C/O Chris Mattrick, District Ranger
99 Ranger Road
Rochester, VT 05767
802-767-4261 ext 513
cmattrick@fs.fed.us

The US Forest Service is not petitioning for a change in classification

Petition Preparer Information: *Consultant, engineer, or other representative that is responsible for filling out the petition, if other than the Petitioner or landowner.*			
Petition Preparer Name: Ripton Conservation Commission C/O Zapata Courage, Member of Ripton Conservation Commission			
Address: PO Box 106	City/Town East Middlebury	State: VT	Zip: 05740
Phone Number: 802-388-0868	Email Address: zapcourage@yahoo.com		

Petition Preparer Certification:
By signing this petition, you are certifying that all of the information contained within is true, accurate, and complete to the best of your knowledge. Original signature is required.

Petition Preparer Signature: _____ Date: Sept. 14, 2017

Handwritten signatures are also accepted.

1. Location of wetland:
Location description should include the road the wetland is located on, the compass direction of the wetland in relation to the road, 911 street address if available, and any other distinguishing features.

See location map (APPENDIX A):Topo Quad 4407311; centered near 44 02'08" N Latitude and 73 03'23'W Longitude
Take FR 90 South from the Upper Bristol Notch Road. Take FR 90C south where FR bends west. Note that FR90C skirts the eastern

2. Current Wetland Classification:

2.1. The wetland is a Class II wetland because:

The wetland is mapped on the VSWI

2.2. Section 4.6 Presumption
If the wetland meets the Section 4.6 Presumption, it does so primarily because:

a. Wetland is of the same type and threshold size as those mapped on VSWI maps; or greater than 0.5 acres.

c. The wetland contains dense, persistent, non-woody vegetation and is adjacent to a stream, river, or open body of water.

g. The wetland contains a species that appears in the NNHP database as rare, threatened, endangered, or uncommon; or is a natural community type that is rare or uncommon.

3. Description of the Wetland:
Answer the following questions regarding the entire wetland area proposed for a determination or Class I designation.
SEE Site visit photos; Appendix B

3.1. Size of Complex in Acres:
The size of the complex can be obtained from the Wetland Inventory Map for mapped wetlands, or best estimation based on review of aerial photography or site visit.

See APPENDIX B (Proposed mapping)The Beaver Meadows wetland complex for reclassification is approximately 66 acres, based

3.2. Vegetation Cover Types Present:
List all wetland types in the wetland or wetland complex and their percent cover and the dominant species.
***For example:** 50 acres of softwood forested swamp dominated by hemlock; or 30% scrub swamp button bush, 70% emergent wetland dominated by reed-canary grass, sensitive fern, and jewelweed*

See Draft Community Mapping: APPENDIX C~75% emergent; 15% scrub-shrub and 10% forested wetland, open water component

3.3. Landscape Position:
Where is the wetland located on the landscape? Describe all.
***For example:** Bottom of a basin, edge of a stream, shore of a lake, etc.*

The wetland occupies a narrow valley that sits on a high plateau above the steep western escarpment of the Green Mountains. The

3.4. Hydrology:
Describe the main source of water for the wetland. List any river, stream, lakes, or ponds.

There are streams that are entering into the wetland complex. Beaver activity has created dams and flooding in some areas. High

3.4.1. Direction of Flow:
***For example:** Stream flows from north to south through the wetland, or the wetland drains generally to the southwest.*

The valley in which the wetland is located drains in three directions, with a meandering main channel and numerous side channels. Springs and seeps are located in various places within and along the edge of the wetland

3.4.2. Influence of Hydrology on the Wetland:
***For example:** The river provides floodwater to the wetland in the spring.*

Perrenial streams provide a constant source of water, which when dammed by beavers has flooded certain areas of the complex. A

3.4.3. Relation of Entire Wetland to the Project Area:
The distance between the project area and any nearby surface waters

A large stream channel meanders through the wetland complex with numerous side channels. Abbey Pond is located approximately

3.4.4. Wetland Hydroperiod:
Discuss the frequency and duration of flooding, ponding, and/or soil saturation

Different areas of the wetland complex experience different hydroperiods of flooding or ponding based on annual precipitation and/or beaver activity. Soils within the wetland are permanently saturated.

3.5. Surrounding Landuse of the Entire Wetland:
***For example:** Rural residential and forested; Agricultural and undeveloped*

100% forested, undeveloped. Historic pasturing and logging. Logging and some recreational use still occur within the GMNF surrounding the wetland.

3.6. Relation of the Wetland to Other Nearby Wetlands:
Provide any information on wetlands or wetland complexes that are close enough to contribute to the overall function of the wetland in question.

Beaver Meadows is hydrologically connected via water drainage to a series of wetlands in three directions; southwest, southeast and northeast. These wetlands also support and contribute to most of the functions and values identified for the Beaver Meadows complex

3.7. Cumulative Impacts to the Wetland:
Identify any cumulative ongoing impacts that may influence the wetland.
Examples include but are not limited to: *Wetland encroachments, land use management in or surrounding the wetland, or development that influences hydrology or water quality. List any past Vermont Wetland Permits or CUD's related to this property.*

As documented in the report by Cogbill, ECOLOGICAL EVALUATION OF THE ABBEY POND/BEAVER MEADOW CANDIDATE RESEARCH NATURAL AREA GREENOUNTAIN NATIONAL FOREST,VERMONT (Appendix D), back in the 19th century through the 1940's it appears that this area had been cleared and used for pasturing. A 1942 photograph shows field lines. There also had

4. Buffer Zone:
Describe the proposed buffer zone of the wetland (default 100-foot buffer for Class I, but other may be proposed)

4.1. Buffer Size proposed:
The purpose of a buffer zone is to protect those functions that make a wetland significant. Here state the proposed size and justification. The default buffer size for a Class II is 50 feet, and 100 feet for Class I. N/A for Class III petitions.

Based on the assessment by the VT Natural Heritage Program, a 400 ft. buffer is determined to be ecologically sound in protecting the significant functions and values of this wetland. For management by the USFS; the NHPI referred to logging as the activity and

4.1.1 Buffer Land Use:
For example: *Mowed shoulder, 50% forested, old field, paved road, and residential lawns, etc. Describe any previous and ongoing disturbance in the buffer zone.*

100 % forested; Back in the 19th century through the 1940's it appears that this area had been cleared and used for pasturing. A 1942 photograph shows field lines. There also had been historic logging with old skidder trails still in evidence; however the area has recovered.

4.1.2 Buffer Vegetation:
List the vegetation cover type and dominant plant species.

The upland buffer around this wetland primarily consists of Lowland Spruce-Fir Forest dominated by Balsam fir with red maple and typical boreal-affinity understory. Higher up are areas of Red Spruce-Northern Hardwood Forest, Hemlock-Northern Hardwood Forest, and Northern Hardwood Forest.

4.1.3 Buffer Soils:
Use USDA NRCS information where possible, and the ACOE Delineation Manual soil description.

Cabot extremely stony loam, 0 to 15 percent slopes; Crudely most of forested land in the area have haplorthods soils developed from relatively thin glacial till deposits. They are generally well-drained, stony, and sandy loams comparable-to the Berkshire-lvlarlow

5. Wetland Function and Value Summary (as defined in the Vermont Wetland Rules Section 5):
Check which functions are present in the wetland

☑ Flood/Storm Storage	☑ RTE Species
☑ Surface & Groundwater Protection	☑ Education & Research
☑ Fish Habitat	☑ Recreation/Economic
☑ Wildlife Habitat	☑ Open Space/Aesthetics
☑ Exemplary Natural Community	☑ Erosion Control

Functions and Values: *For each function and value evaluate the **wetland** and check all that apply. Use Wetland Inventory Maps when necessary.*

6. Water Storage for Flood Water and Storm Runoff

☑ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function

☑ Constricted outlet or no outlet and an unconstructed inlet.

☑ Physical space for floodwater expansion and dense, persistent, emergent vegetation or dense woody vegetation that slows down flood waters or stormwater runoff during peak flows and facilitates water removal by evaporation and transpiration.

Water Storage for Flood Water and Storm Runoff Continued…

☐ If a stream is present, its course is sinuous and there is sufficient woody vegetation to intercept surface flows in the portion of the wetland that floods.

☒ Physical evidence of seasonal flooding or ponding such as water stained leaves, water marks on trees, drift rows, debris deposits, or standing water.

☐ Hydrologic or hydraulic study indicates wetland attenuates flooding

If any of the above boxes are checked, the wetland provides this function. Complete the following to determine if the wetland provides this function above or below a moderate level. If none of the following apply, the wetland provides this function at a moderate level.

Water Storage for Flood Water and Storm Runoff Continued…

☐ Check this box if any of the following conditions apply that may indicate the wetland provides this function at a ***lower*** level.

☐ Significant flood storage capacity upstream of the wetland, and the wetland in question provides this function at a negligible level in comparison to upstream storage (unless the upstream storage is temporary such as a beaver impoundment).

☐ Wetland is contiguous to a major lake or pond that provides storage benefits independently of the wetland.

☐ Wetland's storage capacity is created primarily by recent beaver dams or other temporary structures.

☐ Wetland is very small in size, not contiguous to a stream, and not part of a collection of small wetlands in the landscape that provide this function cumulatively.

☒ Check this box if any of the following conditions apply that may indicate the wetland provides this function at a ***higher*** level.

☒ History of downstream flood damage to public or private property.

☒ Any of the following conditions present downstream of the wetland, but upstream of a major lake or pond, could be impacted by loss or reduction of the water storage function.

☒ Developed public or private property
☒ Stream banks susceptible to scouring and erosion
☒ Important habitat for aquatic life

☒ The wetland is large in size and naturally vegetated.

☐ Any of the following conditions present downstream of the wetland, but upstream of a major lake or pond, could be impacted by a loss or reduction of the water storage function.

☐ Developed public or private property.
☐ Stream banks susceptible to scouring and erosion.
☐ Important habitat for aquatic life.

☐ The wetland is large in size and naturally vegetated

☐ Any of the following conditions present upstream of the wetland may indicate a large volume of runoff may reach the wetland.

☐ A large amount of impervious surface in urbanized areas.
☐ Relatively impervious soils.
☐ Steep slopes in the adjacent areas.

6.1 Remarks on Water Storage function:
Add any additional remarks about the function here.

Beaver Meadows is a high elevation wetland complex that drains into both New Haven and Middlebury Rivers. Middlebury River in particular has high flood risk and is protected in part by this wetland. Lots of beaver activity has provided natural damming to hold back water from storms and snow melt. The deep peaty muck and surrounding wetlands allow for the absorption and slow release of water which reduces flooding potential downstream and helps to off-set or delay drought conditions. Because of the unique nature

7. Surface and Ground Water Protection:

▣ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

- ▣ Constricted or no outlets.
- ▣ Low water velocity through dense, persistent vegetation.
- ▣ Hydroperiod permanently flooded or saturated.
- ☐ Wetlands in depositional environments with persistent vegetation wider than 20 feet.
- ☐ Wetlands with persistent vegetation comprising a defined delta, island, bar or peninsula.
- ▣ Presence of seeps or springs.
- ▣ Wetland contains a high amount of microtopography that helps slow and filter surface water.
- ▣ Position in the landscape indicates the wetland is a headwaters area.
- ▣ Wetland is adjacent to surface waters.
- ▣ Wetland recharges a drinking water source.
- ☐ Water sampling indicates removal of pollutants or nutrients.
- ☐ Water sampling indicates retention of sediments or organic matter.
- ☐ Fine mineral soils and alkalinity not low.
- ☐ The wetland provides an obvious filter between surface water or ground water and land uses that may contribute point or nonpoint sources of sediments, toxic substances or nutrients to the wetland, such as: steep erodible slopes; row crops; dumps; areas of pesticide, herbicide or fertilizer petition; feed lots; parking lots or heavily traveled road; and septic systems.

If any of the above boxes are checked, the wetland provides this function. Complete the following to determine if the wetland provides this function above or below a moderate level. If none of the following apply, the wetland provides this function at a moderate level.

☐ Check this box if any of the following conditions apply that may indicate the wetland provides function at a ***lower*** level.

- ☐ Presence of dead forest or shrub areas in sufficient amounts to result in diminished nutrient uptake.
- ☐ Presence of ditches or channels that confine water and restrict contact of water with vegetation.
- ☐ Wetland is very small in size, not contiguous to a stream, and not part of a collection of small wetlands in the landscape that provide this function cumulatively.
- ☐ Current use in the wetland results in disturbance that compromises this function.

Surface and Groundwater Protection Continued…

☒ Check this box if any of the following conditions apply that may indicate the wetland provides function at a ***higher*** level.

☐ The wetland is adjacent to a well head or source protection area, and provides ground water recharge.

☒ The wetland provides flows to Class A surface water. (Check ANR Atlas)

☐ The wetland contributes to the protection or improvement of water quality of any impaired waters.

☒ The wetland is large in size and naturally vegetated.

7.1. Remarks on Water Protection Function:

Water Samples were not taken in the wetland; however it is assumed that the Beaver Meadows Wetland provides high quality water to both Middlebury and New Haven Rivers based on in-stream water sampling, by Addison County River Watch Collaborative ,for E. coli, turbidity and Phosphorous levels, lower in each watershed (Data for 2014 and 2015 in Appendix D). The northern part of the wetland drains into New Haven River, which is listed as Class A watershed. The New Haven and Middlebury Rivers are considered stressed (not impaired) waters in the lower watershed. The slow release of water during times of drought also helps to protect

8. Fish Habitat:

☒ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

☒ Contains woody vegetation that overhangs the banks of a stream or river and provides any of the following: shading that controls summer water temperature; cover including refuges created by overhanging branches or undercut banks; source of terrestrial insects as fish food; or streambank stability.

☒ Provides spawning, nursery, feeding or cover habitat for fish (documented or professionally judged). Common habitat includes deep marsh and shallow marsh associates with lakes and streams, and seasonally flooded wetlands associated with streams and rivers.

☐ Documented or professionally judged spawning habitat for northern pike.

☒ Provides cold spring discharge that lowers the temperature of receiving waters and creates summer habitat for salmonoid species.

☒ The wetland is located along a tributary that does not support fish, but contributes to a larger body of water that does support fish. The tributary supports downstream fish by providing cooler water and food sources.

8.1. Remarks on Fish Habitat Function:

Small fish were observed in some of the wetland channels which bisected emergent areas of the wetland. The Middlebury River is considered a good trout stream and the wetland helps support the high water quality of the Middlebury River by helping to maintain water temperature, water depth and possibly providing organic matter as a food source.

9. Wildlife Habitat

■ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

■ Provides resting, feeding staging or roosting habitat to support waterfowl migration, and feeding habitat for wading birds. Good habitats for these species include open water wetlands.

■ Habitat to support one or more breeding pairs or broods of waterfowl including all species of ducks, geese, and swans. Good habitats for these species include open water habitats adjacent shallow marsh, deep marsh, shrub wetland, forested wetland, or naturally vegetated buffer zone.

■ Provides a nest site, a buffer for a nest site or feeding habitat for wading birds including but not limited to: great blue heron, black-crowned night heron, green-backed heron, cattle egret, or snowy egret. Good habitats for these species include open water or deep marsh adjacent to forested wetlands, or standing dead trees.

■ Supports or has the habitat to support one or more breeding pairs of any migratory bird that requires wetland habitat for breeding, nesting, rearing of young, feeding, staging, roosting, or migration, including: Virginia rail, common snipe, marsh wren, American bittern, northern water thrush, northern harrier, spruce grouse, Cerulean warbler, and common loon.

☐ Supports winter habitat for white-tailed deer. Good habitats for this species include softwood swamps. Evidence of use includes browsing, bark stripping, worn trails, or pellet piles.

■ Provides important feeding habitat for black bear, bobcat, or moose based on an assessment of use. Good habitat for these types of species includes wetlands located in a forested mosaic.

■ Has the habitat to support muskrat, otter, or mink. Good habitats for these species include deep marshes, wetlands adjacent to bodies of water including lakes, ponds, rivers, and streams.

■ Supports an active beaver dam, one or more lodges, or evidence of use in two or more consecutive years by an adult beaver population.

■ Provides the following habitats that support the reproduction of uncommon Vermont amphibian species including:

■ Wood frog, Jefferson salamander, blue-spotted salamander, or spotted salamander. Breeding habitat for these species includes vernal pools and small ponds.

■ Northern dusky salamander and the spring salamander. Habitat for these species includes headwater seeps, springs, and streams.

☐ The four-toed salamander, Fowler's toad, western or boreal chorus frog, or other amphibians, found in Vermont of similar significance.

■ Supports or has the habitat to support populations of Vermont amphibian species including, but not limited to, pickerel frog, northern leopard frog, mink frog, and others found in Vermont of similar significance. Good habitat for these types of species include large marsh systems with open water components.

☐ Supports or has the habitat to support populations of uncommon Vermont reptile species including: wood turtle, northern map turtle, eastern musk turtle, spotted turtle, spiny softshell turtle, eastern ribbonsnake, northern watersnake, and others found in Vermont of similar significance.

☐ Supports or has the habitat to support significant populations of Vermont reptile species, including smooth greensnake, DeKay's brownsnake, or other more common wetland-associated species.

■ Meets four or more of the following conditions indicative of wildlife habitat diversity:

Wildlife Habitat Continued…

- ▣ Three or more wetland vegetation classes (greater than 1/2 acre) present including but not limited to: open water contiguous to, but not necessarily part of, the wetland, deep marsh, shallow marsh, shrub swamp, forested swamp, fen, or bog.
- ▣ The dominant vegetation class is one of the following types: deep marsh, shallow marsh, shrub swamp or, forested swamp.
- ▣ Located adjacent to a lake, pond, river or stream.
- ▣ Fifty percent or more of surrounding habitat type is one or more of the following: forest, agricultural land, old field or open land.
- ▣ Emergent or woody vegetation occupies 26 to 75 percent of wetland, the rest is open water.
- ▣ One of the following:
  - ▣ Hydrologically connected to other wetlands of different dominant classes or open water within 1 mile.
  - ▣ Hydrologically connected to other wetlands of same dominant class within 1/2 mile.
  - ▣ Within 1/4 mile of other wetlands of different dominant classes or open water, but not hydrologically connected.

- ▣ Wetland or wetland complex is owned in whole or in part by state or federal government and managed for wildlife and habitat conservation.
- ▣ Contains evidence that it is used by wetland dependent wildlife species

If any of the above boxes are checked, the wetland provides this function. Complete the following to determine if the wetland provides this function above or below a moderate level. If none of the following apply, the wetland provides this function at a moderate level.

☐ Check box if any of the following conditions apply that may indicate the wetland provides this function at a ***lower*** level.

- ☐ The wetland is small in size for its type and does not represent fugitive habitat in developed areas (vernal pools and seeps are generally small in size, so this does not apply).
- ☐ The surrounding land use is densely developed enough to limit use by wildlife species (with the exception of wetlands with open water habitat). Can be negated by evidence of use.
- ☐ The current use in the wetland results in frequent cutting, mowing or other disturbance.
- ☐ The wetland hydrology and character is at a drier end of the scale and does not support wetland dependent species.

▣ Check box if any of the following conditions apply that may indicate the wetland provides this function at a ***higher*** level.

- ▣ The wetland is large in size and high in quality.
- ▣ The habitat has the potential to support several species based on the assessment above.
- ☐ Wetland is associated with an important wildlife corridor.
- ☐ The wetland has been identified as a locally important wildlife habitat by an ANR Wildlife Biologist.

9.1. Remarks on Wildlife Habitat Function:

Beaver Meadows is composed of multiple wetland types with a stream associated with it and historic use by Beavers in rotation. When beavers are active, larger areas of open water are present and when abandoned, new habitat is formed through natural succession. This wetland supports a diversity of wildlife habitat. Copious moose sign, bear sign, wood frogs and snapping turtle nesting were observed in fall 2016 as were numerous odonates, some of which may be endemic to bogs (a formal wildlife survey was

10. Exemplary Wetland Natural Community

▣ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

▣ Wetlands that are identified as high quality examples of Vermont's natural community types recognized by the Natural Heritage Information Project of the Vermont Fish and Wildlife Department, including rare types such as dwarf shrub bogs, rich fens, alpine peatlands, red maple-black gum swamps and the more common types including deep bulrush marshes, cattail marshes, northern white cedar swamps, spruce-fir-tamarack swamps, and red maple-black ash seepage swamps are automatically significant for this function

The wetland is also likely to be significant if any of the following conditions are met:

▣ Is an example of a wetland natural community type that has been identified and mapped by, or meets the ranking and mapping standards of, the Natural Heritage Information Project of the Vermont Fish and Wildlife Department.

▣ Contains ecological features that contribute to Vermont's natural heritage, including, but not limited to:

▣ Deep peat accumulation reflecting a long history of wetland formation;

☐ Forested wetlands displaying very old trees and other old growth characteristics;

☐ A wetland natural community that is at the edge of the normal range for that type;

☐ A wetland mosaic containing examples of several to many wetland community types; or

▣ A large wetland complex containing examples of several wetland community types.

List species or communities of concern:

Dwarf shrub bog, dominated by leather leaf (Chamaedaphne calyculata). Black Spruce Woodland Bog and Spruce-fir-tamarack swamp also present.

10.1. Remarks on Exemplary Natural Communities:

Beaver Meadows has at least four community types present including: Dwarf shrub bog, Black Spruce Woodland Bog, Emergent/Shrub Marsh, and Hardwood/Shrub Swamp (Natural Heritage Inventory Element Occurrence: Appendix I). Only one state significant natural community identified and described - dwarf shrub bog - Spruce swamp likely would be state significant if surveyed. Seepage forest in North end may also be considered exemplary although the type is not yet described by Natural Heritage

11. Rare, Threatened, and Endangered Species Habitat:

▣ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

▣ Wetlands that contain one or more species on the federal or state threatened or endangered lists, as well as species that are rare in Vermont, are automatically significant for this function.

The wetland is also likely to be significant if any of the following apply:

▣ There is creditable documentation that the wetland provides important habitat for any species on the federal or state threatened or endangered species lists;

☐ There is creditable documentation that threatened or endangered species have been present in past 10 years;

Rare, Threatened, and Endangered Species Continued…

- ▣ There is creditable documentation that the wetland provides important habitat for any species listed as rare in Vermont (S1 or S2 ranks), state historic (SH rank), or rare to uncommon globally (G1, G2, or G3 ranks) by the Natural Heritage Information Project of the Vermont Fish and Wildlife Department;

- ▣ There is creditable documentation that the wetland provides habitat for multiple uncommon species of plants or animals (S3 rank).

List name of species and ranking:

Dwarf shrub bog is S2; Ovate spikerush (eleocharis ovata) is S3. Great Blue Heron (Ardea herodias) rookery is S3. There is S2S3 Carex oligosperma. Northern long-eared bat (Myotis septentrionalis) which is federally endangered and Little brown (Myotis lucifugus) bat, state-listed endangered have both been captured (2006) along the access road to Abbey Pond and based on email communication with Alyssa Bennett, VT F&W Biologist, it is highly likely

11.1. Remarks on RTE habitat:

The overall wetland habitat has been heavily influenced by beaver activity which can change ground conditions for RTE species. The flooding of an area may remove some habitat for plant species, at least temporarily, while creating more habitat for others such as Blue heron nesting sites; as trees are flooded and begin to die, more nesting sites become available. Open water areas provide additional feeding and areas for drinking for bats. This wetland is a dynamic system offering a variety of habitats for different species and supports a number of RTE species currently and likely in the future and while not considered RTE; this wetland complex supports

12. Education and Research in Natural Sciences:

▣ Function is present and likely to be significant: Any of the following characteristics indicate the wetland provides this function.

- ▣ Owned by or leased to a public entity dedicated to education or research.

- ▣ History of use for education or research.

- ▣ Has one or more characteristics making it valuable for education or research.

12.1. Remarks on Education and Research in Natural Sciences:

Under management prescription -8.1 in the GMNF plan (GMNF 1986), Beaver Meadows and Abbey Pond was designated a Special Area. In 1989, Beaver Meadows and Abbey Pond was considered for the designation of it being a Research Natural Area by the Natural Heritage Program and an Establishment Record was drafted (DRAFT-Establishment Record for Beaver Meadow and Abbey Pond Research Natural Area Green Mountain National Forest Addison County, Vermont: Appendix J). In this draft document the wetland complex is described as an important natural area of state and national significance; it was later decided that it did not meet

13. Recreational Value and Economic Benefits:

▣ Function is present and likely to be significant: Any of the following characteristics indicate the wetland provides this function.

- ▣ Used for, or contributes to, recreational activities.

- ☐ Provides economic benefits.

- ▣ Provides important habitat for fish or wildlife which can be fished, hunted or trapped under applicable state law.

- ▣ Used for harvesting of wild foods.

13.1 Remarks on Recreational Value and Economic Benefits:

Back in 1985, a site survey conducted by M. Yee et all (Appendix) identified hiking, fishing and ORV use of the wetland complex. The Beaver Meadows wetland complex is remote but has reasonable access for recreation; the Bristol Recreational Department lists the Beaver Meadows trails as an easy hike (Appendix L -see attached hiking description and map; http://bristolrec.org/hiking/). the Town of Ripton has identified this wetland complex in their 2015 Town Plan under the Natural Historic, Scenic and Recreational Resources chapter on pages 19 and 34 (Appendix M). In summary, the Town plan references the 2006 GMNF Forest Plan and the complex designated as an Ecological Special Area and therefore the management by the Service will be towards its protection of its geological, botanical, zoological and ecological values and opportunities for public use and interpretation. Fishing, Hunting and trapping activities occur in or around the wetland; the wetland provides habitat for species that are hunted and trapped, including

14. Open Space and Aesthetics:

▣ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

☐ Can be readily observed by the public; and

▣ Possesses special or unique aesthetic qualities; or

▣ Has prominence as a distinct feature in the surrounding landscape;

▣ Has been identified as important open space in a municipal, regional or state plan.

14.1 Remarks on Open Space and Aesthetics:

This wetland complex cannot be readily seen by the public; however this value has been deemed of high value by the VT NHIP in their general statement when considered for Research Natural Area designation ,"Beaver Meadows and Abbey Pond...is an important natural area of statewide and national significance. It contains three major wetlands, each with its own unique characteristics and

15. Erosion Control Through Binding and Stabilizing

▣ Function is present and likely to be significant: Any of the following physical and vegetative characteristics indicate the wetland provides this function.

▣ Erosive forces such as wave or current energy are present and any of the following are present as well:

▣ Dense, persistent vegetation along a shoreline or stream bank that reduces an adjacent erosive force.

▣ Good interspersion of persistent emergent vegetation and water along course of water flow.

▣ Studies show that wetlands of similar size, vegetation type, and hydrology are important for erosion control.

Erosion Control Through Binding and Stabilization Continued...

What type of erosive forces are present?

☐ Lake fetch and waves

▣ High current velocities:

▣ Water level influenced by upstream impoundment

If any of the above boxes are checked, the wetland provides this function. Complete the following to determine if the wetland provides this function above or below a moderate level. If none of the following apply, the wetland provides this function at a *moderate level*.

☐ Check box if any of the following conditions apply that may indicate the wetland provides this function at a ***lower*** level.

☐ The stream is artificially channelized and/or lacks vegetation that contributes to controlling the erosive force.

▣ Check box if any of the following conditions apply that may indicate the wetland provides this function at a ***higher*** level.

▣ The stream contains high sinuosity.

☐ Has been identified through fluvial geomorphic assessment to be important in maintaining the natural condition of the stream or river corridor.

15.1. Remarks on Erosion Control Function:

No erosion was observed in the small streams throughout the wetland complex due to the presence of the dense and persistent vegetation within and on either side of the stream channels; which may reduce erosion on a daily basis and also help protect from erosion when beaver activities create impoundments which may fail. A slower release of water to the Middlebury and New Haven

16. Exemplary and/or Irreplaceable Qualities (Vermont Wetland Rules Section 5):
Check which wetland functions and values you consider as exemplary or irreplaceable

■ Flood/Storm Storage	☐ RTE Species
☐ Surface & Groundwater Protection	■ Education & Research
☐ Fish Habitat	☐ Recreation/Economic
☐ Wildlife Habitat	☐ Open Space/Aesthetics
■ Exemplary Natural Community	☐ Erosion Control

17. Class I Criteria:
These are criteria which support whether a wetland is exemplary or irreplaceable. Wetlands which fit one or more of these criteria typically rate high in one or more function or value.

17.1. Representative Example:
If applicable, describe how this wetland is a representative example of a wetland type or types. Cite literature here.

The Beaver Meadow wetland complex is representative of a dynamic system influenced by beaver activity and the natural succession that takes place after beaver have left the area. The complex contains a number of wetland community types, each representative of the community type based on species present; including the dwarf shrub bog, as described below. It is dominated by leatherleaf and contains peat at depths between 3 and over 15 feet. The Dwarf shrub bog has been identified by the VT NHIP. As described in Wetland, Woodland, Wildland-A Guide to the Natural Communities of Vermont by E.H. Thompson and E. R. Sorenson describe a

17.2 Rare Community Type:
If applicable, describe how this wetland is a rare wetland community type. Cite literature here.

Dwarf Shrub bog is an S2 community type as identified by the VT Natural Heritage Inventory Program . The Beaver Meadow wetland complex contains approximately a 3-4 acre dwarf shrub bog community, and although not listed as rare, it also contains a small black spruce swamp. As described in Wetland, Woodland, Wildland-A Guide to the Natural Communities of Vermont by E.H. Thompson

17.3 Community Assemblage/Wetland Complex:
If applicable, describe the diversity of wetland types, plant, animal species, soils and topography etc.

The Beaver Meadows wetland complex occupies a narrow valley that sits on a high plateau above the steep western escarpment of the Green Mountains. The valley drains in three directions. While Abbey Pond has its own drainage, Beaver Meadows drain to

17.4 Landscape Association:
If applicable, describe how the wetland's function and value is specific to its landscape position and the critical nature of its location.

The Beaver Meadows wetland complex occupies a narrow valley that sits on a high plateau above the steep western escarpment of the Green Mountains. Beaver Meadows drain to the northeast and southwest; into the Middlebury River and New Haven River

18. Class I Sub Criteria: *These are qualities that contribute to a wetland being exceptional or irreplaceable.*

18.1. Rare Threatened or Endangered Species:
Cite all element occurrences by number. (do not list names for protection purposes)

See above under RTE function for species and rankings. This wetland is not considered exemplary or irreplaceable for this function.

18.2. Undisturbed Condition:
If applicable, describe how the wetland is in a relatively undisturbed condition.

Historic data indicates that this area had undergone land clearing, pasturing and then subsequent logging. However, in the last 50 to 75 years, little to no human activity has occurred, allowing the land to succeed to a regenerated forested landscape. The wetland complex has been heavily influenced by beaver activity which is part of its natural regime. Continued ownership and management by

18.3 Intact Landscape:
If applicable, describe how the wetland is part of an intact and unfragmented landscape.

The Beaver Meadows wetland is part of and surrounded by the Green Mountain National Forest, which is an intact and unfragmented landscape along the spine of the Green Mountains. On a broad scale this is a very large habitat block that includes Abbey Pond and

18.4 Connectivity:
If applicable, describe how the wetland serves as an important wildlife or waterfowl corridor, connecting natural areas or serving in migration.

The Beaver Meadows wetland is part of and surrounded by the Green Mountain National Forest, which is an intact and unfragmented landscape along the spine of the Green Mountains. On a broad scale this is a very large habitat block that includes Abbey Pond and Elephant Mountain, with a diversity of habitat types including old-growth hemlock forest, some very good condition seepage swamps and beaver meadows. This habitat block, inclusive of the large 66 acre Beaver meadows complex, provides good connectivity to the

19. Additional Narrative: *Please provide any additional narrative to support the petition.*

There is a large body of information that helps define the area of the Beaver Meadows Wetland Complex and documents the functions and values that it offers within the landscape. While it did not meet the federal criteria for designation as a Research Natural Area given the land use history, it has been designated as an Ecological Special Area; thus affording it greater protection in the management of this area by the Service. The Natural Heritage Inventory Program has identified the rare dwarf shrub bog community type and other RTE species within the wetland and this area has been described as having state significance. The wetland complex overall is significant for all ten (10) functions and values as identified under Vermont Wetland Rules (as described above) and is considered exemplary or irreplaceable for three of them; exemplary natural community, irreplaceable for flood and water storage and education and research opportunities (data has been collected within this wetland area for decades). The Wetlands Program completed the Vermont Rapid Assessment Method used to evaluate overall wetland quality and condition during the 2016 site visit. The Beaver Meadows complex scored a 100 out of a 100 point total; indicating reference condition (Appendix).The Beaver Meadows Wetland Complex meets the criteria for reclassification from a Class II wetland to a Class I wetland for these reasons and for meeting the sub-criteria outlined for a Class I wetland including existing in an intact, unfragmented landscape and containing RTE species. Based on the review of the 2007 management comments for the wetland by NHIP, a minimum of a 400 ft. buffer was recommended to maintain at least a 75% canopy, in order to maximize the protection of the ecological integrity of this very significant peatland complex and the wildlife habitat it provides, and to minimize adverse effects on the quality of surface water entering the wetland

20. Supporting Materials:

*****ADDITIONAL MATERIAL REQUIRED TO CALL PETITION COMPLETE***

20.1. **Location Map:

Provide a location map that is 8 ½" x 11" and separate from any site plans. The Vermont Natural Resources Atlas is appropriate using USGS topography map base layer, roads, and VSWI wetlands at a minimum.

Date	Title
VSWI Atlas map created March 5, 2017	Beaver Meadows Wetland Complex
Created by C. Hohn on 2/23/2017: Wetlands Program	Proposed Mapping: Class I Wetland (green) and 400-foot Buffer (yellow) Beaver Meadow Wetland, Ripton
Created by C. Hohn on 2/23/2017: Wetlands Program	Draft Natural Community Mapping Some types lumped for clarity. Beaver Meadow Wetland, Ripton

20.2. **Proposed Mapping:

List as specified below. Plans must be legible and include wetland delineation or aerial interpretation and buffer zones. It is helpful to provide one map with topography and one with aerial photography as a base.

Title	Author	Date	Last Revision Date
Proposed Mapping: Class I Wetland (green) and 400-foot Buffer (yellow) Beaver Meadow Wetland, (			

20.3. U.S. Army Corps of Engineer Wetland Delineation Forms:

List Attachment Name, dates data was collected, cover types sampled and number of paired plots included. Required for Determinations.

Attachment #/Title	(Range of) Collection Date(s)	Vegetation Cover Types	# of Paired Plots
ACOE forms were not used	2007; 2013	Dwarf Shrub Bog, Black Spruce Woodland Bog, Emergent/Shrub Marsh, and Hardwood/Shrub Swamp.	VT Natural Heritage
Official delineation not completed	2016-2017	Dwarf Shrub Bog, Black Spruce Woodland Bog, Emergent/Shrub Marsh, and Hardwood/Shrub Swamp, Forest Seepage Swam	VT Wetlands Program
Aerial imagery used for boundary interpretation			

20.4. Other Supporting Documents:

For Class I – include a signatory page which includes signatures, printed name, and mailing address of each individual (and email address if possible). ***Examples include but are not limited to:*** *Photographs, newspaper articles, historic documents, scientific reports, GIS shapefiles, additional ACOE forms.*

Date	Last Revision	Author	Title
	SEE ATTACHED next page: 20.4. Other Supporting Documents		

Section 20 and 20.4. Other Supporting Documents				
Date	**Last Revision**	**Author**	**Title**	**Appendix**
2017	N/A	Z. Courage; VT Wetlands Program	VSWI Atlas Map; Beaver Meadows Complex	Appendix A
2016	N/A	J. Follansbee, C. Hohn, Z. Courage; VT Wetlands Program	Photo Portfolio; Selected Photos of the Beaver Meadow Wetland Complex, Fall 2016	Appendix B
2017	N/A	C. Hohn; VT Wetlands Program	Proposed Mapping: Class I Wetland (green) and 400-foot Buffer (yellow) Beaver Meadow Wetland, Ripton	Appendix C
2017	N/A	C. Hohn; VT Wetlands Program	Draft Natural Community Mapping Some types lumped for clarity. Beaver Meadow Wetland, Ripton	Appendix D
2016	N/A	C. Hohn; VT Wetlands Program	C. Hohn 2016 Site Visit-Species List and Field Notes	Appendix E
1995	N/A	C. Cogbill; VT F&W	Ecological Evaluation Of The Abbey Pond/Beaver Meadow Candidate Research Natural Area Green Mountain National Forest, Vermont	Appendix F
2015 and 2016	N/A	K. Underwood, South Mountain Research and Consulting and Addison County River Watch Collaborative	Summary Report: 2014 Sampling Results Addison County River Watch Collaborative	Appendix G
2015 and 2016	N/A	K. Underwood, South Mountain Research and Consulting and Addison County River Watch Collaborative	Summary Report: 2015 Sampling Results Addison County River Watch Collaborative	Appendix G
2017	N/A	A. Bennet; VT F&W	Personal Communication; Bats and Beaver Meadows Wetland Complex	Appendix H
1988	N/A	E. Marshall	Abbey Pond-Beaver Meadows Bird and Plant list	Appendix I
1999	2017	G. Borah, Keeping Track	1999-2017 Keeping Track Data	Appendix J
1993	1997	J. Andrews, Middlebury College	Results of the Reptile and Amphibian Inventory of the Abbey Pond and Beaver Meadow Region of the Green Mountain National Forest (three studies)	Appendix K
2007	2013	E. Marshall, E. Sorenson, B. Popp; VT NHPI	Element Occurrence Report-Dwarf Shrub Bog; Confidential-attached	Appendix L
2000	N/A	E.H. Thompson and E. R. Sorenson	Wetland, Woodland, Wildland-A Guide to the Natural Communities of Vermont pages 314-319	Appendix M
1989	N/A	E. Thompson; VT NHPI	DRAFT-Establishment Record for Beaver Meadow and Abbey Pond Research Natural Area Green Mountain National Forest Addison County, Vermont	Appendix N

2006	N/A	USDA Forest Service	Green Mountain National Forest Land and Resource Management Plan (2006 Forest Plan) pages 94-97	Appendix O
1985	N/A	M. Yee, C. Casey and J. Donavan	Beaver Meadows Bog-Site Survey Summary	Appendix P
Accessed Feb. 20, 2017		Bristol Recreation Department	HIKING in/near BRISTOL; 2 pages	Appendix Q
2015	N/A	Ripton Conservation Commission	2015 Town Plan; pages 1,19, 20 and 34	Appendix R
2016	N/A	Z. Courage; VT Wetlands Program	VRAM form-Beaver Meadows	Appendix S
1989	1995	C. Cogbill, C. Paris, J. Parsons; VT NHPI	Element Occurrence Report-Great Blue Heron; Confidential-not attached	N/A
2010	2010	A. Marcus; VT NHPI	Element Occurrence Report-Ovate spikerush; Confidential-not attached	N/A

21. Abutting Landowners

Please provide abutting landowner information so that all persons owning property within, or adjacent to, the affected wetland area of buffer zone can be notified during the public notice period.

21.1. Abutting Land Owner Information:

Please list as first names first followed by last name

1. Name: U.S. Forest Service **Street/Road:** **City/State/Zip:**	**16. Name:** **Street/Road:** **City/State/Zip**
2. Name: Ripton Town Clerk **Street/Road:** **City/State/Zip:**	**17. Name:** **Street/Road:** **City/State/Zip:**
3. Name: Bristol Town Clerk **Street/Road:** **City/State/Zip:**	**18. Name:** **Street/Road:** **City/State/Zip:**
4. Name: Middlebury Town Clerk **Street/Road:** **City/State/Zip**	**19. Name:** **Street/Road:** **City/State/Zip:**
5. Name: **Street/Road:** **City/State/Zip**	**20. Name:** **Street/Road:** **City/State/Zip:**
6. Name: **Street/Road:** **City/State/Zip**	**21. Name:** **Street/Road:** **City/State/Zip:**
7. Name: **Street/Road:** **City/State/Zip**	**22. Name:** **Street/Road:** **City/State/Zip:**
8. Name: **Street/Road:** **City/State/Zip**	**23. Name:** **Street/Road:** **City/State/Zip:**
9. Name: **Street/Road:** **City/State/Zip**	**24. Name:** **Street/Road:** **City/State/Zip:**
10. Name: **Street/Road:** **City/State/Zip**	**25. Name:** **Street/Road:** **City/State/Zip:**
11. Name: **Street/Road:** **City/State/Zip**	**26. Name:** **Street/Road:** **City/State/Zip:**
12. Name: **Street/Road:** **City/State/Zip**	**27. Name:** **Street/Road:** **City/State/Zip:**
13. Name: **Street/Road:** **City/State/Zip**	**28. Name:** **Street/Road:** **City/State/Zip:**
14. Name: **Street/Road:** **City/State/Zip**	**29. Name:** **Street/Road:** **City/State/Zip:**
15. Name: **Street/Road:** **City/State/Zip**	**30. Name:** **Street/Road:** **City/State/Zip:**

APPENDIX A:

VSWI Atlas map created March 5, 2017: Beaver Meadows Wetland Complex

Beaver Meadows
Vermont Agency of Natural Resources

Beaver Meadows Wetland Complex

vermont.gov

LEGEND

- Wetland Projects
- Wetland
- Rare Threatened Endangered
  - Threatened or Endangered
  - Rare
- Significant Natural Community
- Uncommon Species and Other
  - Animal
  - Plant
  - Natural Community
- Vernal Pools Confirmed – AE/V
- Vernal Pools Unconfirmed – A
- VT List of Priority Rivers and S
  - Part B (impaired TMDL not required
  - Part C (stressed needs more asses
  - Part D (impaired with approved TM
  - Part E (altered exotic species)
  - Part F (altered flow regulation)
  - Part G (channel alteration)
- VT List of Priority Lakes and P
  - Part B (impaired TMDL not required
  - Part C (stressed needs more asses
  - Part D (impaired with approved TM
  - Part E (altered exotic species)
  - Part F (altered flow regulation)
- Wetlands - VSWI
  - Class 1 Wetland
  - Class 2 Wetland

IMPORTANT!: The Wetlands Viewer is designed to help the public research wetland locations and features. Only a qualified wetland scientist may determine the absence or presence of a wetland and the boundaries. Not all wetlands are mapped. Wetlands not mapped on the Vermont Significant Wetland Inventory may still be considered significant.

695.0 0 348.00 695.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 1140 Ft. 1cm = 137 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

APPENDIX B:

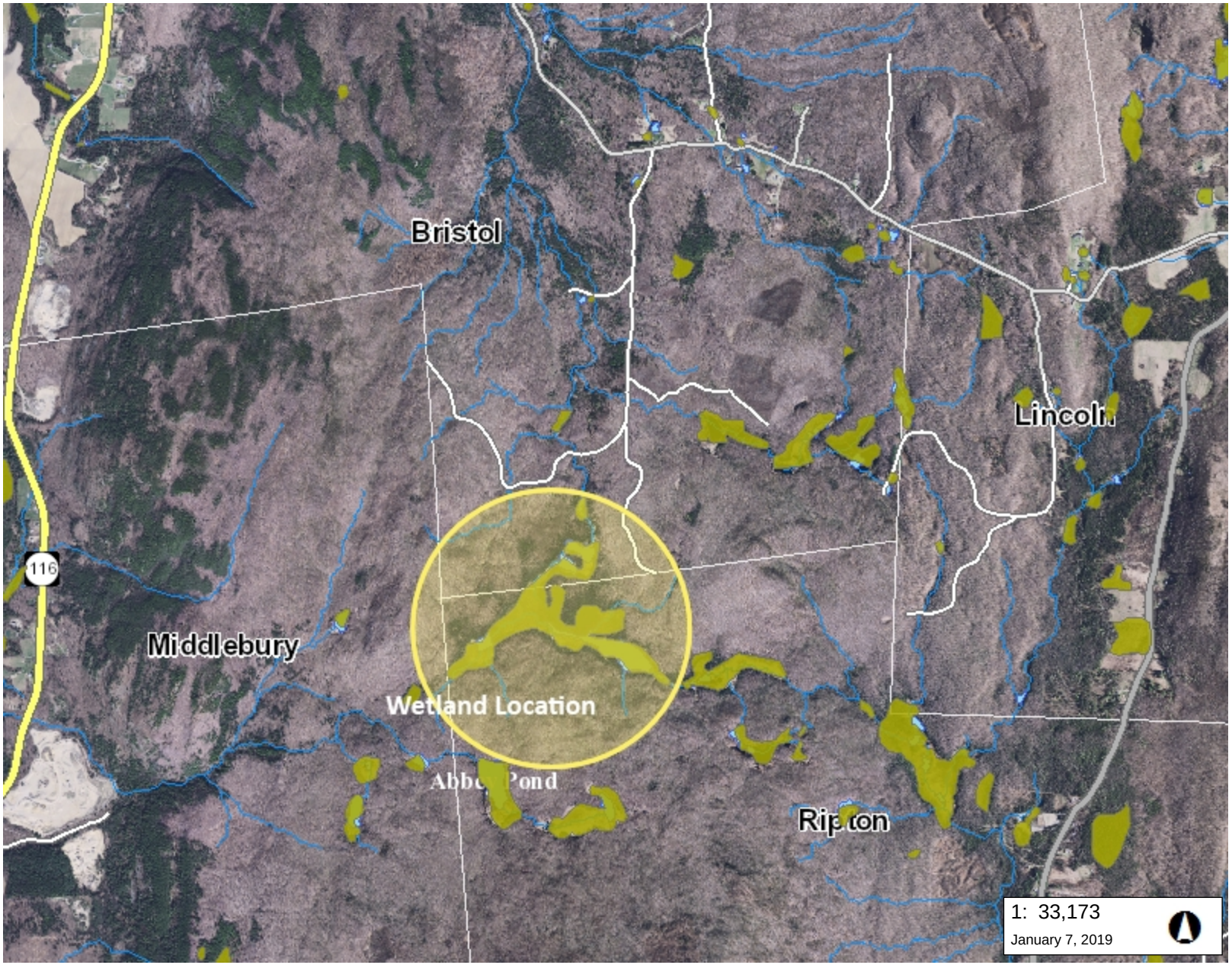
Photo Portfolio; Selected Photos of the Beaver Meadow Wetland Complex, Fall 2016

VERMONT

Beaver Meadows - Location Map

Vermont Agency of Natural Resources

vermont.gov



LEGEND

Wetland - VSWI
- Class 1 Wetland
- Class 2 Wetland
- Buffer

Roads
- Interstate
- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector
- Local
- Not part of function Classification S

- Waterbody
- Stream
- Town Boundary

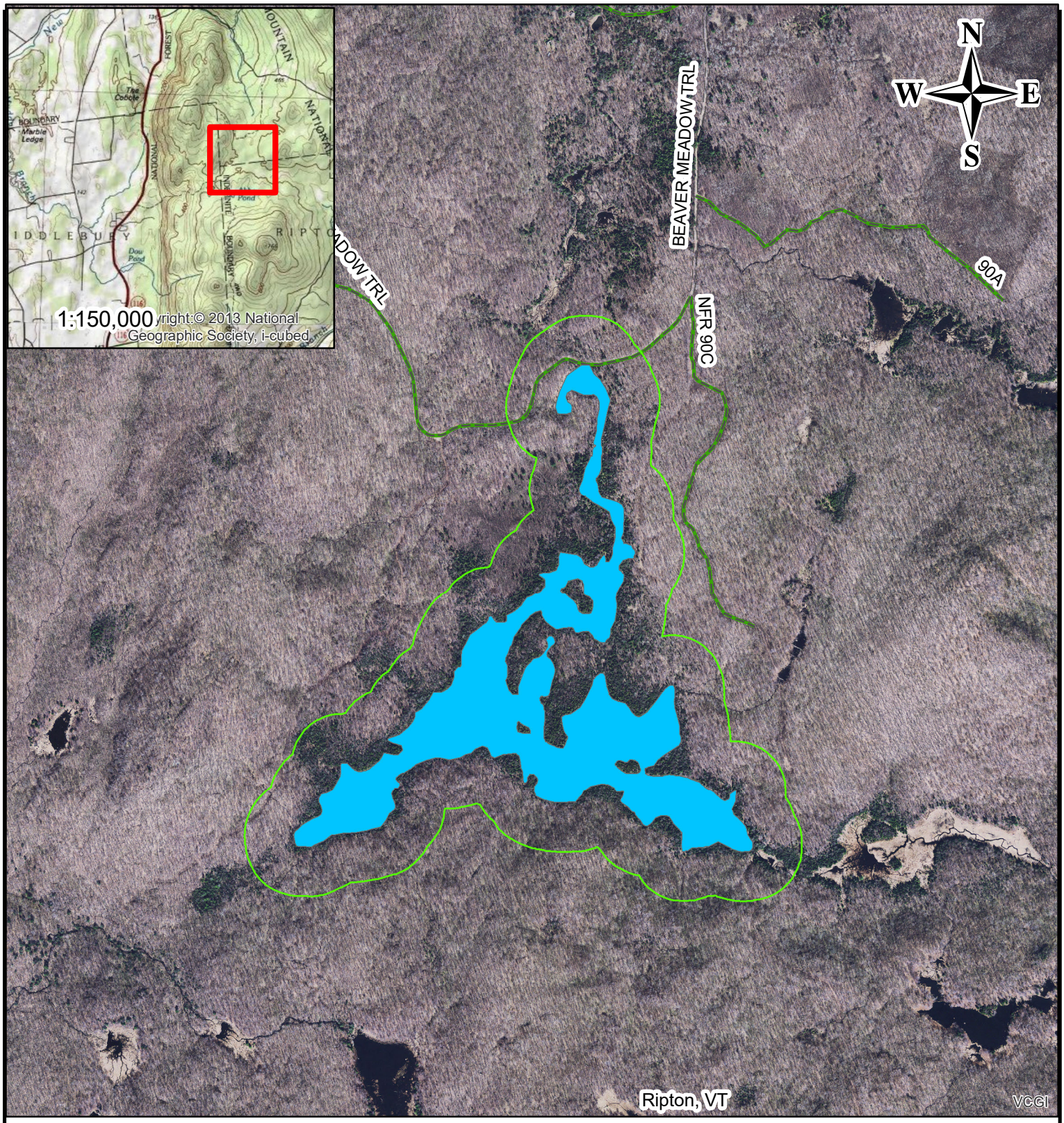
NOTES

Map created using ANR's Natural Resources Atlas

1,685.0 0 842.00 1,685.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 2764 Ft. 1cm = 332 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION



0 412.5 825 1,650 2,475 3,300 Feet

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION

Proposed Class I Wetland and 400-foot Buffer
Beaver Meadow, Ripton
Project #2017-396.P
Cartographer: L. M. Woods
Date: October 19, 2017

Legend

- Buffer
- Wetland
- Class 4 Town Road
- National Forest Highway

RESPONSE SUMMARY FOR
REVISIONS TO THE VERMONT WETLAND RULES: ADDITION OF ONE NEW CLASS I WETLAND – BEAVER MEADOWS, RIPTON

The Vermont Agency of Natural Resources ("Agency"), in accordance with § 7 of the 201 Vermont Wetland Rules held a public comment period for the above petition from October 26, 2017 until December 11, 2017. One public meeting was held by the Vermont Wetlands Program of VT DEC during the public comment period. The meeting was held on November 29, 2017 at Ripton Community Building in Ripton, Vermont. In attendance was Tim Johnson, Barbara Nelson, Mark Nelson, Warren King, Barry King, Aaron Coburn, Amson Dickenson, Norm Jossen, Julie Follensbee and Zapata Courage. The following is a summary of comments received during the public comment period and the Department's responses to those comments. Where appropriate, comments have been paraphrased, consolidated, and categorized for clarity.

Comment 1: What is a buffer?

Response 1: A wetland buffer zone is the area contiguous with a significant wetland that serves to protect the functions and values of the wetland by mitigating pollutant runoff and erosion into the wetland and providing critical habitat, among other functions. Studies have shown that buffer zones of varying widths are important to maintain or enhance wetland function. This is especially true for wildlife habitat. The proposed 400-foot buffer zone for Beaver Meadows will protect and maintain the interconnectedness of the wetlands to the undisturbed upland habitat, which provides important infiltration for water quality protection and supports wildlife functions, in particular.

Class I wetlands have larger buffers than Class II wetlands; the buffer of the Class I wetland will fall under Vermont Wetland Rule jurisdiction. Activities within Class I *buffer zones* may be permitted in the same fashion as Class II buffer permitting. Just like Class II wetlands, Class I wetland buffer permits will only be issued if the applicant demonstrates that the activity will cause no undue adverse impacts. However, activities in Class I wetland buffers are more likely to reduce the exceptional and irreplaceable functions and values of the wetland, and adverse impacts to those irreplaceable functions are not compensable.

Comment 2: Can an existing travel way or trail continue to be used after designation?

Response 2: Certain activities in Class I or II wetlands are exempt from the Vermont Wetland Rules, or are allowed without a permit provided they follow certain guidelines. This includes the repair and maintenance of existing structures including roadways or utility lines, low-impact recreation including snowmobiling on VAST trails and maintaining lawns, and silviculture activities. This means that regular day-to-day activities involving existing structures will still be allowed. For non-exempt uses or uses not constituting an "allowed" use under the Rules within Class I wetlands, permits will only be granted to meet a compelling public need to protect public health or safety.

Comment 3: Isn't the forest service exempt from state permitting? How does a Class I determination protect the land?

Response 3: Certain federal regulations preempt state permitting requirements, as is the case with the US Forest Service. If the land was sold in the future to a non-exempt entity, it would be protected. Additionally, our experience is that our Federal partners typically try to either acquire permits or at least align their review standards with local/state permitting guidelines.

Comment 4: How many Class I petitions have received approval and how long does this process take?

Response 4: Until 2017 there were three Class I wetlands established through a different rulemaking process at the Water Resources Board. The Agency received authority to initiate rulemaking after the Water Resources Board dissolved in 2012. The State recently petitioned four wetlands, with three successfully approved in 2017. Two more were petitioned and approved in 2018. A final decision on the Beaver Meadows petition will most likely take until the 2019 legislative session.

Comment 5: What is the process moving forward?

Response 5: Comments received during the public comment period and the public meeting will be summarized and responded to in this response summary and packaged with a recommendation of petition action to the Commissioner of the Department of Environmental Conservation. If the Commissioner of the Department of Environmental Conservation (DEC) is in support, then a proposed rule to add the Beaver Meadows wetland as Class I will be filed with the Interagency Committee on Administrative Rules (ICAR). There will be a public hearing with ICAR where the committee will evaluate whether the proposed rule conforms with statute, legislative intent, and the policies of the Governor. If approved by ICAR, the petition would then be filed with the Secretary of State, and an official public notice period will begin. The Program will solicit additional comments and will hold at least one more public meeting. Public comments received during the public comment period will be compiled and responded to in a second response summary and filed with the Legislative Committee on Administrative Rules (LCAR) and reviewed by the Committee at a public hearing. The Committee may or may not make a final decision at the public hearing. If the final rule is approved by LCAR, the Agency will adopt the rule and file the adopted rule with the Secretary of State.

Comment 6: The Ripton Selectboard voted in favor of supporting the Petition.

Response 6: The Agency makes note of the Town's support in the reclassification.

Comment 7: A resident commenter supports protecting this valuable and ecologically significant area. Protection of the wetland will positively impact the New Haven and Middlebury Rivers for water quality and flood attenuation.

Response 7: The Agency makes note of the commenter's support in the reclassification.