

**Vermont Agency of Natural Resources
Water Quality Certification
33 U.S.C. § 1341**

For Vermont Agency of Transportation
Lamoille Valley Rail Trail Project
VTrans Project STP – LVRT(11): Cambridge to Sheldon;
LVRT(12): Hardwick to Morristown; LVRT(13): Danville to Hardwick

Issued July 30, 2021

Table of Contents

I. INTRODUCTION	4
II. FINDINGS	5
A. Alternatives Analysis	5
B. Resource Description	6
Project Location	6
Wetland Resources	6
Stream Resources	7
Aquatic Biota and Wildlife, Fisheries, and Rare, Threatened, or Endangered (RTE) Species	7
C. Project Description	8
General Project Description	8
Impacts to Stream Resources	11
Impacts to Lake and Pond Resources	12
Impacts to Physical and Chemical Condition	12
Impacts to Aquatic Biota and Wildlife, Fisheries, and RTE Species	12
Impacts to Recreational and Other Water Uses	13
Avoidance and Minimization	13
Mitigation	14
D. Vermont Water Quality Standards, including the Anti-degradation Policy	14
III. ANTI-DEGRADATION ANALYSIS AND CONCLUSIONS	15
Presumptions	15
The Project will not Result in a Limited Lowering of Water Quality	15
Streams	16
Wetlands	16
Aquatic Biota and Wildlife, Fisheries, and RTE Species	18
Recreational and Other Water Uses	18
Cumulative Impacts	18
IV. CERTIFICATION AND CONDITIONS	19
V. EFFECTIVE DATE AND EXPIRATION OF CERTIFICATION	20
VI. ENFORCEMENT	20
VII. APPEALS	21
APPENDIX I – APPLICANT DELINEATED WETLANDS	22

APPENDIX II – APPLICANT DELINEATED STREAMS

I. INTRODUCTION

Pursuant to Section 13.11 of the Vermont Water Pollution Control Permit Regulations (February 26, 1974) (VWPCPR) and the Agency of Natural Resources’ Section 401 Water Quality Certification Practice (October 22, 2014), the Secretary (Secretary) of the Vermont Agency of Natural Resources (Agency or ANR) has reviewed the Water Quality Certification application submitted April 13, 2021, with supplemental filings submitted on May 25, 2021, and June 2, 2021, filed by Vanasse Hangen Brustlin, Inc. (VHB) on behalf of the Vermont Agency of Transportation (VTrans or Applicant) for the Lamoille Valley Rail Trail Project (11)(12)(13) (LVRT or Project). The application was supplemented with a copy of the federal Clean Water Act Section 404 Application filed with the U.S. Army Corps of Engineers on March 19, 2021 and last revised on May 25, 2021. Collectively, these materials are referred to as the “Application.”

The Agency also considered information provided by the Applicant in its applications for various State permits, including Individual Wetland and Individual Construction Stormwater Discharge permits; Flood Hazard Area and River Corridor Rule Registrations, Stream Alteration Title 19 Consultations, and a Threatened and Endangered Species Takings Permit. See Table 1. for a complete list of Agency permits.

Table 1. Agency permits for LVRT(11)(12)(13)

Permit Type	Application Date	Last Revised Date	Permit #
Individual Wetland Permit	2/19/2021	5/11/2021	2020-638.01
Individual Construction Stormwater Discharge Permit	2/22/2021	3/26/2021	6852-INDC.2
Flood Hazard Area & River Corridor – LVRT (11)	3/25/2021	N/A	FP-1-0050-2021-REG
Flood Hazard Area & River Corridor – LVRT (12)	2/16/2021	3/26/2021	FP-1-0048-2021-REG
Flood Hazard Area & River Corridor – LVRT (13)	1/21/2021	2/5/2021	FP-1-0047-2021-REG
Stream Alteration Title 19 Consultation – LVRT (11)	3/25/2021	N/A	HD-2693-2021
Stream Alteration Title 19 Consultation – LVRT (12)	2/13/2021	3/23/2021	HD-2667-2021
Stream Alteration Title 19 Consultation – LVRT (13)	1/21/2021	2/24/2021	HD-2667-2021
Threatened and Endangered Species Takings Permit ¹	5/31/2012	9/11/2020	EH-2012-21(a1)

Roughly half of the LVRT’s total length of 93 miles, which runs on the former Lamoille Valley Railroad (“LVRR”) from northwestern Vermont in Swanton to northeastern Vermont in St. Johnsbury, is complete and functions as a year-round alternative transportation and shared-use recreation trail. The Project involves the repair and refurbishment of the remaining segments: Cambridge to Sheldon [LVRT(11)], Hardwick to Morrisville [LVRT(12)], and Danville to Hardwick [LVRT(13)].

The Project includes trail resurfacing, ditching, installation and/or repair of culverts, signing, and miscellaneous structural repairs and bridge modifications, including decking and railing replacements. Minimal permanent impacts to resources are associated with the placement of Type II stone fill to stabilize the trail corridor embankments and/or culvert abutments and grading. Identified culvert locations where improvements are needed are due to drainage problems or structure failure. These will be repaired if possible or otherwise replaced.

¹ The Threatened and Endangered Species Takings Permit was issued to Vermont Association of Snow Travelers (VAST) but included in the 401 Application by the Vermont Agency of Transportation.

In some cases, existing culverts or bridges will be replaced with new bridges. Bridges are proposed for replacement due to the poor condition of the existing structures because the existing culverts are undersized hydraulically, to address erosion in the stream channels associated with undersized hydraulic openings, or a combination of these factors.

Most of the proposed ditching will occur where the trail is in a “cut” condition. Without ditching, these areas are most susceptible to stormwater and groundwater inundation that will lead to flooding of the trail and/or saturation of the subbase. These conditions will result in the failure of the trail structure, rendering the trail unusable. This work is proposed only for unmaintained, existing ditches and work will strive to reestablish the original ditch cross-section.

Several former culvert locations have been destroyed by flooding, which has created washouts of the former rail embankment. In these locations, a new, appropriately sized culvert will be installed, and the embankment restored to its original extent.

In most instances former cattlepasses are no longer used and have been abandoned. If the existing cattlepasses are structurally sound, they will remain and be repaired to the extent needed. For the existing cattlepasses in poor condition, they will be repaired, removed, or backfilled as appropriate.

In select locations, the trail will be over-widened to provide places for trail users to rest off-trail, so as not to block recreational traffic. These “pause places” will be constructed using excess material excavated from ditches and located in areas away from wetlands, waterbodies, and other known resources.

Existing public, private, and farm road crossings will be used as the main routes for Project access. These crossings allow access to the entire trail and permit construction to the proposed trail right-of-way (“ROW”) without impacting adjacent lands or resources. Areas of construction ingress and egress are limited as Project construction is confined to the LVRT ROW or public roads. Staging areas will be outside of environmentally and historically sensitive areas and located within the LVRT ROW (typically at sites used by VTrans during the VTrans Rail and Tie Removal Project).

Upon completion of trail construction, operation, and maintenance of the LVRT will be the responsibility of the Vermont Association of Snow Travelers (“VAST”) in accordance with the terms and conditions of a Lease Agreement and Amendments between the State of Vermont and VAST.

II. FINDINGS

A. Alternatives Analysis

1. The Project purpose is to complete the remaining segments of a year-round alternative transportation and shared use recreational trail on the former LVRR; there are no alternatives to the proposed Project that would achieve this objective. The existing location has been recognized and used as a transportation corridor since the 19th century. All impacts occur adjacent to the existing rail bed where function has already been compromised and the land use is currently or slated to be for recreation and transportation. The Project will repair, refurbish, and reutilize the existing impacted railbed and associated infrastructure to avoid new impacts to water resources. Establishing a new trail of the same size and scope would result in a much larger area of impact to a wide variety of resources; therefore, there are no other practicable alternatives.

B. Resource Description

Project Location

2. The Project is divided into three sections along the former LVRR, described from west to east – LVRT(11) runs 18.4 miles from Bridge Street in Sheldon through the Towns of Fairfield, Bakersfield, Fletcher, and Cambridge, where it intersects Vermont Route 109; LVRT(12) runs 12.5 miles from Vermont Route 15A in Morrisville through Wolcott to the intersection of North Main Street in Hardwick; and LVRT(13), which runs 17.9 miles from Maple Street in Hardwick through Walden to West Danville, ending at the intersection of Channel Drive. See Appendix IC of the Application for Project Location Maps.
3. The slope of the Project varies from 0 – 60%. Soil K-factors along the linear route vary from <0.18 to >0.36. Hydrologic soil groups include A, B, C, and D. See Project Application, Appendices IE and IF, for maps of Soil K-Factors and Hydrologic Soil Groups.
4. The Project area is within the existing LVRR ROW, which is owned by the State of Vermont.
5. A summary of the total land associated with the subject watersheds relative to the proposed disturbance is included below in Table 1. Total percent area disturbed for the Project is 0.012, including 0.015 in the Missisquoi River watershed, 0.017 in the Lamoille River watershed, and 0.0022 in the Passumpsic River watershed.

Table 1. Watershed Area Summary

Watershed	Total Watershed Area (acres)	Project Segment	Right of Way Area (acres)	Disturbed Area (acres)	% Area Disturbed (Disturbed Area/Total Watershed Area)
Missisquoi River	547,486.52	LVRT(11)	201.48	57.29	0.021
Lamoille River	461,606.89	LVRT(11) LVRT(12) LVRT(13)	11.08 107.62 160.87	3.31 42.87 51.47	0.010
Passumpsic River	325,126.39	LVRT(13)	19.52	7.49	0.0023
TOTAL	1,334,219.8	N/A	500.57	162.43	0.0122

Wetland Resources

6. The Applicant identified 230 wetland features in the LVRR ROW, ranging in size from 131 sq. ft. to 814,572 sq. ft. Many of the wetlands extend beyond the right-of-way and are larger than the sizes listed. Under the Vermont Wetland Rules, the Agency determined that there are 188 jurisdictional Class II wetlands and/or wetland buffers impacted by the Project. A summary of the wetlands identified can be found in Appendix I of this Certification.

7. The Class II wetlands identified within the Project area and their functions and values are evaluated and described in Individual Wetland Permit #2020-638.01.

Stream Resources

8. In total, 50 perennial and 44 intermittent stream channels are impacted by the LVRR. Forty-three crossings of perennial streams via bridges or culverts are proposed to be repaired or replaced along the LVRT corridor – 11 crossings in LVRT(11); 20 crossings in LVRT(12); and 12 crossings in LVRT(13). The existing LVRT alignment presently intersects all streams where stream crossing impacts are proposed. Detail maps and a list of the Project perennial stream/river crossings can be found in Appendix III of this Certification. Crossings in two state drainage basins – the Missisquoi River and the Lamoille River – are proposed for this Project. Two crossings of Black Creek, one crossing of Elm Brook, and crossing of eight unnamed tributaries to Black Creek are proposed in the Missisquoi River basin. Crossings of Perkins Meadow Brook, an unnamed tributary of Perkins Meadow Brook, an unnamed tributary of Haynesville Brook, 12 unnamed tributaries of the Lamoille River, Stevens Brook, Greensboro Brook, Kate Brook, Wild Branch, and the Lamoille River are proposed in the Lamoille River basin.

Lake and Pond Resources

9. The eastern terminus of the Project, LVRT(13), is within 250 feet of the mean water level, the protected shoreland area, of Joe's Pond in West Danville. Joe's Pond is 405 acres with a maximum depth of 78 feet. No other lakes and ponds are in the Project area.

Physical, Chemical, and Biological Condition

10. The Project will affect Class B(2) waters only (VWQS Appendix F). Class B(2) waters must be managed to achieve and maintain a level of water quality that fully supports aquatic biota and wildlife, and aquatic habitat; aesthetics; public water supplies; irrigation of crops and other agricultural uses; swimming and other primary contact recreation; and boating, fishing, and other recreational uses (VWQS § 29A-104). All streams that will be affected by the Project are designated as cold water fish habitat (VWQS Appendix A).
11. Stream Resources Data. Limited physical and water chemistry data is available for named perennial streams. Macroinvertebrate assessments are available for many of the named perennial streams, including Joes Brook, Stannard Brook, Lamoille River, Porter Brook, Elmore Branch, Fairfield River, and Black Creek, and range from Good-Fair to Excellent. Fish assessments have been completed on three perennial streams – the Lamoille River, Bailey Brook, Black Creek and Fairfield River – and range from Good to Excellent. See Project Application, Appendix IJ, for a summary of physical, chemical, and biological water conditions.
12. Lake and Pond Resources Data. Joe's Pond is characterized as mesotrophic, with a mean summer total phosphorus of 18.9 ug/L. Additional, though limited, chemical and physical data is available for the pond.

Aquatic Biota and Wildlife, Fisheries, and Rare, Threatened, or Endangered (RTE) Species

13. Wood Turtles (*Glyptemys insculpta*) hibernate in streams and rivers November through April, and in addition, may be found within the Project area mid-September to mid-October and late April through May. Occurrences of Wood Turtles have been confirmed within the project area.
14. No active Necessary Wildlife Habitat Areas are located within the Project area.

15. Portions of the Project area contain significant wetland dependent wildlife habitat. The impacts to this habitat are addressed through Wetland Permit 2020-638.01.
16. Fisheries resources in the Project area are noted in the Lamoille River, the Black River, and their tributaries. Species such as brook trout, rainbow trout, longnose dace, blacknose dace, and others have been identified in several locations. Additional fisheries resources within the Lamoille River watershed include populations of brown trout, rainbow trout, and brook trout in the upper reaches of the watershed (upriver from Cambridge). Downriver from Cambridge where the gradient is lower and the channel is wider, trout are less common, and warmwater species are more common including smallmouth bass, rock bass, fallfish, and, very occasionally, walleye.
17. State or federally listed freshwater mussels have not been found in recent surveys of relevant habitat within the Project area per a 2020 mussel survey conducted under T & E permit ER-2020-31.
18. Vermont-listed rare, threatened, or endangered (RTE) plants exist within LVRT(11) of the Project. Seven populations of the State S2 Threatened great St. John's Wort (*Hypericum ascyron*) were documented within the Limit of Disturbance in 2020. In addition, Low Bindweed (*Calystegia spithamea*) (State S2 Threatened) was documented during a 2009 survey as well as three rare species – Dotted Horsemint (*Monarda punctata*), Fernald's Sedge (*Carex merritt-fernaldii*) or Short-headed Sedge (*Carex brevior*). No RTE species were found in LVRT(12) or LVRT(13) of the Project during the 2020 survey.

Recreational and Other Water Uses, and Land Uses

19. Recreational uses of waters in the Project area include boating, fishing, swimming, and wildlife observation.
20. Land uses within the watersheds are a mixture of agriculture, silviculture, development, commerce, transportation, recreation and tourism, and natural areas.

C. Project Description

General Project Description

21. The purpose of the project is to provide a year-round recreation trail by converting the rail-bed of the former LVRR, allow widespread access for the types of recreation identified in Chapter IV of the Vermont Statewide Comprehensive Outdoor Recreation Plan, 2014 - 2018 (Vermont Department of Forests, Parks and Recreation, 2013); and promote the State of Vermont goals outlined in the "Vermont Pedestrian and Bicycle Policy Plan" (Vermont Agency of Transportation, 2008) When complete, the LVRT will run from northeastern Vermont in St. Johnsbury to the shores of Lake Champlain in Swanton.
22. The Project consists of the rehabilitation of three remaining sections of the 93-mile LVRT to convert the LVRR into a multi-use recreation trail. Work under the Project includes trail resurfacing, ditch reestablishment and cleaning, culvert repairs, culvert replacement, bridge repair, pause place construction, guardrail installation, and sign installation.
23. The Project is located entirely within the LVRR ROW. Specific components of the Project as identified by the Agency in its review include:

Construction activities associated with LVRT stream crossing structures will involve the movement, fill, or excavation of 10 cubic yards or more of instream materials within perennial streams and the Project is therefore required to demonstrate compliance with Vermont Stream Alteration Rule (Environmental Protection Rule, Chapter 27). The Project is a state transportation infrastructure project and therefore requires a Title 19 consultation rather than authorization under the Stream Alteration General Permit for instream work. Furthermore, these structures occur within River Corridors designated by DEC and some span waterways with FEMA designated floodways or approximate floodplains and are required to demonstrate compliance with the Flood Hazard Area and River Corridor (“FHARC”) Rule (Environmental Protection Rule, Chapter 29).

Larger stream crossings that involve existing railroad bridges will be rehabilitated for use by the LVRT. Specific repairs required to reuse these structures include repointing, resetting, and/or replacing concrete and stone abutments and wingwalls, replacement of concrete bridge seats and backwalls, repair or replacement of bridge decks, railings, and approaches. Where practicable, collapsing or failed stones from the original box culverts will be removed and reset to improve the waterway opening and preserve the historic nature of the structures. Previously removed or completely failed structures that will be fully replaced have been designed so that the new structure fully spans the bankfull channel width and provides opportunity for improved sediment transport and flood capacity.

Proposed activities at smaller stream crossings include structural repairs to existing culverts constructed from various materials (e.g., stone, concrete, corrugated metal pipe). Additional work needed at these structures may involve clearing, regrading, or stabilizing channel inlets and outlets in the vicinity of such structures and stabilizing the adjacent embankment. These repairs are designed to improve the integrity and longevity of each structure and restore aquatic organism passage and sediment transport where these connections have been previously disrupted by collapsed or damaged structures. Bank repairs and scour protection proposed at these location channels will also serve to minimize scour and decrease the risk of future erosion at these structures.

Structures proposed for replacement involve replacing undersized, deteriorating, and/or missing bridges and culverts with appropriately sized structures. Proposed replacement structures will conform with Section C.2.2.4 and C.2.2.5 of the Stream Alteration General Permit.

Work will be done within the existing trail ballast to the maximum extent feasible in order to avoid wetland/buffer disturbance in the proposed area of work. Temporary impact will result from placing Erosion Prevention and Sediment Control measures around and use of temporary workspaces adjacent to the trail to replace/repair culverts and bridges. Permanent impacts will result from a combination placing riprap at culvert outlets, grading to address bank erosion, to re-establish ditching, and to dispose of dredged material to create pause places along the existing trail. Removal of sediment from existing culverts or minor repairs to culverts are considered Allowed Uses as maintenance and routine repair of existing structures, per the Section 6.12 of the Vermont Wetland Rules.

In the summer of 2020, the Applicant field inspected STP LVRT (11-13) trail segments and structures to determine where structure maintenance and repair will be necessary to bring the trail up to current standards for safe recreational trail use. Following inspections and during the 2020 growing season, the Applicant field-reviewed previously delineated wetlands and waters where trail work will require more than just maintenance activities. A temporary, typical work area was applied around each structure that was identified as requiring replacement or major repair. Proposed work areas, where they overlap with

Class II wetlands and buffers, have been included in the calculation of impacted wetland and buffer area, except for the Allowed Use activities described above. The proposed, typical work areas have been determined to be adequate space for access, repair, and/or replacement as necessary.

Permanent pause places will be constructed from material removed by ditching operations. They will be 10 feet wide and vary in length from approximately 50 to several hundred feet. They will be constructed at roughly the same elevation as the trail and located proximal to the areas to be excavated. Locations of pause places were designed to avoid impacts to wetlands, Class II wetland buffers, and riparian buffers to the maximum extent feasible. Where impacts are unavoidable, impacts are minimized. The topography immediately adjacent to the trail and ROW width also affected the location of pause places.

During construction, the edges of work/ limits of disturbance will be demarcated in accordance with the Individual Construction Stormwater Discharge Permit #6852-INDC.2: near wetlands and waters, silt fence will be installed. In elevated sections of the trail, railings will be installed at the trail edges. No other demarcation is proposed as railings and/or steep banking would deter pedestrian travel in naturalized resource areas.

Additional project details are provided in the EPSC Plans in Appendix IG of the Application.

Impacts to Wetland Resources

24. Impacts to Class II Wetlands are evaluated in detail under Individual Wetland Permit #2020-638.01 and summarized in Table 2 below.

Table 2: Summary of Class II Wetland Impacts

Proposed Class II Wetland Impacts				
Project Segment	Permanent Wetland (sq. ft.)	Temporary Wetland (sq. ft.)	Permanent Buffer (sq. ft.)	Temporary Buffer (sq. ft.)
LVRT(11)	16,062	52,616	56,685	50,015
LVRT(12)	11,832	23,962	27,516	36,226
LVRT(13)	6,421	10,808	10,480	28,693
Impact Type Subtotals (sq. ft)	34,315	87,386	96,681	114,934
Impact Type Subtotals (acres)	0.788	2.006	2.219	2.639
Impact Type Subtotals (sq. ft)	121,701		211,615	
Impact Type Subtotals (acres)	2.794		4.858	

25. Temporary impacts would result from placing EPSC measures around and using temporary workspaces adjacent to the trail to replace/repair culverts and bridges.

26. Permanent wetland and buffer impacts would result from five types of Project activities: 1) placing stone fill at culvert outlets; 2) placement of fill associated with bridge improvement/replacement; 3) placement of fill material and grading to repair embankment washouts where wetlands have become established

within the limits of the former rail bed; 4) re-establishing ditches in locations where conditions have naturalized and woody vegetation has become dominant; and 5) establishment of pause places in locations where surplus material from ditch maintenance is placed on and adjacent to the existing embankment. 1) Culvert improvement/replacement: A conservative estimate of the typical temporary work area was used given the appreciable number and relatively straightforward construction approach. A 25-foot radius around the culvert inlet and outlet was used for temporary work including access, excavations, and EPSC measures and a 10-foot radius around the culvert inlet and outlet for permanent impacts to capture any permanent fill, contouring, or culvert changes (see Culvert Typical in Supporting Materials). 2) Bridge improvement/replacement: Location-specific permanent impacts and temporary work areas were determined by VHB engineers for the proposed bridge repairs / replacement (see Impact Exhibits in Supporting Materials). 3) Embankment repair: Permanent impacts were determined using site-specific grading plans. Work is proposed to be completed from the rail embankment; therefore, no temporary impacts are anticipated. 4) Ditch reestablishment: A 4-foot-wide area (with varying lengths) was used to calculate permanent impacts for ditches which have been identified as needing to be re-established as opposed to maintained, and includes excavation and removal of woody vegetation in Class II wetlands/buffers. Equipment for ditch maintenance will work from the existing rail bed and therefore no temporary impacts are anticipated. See Ditch Typical in Supporting Materials. 5) Pause Places: permanent impacts were determined using site-specific grading plans. Work is proposed to be completed from the rail embankment; therefore, no temporary impacts are anticipated. They will be constructed as shown on the typical sections, will be 10' wide, and will vary in length from approximately 50' several hundred feet. They will be constructed at roughly the same elevation as the trail and are being added for trail users to get off the trail surface to take a break and let others continue to use the trail unimpeded. They are particularly important for snowmobile use.

27. The maintenance of existing ditches and instances of removal of sediment from existing culverts or minor repairs to culverts are considered Allowed Uses as maintenance and routine repair of existing structures, per the Section 6.12 of the Vermont Wetland Rules.

Impacts to Stream Resources

28. Impacts to streams and floodplains are evaluated in detail under Stream Alteration Title 19 Consultations #HD-2693-2021 [LVRT(11)], #HD-2667-2021 [LVRT(12)], #HD-2668-2021 [LVRT(13)] and Flood Hazard and River Corridor Registrations #FP-1-0050-2021-REG [LVRT(11)], #FP-1-0048-2021-REG [LVRT(12)], and #FP-1-0047-2021-REG [LVRT(13)]. The Project is exempt from municipal flood hazard area and river corridor regulation because it is a State-owned and operated institution or facility. 24 V.S.A. § 4413.

29. All perennial stream crossing structures are located within the river corridor.

30. For LVRT(11), Structures 70, 71, 77A, 81, and 90 are located in the FEMA-mapped Special Flood Hazard Area (SFHA) Zone A. For LVRT(12), Structures 41(D)2, 41J, 44, 45, 47, 48A, 49, 52, and 54 are located in the FEMA-mapped Special Flood Hazard Area (SFHA) Zone AE. For LVRT(13), Bridge 36 is located in the FEMA-mapped Special Flood Hazard Area (SFHA) Zone A.

31. In LVRT(11), 11 structures pass perennial streams, are proposed for repair or replacement, and will involve in-stream work. Of the 11 stream crossing structures, only Culvert 91F is proposed to be replaced. In LVRT(12), 20 structures pass perennial streams, are proposed for repair or replacement, and will involve in-stream work. Of the 20 stream crossing structures, eight structures are proposed to be fully or

partially replaced: Culvert 41D(2), Bridge 43, Bridge 44, Culvert 48C, Bridge 49, Bridge 52, Culvert 53G, and Culvert 53P. In LVRT(13), 12 structures pass perennial streams, are proposed for repair or replacement, and will involve in-stream work. Of the 12 stream crossing structures, three structures are proposed to be fully replaced: Culvert 28P, Culvert 31G, and Cattlepass 37.

32. Additional details are provided in the Lamoille Valley Rail Trail STP LVRT(11) Hydrology and Hydraulics Report, prepared by VHB, dated March 25, 2021; the Lamoille Valley Rail Trail STP LVRT (12) Hydrology and Hydraulics Reports prepared by VHB, dated February 12, 2021 and March 15, 2021 (Bridge 49), respectively; the Lamoille Valley Rail Trail STP LVRT (13) Hydrology and Hydraulics Report, prepared by VHB dated, dated January 19, 2021.

Table 3: Summary of Impacts to Streams

Project Component	Proposed Perennial Stream Impacts					
	Permanent (sq. ft.)	Permanent (Acres)	Temporary (sq. ft.)	Temporary (Acres)	Total (sq. ft.)	Total (Acres)
LVRT repair and refurbishment	5,767	0.132	63,351	1.454	69,118	1.59

Impacts to Lake and Pond Resources

33. LVRT(13) is within 250 feet of the Joe’s Pond shoreline (mean water level) but no additional impacts are expected with the use of EPSC practices. Within this protected shoreland area, the proposed upgrades to the LVRR and its parking area occur within existing impervious surface footprints therefore a Shoreland Permit or Registration is not required. 10 V.S.A. §§ 1443 & 1446.
34. Stormwater discharges from the Project-related construction activity have the potential to transport stormwater-related pollutants to receiving waters, including sediment and nutrients. However, stormwater impacts will be addressed through the EPSC practices described in the conditions of the Individual Stormwater Construction Permit #6852-INDC.2.

Impacts to Physical and Chemical Condition

35. Stormwater discharges from the Project related to construction activity have the potential to transport stormwater-related pollutants to receiving waters, including sediment and nutrients. Potential stormwater impacts to water quality are addressed through the Individual Stormwater Construction Permit #6852-INDC.2.

Impacts to Aquatic Biota and Wildlife, Fisheries, and RTE Species

36. Impacts to aquatic macroinvertebrate and fisheries habitat will be temporary and limited to areas where instream work is necessary for the repair or replacement of culverts and bridges.
37. Impacts to Wood Turtles (*Clemmys insculpta*) may occur through the placement of fill in or disturbance of the river bottom, or the disturbance of nesting areas in the riparian area.
38. Impacts to significant wetland dependent wildlife habitat are evaluated in Individual Wetland Permit #2020-638.01. The Project as proposed will result in minimal changes to the overall wetland complexes that have this function. The overall land use will remain the same, and will not alter wetland types, and therefore wildlife habitat within the complex. Temporarily disturbed areas will be restored and revegetated following construction. Therefore, there will be no undue adverse impact to this function.

39. Rare, Threatened, and Endangered Species. No impacts to RTE species are expected for LVRT(12) and LVRT(13) of the Project. For LVRT(11), a Threatened and Endangered Species Takings Permit, #EH-2012-21(a1) was issued and amended, under 10 V.S.A. § 5408, for the Project. Surveys documented two listed species in the Project area – Great St. John’s Wort (*Hypericum ascyron*) and Low Bindweed (*Calystegia spithamea*) as well as three rare species – Dotted Horsemint (*Monarda punctata*), Fernald’s Sedge (*Carex merritt-fernaldii*) or Short-headed Sedge (*Carex brevior*).
40. There are no proposed impacts to state or federally listed freshwater mussels.

Impacts to Recreational and Other Water Uses

41. Wetlands. The Project is not anticipated to have impacts to the following functions and values: recreational value, economic benefit, education and research in natural sciences, or open space and aesthetic value per the evaluation standards set forth in Section 5 of the Vermont Wetland Rules.
42. Rivers. Natural stream flow will be maintained during construction. Impacts to water-based recreation in the Project area, including boating, fishing, swimming, and wildlife observation, will be minimal and limited to the timeframe for constructing each specific segment. This includes temporary closure of adjacent segments of waters during trail construction to ensure the safety of users.

Avoidance and Minimization

43. The Project was designed to minimize environmental impacts and to maintain and protect designated and existing uses. Project avoidance and minimization are described in the Application for this Certification, the Wetland Permit Application and supporting materials, as well as the other permits referenced in Section I of this Certification, and Section III of this Certification. A general summary of project avoidance and minimization is also described below.

Impacts will only take place in areas necessary to make the trail durable and functional, culverts/bridges will be repaired to the extent feasible and replaced in-kind as appropriate, and work will take place from the existing trail ballast to the maximum extent feasible. Each structure and trail segment was inspected in the field to ensure the appropriate level of maintenance, repair, or replacement is proposed at each location. There will be no expansion of the trail for the Project. Moreover, the LVRT will be used as a multimodal recreational transportation path and create far less pollution than its transportation counterpart, the LVRR, which has been decommissioned since 1995.

Erosion Prevention and Sediment Control measures will be installed around the proposed work areas to prevent unintended impacts to adjacent resources. Areas disturbed during construction will be revegetated following construction. In order to minimize the spread of non-native invasive species, all construction equipment will be cleaned such that it is free of observable soil and vegetation prior to entering the Project area, in order to reduce the introduction of seeds and plant material. Where timber mats are used in temporary work areas, they will be cleaned prior to working within any waters, including Waters of the United States (WOTUS). Erosion matting or straw instead of hay mulch will be used in resource areas, and topsoil and seed mix for temporary or permanent stabilization will be free of noxious weeds (per the 2019, Vermont Standards and Specifications for Erosion, Prevention, and Sediment Control). Furthermore, all proposed pause place locations, where excavated soil will be stockpiled, will be placed outside of all wetlands. Pause places represent large permanent features relative to the other activity types. Nevertheless, the locations of proposed pause places lie entirely outside wetland features. Furthermore,

pause places are almost entirely outside of buffers on the side of the Project corridor where the source wetland occurs. Pause places were preferentially located outside buffer areas and, where buffer avoidance was not possible, on the opposite side of the Project corridor from the source wetland.

Proposed Project work including culvert cleaning, repairing, and/or replacement, is in certain instances anticipated to restore hydrology to adjacent wetlands areas, potentially decreasing the risk of flood-related damage, decreasing bank erosion and sedimentation resulting from impounded water and bank over-topping, as well as improve water quality and flow for fish and amphibian habitat.

Mitigation

44. To compensate for unavoidable permanent impacts to wetlands, the applicant proposes to make a payment to the Ducks Unlimited - Vermont In-Lieu Fee Program, as described in the Applicant's 404 U.S. Army Corps of Engineers permit application and Individual Wetland Permit #2020-638.01.

D. Vermont Water Quality Standards, including the Anti-degradation Policy

45. Under VWPCPR § 13.11(g)(3), when issuing a Section 401 Water Quality Certification, the Secretary must find “that there is a reasonable assurance that the activity will be conducted in a manner which will not violate applicable water quality standards.” The water quality standards applicable to this permit are the Vermont Water Quality Standards, Environmental Protection Rule Chapter 29(a) (Effective January 1, 2017).
46. VWQS § 29A-105 includes the State's Anti-degradation Policy, and the Policy is implemented according to the Agency's 2010 Interim Anti-Degradation Implementation Procedure (Procedure) (together, Anti-degradation Policy and Procedure). Section X of the Procedure specifically applies to Section 401 Water Quality Certifications.
47. Under the Anti-degradation Policy and Procedure, “[w]aters whose existing ambient water quality exceeds (i.e., is better than) the applicable minimum water quality criteria and indices for the class to which the waterbody is assigned shall be considered high quality water.” Procedure § X(F)(1)(a). The Secretary will “presume that all waters are high quality for at least one criterion and/or index for some portion of the year.” Procedure § X(F)(1)(c). High quality waters require review under Tier 2 of the Procedure. Procedure § X(F). Tier 2 requires that high quality waters “shall be managed to maintain and protect the higher water quality and minimize risk to existing and designated uses,” and that “[i]n all cases, the level of water quality necessary to maintain and protect all existing uses as well as applicable water quality criteria shall be maintained.” VWQS § 29A-105(c)(1). Under Tier 2 a limited reduction in the existing higher quality of high quality waters is only allowed if the project satisfies the socio-economic justification test; VWQS § 29A-105(c)(1); Procedure § X(F)(4)).
48. As provided in the Procedure, in reviewing an application “the Secretary shall determine whether the proposed discharge will result in a limited reduction in water quality in a high quality water by utilizing all credible and relevant information and the best professional judgment of Agency staff.” Procedure § X(F)(2)(b).
49. This Project does not affect any Outstanding Resource Waters and therefore, does not require review under Tier 3 of the Procedure for the protection of Outstanding Resource Waters. Procedure § X(E).

50. A separate Tier 1 review is not required for this Project because the maintenance and protection of existing uses and the level of water quality necessary to protect those existing uses is included in a Tier 2 review.

III. Anti-degradation Analysis and Conclusions

1. The Agency has conducted an anti-degradation review in accordance with the Anti-degradation Policy and Procedure. The Agency has evaluated the nature of the activities and discharges and the resulting potential effects of the pollutants that could possibly be discharged and affect aquatic biota and habitat, wildlife and plant life, recreational uses, and the existing physical, chemical, and biological condition of the Project's receiving waters.

Presumptions

2. Under Procedure § X(D), certain permitted discharges and activities automatically satisfy a Tier 2 review, including:
 - a. "Discharges that meet the requirements of a BMP or treatment and control manual that takes into consideration anti-degradation requirements during its adoption;" or
 - b. "A discharge that is seeking authorization to operate under a general permit when the Tier 2 analysis is performed at the time of the development of the general permit"
 - c. "Discharges that result in no measurable reduction in the physical, chemical or biological quality of a surface water"
 - d. "Stream alteration activities resulting in channel geometry and fluvial processes where bed and bank erosion are neither increased nor transferred to other stream locations, and where floodplain function is maintained or restored over time"
3. The discharges covered under Individual Construction Stormwater Discharge Permit #6852-INDC.2, and amendments thereto, must comply with the requirements of the Vermont Standards and Specifications for Erosion Prevention & Sediment Control, a treatment and control manual that took into consideration anti-degradation requirements during its adoption. Therefore, the construction stormwater discharges satisfy the presumption in Procedure § X(D)(1)(a).
4. The stream alteration activities approved under Stream Alteration Title 19 Consultation #HD-2693-2021 [LVRT(11)], #HD-2667-2021 [LVRT(12)], #HD-2668-2021 [LVRT(13)] shall result in repairs and improvements to stream crossing structures that will not cause the stream to depart from, further depart from, or impede the attainment of equilibrium condition or alter the connectivity of the stream in its vertical and horizontal dimension, or increase bed and bank erosion. Therefore, the stream alteration activities satisfy the presumption in Procedure § X(D)(1)(d).

The Project will not Result in a Limited Lowering of Water Quality

5. Under Section X(F) of the Procedure, the Secretary has considered the following factors and determined that the Project will not result in a limited lowering of the water quality of high quality waters.

Streams

6. The project is converting the LVRR to a year-round recreation trail. Stream and floodplain impacts were realized when the railroad was originally constructed. While most of the railbed infrastructure is existing, it is in varying states of disrepair. The construction activities will include maintenance, repair and/or replacement of trail infrastructure including bridges, culverts, cattlepasses and embankment washouts. Much of the work will improve the stability and function of stream crossing structures. Twelve stream crossing structures are undersized or failing and will be partially or fully replaced to improve hydraulic capacity. Existing public and private roads and farm road crossings will be used as feasible for project access. These crossings provide construction equipment with direct access to the trail ROW without impacting adjacent lands. Nearly all impacts to stream resources are temporary.

The EPSC Plan approved under Individual Construction Stormwater Discharge Permit #6852-INDC.2, and any amendments thereto, is designed to prevent or minimize the discharge of stormwater pollutants from construction activity to waters.

The flood hazard area and river corridor crossing specifications proposed/approved by #FP-1-0050-2021-REG [LVRT(11)], #FP-1-0048-2021-REG [LVRT(12)], and #FP-1-0047-2021-REG [LVRT(13)], and any amendments thereto, meet the No Adverse Impact standards of the Flood Hazard Area & River Corridor Rule (Environmental Protection Rule Chapter 29).

7. Compliance with the Stream Alteration Title 19 Consultations #HD-2693-2021 [LVRT(11)], #HD-2667-2021 [LVRT(12)], #HD-2668-2021 [LVRT(13)]; Flood Hazard Area and River Corridor Registrations #FP-1-0050-2021-REG [LVRT(11)], #FP-1-0048-2021-REG [LVRT(12)], and #FP-1-0047-2021-REG [LVRT(13)]; and the requirements of this Certification; and any amendments thereto; provides reasonable assurance that the Project will not violate applicable water quality standards and will not result in a limited lowering of water quality, including physical, chemical, or biological conditions; therefore, existing and designated uses within the streams will be protected and maintained.

Wetlands

8. Avoidance and minimization of impacts: The Project is purposefully located on an existing rail bed and cannot be relocated. Impacts to adjacent resources are therefore unavoidable in order to repair and rehabilitate the existing rail corridor and associated structures. In addition to work within the railbed and culvert/bridge structures, wetland and buffer impacts will occur from ditch reestablishment and pause place/material disposal locations. Ditch reestablishment is proposed only in locations of prior existing ditches but where wetland conditions have naturalized due to lack of routine maintenance. This reestablishment is inherently linked to drainage improvements at culvert locations and therefore no alternatives are suitable. The purpose of Pause Places is first and foremost as locations for the disposal of materials excavated for ditch maintenance and/or reestablishment and secondarily as recreational amenities. Other than the presence of wetland and buffer areas, alternative locations for Pause Places are constrained by two principal factors: 1) distance from the source of the material to be disposed of; and 2) topography. To limit complexity, duration, and cost of Project construction, excavated materials should be disposed of as close to the source as possible. Additionally, topographic setting may render some areas unsuitable. For example, locations where the surrounding land surface is higher than the rail bed on one or both sides (i.e., where the trail occurs on a slope or in an entrenched section) offer limited or no opportunities to dispose of materials.

All construction activities will be done using equipment operating from the existing rail bed to the extent feasible and therefore will avoid adverse impacts on protected functions. Activities that are anticipated to be completed without temporary impacts include embankment repair, ditch reestablishment, and Pause Places. For culvert and bridge work, in the event the contractor cannot work from the ballast, temporary impact would result only from temporary occupation of the designated workspace. As noted previously, all proposed Pause Place are located outside of all wetlands and encroach only on that part of the wetland buffers on the opposite side of the rail bed from the source wetland. This avoidance measure took many design iterations and strategic planning due to the amount of wetland and buffer area present on site and the substantial amount of excavated material to be disposed of.

Each structure and trail segment was inspected in the field to ensure the appropriate level of maintenance, repair, or replacement is proposed at each location. Furthermore, proposed project work including culvert cleaning, repairing, and/or replacement, will restore hydrology to adjacent wetlands areas, decreasing the risk of downstream flood potential, decreasing bank erosion and sediment deposits from stagnate water and bank over-topping, as well as improve water quality and flow for fish and amphibian habitat. In addition, the minimal area necessary to conduct the proposed repairs is being proposed for workspace during construction. EPSC measures will be installed around the proposed work areas near wetlands and waters to prevent unintended impacts to adjacent resources. Areas disturbed during construction will be re-vegetated following construction. In order to minimize the spread of non-native invasive species, all construction equipment will be cleaned such that it is free of observable soil and vegetation prior to entering the Project area. Temporary timber mats in temporary work areas will be utilized and cleaned prior to working within wetland/buffer areas. Erosion matting or straw instead of hay mulch will be used, and topsoil and seed mix for temporary or permanent stabilization will be free of noxious weeds (per the 2019, Vermont Standards and Specifications for Erosion Prevention and Sediment Control). A Project specific invasives species management will be approved prior to Project commencement.

The current design represents the least impactful alternative as proposed work will only take place in areas necessary to make the trail durable and functional. Culverts/bridges will be repaired, as opposed to replaced, kept in-kind as appropriate and current conditions allow, within the existing footprint of the rail bed to the maximum extent feasible. There will be no expansion of the trail for the project. Moreover, the LVRT is reusing an existing rail bed as opposed to constructing a new corridor.

9. In order to protect wetland and buffer areas during construction and on an on-going basis, the Project will avoid any tree cutting and woody plant disturbance for proposed work other than on-trail cutting for maintenance or as necessary to facilitate construction; install EPSC measures where construction is proposed within or adjacent to Class II wetlands and buffers as well as streams; follow BMPs to minimize the spread of NNIP within resource areas to include temporary timber mats in temporary work areas, cleaning of equipment prior to working within wetland/buffer areas, using erosion matting or straw instead of hay mulch, etc.; and areas disturbed during construction will be re-vegetated following construction.
10. Compliance with Individual Wetland Permit #2020-638.01 and the requirements of this Certification, and any amendments thereto, assures the Project will not result in an undue adverse impact on the significant functions and values of Class II wetlands and provides reasonable assurance that the Project will not violate applicable water quality standards and will not result in a lowering of water quality in wetlands.

Aquatic Biota and Wildlife, Fisheries, and RTE Species

11. Wildlife. To avoid and minimize impacts to Wood Turtles, the following conditions apply at these locations: Bridges 27, 47, 77, 80, 81, and 83, and Culvert 79. Bare, sandy areas that get direct sun shall be avoided, where practicable. In addition, if onsite construction occurs mid-September to mid-May, where practicable, the portion of the stream bottom proposed for impact shall be searched, and any Wood Turtles encountered shall be relocated by hand to a suitable upstream location before placing fill or otherwise impacting the stream bottom.

Aquatic Biota and Fisheries. Opportunities to improve aquatic organism passage (AOP) were considered where perennial stream impacts occur. Structures planned for replacement provide bankfull channel width and meet embedment criteria for AOP.

RTE Species. Prior to Project construction, the Applicant will transplant all specimens of plants listed in Section 5 of the T & E Species Takings Permit #EH-2012-21(a1) to preserved portions of the site that have similar site conditions, as well as transplant to approved locations specimens of the rare species Fernald's Sedge (*Carex merritt-fernaldii*) or Short-headed Sedge (*Carex brevior*).

12. Compliance with the requirements of this Certification, Individual Wetland Permit #2020-638.01, Individual Construction Stormwater Discharge Permit #6852-INDC.2, T & E Species Takings Permit #EH-2012-21(a1) and any amendments thereto, provides reasonable assurance that Aquatic Biota and Wildlife, Fisheries, and RTE species will be fully protected, and full support of uses, including aquatic habitat to support aquatic biota, wildlife, or plant life, will be maintained.

Recreational and Other Water Uses

13. Natural stream flow will be maintained during construction. Impacts to water-based recreation in the Project area, including boating, fishing, swimming, and wildlife observation, will be minimal and limited to the timeframe for constructing each specific segment. This includes temporary closure of adjacent segments of waters during trail construction to ensure the safety of users.
14. Compliance with the Stream Alteration Title 19 Consultations #HD-2693-2021 [LVRT(11)], #HD-2667-2021 [LVRT(12)], #HD-2668-2021 [LVRT(13)]; Flood Hazard Area and River Corridor Registrations #FP-1-0050-2021-REG [LVRT(11)], #FP-1-0048-2021-REG [LVRT(12)], and #FP-1-0047-2021-REG [LVRT(13)]; Individual Wetland Permit #2020-638.01; Individual Construction Stormwater Discharge Permit #6852-INDC.2; and the requirements of this Certification; and any amendments thereto; provides reasonable assurance that the Project will not result in a limited lowering of water quality; therefore, designated uses, including recreational uses of swimming, boating, and fishing, will be protected and maintained.

Cumulative Impacts

15. Cumulative impacts on wetlands: The Project has been designed to meet the Vermont Wetland Rule standards of no undue adverse impact to protected wetland functions which include surface and groundwater protection; wildlife habitat; and rare, threatened, and endangered species habitat. The Project is located on an existing rail bed; impacts to adjacent resources are necessary to repair and rehabilitate the existing LVRR and associated structures. The corridor has been maintained (or not) to varying degrees throughout, and segments of it run through a range of developed and rural areas. Compliance with

Individual Wetland Permit #2020-638.01 and this Certification will ensure that there will be no additional cumulative impacts on all wetland resources.

16. Cumulative impacts on streams and floodplains: If the conditions of Stream Alteration Title 19 Consultations #HD-2693-2021 [LVRT(11)], #HD-2667-2021 [LVRT(12)], #HD-2668-2021 [LVRT(13)] are followed, it is expected that the project will not cause departure or further departure from stream equilibrium, limiting cumulative impacts to temporary disturbance associated with construction disturbance. As identified in the Flood Hazard Area and River Corridor Registrations #FP-1-0050-2021-REG [LVRT(11)], #FP-1-0048-2021-REG [LVRT(12)], and #FP-1-0047-2021-REG [LVRT(13)], the Project has been designed to meet the No Adverse Impact Standards of the Flood Hazard Area & River Corridor Rule. Specifically, the Project will not increase base flood elevations and velocities, decrease flood storage capacity, or increase fluvial erosion hazards.
17. Cumulative impacts on lakes and ponds: Joe's Pond is the only lake or pond in the Project area. All Project activities occur in the existing impervious surface footprint of the LVRR. EPSC measures will limit any cumulative impacts to Joe's Pond resulting from construction-related stormwater runoff.
18. Cumulative impacts on physical and chemical condition: All work will occur in the existing LVRR ROW. The temporary and permanent impacts associated with the Project are expected to be offset by the overall improved geomorphic condition as a result of the improvements to existing infrastructure on the LVRR. EPSC measures are expected to prevent impacts to water quality. Impacts due to construction are not expected to exceed Vermont Water Quality Standards.
19. Cumulative impacts on aquatic biota and wildlife, fisheries, and RTE species: All work will occur in the existing impacted LVRR ROW. Temporary and permanent impacts associated with the Project are not expected to exceed Vermont Water Quality Standards. Where practicable and appropriate, structures proposed for replacement provide bankfull channel width and meet embedment criteria for enhanced AOP. Takings Permit #EH-2012-21(a1) requires the limited occurrences of RTE plant specimens in the Project area be relocated to areas outside the LVRT ROW with similar site conditions, therefore no cumulative impacts for RTE species are expected.

IV. Certification and Conditions

The Secretary has examined the Application, and this decision is based upon an evaluation of the information contained within the Application and other pertinent information that is relevant to the Agency's responsibilities under Section 401 of the federal Clean Water Act. The Agency certifies that there is a reasonable assurance that construction, repair, and refurbishment of the former Lamoille Valley Railroad to complete its conversion to the LVRT, as proposed by the Applicant and in accordance with the following conditions, will not cause a violation of the Vermont Water Quality Standards and will be in compliance with sections 301, 302, 303, 306, and 307 of the federal Clean Water Act, 33 U.S.C. § 1341, as amended, and other appropriate requirements of state law. Therefore, this Certification is granted pursuant to the following conditions:

1. The Applicant shall comply with all terms and conditions of this Certification.
2. The reasonable assurances provided by this Certification are contingent upon the Applicant obtaining and complying with Stream Alteration Title 19 Consultations #HD-2693-2021 [LVRT(11)], #HD-2667-2021 [LVRT(12)], #HD-2668-2021 [LVRT(13)] and all amendments and renewals thereto; Individual Wetland

Permit #2020-638.01 and all amendments and renewals thereto; Flood Hazard Area and River Corridor Registrations #FP-1-0050-2021-REG [LVRT(11)], #FP-1-0048-2021-REG [LVRT(12)], and #FP-1-0047-2021-REG [LVRT(13)] and all amendments and renewals thereto; Individual Construction Stormwater Permit #6852-INDC.2 and all amendments and renewals thereto; and Threatened and Endangered Species Takings Permit, #EH-2012-21(a1) and all amendments and renewals thereto.

3. The conditions of the following permits and stipulations are incorporated by reference as conditions of this Certification: Stream Alteration Title 19 Consultations #HD-2693-2021 [LVRT(11)], #HD-2667-2021 [LVRT(12)], #HD-2668-2021 [LVRT(13)] and all amendments and renewals thereto; Individual Wetland Permit #2020-638.01 and all amendments and renewals thereto; Flood Hazard Area and River Corridor Registrations #FP-1-0050-2021-REG [LVRT(11)], #FP-1-0048-2021-REG [LVRT(12)], and #FP-1-0047-2021-REG [LVRT(13)] and all amendments and renewals thereto; Individual Construction Stormwater Permit #6852-INDC.2 and all amendments and renewals thereto; and Threatened and Endangered Species Takings Permit, #EH-2012-21(a1) and all amendments and renewals thereto.
4. The Applicant shall give the Agency advance notice of the date on which construction of the Project will commence and the date on which construction of the Project will be completed as well as the date operation of the Project will commence.
5. The Applicant shall provide written notice to the Agency, including the Director of the Watershed Management Division, of any proposed change to the Project that would have a significant or material effect on the findings, conclusions, or conditions of this Certification, including any changes to the construction, operation, or schedule of the Project. The Applicant shall not make any such change without prior written approval from the Agency.
6. The Applicant shall allow authorized Agency representatives, at reasonable times and upon presentation of credentials, to enter upon the Project site for purposes of inspecting the Project and determining compliance with this Certification.
7. This Certification does not relieve the Applicant of the responsibility to comply with all other applicable federal, state, and local laws, regulations, and permits.

V. Effective Date and Expiration of Certification

This certification shall become effective on the date of issuance, and the conditions of this Certification shall become conditions of the federal permit (33 U.S.C. § 1341(d)). If the federal authority denies a permit, this Certification shall become null and void. Otherwise, it runs for the term of the federal license or permit.

VI. Enforcement

Upon receipt of information that water quality standards are being violated as a consequence of the Project's construction or operation or that one or more certification conditions has not been complied with, the Secretary, after consultation with the Applicant and notification of the appropriate federal permitting agency, may, after notice and opportunity for a public hearing, modify the Certification and provide a copy of such modification to the Applicant and the federal permitting agency.

Certification conditions are subject to enforcement mechanisms available to the federal agency issuing the license or permit and to the state of Vermont. Other mechanisms under Vermont state law may also be used to

correct or prevent adverse water quality impacts from construction or operation of activities for which certification has been issued.

VII. Appeals

Pursuant to 10 V.S.A. Chapter 220, an aggrieved person shall not appeal this permit unless the person submitted to the Secretary a written comment during the applicable public comment period or an oral comment at the public meeting conducted by the Secretary. Absent a determination to the contrary, an aggrieved person may only appeal issues related to the person's comments to the Secretary as prescribed by 10 V.S.A. § 8504(d)(2).

Right to Appeal to Environmental Division. Any appeal of this permit must be filed with the clerk of the Environmental Division of the Superior Court within 30 days of the date of the decision. The notice of appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Division; and must be signed by the appellant or the appellant's attorney. In addition, the appeal must give the address or location and description of the property, project, or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the notice of appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings available at www.vermontjudiciary.org. The address for the Environmental Division is: 32 Cherry Street; 2nd Floor, Suite 303; Burlington, VT 05401 Telephone #: 802-951-1740.

Dated on this day of July 30, 2021

Peter Walke, Commissioner
Department of Environmental Conservation

By _____
Peter LaFlamme, Director
Watershed Management Division
Department of Environmental Conservation

APPENDIX I – Applicant Delineated Wetlands

Applicant Delineated Wetlands				
Wetland ID¹	Town	Delineated Square Feet¹	Cowardin Classification²	Vermont Wetland Rules Classification³
LVRT 11				
2008-421	Cambridge	3,485	PEM1Y	II
2008-422	Cambridge	871	PEM1Y	II
2008-423	Cambridge	871	PEM1Y	II
2008-424	Cambridge	58,370	PEM1Yb	II
2008-425	Cambridge	69,696	PEM1Y/PUBb	II
2008-426	Cambridge	39,204	PEM/Ubb	II
2008-427	Cambridge	1,742	PFO1Y	II
2008-430	Cambridge	5,227	PEM1Y	II
2008-431	Cambridge	3,485	PEM1Yb	II
2008-432	Cambridge	7,405	PEM/POW	II
2008-434	Cambridge	170,320	PEM/UBb/POW	II
2008-435	Cambridge	12,197	PEM/Ubb	II
2008-438	Cambridge	94,525	PEM/PUBb	II
2008-439	Cambridge/Fletcher	814,572	PEM/PUBb	II
2008-440	Cambridge/Fletcher	578,477	PEM/PUBb	II
2008-441	Fletcher	38,768	PEM/PSSb	II
2008-442	Fletcher	5,663	PEM/SS1Y	II
2008-443	Fletcher	37,026	PEM/SS1Y	II
2008-444	Fletcher	91,912	PEM1Y	II
2008-445	Fletcher	97,139	PEM1Y	II
2008-446	Fletcher	34,412	PEM1Y/ PSS1Y	II
2008-447	Fletcher	94,961	PEM/SS1Y	II
2008-448	Fletcher	6,534	PEM1Y/ PSS1Y	II
2008-449	Fletcher	95,396	PEM1Y	II
2008-450	Fletcher	227,819	PEM/SS1Y	II
2008-451	Fletcher	205,603	PEM/SS1Y	II
2008-452	Fletcher	64,904	PEM/SS1Y	II
2008-453	Fletcher	42,689	PEM/SS1Y	II
2008-454	Bakersfield	1,742	PSS1Y	II
2008-455	Bakersfield	141,134	PEM1Y	II
2008-456	Bakersfield	144,619	PEM1Y	II
2008-457	Bakersfield	8,712	PSS1Y	II
2008-458	Bakersfield	13,504	PEM/PUB	II
2008-459	Bakersfield	101,059	PSS1Y	II
2008-460	Bakersfield	63,162	PSS1Y	II
2008-461	Bakersfield	58,370	PSS1Y	II

Applicant Delineated Wetlands				
Wetland ID¹	Town	Delineated Square Feet¹	Cowardin Classification²	Vermont Wetland Rules Classification³
2008-462	Bakersfield	13,939	PEM1/ PSS1C	II
2008-464	Bakersfield	1,742	PSS1Y	II
2008-465	Bakersfield	3,485	PEM/SS1Y	II
2008-466	Bakersfield	6,098	PEM1Y	II
2008-467	Bakersfield	6,098	PSS1Y	II
2008-468	Bakersfield	32,234	PSS1Y	II
2008-469	Bakersfield	27,007	PUBb	II
2008-474	Bakersfield	2,178	PSS1Y	II
2008-476	Bakersfield	6,534	PSS/PFO1Y	II
2008-477	Fairfield	2,178	PEM1Y	II
2008-479	Fairfield	221,720	PSS/UB	II
2008-480	Fairfield	4,792	PSS1Yb	II
2008-481	Fairfield	5,663	PSS1Yb	II
2008-483	Fairfield	1,307	PEM1/SS1Y	II
2008-484	Fairfield	9,583	PEM1Y	II
2008-485	Fairfield	2,178	PEM1Y	II
2008-486	Fairfield	871	PEM1Y	II
2008-487	Fairfield	436	PEM1Y	II
2008-488	Fairfield	871	PEM1Y	II
2008-489	Fairfield	436	PEM1Y	II
2008-490	Fairfield	42,689	PEM1Y	II
2008-491	Fairfield	16,117	PEM1Y	II
2008-492	Fairfield	18,731	PEM1Y	II
2008-493	Fairfield	9,583	PEM1Y	II
2008-494	Fairfield	60,113	PFO1Y	II
2008-497	Fairfield	3,049	PEM1Y	II
2008-498	Fairfield	76,666	PEM1Y	II
2008-500	Fairfield	2,614	PEM1Y	II
2008-501	Fairfield	13,068	PEM1Y	II
2008-502	Fairfield	1,742	PEM1Y	II
2008-503	Fairfield	113,692	PFO1Y	II
2008-504	Fairfield	58,806	PEM1Y/FO1Y	II
2008-505	Fairfield	20,473	PEM1Y/SS1Yb	II
2008-506	Fairfield	43,996	PEM/SS1Y/UB	II
2008-507	Fairfield	14,375	PEM1Y/PFO1Y	II
2008-508	Fairfield	6,970	PFO1Y	II
2008-509	Fairfield	4,627	PSS1Y	II
2008-510	Fairfield	13,939	PEM1Y	II

Applicant Delineated Wetlands				
Wetland ID¹	Town	Delineated Square Feet¹	Cowardin Classification²	Vermont Wetland Rules Classification³
2008-511	Fairfield	26,136	PSS1Y	II
2008-512	Fairfield	23,087	PEM1Y	II
2008-513	Fairfield	107,593	PEM1Y	II
2008-514	Fairfield	436	PFO1Y	II
2008-515	Fairfield	76,666	PFO1Y/SS	II
2008-518	Fairfield	3,049	PFO1Y	II
2008-519	Fairfield	1,742	PEM1Y	II
2008-520	Fairfield	3,049	PEM	II
2008-521	Fairfield	1,307	PSS1Y	II
2008-522	Fairfield	871	PEM1Y	II
2008-523	Fairfield	60,113	PSS1Y/EM	II
2008-524	Fairfield	8,712	PEM1Y/SS1Y	II
2008-526	Sheldon	3,920	PEM/SS1Y	II
2008-527	Sheldon	6,970	PEM1Y	II
2008-528	Sheldon	52,272	PSS1Y/EM1Y	II
2020/2008-495	Fairfield	3,920	PEM1Y	II
2020/2008-408	Cambridge	22,651	PEM/SS1Y	II
2020-1	Hardwick	11,761	PEM	II
2020-10	Fairfield	131	PEM	II
2020-11	Fairfield	436	PEM	II
2020-12	Fairfield	3,049	PEM	II
2020-13	Sheldon	4,356	PSS	II
2020-14	Fairfield	6,970	PSS/PFO	II
2020-3	Bakersfield	1,307	PEM	II
2020-4	Fairfield	58,806	PEM	II
2020-5	Fairfield	24,829	PEM	II
2020-6	Fairfield	7,405	PEM	II
LVRT 12				
2008-218	Hardwick	61,420	PFO14B/SS1A/EME	II
2008-219	Hardwick	7,405	PFO1Y	II
2008-220	Hardwick	436	PEM/PFO	II
2008-221	Hardwick	6,534	PFO14E	II
2008-223	Hardwick	20,909	PFO/EM1E	II
2008-226	Hardwick	3,485	PEM/SS1Y	II
2008-227	Hardwick	0	PEM/SS1Y	II

Applicant Delineated Wetlands				
Wetland ID¹	Town	Delineated Square Feet¹	Cowardin Classification²	Vermont Wetland Rules Classification³
2008-228	Hardwick	19,602	PEM1Y	II
2008-229	Hardwick	18,295	PSS1B	II
2008-230	Hardwick	13,504	PSS1B	II
2008-232	Hardwick	3,920	PSS1Y/FO1B	II
2008-233	Hardwick	10,890	PSS1Y	II
2008-234	Hardwick	20,909	PSS1Bb	II
2008-235	Hardwick	10,890	PSS1B	II
2008-236	Hardwick	49,223	PEM/SS/PFO	II
2008-237	Hardwick	20,473	PEM1Y/PSS	II
2008-238	Hardwick	10,019	PEM1Y	II
2008-239	Hardwick	29,185	PSS1Y/FO1B	II
2008-240	Hardwick	3,920	PEM1Y	II
2008-241	Hardwick	436	PEM1Y	II
2008-242	Hardwick	3,049	PEM1B	II
2008-244	Hardwick	56,628	PSS1Y	II
2008-246	Hardwick	3,485	PEM1Y	II
2008-247	Hardwick	3,485	PEM1Y	II
2008-248	Hardwick/ Wolcott	49,658	PEM1Y/SS1Y	II
2008-249	Hardwick	7,405	PSS1B/EM1B	II
2008-249a	Wolcott	19,602	PSS1B	II
2008-251	Wolcott	13,939	PEM1Y	II
2008-252	Wolcott	16,553	PSS14B	II
2008-254	Wolcott	871	PEM1Y/PVP	II
2008-255	Wolcott	871	PEM1Y	II
2008-256	Wolcott	1,742	PEM1Y	II
2008-257	Wolcott	4,356	PUB/PVP	II
2008-258	Wolcott	24,829	PUB/PEM/PVP	II
2008-259	Wolcott	13,504	PEM1Y	II
2008-261	Wolcott	9,148	PSS1B	II
2008-262	Wolcott	27,007	PEM1Y/PSS1Y	II
2008-263	Wolcott	5,663	PEM1Y/PSS1Y	II
2008-264	Wolcott	42,253	PSS1Y/FO1Y	II
2008-265	Wolcott	3,049	PEM/SS1Y/PVP	II
2008-266	Wolcott	7,841	PEM/PSS1Y	II
2008-267	Wolcott	12,632	PFO1Y	II
2008-268	Wolcott	871	PFO1Y	II
2008-273	Wolcott	50,965	PEM1Y	II

Applicant Delineated Wetlands				
Wetland ID¹	Town	Delineated Square Feet¹	Cowardin Classification²	Vermont Wetland Rules Classification³
2008-274	Wolcott	20,473	PEM/SS1Y	II
2008-275	Wolcott	871	PEM1Y	III
2008-280	Wolcott	28,750	PEM1Y/SS1Y	II
2008-281	Wolcott	871	PEM	II
2008-282	Wolcott	10,890	PEM1Y	II
2008-284	Wolcott	54,450	PFO1Y	II
2008-285	Wolcott	24,394	PEM1Y/ PVP	II
2008-289	Wolcott	4,792	PEM1Y/SS1Y	II
2008-290	Wolcott	436	PEM1Y	III
2008-291	Wolcott	1,742	PEM/PSS1Y	II
2008-293	Wolcott	2,614	PFO1Y/PVP	II
2008-294	Wolcott	90,169	PFO1Y	II
2008-295	Wolcott	49,223	PUB/PEM1Fb	II
2008-296	Wolcott	15,682	PFO1Y	II
2008-297	Wolcott	15,246	PFO1Y	II
2008-299	Wolcott/Morristown	40,511	PFO1Y	II
2008-300	Wolcott/Morristown	42,253	PFO1Y	II
2008-302	Morristown	16,117	PSS1Y	II
2008-303	Morristown	81,022	PEM1Y/FO1Y	II
2008-304	Morristown	10,454	PFO1Y	II
2008-305	Morristown	2,614	PFO1Y	II
2008-306	Morristown	4,356	PFO1Y	II
2008-308	Morristown	2,178	PEM1Y	II
2008-309	Morristown	111,514	PEM1Y	II
2008-310	Morristown	2,614	PEM1Y	II
2008-311	Morristown	436	PEM1Y	III
2019/2008-217	Hardwick	13,504	PEM1B/SS1B	II
2020/2008-212	Hardwick	13,068	PEM1Y	II
2020/2008-295	Wolcott	88,427	PFO	II
2020-15	Hardwick	1,307	PEM	III
2020-16	Hardwick	2,614	PEM	II
LVRT 13				
2008-110	West Danville	277,477	PEM1F/ PSS1F	II
2008-111	West Danville	46,609	PEM1F/ PSS1F	II

Applicant Delineated Wetlands				
Wetland ID¹	Town	Delineated Square Feet¹	Cowardin Classification²	Vermont Wetland Rules Classification³
2008-111a	West Danville	12,197	PEM1F/ PSS1F	II
2008-116	Cabot	2,614	PFO1B	II
2008-117	Cabot	1,742	PSS1Y	II
2008-127	Walden	24,829	PFO, PEM1Y	II
2008-128	Walden	17,424	PFO1B/SS1B	II
2008-129	Walden	32,234	PFO, PEM1Fb	II
2008-131	Walden	18,295	PSS1B	II
2008-133	Walden	75,794	PEM/FO1Y	II
2008-141	Walden	11,761	PEM1B/FO1B	II
2008-142	Walden	6,970	PEM	II
2008-143	Walden	1,742	PEM1B	II
2008-146	Walden	871	PEM1Y	II
2008-147	Walden	436	PEM1Y	II
2008-148	Walden	30,056	PEM1B	II
2008-151	Walden	2,178	PFO1/PEM	II
2008-152	Walden	1,307	PFO1Y/PEM	II
2008-155	Walden	871	PEM1B	II
2008-156	Walden	436	PEM1Y	II
2008-161	Hardwick	17,860	PEM1B/SS1B	II
2008-162	Hardwick	22,651	PEM1Y/SS1Y	II
2008-163	Hardwick	5,663	PEM1Y/SS1Y	II
2008-170	Hardwick	16,117	PFO14B	II
2008-172	Hardwick	3,049	PFO14B	II
2008-178	Hardwick	871	PEM1Y	II
2008-181	Greensboro	29,621	PEM1Y/PSS	II
2008-182	Greensboro	38,768	PEM1B/SS1B	II
2008-185	Hardwick	24,394	PEM/FO14B	II
2008-186	Hardwick	436	PEM/FO14B	II
2008-187	Hardwick	3,049	PSS1B	II
2008-188	Hardwick	3,049	PEM1B	II
2008-192	Hardwick	6,098	PEM1/POWb	II
2008-196	Hardwick	3,049	PEM1Y	II
2008-197	Hardwick	2,178	PSS1Y/EM	II
2008-198	Hardwick	1,742	PEM1A	II
2008-199	Hardwick	4,356	PEM1Y	II
2008-201	Hardwick	14,375	PEM1Y/PSS	II
2008-208	Hardwick	90,169	PEM/SS1Y	II
2008-209	Hardwick	21,780	PSS1B	II

Applicant Delineated Wetlands				
Wetland ID ¹	Town	Delineated Square Feet ¹	Cowardin Classification ²	Vermont Wetland Rules Classification ³
2008-211	Hardwick	3,485	PEM1Y	II
2008/2020-212	Hardwick	27,007	PEM1Y	II
2008-213	Hardwick	8,712	PEM1Y	II
2008-214	Hardwick	436	PUB1x	III
2008-215	Hardwick	24,829	PFO1/4AB	II
2008-216	Hardwick	5,227	PFO1/4AB	II
2020-100	Walden	1,307	PEM	II
2020-101	Walden	436	PEM	III
2020-400	Hardwick	4,792	PEM/PFO	II
2020-404	Hardwick	2,178	PEM	III
2020-405	Hardwick	436	PSS/PFO	II

¹ All wetlands field delineated per the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northeast and North Central Region*. U.S. Army Corps of Engineers. 2011; Delineated Wetlands that extend outside the Study Area are denoted with **bold** text.

² Classification follows Cowardin, L.M., Carter, V., Golet, F.C. and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitat of the United States*. U.S. Fish and Wildlife Service. FWS/OBD-79/31.

³ Applicant-Proposed VWR Classification is based on review and application of the VWR, particularly Applicant's interpretation of Section 4.6 Presumptions, and an analysis of Section 5 functions.

APPENDIX II – Applicant Delineated Streams

Applicant Delineated Streams				
Stream ID	Flow Regime (Ephemeral, Intermittent, or Perennial)¹	Average Ordinary High Water Width (Feet)²	HUC 8 Watershed	Town
LVRT 11				
2008-SC263	intermittent	3.0	Lamoille River Basin	Cambridge
2008-SC265	ephemeral	1.0	Missisquoi River Basin	Cambridge
2008-SC266	perennial	3.0	Missisquoi River Basin	Cambridge
2008-SC267	intermittent	1.5	Missisquoi River Basin	Cambridge
2020-jd-2	ditch	-	Missisquoi River Basin	Cambridge
2020-tob-1	perennial	15	Missisquoi River Basin	Cambridge
2020-SC-3	intermittent	3	Missisquoi River Basin	Cambridge
2008-TB269	perennial	18	Missisquoi River Basin	Fletcher
2008-TB270	perennial	22	Missisquoi River Basin	Fletcher
2008-TB271	perennial	27	Missisquoi River Basin	Fletcher
2008-TB272	perennial	15.0	Missisquoi River Basin	Bakersfield
2008-TB273	perennial	22.0	Missisquoi River Basin	Bakersfield
2008-SC274	ephemeral	2	Missisquoi River Basin	Bakersfield
2008-TB275	intermittent	3	Missisquoi River Basin	Bakersfield
2008-TB277	perennial	27	Missisquoi River Basin	Bakersfield
2008-SC278	perennial	4	Missisquoi River Basin	Fairfield
2008-TB278	perennial	5	Missisquoi River Basin	Fairfield
2008-TB279	perennial	12	Missisquoi River Basin	Fairfield
2008-SC280	intermittent	2	Missisquoi River Basin	Fairfield
2008-SC281	intermittent	1.0	Missisquoi River Basin	Fairfield
2008-SC282	intermittent	1.0	Missisquoi River Basin	Fairfield
2008-SC283	perennial	36.0	Missisquoi River Basin	Fairfield
2008-SC284	perennial	25.0	Missisquoi River Basin	Fairfield
2008-TB285	perennial	6.0	Missisquoi River Basin	Fairfield
2008-SC286	perennial	4.0	Missisquoi River Basin	Cambridge
2008-SC288	perennial	4.0	Missisquoi River Basin	Fairfield
2020-OHW-286	perennial	36.0	Missisquoi River Basin	Fairfield
2008-TB289	perennial	13.0	Missisquoi River Basin	Fairfield

Applicant Delineated Streams				
Stream ID	Flow Regime (Ephemeral, Intermittent, or Perennial)¹	Average Ordinary High Water Width (Feet)²	HUC 8 Watershed	Town
2008-SC290	intermittent	1.0	Missisquoi River Basin	Fairfield
2008-TB294	perennial	40.0	Missisquoi River Basin	Fairfield
2008-SC294	perennial	10.0	Missisquoi River Basin	Fairfield
2008-TB295	perennial	28.0	Missisquoi River Basin	Fairfield
2008-TB297	perennial	30.0	Missisquoi River Basin	Fairfield
2008-SC298	intermittent	1.0	Missisquoi River Basin	Fairfield
2008-SC299	intermittent	1.5	Missisquoi River Basin	Fairfield
2008-SC300	perennial	1.0	Missisquoi River Basin	Fairfield
2008-SC301	intermittent	1.0	Missisquoi River Basin	Fairfield
2008-SC302	intermittent	2.0	Missisquoi River Basin	Fairfield
2008-TB303	perennial	13.0	Missisquoi River Basin	Fairfield
2020-TB/OHW-277	perennial	40.0	Missisquoi River Basin	Bakersfield
2020-OHW-286	perennial	37.0	Missisquoi River Basin	Fairfield
2008-SC304	ephemeral	2.0	Missisquoi River Basin	Fairfield
LVRT 12				
2020-SC-104	intermittent	3	Lamoille River Basin	Wolcott
2008-SC137	ephemeral	2.0	Lamoille River Basin	Hardwick
2008-TB138	perennial	4	Lamoille River Basin	Hardwick
2008-SC139	ephemeral	2.0	Lamoille River Basin	Hardwick
2019-SC140	intermittent	3.0	Lamoille River Basin	Hardwick
2008/2019-SC141	intermittent	1.0	Lamoille River Basin	Hardwick
2008/2019-TB140	perennial	NA	Lamoille River Basin	Hardwick
2008/2019-TB141	perennial	NA	Lamoille River Basin	Hardwick
2008-TB140	perennial	8	Lamoille River Basin	Hardwick
2008-TB141	Intermittent	3.5	Lamoille River Basin	Hardwick
2019-SC-1	intermittent	3	Lamoille River Basin	Hardwick
2019-SC-2	intermittent	2	Lamoille River Basin	Hardwick
2008-SC142	intermittent	2.0	Lamoille River Basin	Hardwick
2008-SC143	perennial	1.5	Lamoille River Basin	Hardwick
2008-SC144	intermittent	1.0	Lamoille River Basin	Hardwick
2008-TB145	intermittent	3.0	Lamoille River Basin	Hardwick
2008-TB146	intermittent	3.0	Lamoille River Basin	Hardwick
2008-SC147	intermittent	2.0	Lamoille River Basin	Hardwick
2008-TB147	perennial	7	Lamoille River Basin	Hardwick
2008-TB148	perennial	7	Lamoille River Basin	Hardwick

Applicant Delineated Streams				
Stream ID	Flow Regime (Ephemeral, Intermittent, or Perennial) ¹	Average Ordinary High Water Width (Feet) ²	HUC 8 Watershed	Town
2008-TB149	perennial	9	Lamoille River Basin	Hardwick
2008-SC150	ephemeral	2.0	Lamoille River Basin	Hardwick
2008-TB151	perennial	5.0	Lamoille River Basin	Hardwick
2008-TB153	perennial	14.0	Lamoille River Basin	Hardwick
2008-SC155	intermittent	2.0	Lamoille River Basin	Wolcott
2008-SC156	intermittent	3.5	Lamoille River Basin	Wolcott
2008-TB156	intermittent	4.0	Lamoille River Basin	Wolcott
2008-TB157	perennial	23.0	Lamoille River Basin	Wolcott
2008-SC159	perennial	4.0	Lamoille River Basin	Wolcott
2008-SC161	ephemeral	1.0	Lamoille River Basin	Wolcott
2008-SC163	intermittent	2.0	Lamoille River Basin	Wolcott
2008-SC164	intermittent	2.0	Lamoille River Basin	Wolcott
2008-SC165	ephemeral	2.0	Lamoille River Basin	Wolcott
2008-SC166	ephemeral	1.0	Lamoille River Basin	Wolcott
2020-OHW-101	perennial	80	Lamoille River Basin	Wolcott
2008-SC167	perennial	2	Lamoille River Basin	Wolcott
2008-TB168	perennial	4.0	Lamoille River Basin	Wolcott
2008-TB169	perennial	58.0	Lamoille River Basin	Wolcott
2008-SC170	perennial	3.0	Lamoille River Basin	Wolcott
2008-SC171	intermittent	3.0	Lamoille River Basin	Wolcott
2008-SC172	intermittent	3.0	Lamoille River Basin	Wolcott
2020-SC-103	ephemeral	2	Lamoille River Basin	Wolcott
2008-SC174	ephemeral	1	Lamoille River Basin	Wolcott
2020-jd-1	ditch	-	Lamoille River Basin	Wolcott
2008-SC175	intermittent	3	Lamoille River Basin	Wolcott
2008-TB176	perennial	28	Lamoille River Basin	Wolcott
2008-TB179	perennial	6.0	Lamoille River Basin	Morristown
2008-SC180	perennial	4.0	Lamoille River Basin	Morristown
2008-SC181	intermittent	1.0	Lamoille River Basin	Morristown
2008-SC182	perennial	2.0	Lamoille River Basin	Morristown
2008-SC183	perennial	3.0	Lamoille River Basin	Morristown
2008-TB184	perennial	3.5	Lamoille River Basin	Morristown

Applicant Delineated Streams				
Stream ID	Flow Regime (Ephemeral, Intermittent, or Perennial)¹	Average Ordinary High Water Width (Feet)²	HUC 8 Watershed	Town
2008-SC184	perennial	4.0	Lamoille River Basin	Morristown
2008-SC185	ephemeral	1.0	Lamoille River Basin	Morristown
2008-SC186	intermittent	3.0	Lamoille River Basin	Morristown
2008-TB187	intermittent	10	Lamoille River Basin	Morristown
2008-SC188	ephemeral	2.0	Lamoille River Basin	Morristown
2008-SC190	ephemeral	2.0	Lamoille River Basin	Morristown
2008-SC191	intermittent	2.5	Lamoille River Basin	Morristown
2008-TB192	perennial	7.0	Lamoille River Basin	Morristown
2008-TBLM	perennial	87.5	Lamoille River Basin	Morristown, Hyde Park, Wolcott, Hardwick
LVRT 13				
2008-TB068	perennial	50	Passumpsic River Basin	Cabot
2008-SC071	intermittent	2	Passumpsic River Basin	Walden
2008-SC072	intermittent	2	Passumpsic River Basin	Walden
2008-SC073	intermittent	3.0	Passumpsic River Basin	Walden
2008-TB076	perennial	4.0	Lamoille River Basin	Walden
2008-SC081	intermittent	3.0	Lamoille River Basin	Walden
2008-TOB082	perennial	7.0	Lamoille River Basin	Walden
2008-TOB083	perennial	23.0	Lamoille River Basin	Walden
2008-SC084	intermittent	3.0	Lamoille River Basin	Walden
2008-SC085	intermittent	3.0	Lamoille River Basin	Walden
2008-SC087	perennial	3.0	Lamoille River Basin	Walden
2008-SC089	intermittent	2.0	Lamoille River Basin	Walden
2008-SC092	intermittent	4.0	Lamoille River Basin	Walden
2008-TB092	intermittent	5.0	Lamoille River Basin	Walden
2008-SC094	ephemeral	2.0	Lamoille River Basin	Walden
2008-Ditch96	ditch	-	Lamoille River Basin	Hardwick
2008-Ditch97	ditch	-	Lamoille River Basin	Hardwick
2008-SC098	ephemeral	1.5	Lamoille River Basin	Hardwick
2008-SC100	perennial	3.0	Lamoille River Basin	Hardwick
2008-TB100	perennial	6.0	Lamoille River Basin	Hardwick
2008-Ditch101	ditch	-	Lamoille River Basin	Hardwick
2008-TB101	intermittent	3	Lamoille River Basin	Hardwick
2008-Ditch101a	ditch	-	Lamoille River Basin	Hardwick

Applicant Delineated Streams				
Stream ID	Flow Regime (Ephemeral, Intermittent, or Perennial) ¹	Average Ordinary High Water Width (Feet) ²	HUC 8 Watershed	Town
2008-TB102	perennial	15.0	Lamoille River Basin	Hardwick
2008-TB104	perennial	5.5	Lamoille River Basin	Hardwick
2008-SC105	perennial	2	Lamoille River Basin	Hardwick
2008-SC106	ephemeral	2.0	Lamoille River Basin	Hardwick
2008-TB110	perennial	16.0	Lamoille River Basin	Hardwick
2008-TB111	perennial	28.0	Lamoille River Basin	Hardwick/Walden
2008-TB112	perennial	40	Lamoille River Basin	Greensboro
2008-TBLM	perennial	90.0	Lamoille River Basin	Hardwick
2008-TB116	perennial	20.0	Lamoille River Basin	Hardwick
2008-TB117	perennial	50.0	Lamoille River Basin	Hardwick
2008-SC119	intermittent	3.0	Lamoille River Basin	Hardwick
2008/2020-SC120	intermittent	4.0	Lamoille River Basin	Hardwick
2008-SC122	intermittent	3.0	Lamoille River Basin	Hardwick
2008-TB123	perennial	5.0	Lamoille River Basin	Hardwick
2008-TB124	perennial	13.0	Lamoille River Basin	Hardwick
2008-SC129	intermittent	2.0	Lamoille River Basin	Hardwick
2008-SC130	ephemeral	2.0	Lamoille River Basin	Hardwick
2008-SC131	intermittent	2.0	Lamoille River Basin	Hardwick
2008-SC132	intermittent	2.0	Lamoille River Basin	Hardwick
2008-SC133	ephemeral	2.0	Lamoille River Basin	Hardwick
2008-SC134	intermittent	2.0	Lamoille River Basin	Hardwick
2008-SC135	intermittent	3.5	Lamoille River Basin	Hardwick
2008-SC136	intermittent	2.0	Lamoille River Basin	Hardwick
2008/ 2020-OHW-111	perennial	28.0	Lamoille River Basin	Hardwick/Walden
2008/ 2020-OHW-112	perennial	40.0	Lamoille River Basin	Greensboro

Note: Streams/waters reviewed and delineated during VHB field investigations in 2008, 2019, and 2020.

¹ Stream flow regimes determined based on qualitative observations of instream hydrology indicators and geomorphic characteristics.

² U.S. Army Corps of Engineers. 2005. Regulatory Guidance Letter. Subject: Ordinary High Water Mark Identification. No. 05-05.