

Appendix D.3 – Environmental Supporting Information
Jewell Watershed Dam Sites #1, #2, #3 and #5
Supplemental Watershed plan and Environmental Assessment

January 10, 2023

Attachments:

1. Army Corps of Engineers Consultation,
2. US Fish & Wildlife Consultation,
3. Technical memorandum, July 30, 2021

**U.S. Army Corps of Engineers, Consultation Documentation
Jewell Watershed Dam Sites #1, #2, #3 and #5.
Supplemental Watershed plan and Environmental Assessment**

November 2, 2022



Charlotte Brodie <cbrodie@dubois-king.com>

NRCS Jewell Brook, reconstruction of four dams, request for comments

Repella, Angela C CIV USARMY CENAE (USA) <Angela.C.Repella@usace.army.mil>

Fri, Sep 30, 2022 at 11:03 AM

To: Charlotte Brodie <cbrodie@dubois-king.com>

Hi Charlotte,

Please see my responses to each comment below in [blue](#).

Comment NWMC48 discusses assessments of wetland functions and values and habitat values.

Please indicate COE requirements for these assessments, and the associated timing of provision

in terms of the planning and permitting process?

Datasheets are required to accompany the wetland delineation. Delineations should be conducted in accordance with USACE Wetland Delineation Manual and the Northcentral /Northeast Regional Supplement (<https://www.nae.usace.army.mil/Missions/Regulatory/Jurisdiction-and-Wetlands/Wetland-Delineation-Manual/>). A description of the each wetland, cowardin classification, and primary functions and values for each wetland type should be provided. Wetlands with similar plant cover and functions can be consolidated.

Comment Goose 54 discusses Best Management Practices regarding control of Invasive Species.

Does the COE have a listing of such BMP's?

See general conditions 16, 26, and 27 of the attached Vermont General Permits (VTGPs) regarding invasive species. The application should identify invasive species that are currently present at each site and project plans should indicate how the spread of invasive species will be avoided. If off-site disposal of material is required, proper measures should be implemented to prevent the spread of invasive species. USACE does not have prescribed BMPs, but details regarding how the spread of invasives will be avoided should be included in the application. VTANR and the VTFWD have resources available online.

Comment NWMC 106 concerns riparian impacts. Does the COE regulate riparian impacts?

USACE does not regulate upland riparian areas unless a project involves direct impacts to a water of the U.S. If a project involves direct impacts to a water of the U.S., then additional upland areas (including riparian areas) may be reviewed for compliance with other federal laws such as Section 106 of the National Historic Preservation Act and the Endangered Species Act. If waters of the U.S. (e.g. wetlands) are present in the riparian areas, then they would be regulated under Section 404 of the Clean Water Act. In addition, minimization and mitigation of direct impacts to waters of the U.S. may involve work within upland and wetland riparian area (e.g. planting, etc.).

Comment NWMC 126 requires early and on-going coordination with the COE regarding
permitting needs and requirements for stream and wetland impacts and potential mitigation

requirements. Note that the dams are being evaluated as a unit (all four) and also incrementally. It is anticipated each dam will be designed and constructed in sequence, over a period of time, not concurrently, to minimize disturbance and maximize the flood control function to the community. Therefore, would separate permitting for each dam be appropriate and what would the mitigation requirements be for each? Conversely, if all dams were permitted concurrently, what would the mitigation requirements be? I see that the COE General Permit #2 currently has a one-acre limit of impacts for reconstruction of an existing serviceable structure. Will the new GP's coming out at the end of this December change that GP so that mitigation will be required for over 5,000 SF of impact?

Determining whether the sites can be reviewed under separate applications is dependent upon the ability of each site to "stand alone". Could and would each site be rehabilitated independently if the others were not repaired? See General Condition 5 of the attached VTGPs regarding the "Single and Complete Project".

Mitigation requirements will depend upon the permanent impacts associated with each site. If the dams are located on separate parcels and can "stand alone" (re: above) then they can potentially be reviewed independently. Are the dams all located on separate parcels? Under the next version of the General Permits that will go into effect in December 2022, we will likely be requiring mitigation for projects that involve more than 5,000 sq. ft. of permanent wetland fill.

Would excavation in waterbodies to remove accumulated sediments in the retarding pools constitute impacts which must be accounted for in terms of potential mitigation requirements?

Excavation of waterbodies to remove accumulated sediments will not likely require mitigation.

Impacts to tree canopy are also provided on the plans. Would you please provide the current COE requirements for addressing potential impacts to the northern long-eared bat?

The NLEB is currently proposed to be reclassified as an endangered species (<https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis>). This may change the consultation process in the near future.

Currently, if a project involves cutting trees that are >3"DBH, then we are required to consult with USFWS via the Northern Long-eared Bat (NLEB) 4(d) Rule. This process involves reporting the amount of tree clearing (sq. ft. / acreage) to USFWS by submitting a 4(d) determination via their IPaC website (<https://ipac.ecosphere.fws.gov/user/login>). If USFWS does not respond within 30 days with recommendations for time of year restrictions or other conservation measures, then USACE may not require restrictions on the project. Additional information on the consultation process is available here: <https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review>.

Furthermore, if NRCS is funding the implementation of the project then they would be considered the "lead federal agency" for compliance with other federal laws. USACE may rely on NRCS' consultation with USFWS to satisfy our needs. However, the proper documentation would need to be provided.

I also wanted to summarize the requirements we discussed regarding project plans. Please remove the wetland buffer impacts shown on the plans. Direct impacts to waters of the U.S. should be quantified in sq. ft. Permanent vs. temporary wetland and waterway impacts should be reported separately. Each impact type (excavation, regrading, fill, staging/stockpiling, etc.) should be identified and reported in sq. ft. for each aquatic resource type. The wetland boundaries should be clearly outlined and the ordinary high water mark of each impoundment should also be clearly marked.

If you have any questions, please don't hesitate to let me know.

Best,

Angela C. Repella

U.S. Army Corps of Engineers

New England District - Vermont Project Office

11 Lincoln Street, Room 210

Essex Junction, Vermont 05452

Cell: (802) 881-9565

Office: (978) 318-8639 or (802) 872-2893

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2017-2022 VTGPs.pdf

355K



Charlotte Brodie <cbrodie@dubois-king.com>

NRCS Jewell Brook, reconstruction of four dams, request for comments

Charlotte Brodie <cbrodie@dubois-king.com>
To: Angela Repella <Angela.C.Repella@usace.army.mil>
Cc: Jeffrey Tucker <jtucker@dubois-king.com>

Fri, Sep 23, 2022 at 4:27 PM

Hi Angela,

Thanks for discussing this proposed work with me yesterday. Attached please find a letter with exhibits requesting your written comments. As always, don't hesitate to let me know if you have any questions or concerns.

Best,

Charlotte Brodie
Field Naturalist
DuBois & King, Inc.
6 Green Tree Drive
South Burlington, VT 05403
802-728-7202 (w)
802-777-5272 (c)



Letter to Angela Repella COE w exhibits.pdf
10627K



Charlotte Brodie <cbrodie@dubois-king.com>

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If you have any questions, please don't hesitate to let me know.

Best,

Angela C. Repella

U.S. Army Corps of Engineers

New England District - Vermont Project Office

11 Lincoln Street, Room 210

Essex Junction, Vermont 05452

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[Quoted text hidden]



2017-2022 VTGPs.pdf

355K



Sept. 23, 2022

Ms. Angela Repella
US Army Corps of Engineers
Lincoln Avenue
Essex Junction, VT
Via email: angela.c.repella@usace.army.mil

Subject: NRCS Jewell Brook Flood Control Dam Reconstructions, Sites 1, 2, 3 and 5, Ludlow, VT

Dear Angela,

This letter is to follow up on the Project Scoping notification to your office in July 2020 for the sites shown on the attached Location Map. Please see the attached letters and response, in which you stated that the work may qualify for General Permit #2, Repair or Maintenance of Currently Serviceable Structures. The above referenced project has been advancing through the NRCS Plan-ED development process. A Draft Supplemental Watershed Plan and Environmental Assessment is being prepared to assess the potential impacts associated with the alternatives being considered, which generally include No Action, Future Without Federal Action, Decommissioning and Rehabilitation. This document is currently undergoing internal review by the NRCS, who has asked for coordination with the COE.

DuBois & King, Inc. is requesting your input associated with several NRCS review comments attached as "COE Coordination" and discussed below. Attached also please find Impact Maps for Sites 1, 2, 3 and 5 (note there is no Site 4), showing the proposed work and the impacts to waters of the US. Note that these plans were prepared for the EA, and we recognize that they are not yet in proper format for COE permitting. Also, please note that many of the impacts shown on the plans are due to excavation in waterbodies (the retarding pools) to remove accumulated sediments. We have indicated what we consider to be the permanent impacts to COE-jurisdictional resources to be used in determining the need for mitigation—or not-- on each Impact Plan.

The specific NRCS comments are:

- Comment NWMC48 discusses assessments of wetland functions and values and habitat values. Please indicate COE requirements for these assessments, and the associated timing of provision in terms of the planning and permitting process?
- Comment Goose 54 discusses Best Management Practices regarding control of Invasive Species. Does the COE have a listing of such BMP's?
- Comment NWMC 106 concerns riparian impacts. Does the COE regulate riparian impacts?

- Comment NWMC 126 requires early and on-going coordination with the COE regarding permitting needs and requirements for stream and wetland impacts and potential mitigation requirements. Note that the dams are being evaluated as a unit (all four) and also incrementally. It is anticipated each dam will be designed and constructed in sequence, over a period of time, not concurrently, to minimize disturbance and maximize the flood control function to the community. Therefore, would separate permitting for each dam be appropriate and what would the mitigation requirements be for each? Conversely, if all dams were permitted concurrently, what would the mitigation requirements be? I see that the COE General Permit #2 currently has a one-acre limit of impacts for reconstruction of an existing serviceable structure. Will the new GP's coming out at the end of this December change that GP so that mitigation will be required for over 5,000 SF of impact?
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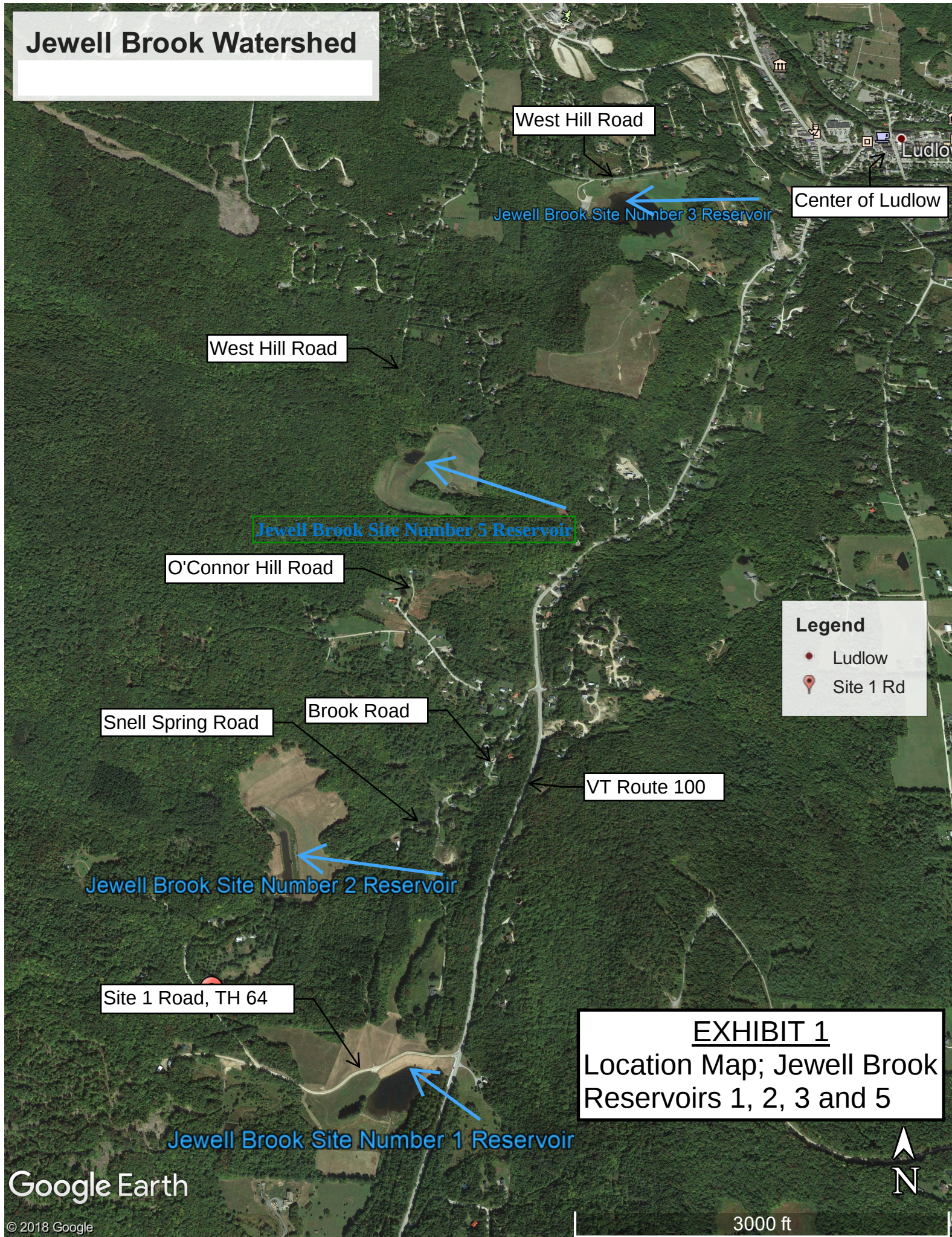
Naturally, any additional input your office may have would also be welcome.

Thank you for your assistance, and Best Regards,



Charlotte Brodie
Field Naturalist

Jewell Brook Watershed

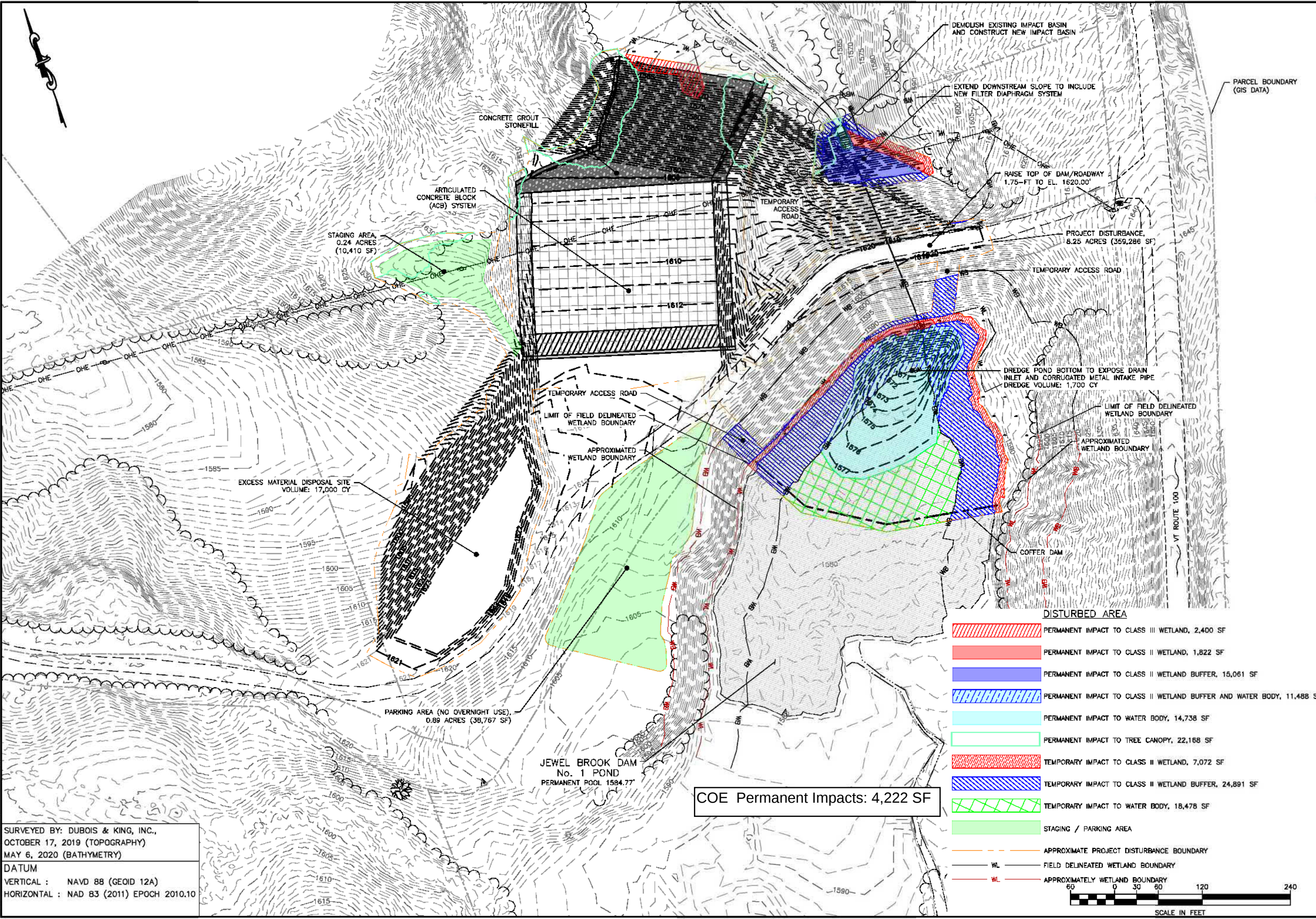


COE Coordination Comments

NWMC48	COMMENT: It is the policy of NRCS to protect and promote wetland functions and values in all NRCS planning and application assistance. NECH 610.36.B. A description of wetlands should describe not only the acres involved, but the functions of those wetlands (based on a habitat model), and perhaps their value as wildlife habitat (according to the results of habitat evaluation procedures or habitat appraisal guides), as well. NECH 610.2.A.73 Recommend checking to ensure that this affected area reflects the procedures described in NECH 610.22, 610.122, 610.36, and 610.116, and that functions and values are adequately discussed. Note that due to differences in legal definitions, regulations, and procedures, areas that may be regulated under the CWA may not meet the definition of wetlands under the Farm Bill and vice versa.
goose54	COMMENT: Recommend conducting consultation and BMP description to satisfy NEPA requirement per: NECH 610.30 – Invasive species E. All NRCS actions and activities must be planned and implemented with the cooperation of stakeholders. Stakeholders include but are not limited to State, Tribal, and local government agencies; academic institutions; the scientific community; nongovernmental entities including environmental, agricultural, and conservation organizations; trade groups; commercial interests; and private landowners. NWPM 501.39 Consultation, Coordination, and Public Participation
NWMC 106	COMMENT: It is the policy of NRCS to protect and promote wetland functions and values in all NRCS planning and application assistance. NECH 610.36.B. An analysis of wetlands impacts should assess not only the acres involved, but the functions of those wetlands (based on a habitat a model), and perhaps their value as wildlife habitat (according to the results of habitat evaluation procedures or habitat appraisal guides), as well. NECH 610.2.A.73 Recommend checking to ensure that the wetlands and waters of the United States impacts analysis reflects the procedures described in NECH 610.22, 610.122, 610.36, and 610.116; checking to ensure that the riparian areas impacts analysis reflects the procedures in NECH 610.34 and 610.114; and that impacts to functions and values are adequately discussed. Note that due to differences in legal definitions, regulations, and procedures, areas that may be regulated under the CWA may not meet the definition of wetlands under the Farm Bill and vice versa.

NWMC126	COMMENT: Close and early coordination with USACE is encouraged at the earliest stages and throughout project planning and can prevent significant delays. (NECH 610.22.A.1). Only USACE may confirm section 404 permit requirements; NRCS clients that may need a 404 permit should be advised to contact USACE (NECH 610.22.B.2.iii). Early coordination with the appropriate USACE regulatory office to determine possible permit requirements is highly recommended (NECH 610.36.D). Recommend coordinating with USACE to determine impacts to jurisdictional streams and wetlands, determine permit requirements, and determine mitigation requirements. These should be detailed in the Environmental Consequences, Preferred Alternative, and Appendix D economic evaluation, which are all required components of the Plan-EA. NWPM 501.31 – Figure 501-D1.
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I:\19\925007\NRCS\Jewell\Drawings\Impact\Plan\Site\1\N1.1.2 (A2B) - Impact Plan Jewell Site Long 8/13/2021 9:08 AM



28 MAIN STREET
RANDOLPH, VT
05060

PROFESSIONAL SEAL

**NOT FOR
CONSTRUCTION**

NO.	DATE	DESCRIPTION	BY	CHKD

NATURAL
RESOURCES
CONSERVATION
SERVICE

356 MOUNTAIN VIEW
DRIVE
COLCHESTER, VT
05446

NRCS WATERSHED
REHABILITATION
PROGRAM

JEWELL BROOK
WATERSHED

LUDLOW, VERMONT

SHEET TITLE

FLOOD RETARDING
DAM NO. 1

ALTERNATIVE 1.2
IMPACT PLAN

DRAWN BY	DATE
LNH	JUNE 7, 2021
CHECKED BY	D&K PROJECT #
	925007
PROJ. ENGR.	D&K ARCHIVE #
JWT	

SHEET NUMBER

6

SHEET 6 OF 6



Jacqui Antonivich <jantonivich@dubois-king.com>

Fwd: Jewell Brook Watershed Scoping Meeting (UNCLASSIFIED)

2 messages

Jeffrey Tucker <jtucker@dubois-king.com>
To: Jacqui Antonivich <jantonivich@dubois-king.com>

Wed, Jul 8, 2020 at 8:15 AM

Sent from my iPhone

Begin forwarded message:

From: "Repella, Angela C CIV USARMY CENAE (US)" <Angela.C.Repella@usace.army.mil>
Date: July 8, 2020 at 8:06:41 AM EDT
To: "jtucker@dubois-king.com" <jtucker@dubois-king.com>, Frank Heald <tmanager@tds.net>, "bob.thompson@usda.gov" <bob.thompson@usda.gov>
Subject: Jewell Brook Watershed Scoping Meeting (UNCLASSIFIED)

CLASSIFICATION: UNCLASSIFIED

Good Morning All,

The Corps is in receipt of the attached letter regarding the scoping meeting for work in the Jewell Brook Watershed. Is there any additional information available for our preliminary review on this project (e.g. report, photos, etc.)? It would also be helpful to have a vicinity map showing the dam site(s), including coordinates.

The Corps will be assessing any proposed work in waters of the U.S. in accordance with the attached Vermont General Permits. Repair and maintenance work often qualifies for General Permit #2 (see p. 6). Compliance with all terms and conditions starting on p. 26 is required.

It is likely I will participate in the scoping meeting remotely, so call-in details would be appreciated. Also, the Corps is unable to use Skype, Teams, or Zoom, so Webex is preferred if possible.

Thank you,

Angela C. Repella
U.S. Army Corps of Engineers
New England District
11 Lincoln Street
Essex Junction, VT 05452
p:(978)318-8639 and (802) 881-9565
p:(802)872-2893
fax:(802)879-7638

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http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey

CLASSIFICATION: UNCLASSIFIED

2 attachments

 **Jewell Brook Scoping Meeting Letter (24).pdf**
431K

 **2017-2022 VT GPs.pdf**
322K

Thompson, Bob - NRCS, Colchester, VT <bob.thompson@usda.gov>

Wed, Jul 8, 2020 at 2:38 PM

To: Jacqui Antonivich <jantonivich@dubois-king.com>, Jeffrey Tucker <jtucker@dubois-king.com>

FYI

-----Original Message-----

From: Repella, Angela C CIV USARMY CENAE (US) <Angela.C.Repella@usace.army.mil>

Sent: Wednesday, July 8, 2020 8:05 AM

To: jtucker@dubois-king.com; Frank Heald <tmanager@tds.net>; Thompson, Bob - NRCS, Colchester, VT <bob.thompson@usda.gov>

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CLASSIFICATION: UNCLASSIFIED

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2 attachments**Jewell Brook Scoping Meeting Letter (24).pdf**

431K

**2017-2022 VT GPs.pdf**

322K

General Permit No.: NAE-2017-02232
Applicant: General Public in the State of Vermont

Effective Date: December 6, 2017
Expiration Date: December 6, 2022

**DEPARTMENT OF THE ARMY
GENERAL PERMITS FOR THE
STATE OF VERMONT**

The New England District of the U.S. Army Corps of Engineers (Corps) hereby issues General Permits (GPs) for activities subject to Corps jurisdiction in waters of the United States (U.S.), including navigable waters, within boundaries of the State of Vermont. These GPs are issued in accordance with Corps regulations at Title 33 of the Code of Federal Regulations, Parts 320–332 (see 33 CFR 325.2(e)(2)). These GPs will provide protection to the aquatic environment and the public interest while effectively authorizing activities that have no more than minimal individual and cumulative adverse environmental effects.

I. GENERAL CRITERIA

1. In order for activities to qualify for these GPs, they must meet the terms, eligibility criteria and stipulations listed in Appendix A – General Permits, as well as the General Conditions (GCs) listed in Appendix B. The Corps will consider any activity requiring Corps authorization to be unauthorized if that activity is under construction or completed and does not comply with all of the terms and conditions.
2. Project proponents are encouraged to contact the Corps with questions at any time. Pre-application meetings (see 33 CFR 325.1(b)), whether arranged by the Corps or requested by permit applicants, are encouraged to facilitate the review of projects. Pre-application meetings and/or site visits can help streamline the permit process by alerting the applicant to potentially time-consuming concerns that may arise during the evaluation of their project (e.g., avoidance, minimization and compensatory mitigation requirements, historic properties, and endangered species).
3. Federal and state jurisdictions may differ in some instances. Applicants are responsible for applying for and obtaining any of the required state or local approvals (see General Condition (GC) 1). A permit from the Corps may be required for specific projects regardless of State of Vermont jurisdiction.

These GPs may also be used to authorize projects that are not regulated by the State of Vermont (e.g., seasonal floats or moorings).

4. How to Obtain/Apply for Authorization:

Project proponents must read the text of each GP and the GCs to see if an activity is eligible for authorization.

a. Self-Verification (SV):

- i. May proceed without application or notification to the Corps provided the project proponent verifies that the activity will meet the terms and conditions of applicable GPs. Project proponents must comply with other federal laws such as the National Historic Preservation Act

(NHPA), the Endangered Species Act (ESA) and the Wild and Scenic Rivers Act. Consultation with outside experts, such as the State Historic Preservation Office, Stockbridge-Munsee Tribe, and the U.S. Fish and Wildlife Service (USFWS) may also be necessary.

b. Pre-Construction Notification (PCN):

i. For activities that do not qualify for SV, the applicant must submit a PCN to obtain written verification from the Corps before starting work in Corps jurisdiction. Applicants must submit the following directly to the Corps at the Vermont Project Office (VPO):

- A completed Corps application form (ENG Form 4345¹).
- Plans that illustrate the proposed work in reference to the limits of Corps jurisdiction as applicable. Plans should be on 8.5" x 11" or 11" x 17" paper and contain all other appropriate information.
- Federal wetland delineation documentation (i.e. Wetland Determination Data Forms).
- Any information on federally listed endangered and threatened species and critical habitat that occur or may occur in the project area (See GC 11). Contact information for the Vermont Agency of Natural Resources (VT ANR), Vermont Fish & Wildlife Department, and the Nongame and Natural Heritage program is provided on Page 37.
- Any correspondence with the Vermont State Historic Preservation Officer (VT SHPO) and the Stockbridge-Munsee Tribal Historic Preservation Officer (THPO) indicating coordination with these entities to ensure compliance with GC 10. Applicants are encouraged to submit a copy of their application materials to the VT SHPO and THPO, for projects in Addison, Rutland and Bennington counties, at the same time, or before, they apply to the Corps to be reviewed for the presence of historic, archaeological or tribal resources in the permit area that the proposed work may affect.

The Corps will coordinate review of all PCN activities with federal and state agencies to ensure that the proposed activity results in no more than a minimal impact to the aquatic environment. This may require project modifications involving avoidance, minimization, and/or compensatory mitigation for unavoidable impacts to ensure the net effects of a project are minimal.

ii. Emergency Situations: Contact the Corps in the event of an emergency situation for information on the application and approval process. Emergency situations are limited to sudden, unexpected occurrences that could potentially result in an unacceptable hazard to life, a significant loss of property, or an immediate, unforeseen, and significant economic hardship if corrective action requiring a permit is not undertaken within a time period less than the normal time needed to process an application under standard procedures. Emergency work is subject to the same terms and conditions of these GPs as non-emergency work, and similarly, must qualify for authorization under the GPs; otherwise an Individual Permit (IP) is required. The Corps will work with all applicable agencies to expedite verification according to established procedures in emergency situations.

5. Projects that are not authorized by these GPs may require an IP (33 CFR 325.5(b)) and proponents must submit an application directly to the Corps. These GPs do not affect the Corps' IP review process or activities exempt from Corps permit requirements. The Corps retains discretionary authority on a case-by-case basis to elevate a SV to PCN or IP, or a PCN to IP based on concerns for the aquatic environment or for any other factor of the public interest (33 CFR 320.4(a)). Whenever the Corps notifies an applicant that a PCN or IP is required, no work in Corps jurisdiction may be conducted until the Corps issues the required authorization in writing indicating that work may proceed. For IPs an

¹ Located at www.nae.usace.army.mil/regulatory under "Forms."

individual 401 Water Quality Certification (WQC) or waiver is required from the VT ANR. Contact the VT ANR for procedures on how to apply for the WQC.

II. JURISDICTION/AUTHORITY TO ISSUE PERMITS

1. Permits are required from the Corps of Engineers for the following regulated activities:
 - a. Work and structures that are located in, under or over any navigable water of the U.S. (defined at 33 CFR 329) that affect the course, location, condition, or capacity of such waters; or the excavating from or depositing material in navigable waters. (Regulated by the Corps under Section 10 of the Rivers and Harbors Act of 1899);
 - b. The discharge of dredged or fill material into waters of the U.S. (defined at 33 CFR 328), which is regulated by the Corps under Section 404 of the Clean Water Act (CWA).
2. Related laws: 33 CFR 320.3 includes a list of related laws, including: Section 401 of the CWA, Section 402 of the CWA, the National Historic Preservation Act of 1966, the Endangered Species Act, the Fish and Wildlife Act of 1956, Magnuson-Stevens Act, and Section 7(a) of the Wild and Scenic Rivers Act.
3. In order for authorizations under this GP to be valid, a WQC under Section 401 of the CWA (33 USC 1341) or waiver thereof must be obtained from the VT ANR, Watershed Management Division prior to the commencement of work in Corps jurisdiction. The VT ANR has granted WQC for SV activities provided that (a) the Corps will exercise its discretionary authority to review any project covered under SV when notified by the VT ANR that such project represents a threat to water quality and; (b) upon issuing notice to the Corps, VT ANR may exercise its discretion to require an individual water quality certification.

The VT ANR conditionally granted WQC for PCN activities provided the Corps notifies the VT ANR of a project application for a PCN activity. The VT ANR retains its discretion to require an individual WQC. The VT ANR will respond within the same response times required of the Federal resource agencies.

III. ELIGIBLE ACTIVITIES

An activity listed below may be authorized by this GP only if that activity and the permittee satisfy all of the GP's terms and conditions. Any activity not specifically listed below may still be eligible for the GP; applicants are advised to contact the Corps for a specific eligibility determination.

“Permanent impacts” means waters of the U.S. that are permanently affected by filling, flooding, excavation, drainage or clearing because of the regulated activity. Permanent impacts include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. Temporary impacts include, but are not limited to, waters of the U.S. that are temporarily filled, flooded, excavated, drained or cleared because of the regulated activity. Temporary impacts are usually associated with construction activities and often involve the placement of cofferdams and construction mats. These fills are removed when construction is completed. Pilings and associated structures do not ordinarily constitute a discharge of fill material. Impacts resulting from activities eligible for exemptions under §404(f) of the CWA are not considered when calculating the impact area.

Vermont General Permits

1. Aids to Navigation
2. Repair or maintenance of existing currently serviceable, authorized or grandfathered structures/fills, removal of structures
3. Moorings
4. Pile-supported structures & floats, including boat lifts/hoists and other miscellaneous structures & work
5. Boat ramps and marine railways
6. Utility line activities
7. Dredging, beach nourishment, rock removal & rock relocation
8. Discharges of dredged or fill material incidental to the construction of bridges
9. Shoreline and bank stabilization projects
10. Aquatic habitat restoration, establishment and enhancement activities
11. Fish and wildlife harvesting activities
12. Oil spill and hazardous material cleanup
13. Cleanup of hazardous and toxic waste
14. Scientific measurement devices
15. Survey activities
16. Mining Activities
17. New/expanded developments & recreational facilities
18. Linear transportation projects and stream/wetland crossings
19. Energy generation and renewable energy generation facilities and hydropower projects
20. Temporary fill not associated with any other GP activities
21. Agricultural activities

APPENDIX A – GENERAL PERMITS

GP 1. AIDS TO NAVIGATION (Section 10) Aids to navigation and regulatory markers that are approved by and installed in accordance with the requirements of the U.S. Coast Guard (USCG). See 33 CFR 66, Chapter I, subchapter C.	
Self-Verification (SV) Eligible	Pre-Construction Notification (PCN) Required
1. Aids to navigation and regulatory markers approved by and installed in accordance with the requirements of the USCG. Not located within a Corps Federal Navigation Project (FNP).	1. Work not eligible for SV. 2. Aids to navigation and regulatory markers or temporary buoys, markers, floats, and similar structures that are located within a Corps FNP.

GP 2. REPAIR OR MAINTENANCE OF EXISTING CURRENTLY SERVICEABLE, AUTHORIZED OR GRANDFATHERED STRUCTURES/FILLS & REMOVAL OF STRUCTURES AND FILLS (Sections 10 & 404)

(a) Repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3 (activities occurring before certain dates), provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, requirements of other regulatory agencies, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized. Includes removal of structures and fill.

Not authorized under GP 2: Permanent impacts >5,000 SF in Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands, and >1 acre in all other waterways and/or wetlands.

Self-Verification (SV) Eligible	Pre-Construction Notification (PCN) Required
1. Repair, replacement in-kind, or maintenance of existing, currently serviceable, authorized structures or fills with no substantial expansion or change in use: - Conditions of the original authorization apply. - Minor deviations in fill design allowed. - The repair, rehabilitation, or replacement of those structures or fills destroyed or damaged by storms, floods, fire or other discrete events is authorized, provided the repair, rehabilitation, or replacement is commenced, or is under contract to commence, within two years of the date of their destruction or damage. In cases of catastrophic events, such as hurricanes or tornadoes, the Corps may waive the two-year limit in writing provided the permittee can demonstrate funding, contract, or other similar delays. - Maintenance includes, but it is not limited to, the removal of accumulated sediments and debris in the vicinity of existing structures (such as bridges, culverted road crossings, water intake structures, dams, etc.), provided: (a) removal is the minimum necessary to restore the waterway in the vicinity of the structure to the approximate dimensions that existed when the structure was built; and (b) all dredged or excavated materials are deposited and retained in an upland area. 2. Bulkhead replacement via installation of new bulkhead within 18" of existing bulkhead & backfill. 3. Construction mats of any area necessary to conduct activities that were previously authorized, authorized under SV, or not subject to regulation in all waterways and wetlands other than Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands and should be removed as soon as work is completed. 4. Removal of previously authorized structures or fills.	1. Work not eligible for SV. 2. Dam and flood control or levee repair, rehabilitation, or replacement which involves a change in the flood elevation or permanent water surface elevation of the impoundment. 3. Construction mats of any area necessary to conduct activities that were previously authorized, authorized under SV, or not subject to regulation in Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands and should be removed as soon as work is completed. 4. The discharge of more than <i>de minimis</i> (i.e., inconsequential) quantities of accumulated bottom sediment occurring from or through a dam into downstream waters. NOTE 1: Grandfather dates include structures or work completed before December 18, 1968 & fill placed before July 25, 1975 for Corps purposes only. NOTE 2: This GP authorizes the repair, rehabilitation, or replacement of any previously authorized structure or fill that does not qualify for the CWA §404(f) exemption for maintenance. See 33 CFR 323.4(a)(2).

GP 3. MOORINGS (Section 10) (a) New private, non-commercial, non-rental, single-boat moorings; (b) Minor relocation of previously authorized moorings; (c) Mooring field expansions, boundary reconfigurations, or modifications of previously authorized mooring fields; and (d) Maintenance and replacement of moorings.

Not authorized under GP 3: Moorings or moored vessels that extend within the horizontal limits of Federal Navigation Projects (FNPs) and moorings associated with a new boating facility.

Self-Verification (SV) Eligible	Pre-Construction Notification (PCN) Required
1. Private, non-commercial, non-rental, single-boat moorings. 2. Minor relocation of previously authorized moorings.	1. Work not eligible for SV. 2. New moorings associated with an existing boating facility.

GP 4. PILE-SUPPORTED STRUCTURES & FLOATS, INCLUDING BOAT LIFTS/HOISTS & OTHER MISCELLANEOUS STRUCTURES & TEMPORARY RECREATIONAL STRUCTURES (Section 10) (a) New, expansions, reconfigurations, or modifications of structures for navigation access including docks, decks, floats, stairs, and boat/float lifts; and (b) Temporary buoys, markers, and similar structures placed for recreational use during specific events such as water skiing competitions and boat races or seasonal use.

Not authorized under GP 4: (a) Fill or excavation; (b) Structures within Federal Navigation Projects (FNPs); or (c) Structures associated with a new boating facility.

Self-Verification (SV) Eligible	Pre-Construction Notification (PCN) Required
1. Reconfiguration of existing authorized docks with no additional slips and no expansion, provided those structures do not extend beyond the existing perimeter of the facility. 2. Seasonal private, residential pile- or float-supported structures for navigational access extending no further waterward than 50 FT beyond mean high water (MHW), not >4 FT wide, and a dock deck area <500 SF. 3. Private, bottom-anchored floats and seasonal swim floats <400 SF. 4. Private boat & float lifts. 5. Temporary buoys, markers, and similar structures: (a) placed for recreational use during specific events, provided that such structures are removed within 30 days after use has been discontinued and/or; (b) placed during winter events on ice and removed before spring thaw. Provided 1 - 4 above do not extend across >25% of the waterway width at mean low water (MLW).	1. Work not eligible for SV. 2. Piers, docks, decks, floats, and similar structures that provide public, community or government recreational uses such as boating, fishing, swimming, access, etc. 3. Structures or work in or affecting navigable waters of the U.S. that are not defined under any other GP activity. 4. New structures within an existing boating facility, provided those structures do not extend beyond the existing perimeter of the boating facility. 5. Temporary buoys, markers, and similar structures that will not be removed within 30 days after use has been discontinued. NOTE: The Corps may require a letter of no objection from the abutter if structure is to be within 25 feet of the property line.

GP 5. BOAT RAMPS (Sections 10 and 404) Activities required for the construction of boat ramps including excavation and fill.

Not authorized under GP 5: (a) Permanent impacts $\geq 5,000$ SF in Lake Champlain, Lake Memphremagog and Wallace Pond and adjacent wetlands, and >1 acre in all other waterways and/or wetlands; (b) Temporary impacts >1 acre in waters of the U.S.; or (c) dredging in navigable waters of the U.S. (see GP 7).

Self-Verification (SV) Eligible	Pre-Construction Notification (PCN) Required
1. $<5,000$ SF of permanent and temporary impacts in waterways and/or wetlands other than Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands.	1. Work not eligible for SV. 2. <5000 SF permanent impact and <1 acre of temporary impact and excavation in Lake Champlain, Lake Memphremagog and Wallace Pond and adjacent wetlands. 3. Permanent and temporary impacts $\geq 5,000$ SF and <1 acre in waterways and/or wetlands, other than Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands. NOTE: The Corps may require a letter of no objection from the abutter if structure is to be within 25 feet of the property line.

GP 6. UTILITY LINE ACTIVITIES (Sections 10 & 404) Activities required for (a) The construction, maintenance, relocation, repair, & removal of utility lines, including outfall and intake structures, and the associated excavation, backfill, or bedding for utility lines; (b) The construction, maintenance or expansion of utility line substation facilities associated with a power/utility line in waters of the U.S.; and (c) The construction and maintenance of foundations for overhead utility line towers, poles, and anchors, provided the foundations are the minimum size necessary, and separate footings for each tower leg (rather than a larger single pad) are used where feasible. This GP authorizes the construction of access roads to facilitate construction of the above activities, provided the activity, in combination with all other activities included in one single and complete project, does not cause the permanent loss of greater than 1 acre of waters of the U.S. Impacts resulting from mechanized pushing, dragging or other similar activities that redeposit excavated soil material shall be figured into the area limit determination.

Not authorized under GP 6: Permanent and temporary impacts $\geq 5,000$ SF in Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands, and >1 acre in all other waterways and wetlands.

Self-Verification (SV) Eligible	Pre-Construction Notification (PCN) Required
1. $<5,000$ SF of permanent and temporary impacts in waterways and/or wetlands other than Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands. 2. Intake structures that are dry hydrants used exclusively for firefighting activities with no stream impoundments. NOTE: Construction mats of any area necessary to conduct activities do not count towards the 5,000 SF threshold and should be removed as soon as work is completed.	1. Work not eligible for SV. 2. Overhead utility lines constructed over navigable waters of the U.S. and submarine utility lines that are routed in or under such waters. 3. Permanent and temporary impacts are: a. $<5,000$ SF in Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands. b. $\geq 5,000$ SF and <1 acre in waterways and/or wetlands other than Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands. 4. Work involves stream channelization, relocation or loss of streambed including impoundments. NOTE 1: Construction mats of any area necessary to conduct activities do not count towards the thresholds and should be removed as soon as work is completed. NOTE 2: Utility lines consisting of aerial electric power transmission lines crossing navigable waters of the U.S. must comply with the applicable minimum clearances specified in 33 CFR 322.5(i).
NOTE: A utility line is defined as any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance, for any purpose, and any cable, line, or wire for the transmission for any purpose of electrical energy, telephone, data, and telegraph messages, and radio and television communication. The term utility line does not include activities that drain a water of the U.S., such as drainage tile or French drains, but it does apply to pipes conveying drainage from another area.	

GP 7. DREDGING (Section 10), BEACH NOURISHMENT (Sections 10 & 404); ROCK REMOVAL (Section 10) & ROCK RELOCATION (Sections 10 & 404) (a) New and maintenance dredging, including disposal of dredged material for beach nourishment, provided the Corps finds the dredged material to be suitable for such disposal; (b) Beach nourishment not associated with dredging; and (c) Rock removal and relocation for navigation.

Not authorized under GP 7: (a) New and maintenance dredging $\geq 5,000$ CY; (b) Permanent fill $\geq 5,000$ SF in Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands, and >1 acre in all other waterways and/or wetlands; (c) Regulated discharges associated with excavation, and disposal $>1/2$ acre; and (d) Temporary fill >1 acre in all waterways and wetlands.

Self-Verification (SV) Eligible	Pre-Construction Notification (PCN) Required
1. No new or maintenance dredging in navigable waters of the U.S. 2. $<5,000$ SF of temporary impact associated with dredging in waterways and/or wetlands. 3. Rock removal and relocation ≤ 200 SF of impacts.	1. Work not eligible for SV. 2. New and maintenance dredging up to 5,000 CY with upland disposal or beach nourishment in navigable waters of the U.S. 3. $\geq 5,000$ SF and <1 acre of temporary impact associated with dredging in all waterways and/or wetlands. 4. Disposal of dredged material for beach nourishment: a. $<5,000$ SF in Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands. b. $\geq 5,000$ SF and <1 acre in waterways and/or wetlands other than Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands.

GP 8. DISCHARGES OF DREDGED OR FILL MATERIAL INCIDENTAL TO THE CONSTRUCTION OF BRIDGES (Section 404 – navigable waters of the U.S. only) Discharges of dredged or fill material incidental to the construction and modification of bridges across navigable waters of the U.S., including cofferdams, abutments, foundation seals, piers, and temporary construction and access fills, **provided that the USCG authorizes the construction of the bridge structure under Section 9 of the Rivers and Harbors Act of 1899 or other applicable laws.** A USCG Authorization Act Exemption or a STURRA (144h) exemption do not constitute USCG authorization (see GP 18).

Not authorized under GP 8: Causeways and approach fills (see GP 18)

Self-Verification (SV) Eligible	Pre-Construction Notification (PCN) Required
Discharges of dredged or fill material incidental to the construction and modification of bridges.	

GP 9. SHORELINE & BANK STABILIZATION PROJECTS (Sections 10 & 404) Bank stabilization activities necessary for erosion protection along the banks of lakes, ponds, streams, and any other open waters. Includes bulkheads, seawalls, riprap, revetments or slope protection & similar structures, as well as vegetative planting, soil bioengineering, or alternative techniques that are a combination of the two (e.g. living shorelines), specifically for the purpose of shoreline protection. Not authorized under GP 9: (a) Bank stabilization ≥ 500 LF in total length and/or involving more than an average of 1CY of fill per linear foot placed below the plane of the ordinary high water mark in Lake Champlain, Lake Memphremagog and Wallace Pond and adjacent wetlands; (b) Stream channelization or relocation activities; or (c) breakwaters, groins and jetties.	
Self-Verification (SV) Eligible	Pre-Construction Notification (PCN) Required
1. No fill in Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands. 2. Bank stabilization <200 linear feet long and does not exceed an average of 1 CY of fill per linear foot placed below the plane of the ordinary high water mark in waterways and wetlands other than Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands. 3. <5,000 SF of temporary fill associated with bank stabilization in waterways and/or wetlands, other than Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands.	1. Work not eligible for SV. 2. Bank stabilization <500 linear feet and an average of <1 CY of fill per linear foot placed below the plane of the ordinary high water mark in Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands.

GP 10. AQUATIC HABITAT RESTORATION, ESTABLISHMENT & ENHANCEMENT ACTIVITIES (Sections 10 and 404) Activities in waters of the United States associated with the restoration, enhancement, and establishment of wetlands and riparian areas; the restoration and enhancement of streams and other open waters; the relocation of non-navigable waters of the U.S., including streams & associated wetlands for reestablishment of a natural stream morphology and reconnection of the floodplain; and the restoration and enhancement of shellfish, finfish and wildlife, provided those activities result in net increases in aquatic resource functions and services.

Not authorized under GP 10: Stream channelization activities.

Self-Verification (SV) Eligible	Pre-Construction Notification (PCN) Required
1. No fill in Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands. 2. Permanent and temporary impacts are <5,000 SF in waterways and/or wetlands provided the activity is supported in writing by a state, or non-Corps Federal environmental agency. 3. No conversion of a stream to wetland or vice versa, or wetland to a pond or uplands. 4. Temporary structures in navigable waters of the U.S. not exceeding 30 days.	1. Work not eligible for SV. 2. Permanent or temporary impacts are: a. In Lake Champlain, Lake Memphremagog, Wallace Pond, adjacent wetlands; or b. ≥5,000 SF in all other waterways and/or wetlands. 3. Permanent structures in navigable waters of the U.S. 4. Sea Lamprey control projects. 5. Water impoundments. 6. Dam removals. 7. Restoration, establishment and/or enhancement activities approved for use by a Corps-approved In-Lieu Fee Program or Corps-approved mitigation bank, with impacts of any size.

GP 11. FISH & WILDLIFE HARVESTING ACTIVITIES (Sections 10 and 404) Activities in waters of the United States associated with fish and wildlife harvesting devices, such as duck blinds, fish shanties, and small fish aggregating and attraction devices.

Not authorized by GP 11: (a) Artificial reefs; and (b) Permanent and temporary fill >5,000 SF in all waterways and/or wetlands.

Self-Verification (SV) Eligible	Pre-Construction Notification (PCN) Required
1. Non-fill activities associated with fish and wildlife harvesting devices including duck blinds, fish shanties and small fish aggregating and attraction devices.	1. Work not eligible for SV. 2. Permanent and temporary impacts <5,000 SF in all waterways and/or wetlands.

GP 12. OIL SPILL & HAZARDOUS MATERIAL CLEANUP (Sections 10 and 404): (a) Activities conducted in response to a discharge or release of oil and hazardous substances that are subject to the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR 300) including containment, cleanup, and mitigation efforts, provided activities are done under either (i) The Spill Prevent, Control & Countermeasure Plan required by 40 CFR 112.3; (ii) The direction or oversight of the Federal on-site coordinator designated by 40 CFR 300; or (iii) Any approved existing State, regional or local contingency plan, provided that the Regional Response Team concurs with the proposed response efforts or does not object to the response effort; (b) Activities required for the cleanup of oil releases in waters of the U.S. from electrical equipment that are governed by EPA's polychlorinated biphenyl (PCB) spill response regulations at 40 CFR 761; (c) Booms placed in navigable waters of the U.S.; and (d) Use of structures & fills for spill response training exercises. Special Aquatic Sites (SAS) must be restored to their original condition and elevation.

Self-Verification (SV) Eligible	Pre-Construction Notification (PCN) Required
1. Activities that are conducted in accordance with a. or b. above. 2. Booms placed in navigable waters of the U.S. for hazardous and toxic waste containment, absorption and prevention, provided they are removed upon completion of the cleanup. 3. Temporary impacts for spill response training exercises <1000 SF in navigable waters of the U.S. and <5000 SF in all other waters of the U.S., and in place ≤30 days.	1. Work not eligible for SV. 2. Permanent structures or impacts for spill response training exercises.

GP 13. CLEANUP OF HAZARDOUS & TOXIC WASTE (Sections 10 and 404) Specific activities to effect the containment, stabilization or removal of hazardous or toxic waste materials, including court ordered remedial action plans or related settlements which are performed, ordered or sponsored by a government agency with established legal or regulatory authority. SAS must be restored to their original condition and elevation. Not authorized under GP 13: (a) the establishment of new disposal sites; or (b) the expansion of existing sites used for the disposal of hazardous or toxic waste.	
Self-Verification (SV) Eligible	Pre-Construction Notification (PCN) Required
1. Permanent and temporary impacts are <5,000 SF in waterways and wetlands. 2. No fill in navigable waters of the U.S. 3. Booms placed in navigable waters of the U.S. for oil and hazardous substance containment, absorption and prevention, provided they are removed upon completion of the cleanup.	1. Work not eligible for SV. 2. Permanent and temporary impacts: a. $\geq$5,000 SF in all waterways and wetlands; or b. Located in navigable waters of the U.S. 3. Work involves stream channelization, relocation, impoundments or loss of streambed.

GP 14. SCIENTIFIC MEASUREMENT DEVICES (Sections 10 and 404) Scientific devices for measuring and recording scientific data, such as staff gauges, tide and current gauges, meteorological stations, water recording and biological observation devices, water quality testing and improvement devices, and similar structures. Also eligible are small temporary weirs and flumes constructed primarily to record water quantity and velocity, provided the discharge is less than 25 cubic yards. Not authorized under GP 14: (a) Permanent and temporary impacts >1/2 acre in navigable waters of the U.S.; and (b) Permanent and temporary impacts >1 acre in all other waterways and wetlands.	
Self-Verification (SV) Eligible	Pre-Construction Notification (PCN) Required
1. Permanent and temporary impacts are ≤1,000 SF in waterways and wetlands. 2. Temporary structures in navigable waters of the U.S. Provided the activity does not: • Restrict or concentrate movement of aquatic organisms; • Result in a hazard to navigation.	1. Work not eligible for SV. 2. Permanent and temporary impacts >1000 SF in waterways and wetlands. 3. Permanent structures in navigable waters of the U.S. 4. The activity involves permanent biological sampling devices in non-navigable waters of the U.S., temporary or permanent biological sampling devices in navigable waters of the U.S., or weirs and flumes.
NOTE: Upon completion of the use of the device to measure and record scientific data, the measuring device, and any other structures or fills associated with that device (e.g., foundations, anchors, buoys, lines, etc.), must be removed to the maximum extent practicable.	

GP 15. SURVEY ACTIVITIES (Sections 10 and 404) Survey activities such as soil borings, core sampling, seismic exploratory operations, plugging of seismic shot holes, and other exploratory-type bore holes, exploratory trenching and historic resources surveys.	
Not authorized under GP 15: (a) Permanent impacts >5,000 SF in Lake Champlain, Lake Memphremagog and Wallace Pond, and >1 acre in all other waterways and/or wetlands, (b) Temporary impacts >1 acre in all waters of the U.S., excluding temporary mats.	
Self-Verification (SV) Eligible	Pre-Construction Notification (PCN) Required
1. No fill in Lake Champlain, Lake Memphremagog and Wallace Pond. 2. <5,000 SF of permanent and temporary impacts in waterways and/or wetlands other than Lake Champlain, Lake Memphremagog and Wallace pond. 3. No impacts, other than soil borings or core sampling, in navigable waters of the U.S. 4. No permanent structures or drilling and discharge of excavated material from test wells for oil and gas exploration allowed. NOTE: Construction mats of any area necessary to conduct activities do not count towards the 5,000 SF threshold and should be removed as soon as work is completed.	1. Work not eligible for SV. 2. <5000 SF permanent impact and <1 acre of temporary impact in Lake Champlain, Lake Memphremagog and Wallace Pond and adjacent wetlands. 3. Permanent and temporary impacts are $\geq$ 5,000 SF and <1 acre of impact in waterways and/or wetlands, other than Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands. NOTE: Construction mats of any area necessary to conduct activities do not count towards the 1 acre threshold and should be removed as soon as work is completed.
NOTE: The area in which the exploratory trench is dug must be restored to its preconstruction elevation upon completion of the work and must not drain a water of the United States. In wetlands, the top 6 to 12 inches of the trench should normally be backfilled with topsoil from the trench.	

GP 16. MINING ACTIVITIES (Sections 10 and 404) Discharges of dredged or fill material into waters and wetlands for mining activities.	
Not authorized under GP 16: Permanent and temporary impacts >5,000 SF in Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands, and >1 acre in all other waterways and/or wetlands.	
Self-Verification (SV) Eligible	Pre-Construction Notification (PCN) Required
1. The activity does not occur in, over, or under navigable waters of the U.S. 2. <5,000 SF of permanent and temporary impacts in waterways and/or wetlands other than Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands.	1. Work not eligible for SV. 2. Permanent and temporary impacts are: a. <5,000 SF in Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands. b. ≥5,000 SF and <1 acre in waterways and/or wetlands other than Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands. 3. Work occurs in navigable waters of the U.S. 4. Work involves stream channelization, relocation, impoundment, loss of streambed, or discharge of tailings into streams.

GP 17. NEW/EXPANDED DEVELOPMENT & RECREATIONAL FACILITIES (Sections 10 and 404) Discharges of dredged or fill material for the construction or expansion of developments and/or recreational facilities. This GP authorizes attendant features that are necessary for the use of the development. Attendant features may include but are not limited to roads, parking lots, garages, yards, utility lines, storm water management facilities, and septic fields. Fill area includes all temporary and permanent fill, and regulated discharges associated with excavation. Not authorized under GP 17: Permanent and temporary impacts >5,000 SF in Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands, and >1 acre in all other waterways and/or wetlands.	
Self-Verification (SV) Eligible	Pre-Construction Notification (PCN) Required
1. <5,000 SF of permanent and temporary impacts in waterways and/or wetlands other than Lake Champlain, Lake Memphremagog and Wallace pond and adjacent wetlands. NOTE: Construction mats of any area necessary to conduct activities do not count towards the 5,000 SF threshold and should be removed as soon as work is completed.	1. Work not eligible for SV. 2. Permanent and temporary impacts are: a. <5,000 SF in Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands. b. ≥5,000 SF and <1 acre in waterways and/or wetlands other than Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands. 3. Work involves stream channelization, relocation, or loss of streambed, including impoundments. NOTE: Construction mats of any area necessary to conduct activities do not count towards the thresholds and should be removed as soon as work is completed.

GP 18. LINEAR TRANSPORTATION PROJECTS AND STREAM/WETLAND CROSSINGS (Sections 10 & 404) Activities required for the construction, expansion, modification, or improvement of linear transportation projects (e.g., driveways, roads, highways, railways, trails, airport runways, and taxiways), and attendant features. Any stream channel modification is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project.

Not authorized under GP 18: Permanent and temporary impacts >5,000 SF in Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands, and >1 acre in all other waterways and/or wetlands.

Self-Verification (SV) Eligible	Pre-Construction Notification (PCN) Required
1. <5,000 SF of permanent and temporary impacts in waterways and/or wetlands other than Lake Champlain, Lake Memphremagog and Wallace pond and adjacent wetlands. 2. Permanent and temporary stream crossings that comply with GC 20; and 3. Existing crossings (e.g., culverts, elliptical or arch pipes, etc.) are not modified by (a) decreasing the diameter of the crossing or (b) changing the friction coefficient, such as through sliplining (retrofitting an existing culvert by inserting a smaller diameter pipe), culvert relining or invert lining. NOTE: Construction mats of any area necessary to conduct activities do not count towards the 5,000 SF threshold and should be removed as soon as work is completed.	1. Work not eligible for SV. 2. Permanent and temporary impacts are: a. <5,000 SF in Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands. b. ≥5,000 SF and <1 acre in waterways and/or wetlands other than Lake Champlain, Lake Memphremagog, Wallace Pond and adjacent wetlands. 3. Work involves stream channelization, relocation or loss of streambed including impoundments. NOTE: Construction mats of any area necessary to conduct activities do not count towards the thresholds and should be removed as soon as work is completed.
Note: Non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars may be authorized by GP 17.	

GP 19. ENERGY GENERATION & RENEWABLE ENERGY GENERATION FACILITIES & HYDROPOWER PROJECTS (Sections 10 and 404) Structures and work in navigable waters of the U.S. and discharges of dredged or fill material into waters of the U.S. for the construction, expansion, modification or removal of: (a) Land-based renewable energy production facilities, including attendant features; (b) Water-based wind production facilities or hydrokinetic renewable energy generation projects and their attendant features; and (c) Discharges of dredged or fill material associated with hydropower projects.

Attendant features may include, but are not limited to, land-based collection and distribution facilities, control facilities, and parking lots. For each single and complete project in (b) above, no more than 10 generation units (e.g., wind turbines or hydrokinetic devices) are authorized in navigable waters of the U.S.

Not authorized under GP 19: Permanent and temporary impacts that are (a) >1 acre in non-Section 10 waterways and/or wetlands; (b) >5,000 SF in Section 10 waterways; and (c) >5,000 SF in wetlands adjacent to Lake Champlain, Lake Memphremagog, and Wallace Pond.

Self-Verification (SV) Eligible	Pre-Construction Notification (PCN) Required
For land-based facilities: 1. <5,000 SF of permanent and temporary impacts in non-Section 10 waterways and/or wetlands. NOTE: Construction mats of any area necessary to conduct activities do not count towards the 5,000 SF threshold and should be removed as soon as work is completed.	1. Work not eligible for SV. 2. Permanent and temporary impacts are: a. ≥ 5000 SF and <1 acre in non-Section 10 waters and wetlands, and b. <5000 SF in navigable waters of the U.S. 3. Work involves stream channelization, relocation or loss of streambed including impoundments. NOTE: Construction mats of any area necessary to conduct activities do not count towards the thresholds and should be removed as soon as work is completed.
Note: Utility lines constructed to transfer the energy from the land-based renewable generation or collection facility to a distribution system, regional grid, or other facility may be authorized by GP 6.	

GP 20. TEMPORARY CONSTRUCTION, ACCESS, AND DEWATERING (Sections 10 and 404)

Temporary structures, work, and discharges, including cofferdams, necessary for construction activities or access fills or dewatering of construction sites that are not authorized under another GP activity.

Not authorized under GP 20: (a) Permanent structures or impacts; (b) Temporary impacts >1 acre in waters and/or wetlands; (c) use of cofferdams to dewater wetlands or other aquatic areas to change their use; or (d) Structures or fill left in place after construction is completed.

Self-Verification (SV) Eligible

1. Temporary impacts including land clearing in waters and/or wetlands are ≤ 5000 SF.

NOTE: Construction mats of any area necessary to conduct activities do not count towards the 5,000 SF threshold and should be removed as soon as work is completed.

Pre-Construction Notification (PCN) Required

1. Work not eligible for SV.

NOTE: Construction mats of any area necessary to conduct activities do not count towards the 1 acre threshold and should be removed as soon as work is completed.

Note: Temporary stream crossings may be authorized under GP 18.

GP 21. AGRICULTURAL ACTIVITIES (Section 404) Discharges of dredged or fill material into waters of the U.S. for agricultural activities, including the construction of building pads for farm buildings. Authorized activities include: (a) installation, placement, or construction of drainage tiles, ditches, or levees; mechanized land clearing; land leveling; the relocation of existing serviceable drainage ditches; and similar activities; (b) discharges of dredged or fill material to relocate existing serviceable drainage ditches constructed in streams.

Not authorized under GP 21: (a) Permanent impacts >1 acre in non-Section 10 waterways and wetlands; (b) Work in Section 10 waterways; or (c) Construction of farm ponds in perennial streams.

Self-Verification (SV) Eligible	Pre-Construction Notification (PCN) Required
1. For those activities subject to Corps jurisdiction, <5,000 SF of permanent and temporary impacts.	1. $\geq 5,000$ SF to <1 acre of permanent and temporary impacts. 2. Work involves stream channelization, relocation or loss of streambed including impoundments.

APPENDIX B – GENERAL CONDITIONS

1. Other Permits. Permittees must obtain other Federal, State, or local authorizations required by law. Applicants are responsible for applying for and obtaining all required State or local approvals. Work that is not regulated by the State, but is subject to Corps jurisdiction, may be eligible for these General Permits (GPs).

2. Federal Jurisdictional Boundaries.

a. Applicability of these GPs shall be evaluated with reference to Federal jurisdictional boundaries. Activities shall be evaluated with reference to “waters of the U.S.” under the Clean Water Act (33 CFR 328) and “navigable waters of the U.S.” under §10 of the Rivers and Harbors Act of 1899 (33 CFR 329). Applicants are responsible for ensuring that the boundaries used satisfy the Federal criteria defined at 33 CFR 328-329. These sections prescribe the policy, practice and procedures to be used in determining the extent of the Corps’ jurisdiction. Note: Waters of the U.S. includes all waters pursuant to 33 CFR 328.3(a), and adjacent wetlands as that term is defined in 33 CFR 328.3(c).

b. Applicants shall identify all aquatic resources on the project site. They are all presumed to be waters of the U.S. unless an approved jurisdictional determination has been obtained from the Corps that determines otherwise. Wetlands shall be delineated in accordance with the Corps of Engineers Wetlands Delineation Manual and the most recent Northcentral/Northeast Regional Supplement.

3. Mitigation (Avoidance, Minimization, and Compensatory Mitigation).

a. Activities must be designed and constructed to avoid and minimize direct, indirect, secondary, and cumulative adverse effects, both temporary and permanent, to waters of the U.S. to the maximum extent practicable at the project site (i.e., on site). Consideration of mitigation (avoiding, minimizing, rectifying, reducing, or compensating) is required to the extent necessary to ensure that the adverse effects to the aquatic environment are no more than minimal.

b. Applicants should consider riparian/forested buffers for stormwater management and low impact development (LID) best management practices (BMPs) to reduce impervious cover and manage stormwater to minimize impacts to the maximum extent practicable.

c. Compensatory mitigation² for effects to waters of the U.S., including direct, secondary and temporal³, may be required for projects with permanent and temporary impacts that exceed the SV area limits to offset unavoidable impacts, which remain after all appropriate and practicable avoidance and minimization has been achieved, and to ensure that the adverse effects to the aquatic environment are no more than minimal. Proactive restoration projects or temporary impact work with no secondary effects may generally be excluded from this requirement.

4. Discretionary Authority. Notwithstanding compliance with the terms and conditions of this permit, the Corps retains discretionary authority to require an Individual Permit review based on concerns for the aquatic environment or for any other factor of the public interest (33 CFR 320.4(a)). This authority is invoked on a case-by-case basis whenever the Corps determines that the potential consequences of the proposal warrant Individual Permit review based on the concerns stated above. This authority may be invoked for projects with cumulative adverse environmental effects that are more than minimal, or if there is a special resource or concern associated with a particular project. Whenever the Corps notifies an applicant that an Individual Permit may be required, authorization under these GPs is voided and no

² Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR 332. Also reference the New England District Compensatory Mitigation Guidance at <http://www.nae.usace.army.mil/Missions/Regulatory/Mitigation.aspx>.

³ Temporal loss: The time lag between the losses of aquatic resource functions caused by the permitted impacts and the replacement of aquatic resource functions at the compensatory mitigation site(s) (33 CFR 332.2).

work may be conducted until a Corps Individual Permit is obtained or until the Corps notifies the applicant that further review has demonstrated that the work may be reviewed under these GPs.

5. Single and Complete Project. The term “single and complete project” is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. The GPs shall not be used for piecemeal work and shall be applied to single and complete projects.

a. For non-linear projects, a single and complete project must have independent utility. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

b. Unless the Corps determines the activity has independent utility, all components of a single project and/or all planned phases of a multi-phased project (e.g., subdivisions should include all work such as roads, utilities, and lot development) shall be treated together as constituting one single and complete project.

c. For linear projects such as power lines or pipelines with multiple crossings, a “single and complete project” is all crossings of a single water of the U.S. (i.e. single waterbody) at a specific location. For linear projects crossing a single waterbody several times at separate and distant locations, each crossing is considered a single and complete project. However, individual channels in a braided stream or river, or individual arms of a large, irregularly-shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately. If any crossing requires a PCN review or an Individual Permit review, then the entire linear project shall be reviewed as one project under PCN or the Individual Permit procedures.

6. Use of Multiple General Permits. When a single and complete project requires the use of multiple GPs, the acreage of impacts (loss) to waters of the U.S. cannot exceed the acreage limit as specified. For example, if a road crossing over waters is constructed under GP 18, with an associated utility line crossing authorized by GP 6, the maximum acreage loss of waters of the United States for the total project cannot exceed 1 acre.

7. Corps Property and Federal Projects.

a. In addition to any authorization under these GPs, proponents must contact the Corps Real Estate Division at (978) 318-8585 for work occurring on or potentially affecting Corps properties and/or Corps-controlled easements to initiate reviews and determine what real estate instruments are necessary to perform work. Permittees may not commence work on Corps properties and/or Corps-controlled easements until they have received any required Corps real estate documents evidencing site-specific permission to work.

b. Any proposed alteration, modification, or use of a Federal project (including but not limited to a levee, dike, floodwall, channel, anchorage, seawall, bulkhead, jetty, wharf, pier or other work built but not necessarily owned by the United States), which could obstruct or impair the usefulness of the Federal project in any manner or be injurious to the public interest is not eligible for SV and will also require review and approval by the Corps pursuant to 33 USC 408. Where Section 408 is applicable, a decision on a Department of the Army general permit application will not be rendered prior to the decision on a Section 408 request.

8. National Lands. For non-Federal permittees, activities that impinge upon the value of any National Wildlife Refuge, National Forest, or any area administered by the National Park Service (NPS), U.S. Fish and Wildlife Service (USFWS) or U.S. Forest Service (USFS) are not eligible for SV.

9. Wild and Scenic Rivers

- a. The following activities in designated rivers of the National Wild and Scenic River (WSR) System, or in a river designated by Congress as a “study river” for possible inclusion in the system, require a PCN unless the National Park Service (NPS) has determined in writing to the proponent that the proposed work will not adversely affect the WSR designation or study status:
 - i. Activities that occur in WSR segments, in and 0.25 miles up or downstream of WSR segments, or in tributaries within 0.25 miles of WSR segments;
 - ii. Activities that occur in wetlands within 0.25 miles of WSR segments;
 - iii. Activities that have the potential to alter free-flowing characteristics in WSR segments.
- b. As of December 19, 2014, affected rivers in Vermont include: the Missisquoi River, from its headwaters at the Lowell/Westfield town line to the Canadian border in Troy (20.5 miles) and from the Canadian border in East Richford to Enosburgh Falls (14.6 miles); and the Trout River.

10. Historic Properties.

- a. No undertaking shall cause effects (defined at 33 CFR 325 Appendix C and 36 CFR 800) on properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places⁴, including previously unknown historic properties within the permit area, unless the Corps or another Federal action agency has satisfied the consultation requirements of Section 106 of the National Historic Preservation Act (NHPA). The State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (THPO) and the National Register of Historic Places can assist with locating information on: i) previously identified historic properties; and ii) areas with potential for the presence of historic resources, which may require identification and evaluation by qualified historic preservation and/or archaeological consultants in consultation with the Corps and the SHPO and/or THPO(s).
- b. For activities eligible for SV, proponents must ensure and document that the activity will not cause effects as stated in 10(a).
- c. Proponents must submit a PCN to the Corps as soon as possible if the authorized activity may cause effects as stated in 10(a) to notify the Corps of the potential effects and enable the Corps to fulfill the consultation requirements of Section 106 of NHPA.
- d. If a project proponent discovers any previously unknown historic, cultural, or archeological remains or artifacts while accomplishing the activity authorized by this permit, they must immediately notify the District Engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The District Engineer will initiate the Federal, Tribal and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

11. Federal Threatened and Endangered Species.

- a. No activity is authorized under any GP which: i) is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species; or ii) “may affect” a listed species or critical habitat, unless ESA section 7 consultation addressing the effects of the proposed activity has been completed; or iii) violates the ESA.
- b. For listed species or critical habitat under USFWS jurisdiction, project proponents must check the USFWS IPaC website <http://ecos.fws.gov/ipac> and submit a PCN if any listed species or critical habitat

⁴ The majority of historic properties are not listed on the National Register of Historic Places and may require identification and evaluation by qualified historic preservation and/or archaeological consultants in consultation with the Corps and the SHPO and/or THPO.

may be impacted. An activity is eligible for SV if the IPaC website indicates that only the northern long-eared bat (NLEB) (*Myotis septentrionalis*) is present BUT the activity:

- i) will not remove trees ≥ 3 inches dbh; and
- ii) is not within the “buffer” of a NLEB hibernacula or maternity roost tree; and
- iii) does not involve work on bridges or existing riprap associated with dams.

c. Federal applicants should follow their own procedures for complying with the requirements of the ESA. Work may be eligible for SV if another Federal agency has satisfied the requirements of Section 7 of the ESA. Upon request, permittees must provide the Corps with the appropriate documentation to demonstrate compliance with those requirements.

12. Navigation.

a. Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the U.S.

b. Any structure or work that extends closer to the horizontal limits of any Corps Federal Navigation Project than a distance of three times the project's authorized depth shall be subject to removal at the owner's expense prior to any future Corps dredging or the performance of periodic hydrographic surveys. This is applicable to SV eligible and PCN activities.

c. There shall be no unreasonable interference with navigation by the existence or use of the activity authorized herein, and no attempt shall be made by the permittee to prevent the full and free use by the public of all navigable waters at or adjacent to the activity authorized herein.

d. The permittee understands and agrees that if future U.S. operations require the removal, relocation, or other alteration of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the U.S. No claim shall be made against the U.S. on account of any such removal or alteration.

e. An application to the Corps is required for all work in, over or under an FNP or its buffer zone unless otherwise indicated in Appendix A.

13. Federal Liability.

In issuing these GPs, the Federal Government does not assume any liability for the following:

- a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes;
- b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the U.S. in the public interest;
- c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit;
- d. Design or construction deficiencies associated with the permitted work; or
- e. Damage claims associated with any future modification, suspension, or revocation of this permit.

14. Heavy Equipment in Wetlands. Operating heavy equipment (drill rigs, fixed cranes, etc.) within wetlands shall be minimized, and such equipment shall not be stored, maintained or repaired in wetlands, to the maximum extent practicable. Where construction requires heavy equipment operation in wetlands, the equipment shall: a) have low ground pressure (typically < 3 psi); b) be placed on swamp/construction/timber mats (herein referred to as “construction mats” or “mats”) that are adequate to support the equipment in such a way as to minimize disturbance of wetland soil and vegetation; or c) be operated on adequately dry or frozen wetlands such that shear pressure does not cause subsidence of

the wetlands immediately beneath equipment and upheaval of adjacent wetlands. Construction mats are to be placed in the wetland from the upland or from equipment positioned on swamp mats if working within a wetland. Construction mats should be carried, and not dragged, into position, where feasible. Other support structures that are capable of safely supporting equipment may be used with written Corps authorization. Similarly, the permittee may request written authorization from the Corps to waive use of mats during frozen or dry conditions. An adequate supply of spill containment equipment shall be maintained on site. Construction mats should be managed in accordance with the following construction mat best management practices:

- Mats should be in good condition to ensure proper installation, use and removal.
- Where feasible, mats should be carried and not dragged unless they are being used as a grading implement.
- Where feasible, place mats in a location that would minimize the amount needed for the wetland crossing.
- Minimize impacts to wetland areas during installation, use, and removal.
- Install adequate erosion and sediment controls at approaches to mats to promote a smooth transition to, and minimize sediment tracking onto, mats.
- In most cases, mats should be placed along the travel area so that the individual boards are resting perpendicular to the direction of traffic. No gaps should exist between mats. Mats should be placed far enough on either side of the resource area to rest on firm ground.

15. Temporary Fill.

a. Temporary fill, construction mats and corduroy roads shall be **entirely** removed as soon as they are no longer needed to construct the authorized work. Temporary fill shall be placed in its original location or disposed of at an upland site and suitably contained to prevent its subsequent erosion into waters of the U.S.

b. All temporary fill and disturbed soils shall be stabilized to prevent its eroding into waters of the U.S. where it is not authorized. Work shall include phased or staged development to ensure only areas under active development are exposed and to allow for stabilization practices as soon as practicable. Temporary fill must be placed in a manner that will prevent it from being eroded by expected high flows.

c. Unconfined temporary fill authorized for discharge into waters of the U.S. shall consist of material that minimizes impacts to water quality (e.g. washed stone, stone, etc.).

d. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable when temporary structures, work, and discharges of dredged or fill material, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Materials shall be placed in a location and manner that does not adversely impact surface or subsurface water flow into or out of the wetland. Temporary fill authorized for discharge into wetlands shall be placed on geotextile fabric or other appropriate material laid on the pre-construction wetland grade where practicable to minimize impacts and to facilitate restoration to the original grade. Construction mats are excluded from this requirement.

e. Construction debris and/or deteriorated materials shall not be located in waters of the U.S.

16. Restoration of Wetland Areas.

a. Upon completion of construction, all disturbed wetland areas (the disturbance of these areas must be authorized) shall be stabilized with a wetland seed mix containing only plant species native to New England and shall not contain any species listed in the “Invasive and Other Unacceptable Plant Species” Appendix D in the “New England District Compensatory Mitigation Guidance” found at <http://www.nae.usace.army.mil/Missions/Regulatory/Mitigation.aspx>.

b. The introduction or spread of invasive plant species in disturbed areas shall be controlled. If construction mats are to be used, they shall be thoroughly cleaned before re-use.

c. In areas of authorized temporary disturbance, if trees are cut they shall be cut at or above ground level and not uprooted in order to prevent disruption to the wetland soil structure and to allow stump sprouts to revegetate the work area, unless otherwise authorized.

d. Wetland areas where permanent disturbance is not authorized shall be restored to their original condition and elevation, which under no circumstances shall be higher than the pre-construction elevation. Original condition means careful protection and/or removal of existing soil and vegetation, and replacement back to the original location such that the original soil layering and vegetation schemes are approximately the same, unless otherwise authorized.

17. Bank Stabilization. Projects involving construction or reconstruction/maintenance of bank stabilization structures within Corps jurisdiction should be designed to minimize environmental effects, effects to neighboring properties, scour, etc. to the maximum extent practicable. For example, vertical bulkheads should only be used in situations where reflected wave energy can be tolerated. This generally eliminates bodies of water where the reflected wave energy may interfere with or impact on harbors, marinas, or other developed shore areas. A revetment is sloped and is typically employed to absorb the direct impact of waves more effectively than a vertical seawall. It typically has a less adverse effect on the beach in front of it, abutting properties and wildlife.

18. Soil Erosion and Sediment Controls.

a. Appropriate soil erosion and sediment controls⁵ (hereinafter referred to as “controls”) must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark (OHW), must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the U.S. during periods of low-flow or no-flow. Areas of temporary fill and/or cofferdams must be included in total waterway/wetlands impacts to determine applicability of the GPs.

b. No dewatering shall occur with direct discharge to waters or wetlands. Excess water in isolated work areas shall be pumped or directed to a sedimentation basin, tank or other dewatering structures in an upland area adequately separated from waters or wetlands where suspended solids shall be removed prior to discharge back into waters or wetlands. All discharge points back into waters and wetlands shall use appropriate energy dissipaters and erosion and sedimentation control BMPs.

c. Controls shall be removed upon completion of work, but not until all exposed soil and other fills, as well as any work waterward of OHW, are permanently stabilized at the earliest practicable date. Sediment and debris collected by these devices shall be removed and placed at an upland location in a manner that will prevent its later erosion into a waterway or wetland. Controls may be left in place if they are biodegradable, and flows and aquatic life movements are not disrupted.

d. The material within sandbags shall not be released during their removal, and trenches must be backfilled as soon as practicable to reduce turbidity impact duration.

19. Aquatic Life Movements and Management of Water Flows.

a. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity’s primary purpose is to impound water. Unless otherwise stated, activities

⁵ Appropriate soil erosion, sediment and turbidity controls include cofferdams, bypass pumping around barriers immediately up and downstream of the work footprint (i.e., dam and pump), installation of sediment control barriers (i.e., silt fence, vegetated filter strips, geotextile silt fences, filter tubes, erosion control mixes, hay bales or other devices) downhill of all exposed areas, stream fords, retention of existing vegetated buffers, application of temporary mulching during construction, phased construction, and permanent seeding and stabilization, etc.

permanently impounding water in a stream require a PCN to ensure impacts to aquatic life species are avoided and minimized. All permanent and temporary crossings of waterbodies and wetlands shall be:

- i. Suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of aquatic species; and
- ii. Properly aligned and constructed to prevent bank erosion or streambed scour both adjacent to and inside the crossing.

b. To avoid adverse impacts on aquatic organisms, the low flow channel/thalweg shall remain unobstructed during periods of low flow, except when it is necessary to perform the authorized work.

c. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the preconstruction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

d. Activities that temporarily or permanently impact upstream or downstream flood conditions require a PCN.

20. Waterway/Wetland Work and Crossings.

a. All permanent crossings of rivers, streams, brooks, etc. (hereon referred to as “streams”) shall meet the following performance standards in order to qualify for SV:

- i. Design the structure to maintain a streambed composition and form throughout the culvert similar to and continuous with the adjacent reaches. To do this:
 - Design and install streambed material and bedforms if not adequately supplied and developed naturally,
 - Design profile and alignment through structure similar to those of adjacent stream reaches,
 - Design culvert elevation to remain embedded for the life of the structure and in consideration of future channel conditions.
- ii. Maintain velocities, turbulence and depths within the structure similar to those found in adjacent stream reaches across a range of desired flows.

b. The requirements to comply with the performance standards in GC 20a. above in order to proceed as a SV project do not apply to the following:

- i. Temporary crossings in place for less than 90 days. Temporary culverts must be embedded unless they're installed during low flow (Jul. 1 – Oct. 1) and it's placed on geotextile fabric laid on the stream bed to ensure restoration to the original grade.

c. Applicants proposing new crossings, or maintenance or replacement of serviceable crossings should refer to the Guidelines for the Design of Stream/Road Crossings for Passage of Aquatic Organisms in Vermont.

d. Applicants shall use the least intrusive and environmentally damaging method to construct the stream crossing, following this sequential minimization process: bridge spans, open bottom arches or embedded culverts.

e. Permanent and temporary crossings of waterbodies and wetlands shall be installed in such a manner as to preserve hydraulic and ecological connectivity, on either side of the crossing. The permittee shall take necessary measures to correct wetland damage due to lack of hydraulic connectivity.

f. Projects using retrofit methods increasing flow velocity or slip lining (retrofitting an existing culvert by inserting a smaller diameter pipe) require a PCN, either as new or maintenance activities.

g. No projects involving open trench excavation in flowing waters, except riprap installation, are allowed under SV. Open trench excavation projects may qualify for SV provided (1) the work doesn't

occur in flowing waters (requires using management techniques such as temporary flume pipes, culverts, cofferdams, etc.) and (2) normal flows are maintained upstream and downstream of the project area.

h. For projects that otherwise meet the terms of SV, in-stream construction work shall be conducted only during the low flow period of July 1 to October 1 in any year. Projects that are conducted outside that time period require a PCN, regardless of the waterway and/or wetland impact area.

21. Discharge of Pollutants. All activities involving any discharge of pollutants into waters of the U.S. authorized under these GPs shall comply with applicable water quality standards, effluent limitations, standards of performance, prohibitions, and pretreatment standards and management practices established pursuant to the CWA (33 U.S.C. 1251), and applicable state and local laws. If applicable water quality standards, limitations, etc., are revised or modified during the term of this permit, the authorized work shall be modified to conform with these standards within 6 months of the effective date of such revision or modification, or within a longer period of time deemed reasonable by the District Engineer in consultation with the Regional Administrator of the EPA. Applicants may presume that State Water Quality Standards are met with the issuance of a 401 WQC or waiver (Applicable only to the Section 404 activity).

22. Spawning, Breeding, and Migratory Areas.

a. Jurisdictional activities and impacts such as excavations, discharges of dredged or fill material, and/or suspended sediment producing activities in jurisdictional waters that provide value as fish migratory areas, fish and shellfish spawning or nursery areas, or amphibian and migratory bird breeding areas, during spawning or breeding seasons shall be avoided and minimized to the maximum extent practicable.

b. Jurisdictional activities in waters of the U.S. that provide value as breeding areas for migratory birds must be avoided to the maximum extent practicable. The permittee is responsible for obtaining any “take” permits required under the USFWS’s regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the USFWS to determine if such “take” permits are required for a particular activity.

23. Floodplains and Floodways.

a. Appropriate measures must be taken to minimize flooding to the maximum extent practicable.

b. The permittee is responsible for complying with applicable Federal Emergency Management Agency (FEMA)-approved State and/or local floodplain management permitting requirements for projects located within the 100-Year Floodplain.

24. Storage of Seasonal Structures. Seasonal or recreational structures such as pier sections, floats, etc., that are removed from the waterway for a portion of the year shall be stored in an upland location, located above OHW and not in wetlands.

25. Vernal Pools.

a. On projects requiring a PCN, vernal pools must be identified on the plan showing aquatic resource delineations.

b. A PCN is required if a discharge of dredged or fill material is proposed in a vernal pool located within Federal jurisdictional boundaries.

c. Adverse impacts to vernal pools, vernal pool envelopes, and critical terrestrial habitats should be avoided and minimized to the maximum extent practicable.

d. GC 25(b) and (c) do not apply to projects that are within a municipality that meets the provisions of a Corps-approved VP Special Area Management Plan (VP SAMP) and are otherwise eligible for self-verification, and the applicant meets the requirements to utilize the VP SAMP.

26. Environmental Functions and Values. The permittee shall make every reasonable effort to carry out the construction or operation of the work authorized herein in a manner that minimizes any adverse impacts on existing fish, wildlife, and the environmental functions to the extent practicable. The permittee will discourage the establishment or spread of plant species identified as non-native invasive species by any Federal or State agency.

27. Invasive Species. The introduction, spread, or the increased risk of invasion of invasive plant or animal species on the project site, into new or disturbed areas, or areas adjacent to the project site caused by the site work shall be avoided. Hence, swamp and timber mats shall be thoroughly cleaned before reuse.

28. Permit/Authorization Letter On-Site. For PCN projects, the permittee shall ensure that a copy of these GPs and the accompanying authorization letter are at the work site (and the project office) whenever work is being performed, and that all personnel with operational control of the site ensure that all appropriate personnel performing work are fully aware of its terms and conditions. The entire permit authorization shall be made a part of any and all contracts and sub-contracts for work that affect areas of Corps jurisdiction at the site of the work authorized by these GPs. This shall be achieved by including the entire permit authorization in the specifications for work. The term “entire permit authorization” means these GPs, including general conditions and the authorization letter (including its drawings, plans, appendices and other attachments), and also includes permit modifications. If the authorization letter is issued after the construction specifications, but before receipt of bids or quotes, the entire permit authorization shall be included as an addendum to the specifications. If the authorization letter is issued after receipt of bids or quotes, the entire permit authorization shall be included in the contract or sub-contract as a change order. Although the permittee may assign various aspects of the work to different contractors or sub-contractors, all contractors and sub-contractors shall be obligated by contract to comply with all environmental protection provisions contained within the entire authorization letter, and no contract or sub-contract shall require or allow unauthorized work in areas of Corps jurisdiction.

29. Inspections. The permittee shall allow the Corps and VT ANR to make periodic inspections at any time deemed necessary in order to ensure that the work is being or has been performed in accordance with the terms and conditions of this permit. The Corps may also require post-construction engineering drawings for completed work or post-dredging survey drawings for any dredging work.

30. Maintenance. The permittee shall maintain the activity authorized by these GPs in good condition and in conformance with the terms and conditions of this permit. This does not include maintenance of dredging projects. Maintenance dredging is subject to the review thresholds in General Permit 7 in Appendix A, as well as any conditions included in a written Corps authorization. Maintenance dredging includes only those areas and depths previously authorized and dredged. Some maintenance activities may not be subject to regulation under Section 404 in accordance with 33 CFR 323.4(a)(2).

31. Property Rights. These GPs do not convey any property rights, either in real estate or material, or any exclusive privileges, nor does it authorize any injury to property or invasion of rights or any infringement of federal, state, or local laws or regulations.

32. Transfer of GP Verifications. If the structures or work authorized by these GPs are still in existence at the time the property is transferred, the terms and conditions, including any special conditions, will continue to be binding on the entity or individual who received the authorization, as well as the new owner(s) of the property. If the permittee sells or otherwise transfers the property associated with a GP authorization, the permittee may transfer the GP authorization to the new owner by submitting a letter to the Corps to validate the transfer. A copy of the GP authorization letter must be attached to the letter, and the letter must include the following statement: “The terms and conditions of these General Permits, including any special conditions, will continue to be binding on the new owner(s) of the property”. This letter should be signed by both the seller and new property owner(s).

33. Modification, Suspension, and Revocation. This permit and any individual authorizations issued thereof may be modified, suspended, or revoked in whole or in part pursuant to the policies and procedures of 33 CFR 325.7, and any such action shall not be the basis for any claim for damages against the United States.

34. Special Conditions. The Corps may impose other special conditions on a project authorized pursuant to these GPs that are determined necessary to minimize adverse navigational and/or environmental effects or based on any other factor of the public interest. These may be based on concerns from the Vermont Department of Environmental Conservation, SHPO, THPO or a Federal resource agency. Failure to comply with all conditions of the authorization, including special conditions, will constitute a permit violation and may subject the permittee to criminal, civil, or administrative penalties and/or restoration.

35. False or Incomplete Information. If the Corps makes a determination regarding the eligibility of a project under this permit and subsequently discovers that it has relied on false, incomplete, or inaccurate information provided by the permittee, the authorization will not be valid, and the U.S. government may institute appropriate legal proceedings.

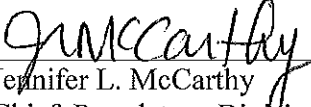
36. Abandonment. If the permittee decides to abandon the activity authorized under this GP, unless such abandonment is merely the transfer of property to a third party, he/she may be required to restore the area to the satisfaction of the Corps.

37. Enforcement cases. These GPs do not apply to any existing or proposed activity in Corps jurisdiction associated with an ongoing Corps or EPA enforcement action, until such time as the enforcement action is resolved or the Corps determines that the activity may proceed independently without compromising the enforcement action.

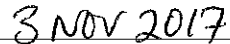
38. Duration of Authorization.

a. These GPs expire five years from the date issued as listed at the top of the cover sheet. Activities authorized by these GPs that have either commenced (i.e., are under construction) or are under contract to commence in reliance upon this authorization will have an additional year from the expiration date to complete the work. The permittee must be able to document to the Corps satisfaction that the project was under construction or under contract by the expiration date of these GPs. If work is not completed within the one year extended timeframe, the permittee must contact the Corps. The Corps may issue a new authorization, provided the project meets the terms and conditions of the Vermont GPs in effect at the time.

b. Activities authorized under these GPs will remain authorized until the GP expires, unless discretionary authority has been exercised on a case-by-case basis to modify, suspend, or revoke the authorization in accordance with 33 CFR 325.2(e)(2). Activities completed under the SV or PCN authorizations of these GPs will continue to be authorized after its expiration date.



Jennifer L. McCarthy
Chief, Regulatory Division



Date

APPENDIX C – CONTACTS FOR VERMONT GENERAL PERMIT

1. Federal

U.S. Army Corps of Engineers

New England District, Regulatory Division
Vermont Project Office
11 Lincoln Street, Room 210
Essex Junction, Vermont 05452
(802) 872-2893, (802) 879-7638 fax
www.nae.usace.army.mil/missions/regulatory

U.S. Environmental Protection Agency

5 Post Office Square, Suite 100
Boston, Massachusetts 02109
(617) 918-1692

U.S. Fish and Wildlife Service

70 Commercial Street, Suite 300
Concord, New Hampshire 03301-5087
(603) 223-2541

National Park Service

North Atlantic Region
15 State Street
Boston, Massachusetts 02109
(617) 223-5203

2. Historic Resources

State Historic Preservation Officer
Division for Historic Preservation
National Life Building
Drawer 20
Montpelier, Vermont 05620-0501
(802) 828-3211

Tribal Historic Preservation Officer
c/o Stockbridge-Munsee Community
65 1st Street
Troy, New York 12180
(518) 244-3164
Area of concern: Addison, Rutland and Bennington
Counties

3. Vermont Agency of Natural Resources

Department of Environmental Conservation

Wetlands Program
Watershed Management Division
1 National Life Drive, Main 2
Montpelier, VT 05620-3522

Department of Environmental Conservation

River Management Program
Watershed Management Division
1 National Life Drive, Main 2
Montpelier, VT 05620-3522

Department of Environmental Conservation

Lakes and Ponds Program
Watershed Management Division
1 National Life Drive, Main 2
Montpelier, VT 05620-3522

Department of Environmental Conservation

Dam Safety Program
Facilities Engineering Division
1 National Life Drive, Main 2
Montpelier, VT 05620-3522

Vermont Department of Fish and Wildlife

1 National Life Drive, Main 2
Montpelier, VT 05620-3522

State endangered species

Vermont Department of Fish and Wildlife

Nongame and Natural Heritage Program
1 National Life Drive, Main 2
Montpelier, VT 05620-3522

APPENDIX D – DEFINITIONS

Artificial Reef: A structure which is constructed or placed in waters for the purpose of enhancing fishery resources and commercial and recreational fishing opportunities.

Attendant Features: Occurring with or as a result of; accompanying.

Boating facilities: These provide, rent or sell mooring space, such as marinas, boat/yacht clubs, boat yards, dockminiums, town facilities, etc. Not classified as boating facilities are piers shared between two abutting properties or town mooring fields that charge an equitable user fee based on the actual costs incurred.

Construction mats: Construction, swamp and timber mats (herein referred to as “construction mats”) are generic terms used to describe structures that distribute equipment weight to prevent wetland damage while facilitating passage and providing work platforms for workers and equipment. They are comprised of sheets or mats made from a variety of materials in various sizes. A timber mat consists of large timbers bolted or cabled together.

Compensatory mitigation: The restoration (reestablishment or rehabilitation), establishment (creation), enhancement, and/or, in certain circumstances, preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some minor maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: The loss of aquatic ecosystem within the footprint of the discharge of dredged or fill material. Direct effects are caused by the action and occur at the same time and place.

Dredged material & discharge of dredged material: These are defined at 33 CFR 323.2(c) and (d). The term “dredged material” means material that is excavated or dredged from waters of the United States.

Discharge: The term “discharge” means any discharge of dredged or fill material into waters of the United States.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Ephemeral stream: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Establishment (creation): The manipulation of the physical, chemical or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

Expansions: Work that increases the footprint of fill, depth of basin or drainage feature, structures or floats, or slip capacity.

Fill material & discharge of fill material: These are defined at 33 CFR 323.2(e) and (f). The term fill material is defined as material placed in waters of the U.S. where the material has the effect of either replacing any portion of a water of the U.S. with dry land or changing the bottom elevation of any portion of a water of the U.S.

Federal navigation projects (FNPs): These areas are maintained by the Corps, authorized, constructed and maintained on the premise that they will be accessible and available to all on equal terms. They are comprised of Corps Federal anchorages, Federal channels and Federal turning basins. The following are

FNPs in VT, and more information, including the limits, is provided at www.nae.usace.army.mil/missions/navigation and [www.nan.usace.army.mil/Missions/Civil-Works/Navigation Projects](http://www.nan.usace.army.mil/Missions/Civil-Works/Navigation%20Projects):

- Burlington Harbor
- Channel Between the North and South Hero Islands
- Gordons Landing
- Narrows of Lake Champlain
- Otter Creek
- St. Albans Harbor
- Swanton Harbor

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR 60).

Intermittent stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

Individual Permit: A Department of the Army authorization that is issued following a case-by-case evaluation of a specific structure or work in accordance with the procedures of 33 CFR 322, or a specific project involving the proposed discharge(s) in accordance with the procedures of 33 CFR 323, and in accordance with the procedures of 33 CFR 325 and a determination that the proposed discharge is in the public interest pursuant to 33 CFR 320.

Maintenance: Maintenance does not include any modification that changes the character, scope, or size of the original fill design.

Mechanized land clearing: As a general rule, mechanized land clearing is a regulated activity (see [Regulatory Guidance Letter 90-05](#)).

Navigable waters of the United States: These are a subset of waters of the U.S., and are defined at 33 CFR 329. The jurisdictional limits (33 CFR 329.11) extend laterally to the entire water surface and bed of a navigable waterbody, which include all the land and waters below the ordinary high water mark. Jurisdiction thus extends to the edge (as determined above) of all such waterbodies, even though portions of the waterbody may be extremely shallow or obstructed by shoals, vegetation or other barriers. Marshlands and similar areas are thus considered navigable in law, but only so far as the area is subject to inundation by the ordinary high waters. In Vermont these waters are: the Connecticut River, Lake Champlain, Lake Memphremagog, Wallace Pond, Ompompanoosuc River (to mile 3.8), Waits River (to mile 0.9), the Black River (mouth to mile 25 in Craftsbury), the Battenkill River (to mile 50 in Manchester), the Lamoille River (mouth to mile 79 in Greensboro), the Missisquoi River (including the North Branch, from the mouth to mile 88.5 in Lowell), Otter Creek (mouth to mile 63.8 in Procter), Winooski River (mouth to Marshfield), Moose River (from Passumpsic River to the Victory Town Line), Nulhegan River (mouth to its source including the East Branch, the Black Branch and the Yellow Branch), Paul Stream (mouth to the source), East Branch of the Passumpsic River (from the confluence with the Passumpsic River to East Haven), Passumpsic River (mouth to confluence with the East Branch), White River (mouth to its source), Wells River (mouth to Groton Pond).

Ordinary High Water Mark (OHW): A line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas. See 33 CFR 328.3(e).

Perennial stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Permanent impacts: Permanent impacts means waters of the U.S. that are permanently affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent impacts include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Reestablishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in an aquatic resource area, restoration is divided into two categories: reestablishment and rehabilitation.

Secondary effects: These are effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials, but do not result from the actual placement of the dredged or fill material. Information about secondary effects on aquatic ecosystems shall be considered prior to the time final Section 404 action is taken by permitting authorities. Some examples of secondary effects on an aquatic ecosystem are a) aquatic areas drained, flooded, fragmented, or mechanically cleared, b) fluctuating water levels in an impoundment and downstream associated with the operation of a dam, c) septic tank leaching and surface runoff from residential or commercial developments on fill, and d) leachate and runoff from a sanitary landfill located in waters of the U.S. See 40 CFR 230.11(h).

Special aquatic sites (SAS): These include inland wetlands, mud flats, vegetated shallows (submerged aquatic vegetation), and riffle and pool complexes. These are defined at 40 CFR 230.3 and listed in 40 CFR 230 Subpart E.

Streambed: The substrate of the stream channel between the OHW marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the streambed, but outside of the OHW marks, are not considered part of the streambed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Temporary impacts: Temporary impacts include, but are not limited to, waters of the U.S. that are temporarily filled, flooded, excavated, drained or mechanically cleared because of the regulated activity.

Utility Line: Any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance, for any purpose, and any cable, line, or wire for the transmission for any purpose of electrical energy, telephone, data, and telegraph messages, and radio and television communication. The term “utility line” does not include activities that drain a water of the U.S., such as drainage tile or French drains, but it does apply to pipes conveying drainage from another area.

Vegetated shallows: Permanently inundated areas that under normal circumstances support communities of rooted aquatic vegetation in rivers and lakes. Note: These areas are also commonly referred to as submerged aquatic vegetation (SAV).

Vernal pools (VPs): For the purposes of these GPs, VPs are depressional wetland basins that typically go dry in most years and may contain inlets or outlets, typically of intermittent flow. Vernal pools range in both size and depth depending upon landscape position and parent material(s). In most years, VPs support one or more of the following obligate indicator species: wood frog, spotted salamander, blue-spotted salamander, marbled salamander, Jefferson’s salamander and fairy shrimp. However, they should preclude sustainable populations of predatory fish.

Water diversions: Water diversions are activities such as bypass pumping (e.g., “dam and pump”) or water withdrawals. Temporary flume pipes, culverts or cofferdams where normal flows are maintained within the stream boundary’s confines aren’t water diversions. “Normal flows” are defined as no change in flow from pre-project conditions.

Weir: A barrier across a river designed to alter the flow characteristics. In most cases, weirs take the form of a barrier, smaller than most conventional dams, across a river that causes water to pool behind the structure (not unlike a dam) and allows water to flow over the top. Weirs are commonly used to alter the flow regime of the river, prevent flooding, measure discharge and help render a river navigable.

Waters of the United States: Waters of the United States are defined in 33 CFR 328.3. These waters include more than navigable waters of the U.S. and are the waters where permits are required for the discharge of dredged or fill material pursuant to Section 404 of the Clean Water Act. Waters of the U.S. include jurisdictional wetlands.



July 2, 2020

New England District
U.S. Army Corps of Engineers
696 Virginia Road
Concord, MA 01742

Re: Invitation to a Scoping Meeting for the Jewell Brook Watershed – Sites #1, #2, #3 and #5

Dear Sir or Madam,

The USDA-Natural Resources Conservation Service (USDA-NRCS) has received a request from the Town of Ludlow, VT to develop dam rehabilitation plans for the Jewell Brook Dam Sites, #1, #2, #3 and #5 located in the Jewell Brook Watershed in the Town of Ludlow, Windsor County, Vermont. One of the initial steps in developing the rehabilitation plan for the four dams in preparation of a Watershed Plan that evaluates rehabilitation alternatives with a determination of the best rehabilitation alternative for the multi-purpose flood control and recreation structure that meet current State Dam Safety and NRCS design standards.

You are invited to a Scoping Meeting, intended for government agencies, scheduled for Monday, August 3, 2020 at 2:00 PM, in Heald Auditorium at the Ludlow Town Hall, located at 37 Depot Street, Ludlow, VT. We anticipate remote participation for this meeting. Contact Scott Murphy, Ludlow Town Administrator at tmanager@tds.net or Jeff Tucker, P.E., with DuBois & King at jtucker@dubois-king.com for remote participation details. Seating for attendees will be structured to facilitate social distancing and face masks are recommended.

The purpose of this meeting is to obtain resource information and concerns associated with the rehabilitation of the dam early in the planning process. Should you be unable to attend, please provide your resource concerns, questions, comments, and other pertinent information related to the dams by August 10, 2020, to Bob Thompson at the contact information listed below.

Please RSVP your intention to attend to Bob Thompson no later than July 20, 2020.

Robert Thompson, P.E., Civil Engineer
State Conservation Engineer
USDA - NRCS
365 Mountain View Drive, Suite 105
Colchester, VT 05446
Phone: (802) 951-6796 ext. 232
Email: Bob.Thompson@usda.gov

Thank you in advance for your cooperation and assistance with this project.

Sincerely,

Vicky M. Drew
State Conservationist

**U.S. Fish and Wildlife, Consultation Documentation
Jewell Watershed Dam Sites #1, #2, #3 and #5.
Supplemental Watershed plan and Environmental Assessment**

November 2, 2022



Jeffrey Tucker <jtucker@dubois-king.com>

RE: NLEB hibernaculum

Bennett, Alyssa <Alyssa.Bennett@vermont.gov>

Thu, Nov 10, 2022 at 12:12 PM

To: Charlotte Brodie <cbrodie@dubois-king.com>, Jeffrey Tucker <jtucker@dubois-king.com>

Hi Charlotte,

Thank you for taking the time to follow up with my by phone so I could better understand the activity in question and what down stream effects would be. As the project is described and in relation to the known locations of northern long-eared bats I do not expect this activity to adversely affect the bats and their occupied habitat.

Alyssa



Alyssa Bennett, MS (she/her) | Small Mammals Biologist

Vermont Agency of Natural Resources | Department of Fish and Wildlife

111 West Street | Essex Jct, VT 05452

802-353-4818 | alyssa.bennett@vermont.gov

Connect with us on our website at <https://vtfishandwildlife.com/>

The Agency of Natural Resources supports telework, and there are times when I may be working from another office location. I am available to connect by phone and email. I am also available to connect in-person upon request.

From: Charlotte Brodie <cbrodie@dubois-king.com>

Sent: Monday, October 31, 2022 8:17 AM

To: Bennett, Alyssa <Alyssa.Bennett@vermont.gov>; Jeffrey Tucker <jtucker@dubois-king.com>

Subject: Re: NLEB hibernaculum

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Hi Alyssa,

Thank you for taking a preliminary look at the NRA data I asked you about recently. My access to the data on the NRA maps has been restored, and I have now reviewed the EO information myself.

This request for information is in regards to the proposed NRCS Ludlow Dams (Sites 1, 2, 3 and 5) Rehabilitation project. DuBois & King, Inc. is assisting NRCS with environmental review of the proposed project. We are coordinating with USFWS, who has requested that we coordinate with VFWD in regards to potential impacts to federal endangered species. The species of concern in this case is the Northern Long-Eared Bat (NLEB).

Attached please find an NRA map of all four dam sites as well as the downstream affected area, including Jewell Brook from Dam Site 1 north to the confluence with the Black River, and from the beginning and ending points along the Black River as shown on the NRA map.

The downstream affected area is the 100-year floodplain whose elevation could be affected by changes to the dams. Most or all dams are expected to be rehabilitated to enable them to continue to provide flood protection as they are currently doing, and rehabilitation would not affect the downstream floodplain elevations. However, there is some potential for one or more dams to be decommissioned. If that were to happen, the downstream affected area could experience some change in the 100-year floodplain elevations. However, there would be no construction, tree removal or other human disturbance in the downstream affected area under either rehabilitation or decommissioning.

I have also included three larger-scale NRA maps of the area of concern for easier viewing.

My reading of the NRA maps and accompanying Element Occurrence Reports is that there are no NLEB hibernacula within 0.25 mile of any element of the project, and that there are no roost trees within 150' of any element of the project. Could you please confirm this for me? (I do see that there are hibernacula associated mines at one location, but that the hibernacula are more than 0.25 mi. from the project.)

Thank you!

Charlotte Brodie
Field Naturalist
DuBois & King, Inc.
[6 Green Tree Drive](#)

[South Burlington, VT 05403](#)

802-728-7202 (w)

802-777-5272 (c)

On Fri, Oct 28, 2022 at 4:13 PM Bennett, Alyssa <Alyssa.Bennett@vermont.gov> wrote:

Hi Charlotte,

Are you still looking for this information? I wasn't sure which of the circles you need information for. The one in Ludlow is a mine hibernacula and it looks like you have some information for some of the circles to the east, but I am not sure which ones you still need to know about. Just let me know and I can look up the information by the EO.

Alyssa



Alyssa Bennett, MS (she/her) | Small Mammals Biologist

Vermont Agency of Natural Resources | Department of Fish and Wildlife

111 West Street | Essex Jct, VT 05452

802-353-4818 | alyssa.bennett@vermont.gov

Connect with us on our website at <https://vtfishandwildlife.com/>

The Agency of Natural Resources supports telework, and there are times when I may be working from another office location. I am available to connect by phone and email. I am also available to connect in-person upon request.

From: Charlotte Brodie <cbrodie@dubois-king.com>
Sent: Tuesday, October 25, 2022 1:43 PM
To: Bennett, Alyssa <Alyssa.Bennett@vermont.gov>
Subject: Re: NLEB hibernaculum

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Hi Again!

My access to the detailed info on species, etc. is temporarily unavailable. Would you have time to check the area shown on the attached NRA map for hibernacula? My sources tell me these are only mist net captures and one roost tree.

Thanks,

Charlotte Brodie
Field Naturalist
DuBois & King, Inc.
[6 Green Tree Drive](#)

[South Burlington, VT 05403](#)

802-728-7202 (w)

802-777-5272 (c)

On Tue, Oct 25, 2022 at 12:42 PM Bennett, Alyssa <Alyssa.Bennett@vermont.gov> wrote:

Hibernacula and summer captures as well. Most of the large red circles are hibernacula.



Alyssa Bennett, MS (she/her) | Small Mammals Biologist

Vermont Agency of Natural Resources | Department of Fish and Wildlife

111 West Street | Essex Jct, VT 05452

802-353-4818 | alyssa.bennett@vermont.gov

Connect with us on our website at <https://vtfishandwildlife.com/>

The Agency of Natural Resources supports telework, and there are times when I may be working from another office location. I am available to connect by phone and email. I am also available to connect in-person upon request.

From: Charlotte Brodie <cbrodie@dubois-king.com>
Sent: Tuesday, October 25, 2022 12:06 PM
To: Bennett, Alyssa <Alyssa.Bennett@vermont.gov>
Subject: NLEB hibernaculum

EXTERNAL SENDER: Do not open attachments or click on links unless you recognize and trust the sender.

Hi Alyssa,

Are NLEB hibernaculum shown on the NRA maps, or just roost trees?

Thanks,

Charlotte Brodie
Field Naturalist
DuBois & King, Inc.
[6 Green Tree Drive](#)

[South Burlington, VT 05403](#)

802-728-7202 (w)

802-777-5272 (c)

Charlotte Brodie <cbrodie@dubois-king.com>

Nov 1, 2022, 1:37 PM
(6 days ago)

to Eliese, Jeffrey

Hi Eliese,

I did contact VT Fish and Wildlife Dept (VFWD) to ask about bald eagle nesting in the vicinity of the NRCS Ludlow Dams and downstream affected areas. Attached please find two responses. There are bald eagles nesting at North Springfield Reservoir, about one mile south from the south end of the downstream affected area, and on Lake Rescue, which is about 2.3 mi north of the northern end of the downstream affected area.

VFWD apparently does not get involved with regulatory efforts for the bald eagle, as it has been delisted in Vermont, and recommended that we coordinate directly with you.

You had mentioned putting me in touch with the regional USFWS regional lead for bald eagles. Is that necessary, given the distances of the nesting from the downstream affected areas, in which no construction, tree removal or other human disturbance would be required?

Best,

Charlotte Brodie
Field Naturalist
DuBois & King, Inc.
6 Green Tree Drive
South Burlington, VT 05403
802-777-5272 (c)



Dykstra, Eliese A

Nov 2, 2022, 10:56 AM
(5 days ago)

to me, Jeffrey

Hi Charlotte,

Thanks for following up with this additional info regarding the closest known bald eagle nests. Given how far the nests are from the areas in which construction, tree removal, and other potential sources of disturbance or habitat alteration are occurring, I think that impacts to bald eagles would be unlikely to occur.

Here's a link to some more info from our regional eagle lead, and if you want something for your records, you can use the screening form: <https://www.fws.gov/media/northeast-bald-eagle-project-screening-form>

Thanks,
Eliese

Eliese Dykstra (she/her)
Fish and Wildlife Biologist
Endangered Species Program
U.S. Fish and Wildlife Service
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301
New Phone Number: 603-568-4652 (mobile)
Email: eliese_dykstra@fws.gov



Jeffrey Tucker <jtucker@dubois-king.com>

Fwd: [EXTERNAL] NRCS Flood Control Dams, Ludlow, VT, Request for USFWS comments

Jeffrey Tucker <jtucker@dubois-king.com>
To: Jeffrey Tucker <jtucker@dubois-king.com>

Sat, Nov 12, 2022 at 8:42 AM

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

From: **Dykstra, Eliese A** <eliese_dykstra@fws.gov>

Date: Wed, Nov 2, 2022 at 10:56 AM

Subject: Re: [EXTERNAL] NRCS Flood Control Dams, Ludlow, VT, Request for USFWS comments

To: Charlotte Brodie <cbrodie@dubois-king.com>, Jeffrey Tucker <jtucker@dubois-king.com>

Hi Charlotte,

Thanks for following up with this additional info regarding the closest known bald eagle nests. Given how far the nests are from the areas in which construction, tree removal, and other potential sources of disturbance or habitat alteration are occurring, I think that impacts to bald eagles would be unlikely to occur.

Here's a link to some more info from our regional eagle lead, and if you want something for your records, you can use the screening form: <https://www.fws.gov/media/northeast-bald-eagle-project-screening-form>

Thanks,
Eliese

Eliese Dykstra (*she/her*)

Fish and Wildlife Biologist

Endangered Species Program

U.S. Fish and Wildlife Service

New England Field Office

70 Commercial Street, Suite 300

Concord, NH 03301

New Phone Number: 603-568-4652 (mobile)

Email: eliese_dykstra@fws.gov

From: Charlotte Brodie <cbrodie@dubois-king.com>

Sent: Tuesday, November 1, 2022 1:37 PM

To: Dykstra, Eliese A <eliese_dykstra@fws.gov>; Jeffrey Tucker <jtucker@dubois-king.com>

Subject: Re: [EXTERNAL] NRCS Flood Control Dams, Ludlow, VT, Request for USFWS comments

Hi Eliese,

I did contact VT Fish and Wildlife Dept (VFWD) to ask about bald eagle nesting in the vicinity of the NRCS Ludlow Dams and downstream affected areas. Attached please find two responses. There are bald eagles nesting at North Springfield Reservoir, about one mile south from the south end of the downstream affected area, and on Lake Rescue, which is about 2.3 mi north of the northern end of the downstream affected area.

VFWD apparently does not get involved with regulatory efforts for the bald eagle, as it has been delisted in Vermont, and recommended that we coordinate directly with you.

You had mentioned putting me in touch with the regional USFWS regional lead for bald eagles. Is that necessary, given the distances of the nesting from the downstream affected areas, in which no construction, tree removal or

other human disturbance would be required?
Best,

Charlotte Brodie
Field Naturalist
DuBois & King, Inc.
6 Green Tree Drive
South Burlington, VT 05403
802-777-5272 (c)

On Tue, Oct 18, 2022 at 12:51 PM Dykstra, Eliese A <eliese_dykstra@fws.gov> wrote:
Hi Charlotte,

Sorry I missed your call yesterday, I've provided answers to your questions below, please let me know if you'd like to discuss on the phone or have additional questions about our ESA section 7 consultation process and your project.

FYI - our FWS websites seem to be experiencing some technical difficulties today so if you can't access the links I've provided, please try again later, this issue is currently being addressed.

Thanks!
Eliese

Comment Goose 51 and Comment NWMC 109 discuss the need for an official list of species, a BA (consultation) and a BO (Biological Opinion).

Could you please provide guidance on the appropriate methodology to conduct these steps?

- **Step 1:** Obtaining an Official Species List is the correct first step. To do this, you will need to visit IPaC, create a project, and request an Official Species List. If you have already utilized IPaC as part of your early planning process, you should log back into the same project (instead of creating a new project) and request an updated Official Species List. This is important if the last time an Official Species List was requested was more than 90 days ago, or if you never requested an Official Species List in the past. Requesting an Official Species List will also give you a Project Code that should be referenced in any emails, letters, or other communications so we can reference the correct project in our internal system.
- **Step 2:** Once you have obtained an Official Species List and have a Project Code, you should exit IPaC and follow our [New England Field Office Project Review process](#) to consider impacts to listed species on your Official Species List. If adverse effects may occur from any project actions, conducting s7 consultation with our office is necessary. If you determine that the project may affect but is not likely to adversely affect a listed species, then you can initiate informal consultation with our office by using our Project Review Request Template Letter and submitting a Project Review Package to our office for review (instructions are on the above website). FYI, since you asked about a BA specifically, our guidance and template letter will show you what we need for informal consultation, you can use our template letter or another BA format as long as it includes the required info to initiate consultation. We would then issue a concurrence letter following our review and any follow-up coordination. Formal consultations, which result in Biological Opinions are only necessary if project actions are determined to be likely to adversely affect a listed species and if you or I think this might be the case, we will need to coordinate in advance before you request initiation of formal consultation.

- **Guidance For Northern Long-eared Bat**, we recommend checking with your State agency to see if your project is near a known hibernaculum or maternity roost tree. If your project is near a known hibernaculum or maternity roost tree, let me know and I'll advise on how to proceed with consultation. If your project is not near a known hibernacula or roost tree, our main recommended conservation measure is to conduct activities such as tree clearing, blasting, prescribed fire or other activities that could disturb bats during their active season outside of **April 1 – October 31**. A time of year restriction can help support a May Affect Not Likely to Adversely Affect determination, and informal consultation. We are also interested in knowing the acreage of tree removal anticipated, and the % of forest that will be removed/alterd within a 1-mile radius. If work can't be done outside of the active season, we may recommend conducting a survey – a survey plan will first need to be reviewed by our office. [Survey guidance can be found here](#).
 - FYI - A new Determination Key in IPaC is being developed for the northern long-eared bat and should be available this fall, so depending on timing, you may be able to wait to use the new DKey which may fulfill consultation requirements for that species depending on the result you get. Assuming this project will take place beyond the end of December 2022, I wouldn't recommend using the NLEB 4(d) DKey that is currently available in IPaC due to the pending listing decision for that species (the 4(d) Rule will no longer be in effect if the species is uplisted).
- If you'd like to discuss the project actions with regards to potential impacts to listed species once you've obtained your Official Species List and considered potential impacts, we can jump on a call or you can send me an email and I can provide some technical assistance prior to you making final determinations and submitting a Project Review Package if that's helpful.

Should any or all of those steps apply only to the immediate dam sites, or should they be done for the entire downstream inundation areas?

- The Action Area (area you map in IPaC to get an Official Species List and area in which you are considering potential impacts to listed species) should include all areas that may be impacted by the project, so this would include the immediate dam sites, anywhere construction or tree clearing will occur, equipment storage areas, access roads, and downstream areas. This Action Area has to be mapped correctly in IPaC in order to get an accurate Official Species List. If you have an existing project in IPaC and need to revise the mapped area to include additional areas, you can edit/re-draw the action area from your Project page in IPaC (click on the "toggle fullscreen" button in the top right of the map on your project page and select "edit location" on the left side once you are in the fullscreen map view).
- You will need to consider how the project actions impact the downstream inundation area and stream, and whether these changes could adversely affect any listed species. It is possible that you may determine that there will be no effect to listed species from impacts to the inundation area and stream, but you still need to map the entire area where effects may occur.

What are the different review processes for the various federal protection categories, e.g., BCC, BGEPA, FT, MBTA?

- **BGEPA** – recommend checking with your State wildlife agency to see if there are any known bald eagle nest locations within the vicinity of the project action area. If there are, let me know and I will put you in touch with our regional eagle lead. If not, I think it's probably unlikely that there would be any impacts to eagles from this project based on the description.
- **FT** - Can you clarify what this acronym refers to? If "Federally threatened", federally threatened species should be considered the same way endangered species are considered with regards to s7.
- **MBTA** – generally, we recommend checking with State wildlife agency to see if any migratory birds on your species list are state listed. Our next recommendation, is that if you have breeding bird habitat within your project action area, consider avoiding activities that could disrupt breeding from April 15 through August 31.
- **BCC** - see guidance for MBTA

Does the UFSWS require review for any of the species in the State protection categories of S1-S4, SC, SGCN or RSGCN?

- No, USFWS does not require review for those species, but encourages consideration of at-risk species in project planning. The State may provide conservation measures for some of these species in their comments.

Comment NWMC 52 discusses the bald eagle directly. How should this species be evaluated as a Biological Resource?

- See above guidance for BGEPA

Eliese Dykstra (*she/her*)
Fish and Wildlife Biologist
Endangered Species Program
U.S. Fish and Wildlife Service
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301
New Phone Number: 603-568-4652 (mobile)
Email: eliese_dykstra@fws.gov

From: Charlotte Brodie <cbrodie@dubois-king.com>
Sent: Monday, October 17, 2022 12:39 PM
To: Dykstra, Eliese A <eliese_dykstra@fws.gov>
Subject: Re: [EXTERNAL] NRCS Flood Control Dams, Ludlow, VT, Request for USFWS comments

Hi Eliese,

I just left you a voicemail, but following up here. Could you please give me a call at your earliest convenience?
Thank you,
Charlotte Brodie
Field Naturalist
DuBois & King, Inc.
6 Green Tree Drive
South Burlington, VT 05403
802-777-5272 (c)

On Thu, Oct 13, 2022 at 10:25 AM Dykstra, Eliese A <eliese_dykstra@fws.gov> wrote:

Hi Charlotte,

I just wanted to reach out and let you know that I'll be reviewing the documents you sent over to our office regarding the NRCS Flood Control Dams in Ludlow, VT and will provide comments and responses to your questions and/or ask for additional information as soon as possible. If you have additional questions or would like to set up a call, please let me know!

Thanks,
Eliese

Eliese Dykstra (*she/her*)
Fish and Wildlife Biologist
Endangered Species Program
U.S. Fish and Wildlife Service
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301
New Phone Number: 603-568-4652 (mobile)
Email: eliese_dykstra@fws.gov

From: Charlotte Brodie <cbrodie@dubois-king.com>
Sent: Thursday, October 6, 2022 10:31 AM
To: Simmons, David <david_simmons@fws.gov>
Cc: Jeffrey Tucker <jtucker@dubois-king.com>
Subject: [EXTERNAL] NRCS Flood Control Dams, Ludlow, VT, Request for USFWS comments

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Dear Mr. Simmons,

Thank you for speaking with me this morning in regards to the NRCS Flood Control Dams project in Ludlow, VT.

Attached please find a letter with exhibits providing information on

 **Exhibits for USFWS letter, 10.06.22.pdf**

 **Letter to USFWS, 10.06.22.pdf**

the proposed work, as well as specific questions raised by NRCS for which we are requesting USFWS comments.

Please do not hesitate to contact me if you have any questions.

Best Regards,

Charlotte Brodie
Field Naturalist
DuBois & King, Inc.
6 Green Tree Drive
South Burlington, VT 05403
802-777-5272 (c)



Email chain, D&K & USFWS, re bald eagles, 11.02.22.pdf

13K

TECHNICAL MEMORANDUM

Date: July 30, 2021

Prepared for: U.S. Department of Agriculture,
Natural Resources Conservation Service

Prepared by: DDK Engineering—JV
28 North Main Street
Randolph, VT 05060

This Technical Memorandum contains the summary results for a planning-level field survey conducted at the Jewell Brook Watershed Dams 1, 2, 3, and 5 located in Ludlow, Vermont (Project). The purpose of the survey was to identify wetlands, water resources, riparian areas, vegetation, and potential rare, threatened and endangered species present within the Focus Areas for each dam in which the field data collection was performed. The environmental field data collected for the Project will be used to aid in the evaluation of the suite of alternatives to be identified for rehabilitation of the dam sites as part of the Project's Environmental Evaluation process. This document provides a summary of field evaluation methods and results, along with figures (Appendix A) and photographs (Appendix B) that identify the primary environmental characteristics of each site.

1.0 Desktop Evaluation

A desktop evaluation was completed prior to initiation of the field survey that included review of aerial imagery available from Google Earth and publicly available data, including:

- United States Fish and Wildlife Service National Wetlands Inventory data;
- United States Geological Survey National Hydrography Dataset for streams and waterbodies;
- United States Department of Agriculture Natural Resources Conservation Service soils data.
- Vermont Agency of Natural Resources (VNR) Natural Resource Atlas (NRA) Mapping

The figures prepared for the Project sites are based on a 2016 Vermont Center for Geographic Information (VCGI) Orthophotos, Vermont Agency of Natural Resources (VNR) Natural Resource Atlas (NRA) Wetland GIS Data (January 2020), and field reconnaissance (October 2019) (Appendix A).

2.0 Field Survey

The planning-level field survey was completed in October, 2019. The survey consisted of walking the Focus Areas to field-verify the desktop data and to collect global positioning system (GPS) data for observed streams and wetlands. GPS data points were obtained using a Trimble Geo 7X GPS unit with sub-meter accuracy. The Focus Areas for wetlands and other water resources review are defined as the areas of the dams and directly around the footprints of the dams, including the retarding pools, embankments, auxiliary spillways and access points. Observations of habitats and other physical and natural features were recorded, as well as incidental wildlife observations. Representative site photographs of the Focus Areas were taken and are included in Appendix B.

3.0 Results

This section describes the results of the desktop evaluation and field survey completed for each of the Focus Areas, and includes a general description of the physical and natural characteristics, including wetlands and other water resources, vegetation, and wildlife observed or expected to occur.

SITE #1

Surrounding Area

The Focus Area is located in an area of Ludlow in the vicinity of Site 1 Road, near its intersection with VT RT 100. It is an area of approximately 8.3 acres, and includes the northern end of the 3.9-acre retarding pool, the embankment and adjacent areas, the principal and auxiliary spillways and the outlet channel. A map of the Focus Area is provided in Appendix A.

Vegetation

Upland areas within the Focus Area are characterized by maintained grasslands and mixed northern hardwood and white pine forest. Wetland species are discussed under the respective wetland descriptions below.

Waterbody Resources

Waterbodies include lakes, ponds and streams. The Corps of Engineers regulates activities below the ordinary high water (OHW) elevations of these resources. The ordinary high water lines of jurisdictional waterbodies in the Focus Area of Site #1 include the retarding pool and Jewell Brook at the outlet of the dam. These are shown in blue on the Site 1 Wetland and Waterbody Focus Area Map, Appendix A.

Wetland Resources

In Vermont, wetlands are regulated by both the US Army Corps of Engineers (COE) and the VANR Wetlands Program. All wetlands in Vermont are subject to COE regulation, and have no COE-jurisdictional buffers. A subset of Vermont wetlands, those designated as Class I or Class II, are also subject, along with their 50' jurisdictional buffers, to the Vermont Wetland Rules. Class III wetlands are not subject to the Vermont Wetland rules, and have no jurisdictional buffers.

Wetlands were formally delineated within the Focus Area, and are shown on the Site 1 Wetland and Waterbody Focus Area Map, Appendix A. in solid lines labeled as "WL." Outside of the focus

areas, wetlands were estimated based upon VANR NRA mapping, interpretation of aerial photography and limited field review, and are shown on the Site 1 Wetland and Waterbody Focus Area Map, Appendix A as dashed lines. State jurisdictional wetland buffers associated with the delineated portions of the wetlands are shown on the Site 1 Wetland and Waterbody Focus Area Map, Appendix A, in solid lines labeled as "WB." Outside of the focus areas, wetland buffers follow the estimated wetland boundaries, and are depicted in dashed lines. There are three delineated wetlands in the Focus Area, described below as Wetlands A, B, and C.

Wetland A is located along the northern end of the reservoir. The wetland continues to the south beyond the limits of the delineated wetland. The hydrology supporting the wetland is predominantly groundwater discharge, with contributions from the high groundwater table maintained around the reservoir. The soils have a depleted matrix, per COE hydric soil indicator A11, "Depleted Below Dark Surface." The narrow band of wetland along the northern edge of the reservoir is "palustrine emergent" (PEM) wet meadow, and is kept mowed. The dominant hydrophytic vegetation includes lamp rush (*Juncus effusus*), sensitive fern (*Onoclea sensibilis*), dark-green bulrush (*Scirpus atrovirens*) and giant goldenrod (*Solidago gigantea*), with lesser components of shrubby willow (*Salix* sp.), meadowsweet (*Scirpus latifolia*), alder (*Alnus incana*) and steppelbush (*Spiraea tomentosa*). Along the eastern bank of the reservoir, the wetland transitions to palustrine scrub-shrub (PSS). The dominant hydrophytic vegetation in that area includes red maple (*Acer rubrum*), alder (*Alnus incana*), willow (*Salix* sp.), American elm (*Ulmus americana*), sedges (*Carex* spp.), sensitive fern (*Onoclea sensibilis*), giant goldenrod (*Solidago gigantea*) and wrinkled goldenrod (*Solidago rugosa*). The wetland is designated as Class II, with a State-designated 50' jurisdictional buffer.

Wetland B is located within the auxiliary spillway at the base of a steep slope. The hydrology supporting the wetland is groundwater discharge. The wetland is palustrine emergent (PEM) mowed wet meadow, with the dominant hydrophytic vegetation being dark-green bulrush (*Scirpus atrovirens*). The wetland is designated as Class III, with no jurisdictional buffer.

Wetland C is located adjacent to and upslope from the principal spillway outlet. The hydrology supporting the wetland is predominantly groundwater discharge, with a minor contribution of overbank flows from the outlet stream. The soils have a depleted matrix, per COE hydric soil indicator A11, "Depleted Below Dark Surface." The wetland includes palustrine emergent (PEM) old field at the northwestern end and palustrine scrub-shrub (PSS) swamp at the southeastern end. The old field is dominated by giant goldenrod (*Solidago gigantea*) and New England Aster (*Symphiotrichum novae-angliae*), with a lesser component of meadowsweet (*Spiraea alba*). The shrub swamp is dominated by alder (*Alnus incana*), meadowsweet (*Spiraea alba*), sedges (*Carex* spp.) and sensitive fern (*Onoclea sensibilis*). The wetland is designated as Class II, with a State-designated 50' jurisdictional buffer.

Rare, threatened and endangered species

No rare, threatened or endangered species are identified on the Site 1 VANR NRA maps in the focus area, and none were observed during field work.

Wildlife

Many of the waters within the Jewell Brook Watershed are notable for Brook Trout and other mixed species of Trout, such as Brown and Rainbow Trout, including the upstream watershed and portions of the downstream watershed of Site #1. No fish or wildlife were directly observed during the

course of field work. Common mammal species in Southern Vermont include beaver, black bear, eastern cottontail, coyote, fox, squirrel, racoon, porcupine, weasel, skunk, opossum, and white-tailed deer. No fish or wildlife were directly observed or recorded during the course of field work.

Invasive species

Reed canary grass (*Phalaris arundinacea*) occurs in Wetland A.

Riparian Areas

The NRCS defines riparian areas as “lands that occur along watercourses and water bodies. Typical examples include flood plains and streambanks. They are distinctly different from surrounding lands because of unique soil and vegetation characteristics that are strongly influenced by the presence of water. At Site 1, riparian areas exist along the edge of the retarding pool and along the edges of Jewell Brook. Around the retarding pool, the riparian area is characterized by wetland. Along the stream, the riparian areas is primarily associated with the stream banks, where periodic flooding occurs.

SITE #2

Surrounding Area

The Focus Area is located in an area of Ludlow at the terminus of Site 1 Road and just beyond the terminus of Snell Spring Road. It is approximately 20 acres in size and includes the northern end of the 1.6-acre retarding pool, the embankment and adjacent areas, the principal and auxiliary spillways and the outlet channel. A map of the Focus Area is provided in the Site 2 Wetland and Waterbody Focus Area Map, Appendix A.

Vegetation

Upland areas within the Focus Area are characterized by maintained grasslands and mixed northern hardwood and white pine forest. Wetland species are discussed under the respective wetland descriptions below.

Waterbody Resources

Waterbodies include lakes, ponds and streams. The Corps of Engineers regulates activities below the ordinary high water (OHW) elevations of these resources. The ordinary high water lines of jurisdictional waterbodies in the Focus Area of Site #2 the retarding pool, two unnamed tributaries to Grant Brook which enter the retarding pool from the northwest and southwest respectively, Grant Brook which exits the retarding pool at the principal spillway outlet and a small, unnamed intermittent stream which exits Wetland C. These are shown in blue on the Site 2 Wetland and Waterbody Focus Area Map, Appendix A.

Wetland Resources

In Vermont, wetlands are regulated by both the US Army Corps of Engineers (COE) and the VANR Wetlands Program. All wetlands in Vermont are subject to COE regulation, and have no COE-jurisdictional buffers. A subset of Vermont wetlands, those designated as Class I or Class II, are also subject, along with their 50' jurisdictional buffers, to the Vermont Wetland Rules. Class III wetlands are not subject to the Vermont Wetland rules, and have no jurisdictional buffers.

Wetlands were formally delineated within the Focus Area, and are shown on the Site 2 Wetland

and Waterbody Focus Area Map, Appendix A. in solid lines labeled as “WL.” State jurisdictional wetland buffers associated with the wetlands are shown on the Site 2 Wetland and Waterbody Focus Area Map, Appendix A. in solid lines labeled as “WB.” There are three delineated wetlands in the Focus Area, described below as Wetlands A, B, and C.

Wetland A is located along the edge of the reservoir and along Stream A which enters the reservoir from the north. The hydrology supporting the wetland is predominantly groundwater discharge, with contributions from the high groundwater table maintained around the reservoir and a minor contribution from overbank flows from Stream A. The soils have a depleted matrix, per COE hydric soil indicator A11, “Depleted Below Dark Surface.” The wetland is “palustrine scrub-shrub” (PSS). The dominant hydrophytic vegetation includes shrubby willow (*Salix* sp.), meadowsweet (*Scirpus latifolia*), red maple (*Acer rubrum*), sensitive fern (*Onoclea sensibilis*), Joe pye-weed (*Eutrochium purpureum*) and giant goldenrod (*Solidago gigantea*). Delineation along the face of the dam was challenging due to pervasive riprap which prohibited access to the soils. Therefore, the delineation was based upon the presence of a preponderance of hydrophytic vegetation. The wetland is designated as Class II, with a 50’ jurisdictional buffer.

Wetland B is located at the western extreme of the auxiliary spillway. The boundaries were estimated visually, based upon vegetation, with spot checks of the soils. The hydrology supporting the wetland is groundwater discharge. The wetland is palustrine emergent (PEM) mowed wet meadow. The dominant hydrophytic vegetation includes dark-green bulrush (*Scirpus atrovirens*), tall buttercup (*Ranunculus acris*), sedges (*Carex* spp.), and lamp rush (*Juncus effusus*). The wetland is designated as Class III, with no jurisdictional buffer.

Wetland C is located to the south of the principal spillway outlet. The hydrology supporting the wetland is groundwater discharge. The wetland channels up into a one foot-wide stream at its eastern end. The soils have a depleted matrix, per COE hydric soil indicator A11, “Depleted Below Dark Surface.” The wetland is palustrine emergent (PEM). Within the maintained grassy area to the east of the dam, the hydrophytic vegetation is dominated by dark-green bulrush (*Scirpus atrovirens*). East of that, it is dominated by sedges (*Carex* spp.) and mosses. The wetland is designated as Class II, with a 50’ jurisdictional buffer.

Rare, threatened and endangered species

No rare, threatened or endangered species are identified on the Site 2 VANR NRA maps in the focus area, and none were observed during field work.

Wildlife

Many of the waters within the Jewell Brook Watershed are notable for brook trout and other mixed species of trout, such as brown and rainbow trout, including the upstream watershed and portions of the downstream watershed, as well as small portions of the affected area of Site 2. Common mammal species in Southern Vermont include beaver, black bear, eastern cottontail, coyote, fox, squirrel, racoon, porcupine, weasel, skunk, opossum, and white-tailed deer. No fish or wildlife were directly observed or recorded during the course of field work.

Invasive species

No invasive species were noted at Site 2.

Riparian Areas

The NRCS defines riparian areas as “lands that occur along watercourses and water bodies. Typical examples include flood plains and streambanks. They are distinctly different from surrounding lands because of unique soil and vegetation characteristics that are strongly influenced by the presence of water. At Site 2, Riparian areas exist along the edge of the retarding pool and along the edges of the streams, of which two enter the pool and one exits the pool. The riparian areas around the retarding pool and the northern entering stream are characterized primarily by wetland. The riparian areas of the southern entering stream and the exiting stream are primarily associated with the stream banks, where periodic flooding occurs.

SITE #3

Surrounding Area

The Focus Area is located in an area of Ludlow just south of the intersection of Chamonix Road and West Hill Road. It is approximately 15 acres in size and includes the eastern half of the 9.7-acre retarding pool, the embankment and adjacent areas, the principal and auxiliary spillways and the outlet channel. A map of the Focus Area is provided in the Site 3 Wetland and Waterbody Focus Area Map, Appendix A.

Vegetation

Upland areas within the Focus Area are characterized by maintained grasslands and mixed northern hardwood and white pine forest. Wetland species are discussed under the respective wetland descriptions below.

Waterbody Resources

Waterbodies include lakes, ponds and streams. The Corps of Engineers regulates activities below the ordinary high water (OHW) elevations of these resources. The ordinary high water lines of jurisdictional waterbodies in the Focus Area of Site #1 include the retarding pool of the dam and Trailside Brook at the outlet of the dam. These are shown in blue on the Site 3 Wetland and Waterbody Focus Area Map, Appendix A.

Wetland Resources

In Vermont, wetlands are regulated by both the US Army Corps of Engineers (COE) and the VANR Wetlands Program. All wetlands in Vermont are subject to COE regulation, and have no COE-jurisdictional buffers. A subset of Vermont wetlands, those designated as Class I or Class II, are also subject, along with their 50' jurisdictional buffers, to the Vermont Wetland Rules. Class III wetlands are not subject to the Vermont Wetland rules, and have no jurisdictional buffers.

Wetlands were formally delineated within the Focus Area, and are shown on the Site 3 Wetland and Waterbody Focus Area Map, Appendix A in solid lines labeled as “WL.” State jurisdictional wetland buffers associated with the wetlands are shown on the Site 3 Wetland and Waterbody Focus Area Map, Appendix A in solid lines labeled as “WB.” There are three delineated wetlands in the Focus Area, described below as Wetlands A, B, and C.

Wetland A is located along the edge of the reservoir and in a wet meadow at the north end of the reservoir. The hydrology supporting the wetland is predominantly groundwater discharge, with contributions from the high groundwater table maintained around the reservoir. The soils have a depleted matrix, per COE hydric soil indicator A11, “Depleted Below Dark Surface.” The wetland is

primarily “palustrine emergent” (PEM), with a minor component of “palustrine scrub-shrub” (PSS). The dominant hydrophytic vegetation of the wet meadow includes reed canary grass (*Phalaris arundinacea*), sensitive fern (*Onoclea sensibilis*), giant goldenrod (*Solidago gigantea*), lamp rush (*Juncus effusus*), spikerush (*Eleocharis* sp.), pondweed (*Potamogeton* sp.), dark green bulrush (*Scirpus atrovirens*) and purple loosestrife (*Lythrum salicaria*). The scrub-shrub areas include willow (*Salix* sp.), meadowsweet (*Scirpus latifolia*), silky dogwood (*Cornus amomum*) and stepplebush (*Spirea tomentosa*). The wetland is designated as Class II, with a 50' jurisdictional buffer.

Wetland B is located at the principal spillway outlet. The hydrology supporting the wetland is groundwater discharge. The wetland is primarily palustrine emergent (PEM) mowed wet meadow, with a lesser component of palustrine scrub-shrub (PSS). The dominant hydrophytic vegetation of the wet meadow includes dark-green bulrush (*Scirpus atrovirens*), lamp rush (*Juncus effusus*), purple loosestrife (*Lythrum salicaria*), and sensitive fern (*Onoclea sensibilis*). The scrub-shrub wetland is dominated by willow (*Salix* sp.), American elm (*Ulmus americanus*), and sensitive fern (*Onoclea sensibilis*). The wetland is designated as Class II, with a 50' jurisdictional buffer.

Wetland C is located at an outlet of a drainage pipe, along a barbed wire fence on a property line with “No Trespassing” signs. A very narrow sliver of the wetland is on the dam side of the property boundary. Thus, only a small area was delineated (the western-most limit), with the eastward trending boundaries estimated visually from the fence. The hydrology supporting the wetland is groundwater discharge. The soils have a depleted matrix, per COE hydric soil indicator A11, “Depleted Below Dark Surface.” The wetland is palustrine emergent (PEM). The hydrophytic vegetation is dominated by reed canary grass (*Phalaris arundinacea*), sensitive fern (*Onoclea sensibilis*) and stepplebush (*Spirea tomentosa*). The wetland is designated as Class III, with no jurisdictional buffer.

Rare, threatened and endangered species

No rare, threatened or endangered species are identified on the VANR NRA maps in the focus area, and none were observed during field work.

Wildlife

Many of the waters within the Jewell Brook Watershed are notable for Brook Trout and other mixed species of Trout, such as Brown and Rainbow Trout, including the upstream watershed and portions of the downstream watershed and the entirety of the affected area of Site 3. Common mammal species in Southern Vermont include beaver, black bear, eastern cottontail, coyote, fox, squirrel, raccoon, porcupine, weasel, skunk, opossum, and white-tailed deer. No fish or wildlife were directly observed or recorded during the course of field work.

Invasive species

Reed canary grass (*Phalaris arundinacea*) occurs in Wetlands A and C. Purple loosestrife (*Lythrum salicaria*) and giant reed (*Phragmites australis*) occur in Wetland B.

Riparian Areas

The NRCS defines riparian areas as “lands that occur along watercourses and water bodies. Typical examples include flood plains and streambanks. They are distinctly different from surrounding lands because of unique soil and vegetation characteristics that are strongly influenced by the presence of water. At Site 3, the riparian area around the retarding pool is characterized by wetland. A small

wetland area occurs at the culvert outlet to the exiting stream, but the riparian area of that stream is primarily associated with the stream banks, where periodic flooding occurs.

SITE #5

Surrounding Area

The Focus Area is located in an area of Ludlow at the southern terminus of West Hill Road, where it becomes Town Highway 22 which crosses the top of the dam. It area is approximately 20 acres in size and includes the eastern half of the 0.7-acre retarding pool, the embankment and adjacent areas, the principal and auxiliary spillways and the outlet channel. A map of the Focus Area is provided in the Site 5 Wetland and Waterbody Focus Area Map, Appendix A.

Vegetation

Upland areas within the Focus Area are characterized by maintained grasslands and mixed northern hardwood and white pine forest. Wetland species are discussed under the respective wetland descriptions below.

Waterbody Resources

Waterbodies include lakes, ponds and streams. The Corps of Engineers regulates activities below the ordinary high water (OHW) elevations of these resources. The ordinary high water lines of jurisdictional waterbodies in the Focus Area of Site # include the retarding pool and Sanders Brook at the principal spillway outlet. These are shown in blue on the Site 5 Wetland and Waterbody Focus Area Map, Appendix A.

Wetland Resources

In Vermont, wetlands are regulated by both the US Army Corps of Engineers (COE) and the VANR Wetlands Program. All wetlands in Vermont are subject to COE regulation, and have no COE-jurisdictional buffers. A subset of Vermont wetlands, those designated as Class I or Class II, are also subject, along with their 50' jurisdictional buffers, to the Vermont Wetland Rules. Class III wetlands are not subject to the Vermont Wetland rules, and have no jurisdictional buffers.

Wetlands that were formally delineated within the Focus Area are shown on the Site 5 Wetland and Waterbody Focus Area Map, Appendix A in solid lines labeled as "WL." State jurisdictional wetland buffers of the Class II wetlands are shown on the Site 5 Wetland and Waterbody Focus Area Map, Appendix A in solid lines labeled as "WB." Class III wetland areas were visually estimated, and are shown on the Site 5 Wetland and Waterbody Focus Area Map, Appendix A in red lines. There are two delineated Class II wetlands in the Focus Area, described below as Wetlands A and B, as well as two visually estimated Class III wetlands, described below as Wetlands C and D.

Wetland A is located along the edge of the reservoir, continuing southward within the southern auxiliary spillway. Additional areas of wetland occur within the southern auxiliary spillway to the south and southeast of the delineated Wetland A; these areas were visually estimated based upon vegetation, with spot checks of the soils, and their general locations are indicated on Exhibit 2. The hydrology supporting the wetland is predominantly groundwater discharge, with some contribution from the high groundwater table maintained around the reservoir. The soils have a depleted matrix, per COE hydric soil indicator A11, "Depleted Below Dark Surface." The wetland is "palustrine

emergent” (PEM) wet meadow, a portion of which at the toe of the dam and within the auxiliary spillway and is kept mowed. The dominant hydrophytic vegetation includes reed canary grass (*Phalaris arundinacea*), American bur-reed (*Sparganium americanum*), woolgrass (*Scirpus cyperinus*), purple loosestrife (*Lythrum salicaria*), dark-green bulrush (*Scirpus atrovirens*) and lamp rush (*Juncus effusus*). The wetland is designated as Class II, with a 50’ jurisdictional buffer.

Wetland B is located at the principal spillway outlet. The hydrology supporting the wetland is groundwater discharge, with a minor component of overbank flow from the outlet channel. The wetland is palustrine emergent/scrub-shrub (PEM/SS), with the dominant hydrophytic vegetation including willow (*Salix* sp), tall white aster (*Doellengeria umbellata*), sedges (*Carex* spp.), sensitive fern (*Onoclea sensibilis*) and giant goldenrod (*Solidago gigantea*). The wetland is designated as Class II, with a 50’ jurisdictional buffer.

Wetland C is located within the northern auxiliary spillway. Its boundaries were estimated visually based upon the vegetation, with spot checks of the soils. The hydrology supporting the wetland is groundwater discharge. The soils have a depleted matrix, per COE hydric soil indicator A11, “Depleted Below Dark Surface.” The wetland is palustrine emergent (PEM) old field. The hydrophytic vegetation is dominated by reed canary grass (*Phalaris arundinacea*) and dark-green bulrush (*Scirpus atrovirens*). The wetland is designated as Class III, with no jurisdictional buffer.

Wetland D is located at the southeastern extreme of the auxiliary spillway. Its boundaries were estimated visually based upon the vegetation, with spot checks of the soils. The hydrology supporting the wetland is groundwater discharge. The soils have a depleted matrix, per COE hydric soil indicator A11, “Depleted Below Dark Surface.” The wetland is palustrine emergent (PEM) old field. The hydrophytic vegetation is dominated by reed canary grass (*Phalaris arundinacea*) and dark-green bulrush (*Scirpus atrovirens*). The wetland is designated as Class III, with no jurisdictional buffer.

Rare, threatened and endangered species

No rare, threatened or endangered species are identified on the VANR NRA maps in the focus area, and none were observed during field work.

Wildlife

Many of the waters within the Jewell Brook Watershed are notable for Brook Trout and other mixed species of Trout, such as Brown and Rainbow Trout, including the upstream watershed and portions of the downstream watershed as well as the entirety of the affected area. Common mammal species in Southern Vermont include beaver, black bear, eastern cottontail, coyote, fox, squirrel, racoon, porcupine, weasel, skunk, opossum, and white-tailed deer. No fish or wildlife were directly observed or recorded during the course of field work.

Invasive species

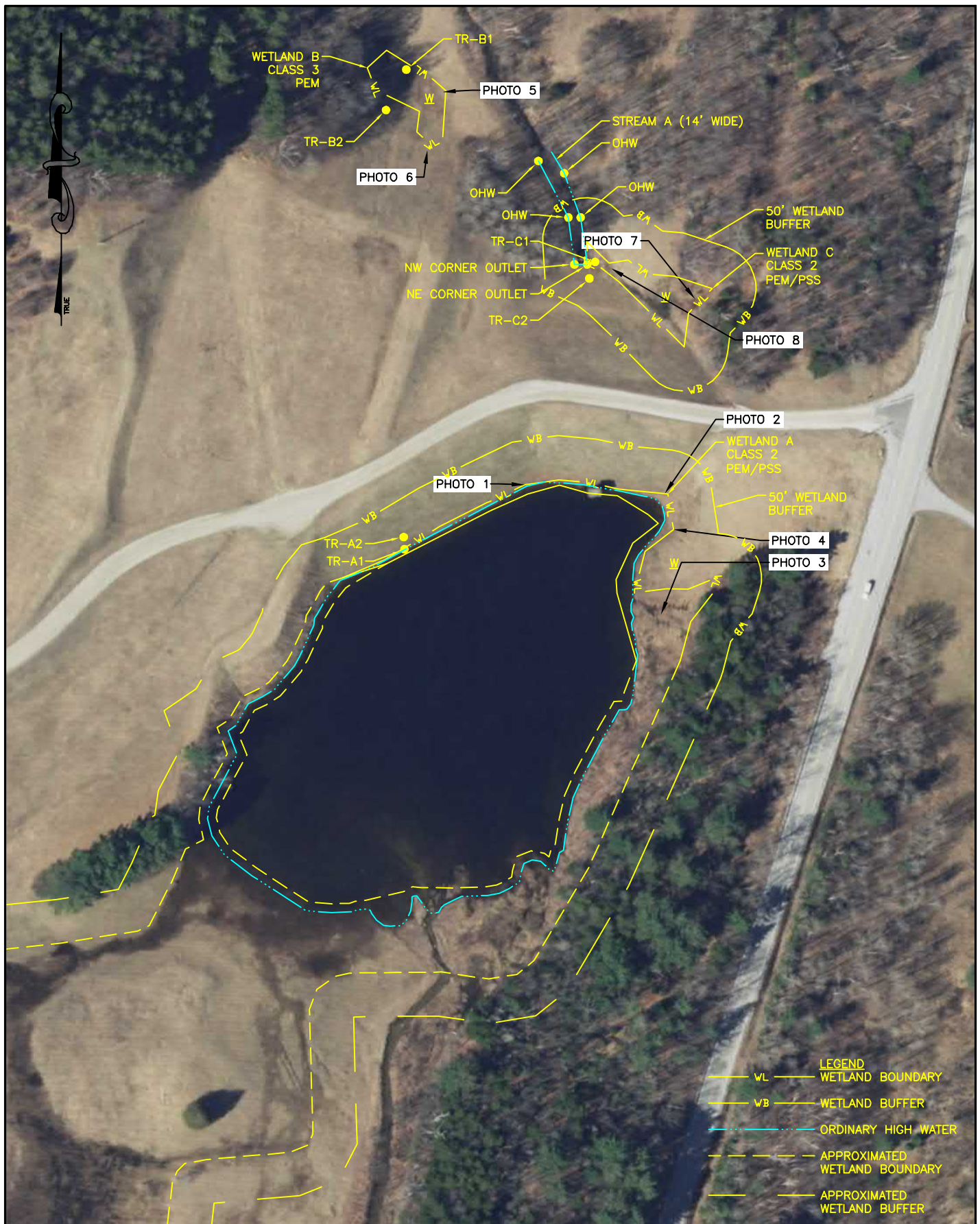
Reed canary grass (*Phalaris arundinacea*) occurs in Wetlands A and C. Purple loosestrife (*Lythrum salicaria*) occurs in Wetland A. Poison parsnip (*Pastinaca sativa*) occurs in the upland adjacent to Wetlands A and B.

Riparian Areas

The NRCS defines riparian areas as “lands that occur along watercourses and water bodies. Typical examples include flood plains and streambanks. They are distinctly different from surrounding lands

because of unique soil and vegetation characteristics that are strongly influenced by the presence of water. The riparian area around the retarding pool is characterized by wetland. A small wetland area occurs at the culvert outlet to the exiting stream, but the riparian area of that stream is primarily associated with the stream banks, where periodic flooding occurs.

Figures



GRAPHIC SCALE
0 75 150



1 inch = 150 ft.

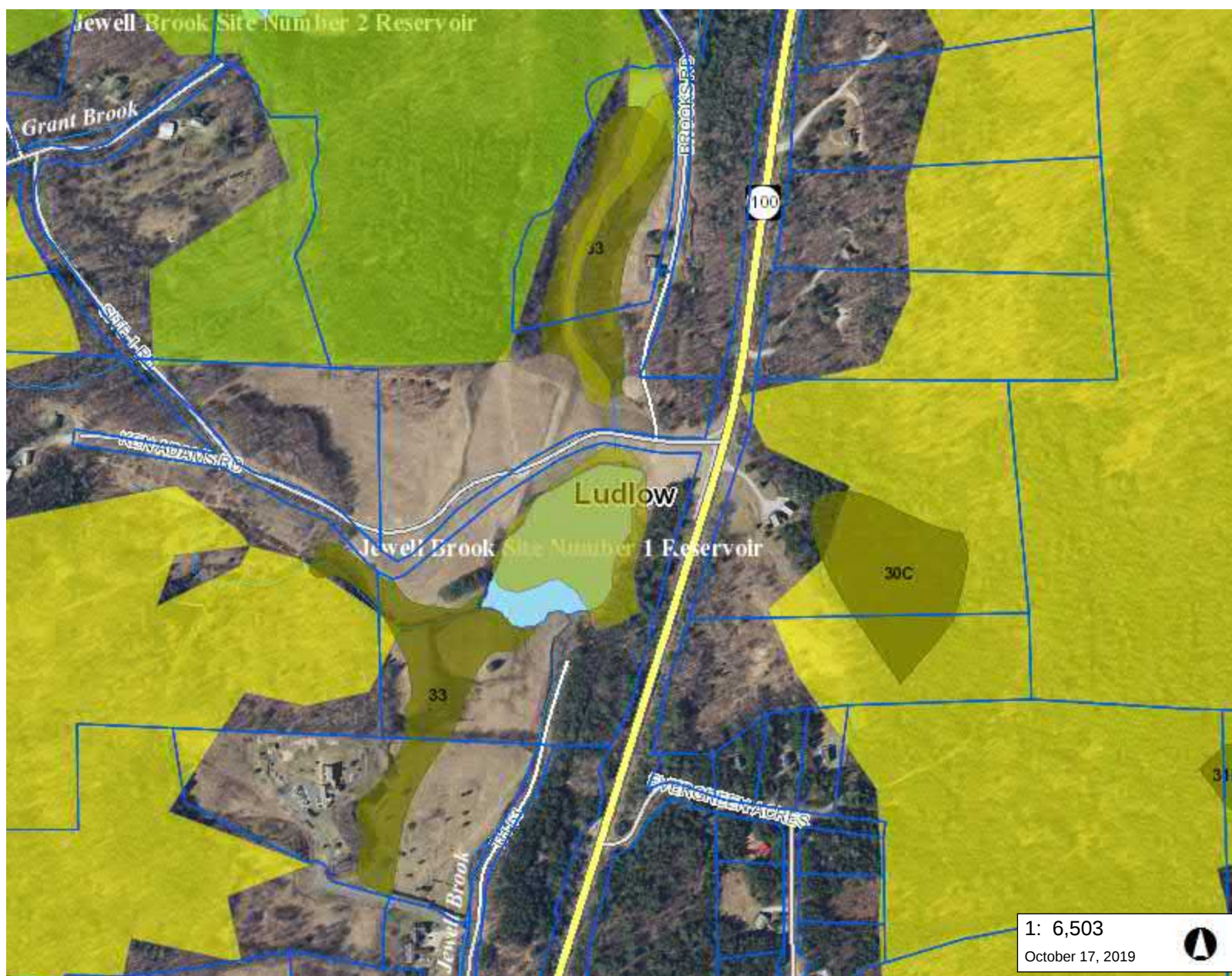
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& King** inc.

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EXHIBIT 2

JEWELL BROOK SITE 1
WETLANDS AND WATERBODY
MAPPING

DRAWN BY JWP	DATE DEC. 2019
CHECKED BY	PROJ. NO. 925007L
PROJ. ENG. CWB	DRAW. NO.



LEGEND

-  Vernal Pools Confirmed – AE/A
-  Vernal Pools Unconfirmed – AI
-  Wetland Projects
- Wetland - VSWI
 -  Class 1 Wetland
 -  Class 2 Wetland
 -  Buffer
-  Wetlands Advisory Layer
-  Soils - Hydric
- Amphibian and Reptile Crossir
 -  Confirmed
 -  Potential
- Rare Threatened Endangered
 -  Threatened or Endangered
 -  Rare
-  Significant Natural Community
- Uncommon Species and Other
 -  Animal
 -  Plant
 -  Natural Community
-  Deer Wintering Areas
- Habitat Blocks
 -  10 - Higher Priority
 -  9
 -  8
 -  7
 -  6
 -  5

1: 6,503

October 17, 2019



NOTES

Site 1

Map created using ANR's Natural Resources Atlas

330.0 0 165.00 330.0 Meters

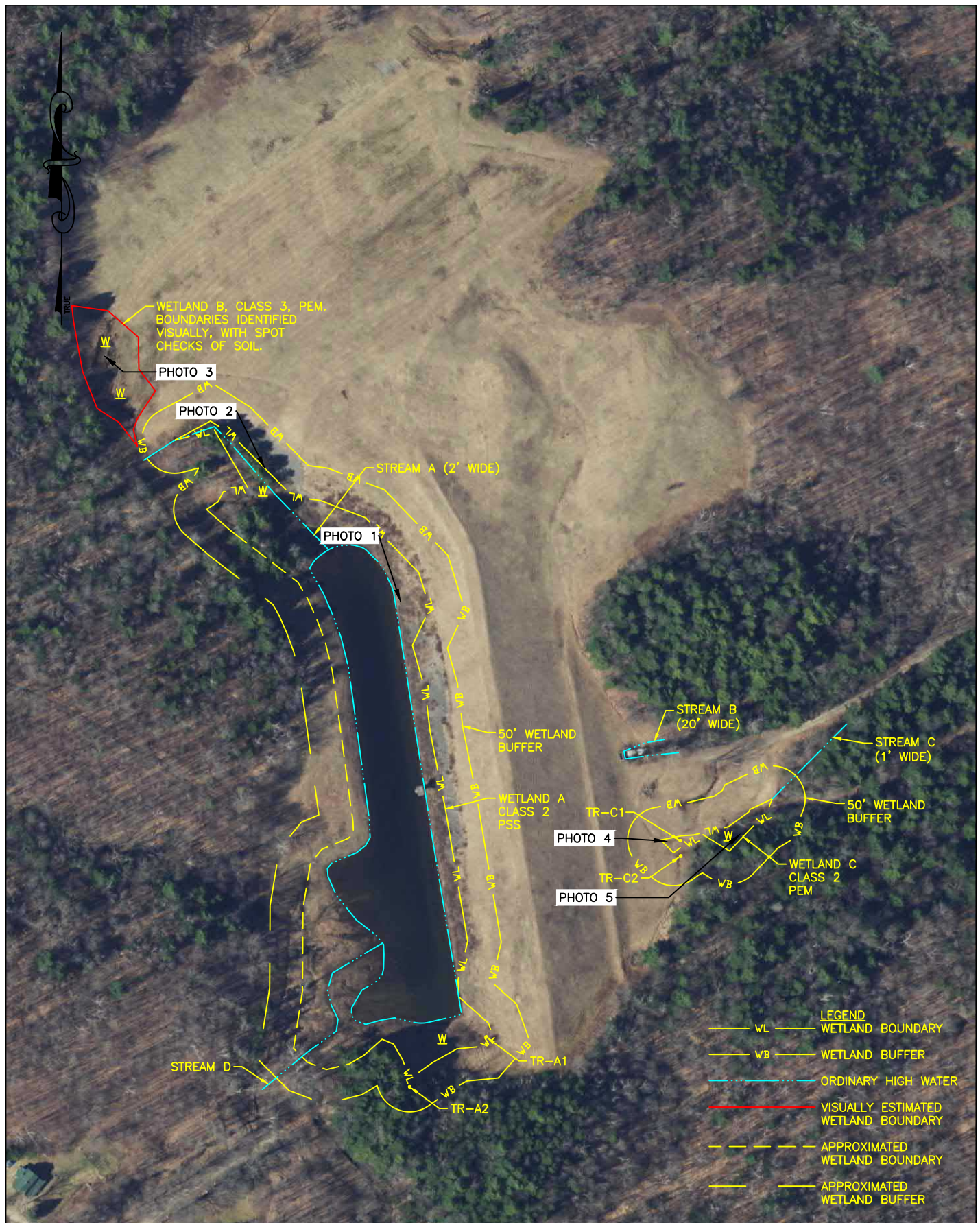
WGS_1984_Web_Mercator_Auxiliary_Sphere

© Vermont Agency of Natural Resources

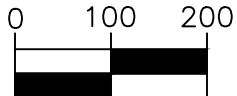
1" = 542 Ft. 1cm = 65 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

DISCLAIMER: This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. ANR and the State of Vermont make no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.



GRAPHIC SCALE



1 inch = 200 ft.

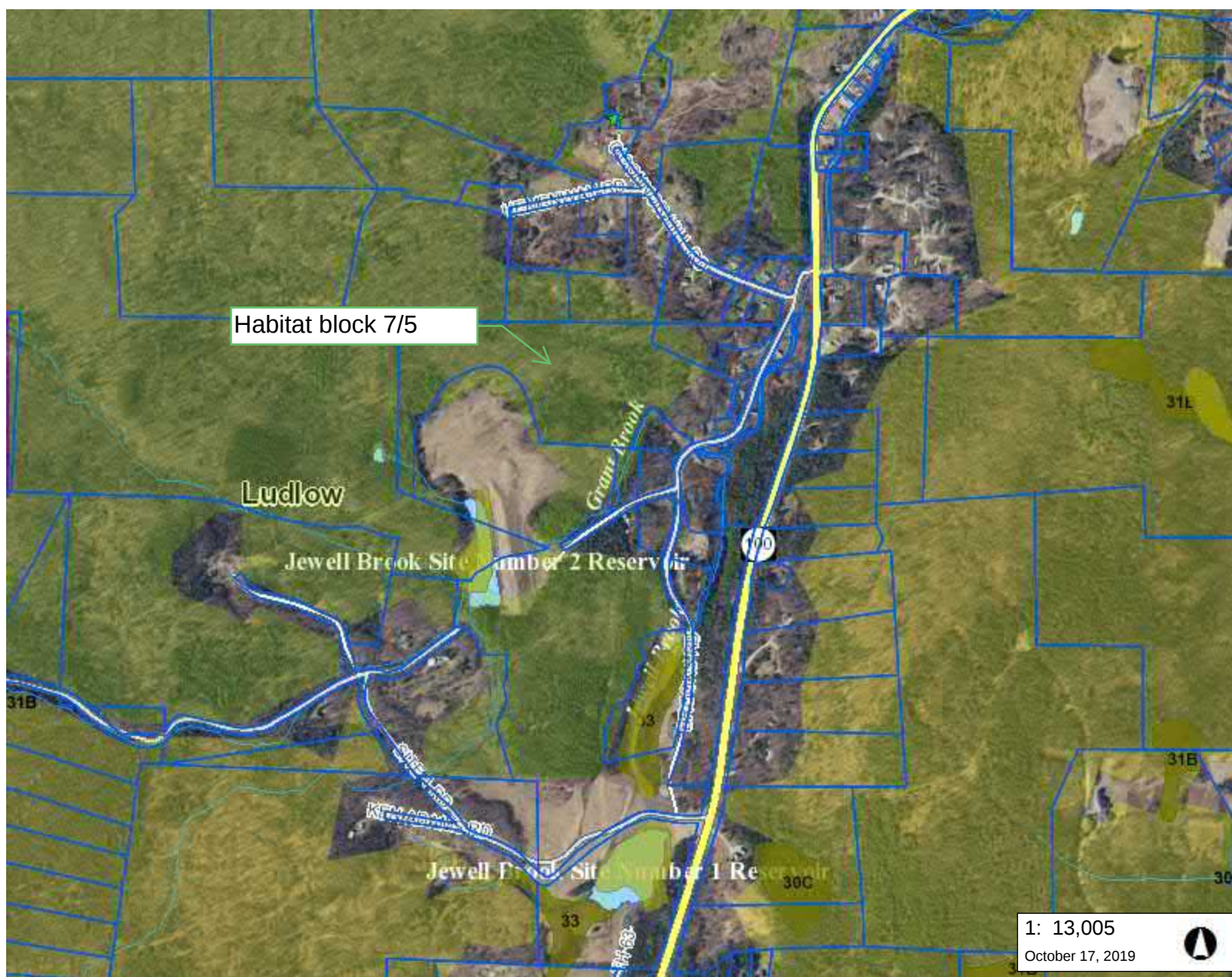
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EXHIBIT 2

JEWELL BROOK SITE 2
WETLANDS AND WATERBODY
MAPPING

DRAWN BY JWP	DATE DEC. 2019
CHECKED BY	PROJ. NO. 925007L
PROJ. ENG. CWB	DRAW. NO.



LEGEND

-  Vernal Pools Confirmed – AE/A
-  Vernal Pools Unconfirmed – AI
-  Wetland Projects
- Wetland - VSWI**
 -  Class 1 Wetland
 -  Class 2 Wetland
 -  Buffer
-  Wetlands Advisory Layer
-  Soils - Hydric
- Amphibian and Reptile Crossir**
 -  Confirmed
 -  Potential
- Rare Threatened Endangered**
 -  Threatened or Endangered
 -  Rare
-  Significant Natural Community
- Uncommon Species and Other**
 -  Animal
 -  Plant
 -  Natural Community
-  Deer Wintering Areas
- Habitat Blocks**
 -  10 - Higher Priority
 -  9
 -  8
 -  7
 -  6
 -  5

1: 13,005

October 17, 2019



661.0 0 330.00 661.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere

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1" = 1084 Ft. 1cm = 130 Meters

THIS MAP IS NOT TO BE USED FOR NAVIGATION

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NOTES

Site 2

Map created using ANR's Natural Resources Atlas



DRAWN BY JWP	DATE DEC. 2019
CHECKED BY	PROJ. NO. 925007L
PROJ. ENG. CWB	DRAW. NO.



LEGEND

-  Vernal Pools Confirmed – AE/A
-  Vernal Pools Unconfirmed – AI
-  Wetland Projects
- Wetland - VSWI**
 -  Class 1 Wetland
 -  Class 2 Wetland
 -  Buffer
-  Wetlands Advisory Layer
-  Soils - Hydric
- Amphibian and Reptile Crossir**
 -  Confirmed
 -  Potential
- Rare Threatened Endangered**
 -  Threatened or Endangered
 -  Rare
-  Significant Natural Community
- Uncommon Species and Other**
 -  Animal
 -  Plant
 -  Natural Community
-  Deer Wintering Areas
- Habitat Blocks**
 -  10 - Higher Priority
 -  9
 -  8
 -  7
 -  6
 -  5

NOTES

Site 3

Map created using ANR's Natural Resources Atlas

330.0 0 165.00 330.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere 1" = 542 Ft. 1cm = 65 Meters

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1: 6,503

October 17, 2019





GRAPHIC SCALE
0 75 150



1 inch = 150 ft.

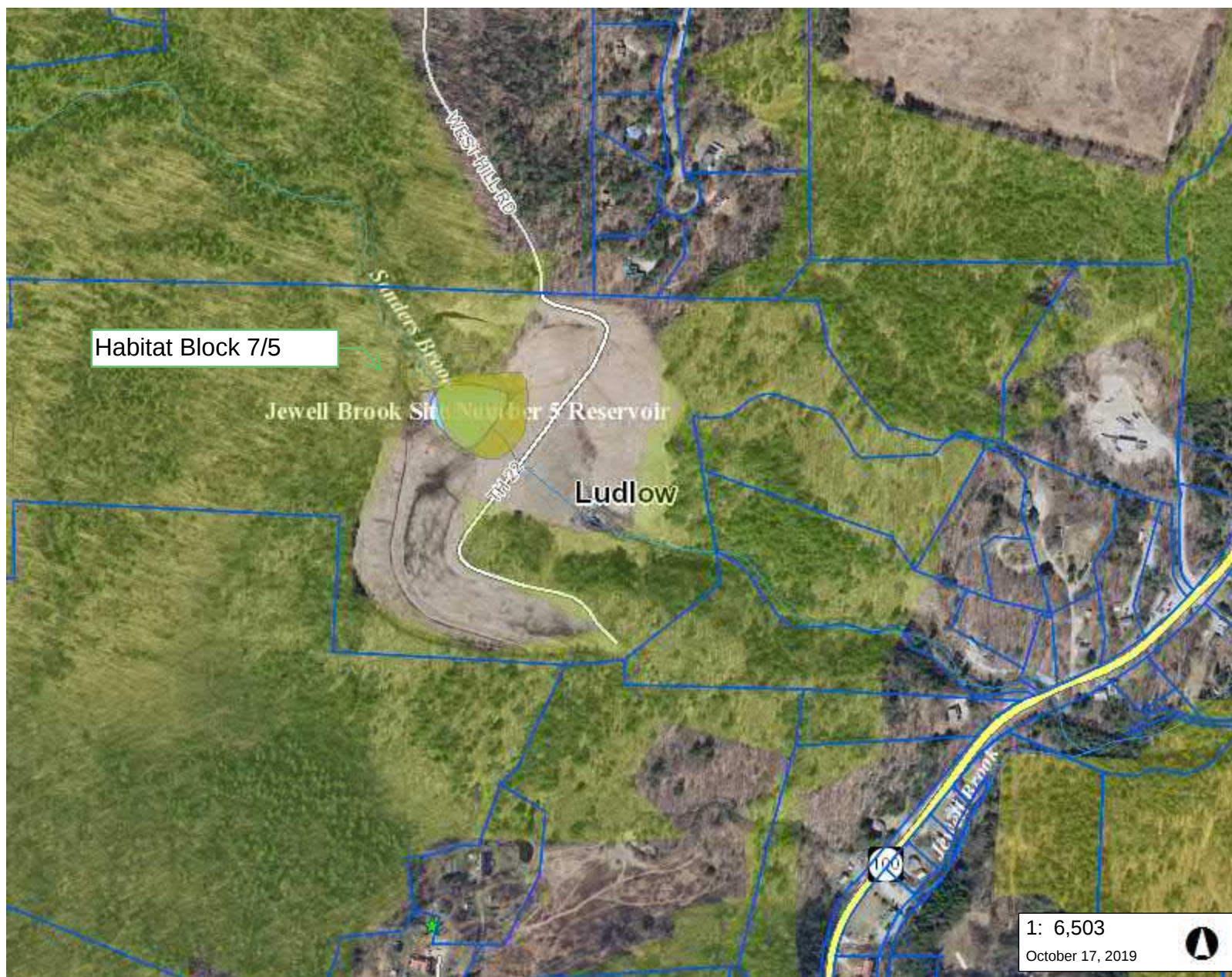
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Exhibit 2

Jewell Brook Site 5
Wetlands and Waterbody
Mapping

DRAWN BY JWP	DATE DEC. 2019
CHECKED BY	PROJ. NO. 925007L
PROJ. ENG. CWB	DRAW. NO.



LEGEND

-  Vernal Pools Confirmed – AE/A
-  Vernal Pools Unconfirmed – AI
-  Wetland Projects
- Wetland - VSWI
 -  Class 1 Wetland
 -  Class 2 Wetland
 -  Buffer
-  Wetlands Advisory Layer
-  Soils - Hydric
- Amphibian and Reptile Crossir
 -  Confirmed
 -  Potential
- Rare Threatened Endangered
 -  Threatened or Endangered
 -  Rare
-  Significant Natural Community
- Uncommon Species and Other
 -  Animal
 -  Plant
 -  Natural Community
-  Deer Wintering Areas
- Habitat Blocks
 -  10 - Higher Priority
 -  9
 -  8
 -  7
 -  6
 -  5

NOTES

Site 5

Map created using ANR's Natural Resources Atlas

Photo Logs

Project Name: NRCS Jewell Brook Watershed Site 1: Wetland Delineations	Site Location: Ludlow, Vermont	Project No.: 925007
---	--	-------------------------------

Photo No.: 1	Date: 10/30/2019	
Direction Photo Taken: Looking East		
Photographer: Charlotte Brodie (CWB)		
Description: Northern end of retarding pool and Wetland A emergent area.		

Photo No.: 2	Date: 10/30/2019	
Direction Photo Taken: Looking southwest		
Photographer: CWB		
Description: Northern end of retarding pool and Wetland A emergent area.		

Project Name: NRCS Jewell Brook Watershed Site 1: Wetland Delineations	Site Location: Ludlow, Vermont	Project No.: 925007
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Photo No.: 3	Date: 10/30/2019	
Direction Photo Taken: Looking Southwest		
Photographer: CWB		
Description: Wetland A scrub-shrub area		

Photo No.: 4	Date: 10/30/2019	
Direction Photo Taken: Looking Northwest		
Photographer: CWB		
Description: Northern end of retarding pool and Wetland A emergent area.		

Project Name: NRCS Jewell Brook Watershed Site 1: Wetland Delineations	Site Location: Ludlow, Vermont	Project No.: 925007
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Photo No.: 5	Date: 10/30/2019	
Direction Photo Taken: Looking West		
Photographer: CWB		
Description: Wetland B		

Photo No.: 6	Date: 10/30/2019	
Direction Photo Taken: Looking North		
Photographer: CWB		
Description: Wetland B.		

Project Name: NRCS Jewell Brook Watershed Site 1: Wetland Delineations	Site Location: Ludlow, Vermont	Project No.: 925007
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Photo No.: 7	Date: 10/30/2019	
Direction Photo Taken: Looking Southeast		
Photographer: CWB		
Description: Wetland C, scrub-shrub at upper end.		

Photo No.: 8	Date: 10/30/2019
Direction Photo Taken: Looking West-northwest	
Photographer: CWB	
Description: Wetland C, looking downhill towards channel.	

A photograph of a wetland area. In the foreground, there is a dense patch of tall, dry, brownish grasses. To the left and right of this patch, there is green grass. In the background, there is a line of trees, some of which are bare and some have brown leaves. A small body of water is visible in the distance, partially obscured by the trees. The overall scene is a natural, somewhat overgrown landscape.

Project Name: NRCS Jewell Brook Watershed Site 2: Wetland Delineations	Site Location: Ludlow, Vermont	Project No.: 925007
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Photo No.: 1	Date: 11/04/2019	
Direction Photo Taken: Looking South-southeast		
Photographer: Charlotte Brodie (CWB)		
Description: Wetland A.		

Photo No.: 2	Date: 11/04/2019	
Direction Photo Taken: Looking Southeast		
Photographer: CWB		
Description: Wetland A and Stream A.		

Project Name: NRCS Jewell Brook Watershed Site 2: Wetland Delineations	Site Location: Ludlow, Vermont	Project No.: 925007
---	--	-------------------------------

Photo No.: 3	Date: 11/04/2019	
Direction Photo Taken: Looking Northwest		
Photographer: CWB		
Description: Wetland B.		

Photo No.: 4	Date: 11/04/2019
Direction Photo Taken: Looking East	
Photographer: CWB	
Description: Wetland C, mowed area.	

A photograph of a wetland area, likely a mowed field, with tall, dry grass in the foreground. In the background, there is a dense forest of trees, including evergreens and deciduous trees. A small body of water is visible on the left side of the image. The photo is taken from a low angle, looking east.

Project Name: NRCS Jewell Brook Watershed Site 2: Wetland Delineations	Site Location: Ludlow, Vermont	Project No.: 925007
---	--	-------------------------------

Photo No.: 5	Date: 11/04/2019	
Direction Photo Taken: Looking Northeast		
Photographer: CWB		
Description: Wetland C, naturally vegetated.		

Project Name: NRCS Jewell Brook Watershed Site 3: Wetland Delineations	Site Location: Ludlow, Vermont	Project No.: 925007
---	--	-------------------------------

Photo No.: 1	Date: 11/05/2019	
Direction Photo Taken: Looking Southeast		
Photographer: Charlotte Brodie (CWB)		
Description: Wetland A.		

Photo No.: 2	Date: 11/05/2019
Direction Photo Taken: Looking North	
Photographer: CWB	
Description: Wetland A.	



Project Name: NRCS Jewell Brook Watershed Site 3: Wetland Delineations	Site Location: Ludlow, Vermont	Project No.: 925007
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Photo No.: 3	Date: 11/05/2019	
Direction Photo Taken: Looking East		
Photographer: CWB		
Description: Wetland B looking east towards Stream A.		

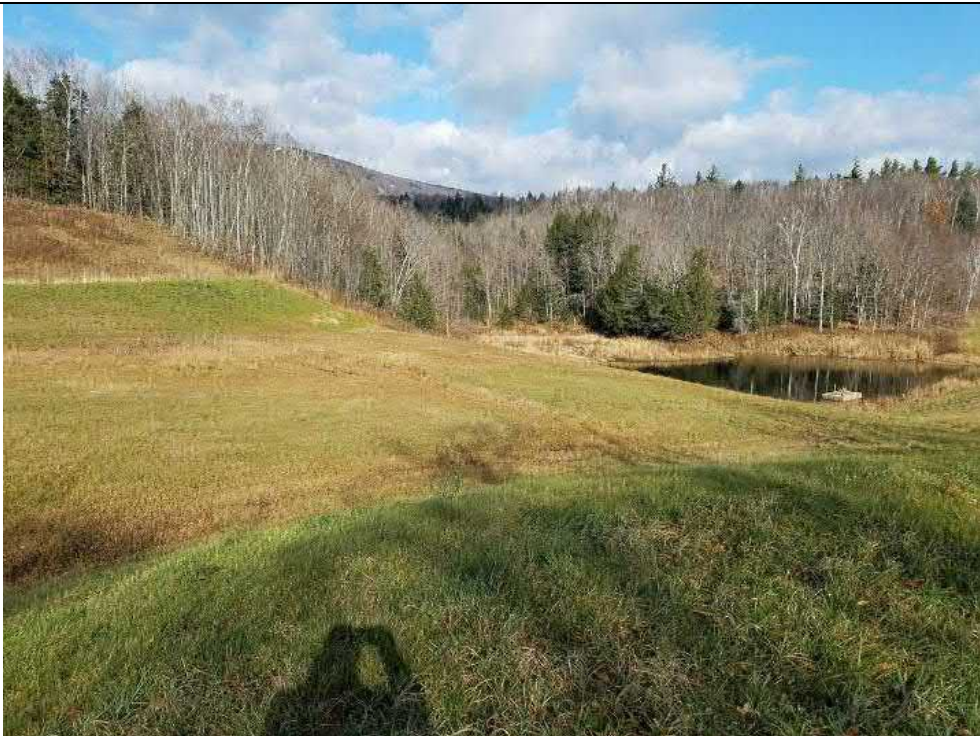
Photo No.: 4	Date: 11/05/2019
Direction Photo Taken: Looking East	
Photographer: CWB	
Description: Wetland C.	

A photograph of a wetland area. The foreground is filled with tall, dry, brown grasses and some small, light-colored flowers. In the middle ground, there is a small, red-roofed building, possibly a shed or a small house, nestled among trees. The background shows a dense forest of evergreen and deciduous trees on a hillside. The sky is overcast.

Project Name: NRCS Jewell Brook Watershed Site 5: Wetland Delineations	Site Location: Ludlow, Vermont	Project No.: 925007
---	--	-------------------------------

Photo No.: 1	Date: 11/06/2019	
Direction Photo Taken: Looking Southwest		
Photographer: Charlotte Brodie (CWB)		
Description: Wetland A around retarding pool.		

Photo No.: 2	Date: 11/06/2019
Direction Photo Taken: Looking Northwest	
Photographer: CWB	
Description: Wetland A, looking towards retarding pool.	



Project Name: NRCS Jewell Brook Watershed Site 5: Wetland Delineations	Site Location: Ludlow, Vermont	Project No.: 925007
---	--	-------------------------------

Photo No.: 3	Date: 11/06/2019	
Direction Photo Taken: Looking West		
Photographer: CWB		
Description: Areas of additional wetland associated with Wetland A, in auxiliary spillway.		

Photo No.: 4	Date: 11/06/2019	
Direction Photo Taken: Looking Southeast		
Photographer: CWB		
Description: Wetland B, looking towards outlet channel.		

Project Name: NRCS Jewell Brook Watershed Site 5: Wetland Delineations	Site Location: Ludlow, Vermont	Project No.: 925007
---	--	-------------------------------

Photo No.: 5	Date: 11/06/2019	
Direction Photo Taken: Looking North		
Photographer: CWB		
Description: Wetland C.		