

# LOW IMPACT HYDROPOWER INSTITUTE CERTIFICATION APPLICATION

## Molly's Falls Hydroelectric Project



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## ACRONYMS

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cfs	cubic feet per second
CPG	Certificate of Public Good
CRMP	Cultural Resources Management Plan
DO	Dissolved Oxygen
EAP	Emergency Action Plan
FERC	Federal Energy Regulatory Commission
FWLMMP	Flow and Water Level Management and Monitoring Plan
GMP	Green Mountain Power Corporation
IPaC	Information for Planning and Consultation
LIHI	Low Impact Hydropower Institute
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MW	megawatt
MWh	megawatt-hours
NEPOOL	New England Power Pool
NGVD	National Geodetic Vertical Datum
NOL	Normal Operating Level
Project or Molly's Falls Project	Molly's Falls Hydroelectric Project
PSB	Public Service Board
PUC	Public Utilities Commission
RECs	Renewable Energy Credits
RM	river mile
ROR	run-of-river
SCADA	Supervisory Control and Data Acquisition
USFWS	United States Fish and Wildlife Service
VANR	Vermont Agency of Natural Resources
VFWD	Vermont Department of Fish and Wildlife
VT	Vermont
VWQS	Vermont Water Quality Standards
WQC	Water Quality Certificate
ZOE	Zone of Effect

## 1.0 FACILITY DESCRIPTION

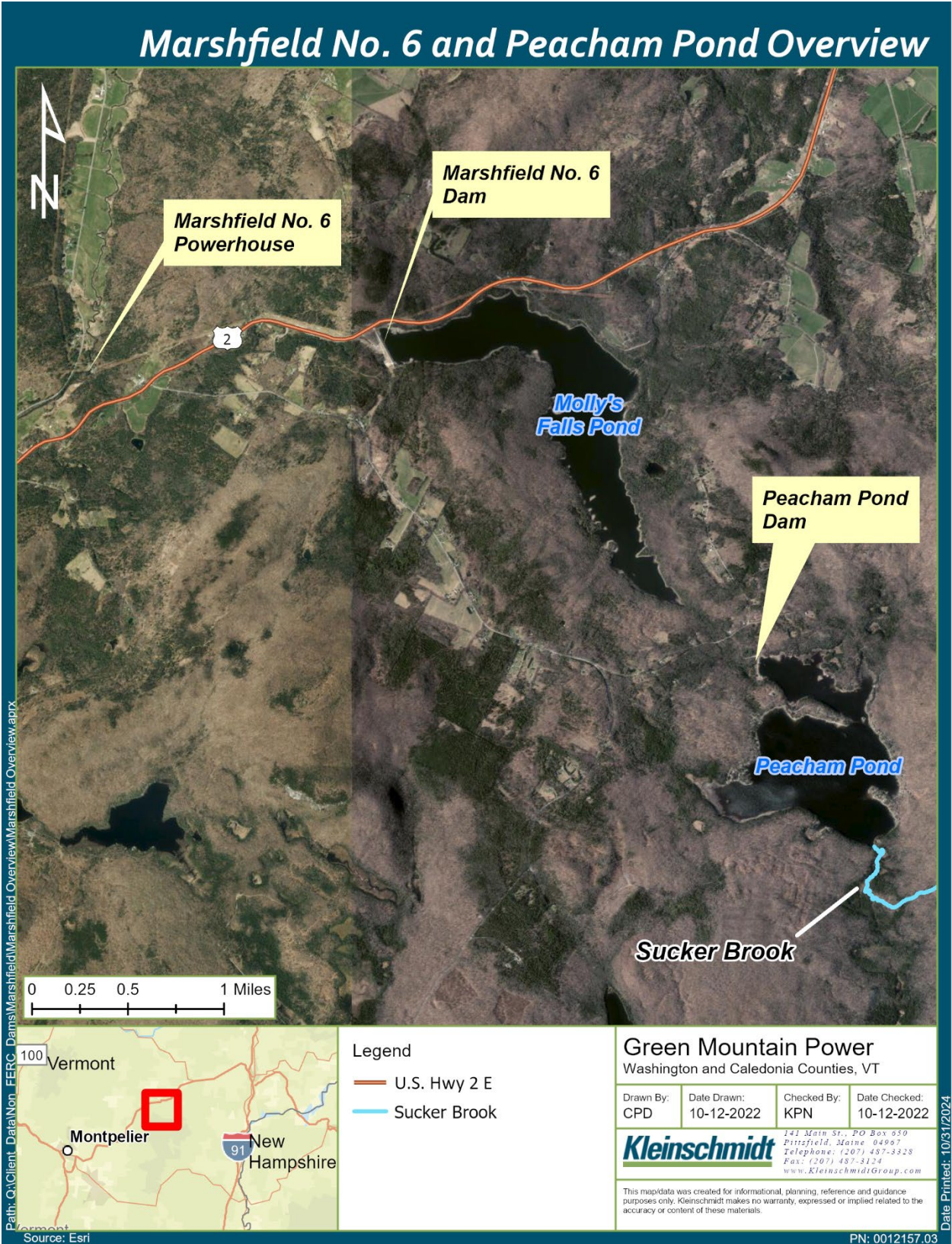
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### 1.1 Overview

The Molly's Falls Hydroelectric Project (Project) is an existing hydroelectric project owned and operated by Green Mountain Power Corporation (GMP) and regulated by the Vermont Public Utilities Commission (VT PUC). The 5-megawatt (MW) Molly's Falls Project is located in the towns of Peacham, Cabot, and Marshfield, and Washington and Caledonia counties, Vermont.

The Project consists of two dams. The Peacham Pond Dam is located on the Peacham Pond Brook in Peacham, Vermont. The dam impounds water in Peacham Pond. All flows from Peacham Pond pass through Sucker Brook to the Molly's Falls Reservoir. Water is impounded in the Molly's Falls Reservoir by the Marshfield No. 6 Dam. From the Molly's Falls Reservoir, water is either used for generating renewable energy and passed via a penstock to the Project's powerhouse and then discharged into the Winooski River a short distance upstream of the Winooski River's confluence with the bypassed reach of Molly's Brook or flows are passed through the dam's spillways into Molly's Brook. The Marshfield No. 6 Dam on Molly's Brook is approximately 1.6 miles from the brook's confluence with the Winooski River (Figure 1).

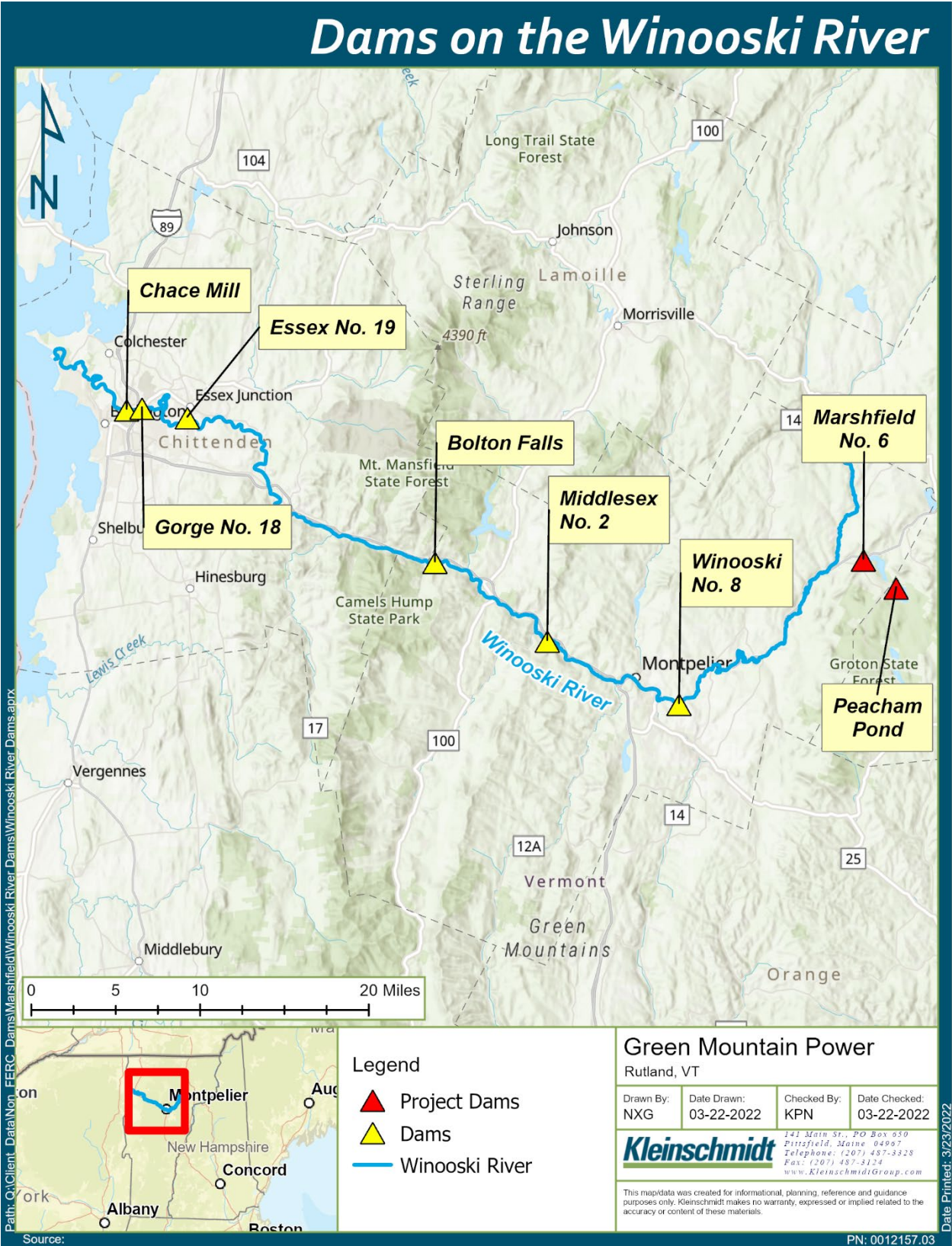




**Figure 1 Geographic Overview of the Molly's Falls Hydroelectric Project**

Although no other dams are located on Sucker Brook or Mollys Brook, there are six other dams on the Winooski River between its confluence with Mollys Brook and its terminus at Lake Champlain (Figure 2). From downstream to upstream, these dams include facilities at the Winooski One/Chace Mill Project (FERC No. 2756), the Gorge No. 18 Dam (non-FERC jurisdictional), the Essex No. 19 Project (FERC No. 2513), the Bolton Falls Project (FERC No. 2879), the Middlesex No. 2 Dam (non-FERC jurisdictional), and the Winooski No. 8 Project (FERC No. 6470). The Gorge No. 8 Dam, the Essex No. 19 Project, Bolton Falls Project, and Middlesex No. 2 Dam are also owned by GMP.





**Figure 2      Dams on the Winooski River**

### 1.1.1 Peacham Pond Development

The Peacham Pond dam was constructed in 1930 on Sucker Brook. The Project was originally constructed for water storage, but with provision made for the future addition of a power plant. Its impoundment creates Peacham Pond, which is technically a lake because sunlight does not penetrate to the bottom across the entire waterbody (although in this text it is referred to as a "pond"). The deepest portion of the pond is approximately 60 feet deep. The pond has a drainage area of approximately 5.8 square miles. Peacham Pond has a normal operating level of 1,402.39 feet National Geodetic Vertical Datum of 1929 (NGVD 29)<sup>1</sup>, a storage volume of 7,800 acre-feet (at the maximum stage), and a water surface area of approximately 382 acres at full normal pool.

The Peacham Pond dam is a 710-foot-long roller compacted earthfill embankment dam that has a maximum height of 25.6 ft (Figure 3). The dam crest is 10-feet-wide, paved with crushed stone, and has an elevation of 1,409.84 NGVD 29. The dam has a 90-foot-long uncontrolled spillway that allows high flows to pass downstream when the water levels exceed the spillway crest elevation at 1,403.84 feet NGVD 29. There is a 2-foot-thick, 5-foot-deep concrete cutoff wall that extends across the spillway in-line with the centerline of the dam. The top of this wall is the crest of the spillway. The spillway channel is rock paved for 85-feet at a minimum thickness of 2-feet. The spillway is maintained in an open configuration and is not equipped with stoplogs or other devices to impound water.

The site has a reinforced concrete intake structure that utilizes a cast iron slide gate with a manually operated screw stem operator (Figure 4 and Figure 5). The intake structure also contains a set of stop log slots, a 6-inch bypass pipe around the gate, and a trashrack with 2.5-inch spacing. The intake opening located at the trashracks is 7.5-feet-high and 6.5-feet-wide and controls flow to a 4-foot-diameter reinforced concrete outlet pipe that extends from the intake structure, through the embankment, to the downstream toe of the embankment. The discharge pipe is 122-feet-long and has a 9-inch-thick cast-in-place reinforced concrete wall. On the left end of the embankment is the 90-foot-wide spillway section with a 12-inch-thick layer of riprap and a concrete core wall.

Water levels in Peacham Pond are normally maintained at the normal operating level from May 1 to November 30. Winter drawdowns of Peacham Pond are used to reduce peak downstream flows and improve safety. GMP begins the winter drawdown at the earliest on December 1 and completes the drawdown by December 31. GMP limits the rate of drawdown to no more than 6 to 12 inches per week prior to December 15 of each year.

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<sup>1</sup> Recent benchmark surveying has determined that the correct conversion from local elevation datum to NGVD 29 is +692.14 feet. All Peachman Pond Development elevations are reported in NGVD 29 elevations in this document and are based on this conversion.

Water levels remain at the drawdown levels until refill begins, but may rise above this level temporarily due to snowmelt and high inflow events. Refill typically begins in early March and is normally completed by May 1. Refill may be postponed due to criteria related to snow-water content and ice thickness on the pond. For five years beginning the winter of 2020-2021, the winter drawdown can be no more than 6.6 feet below the normal operating level (1,395.79 feet NGVD 29). Beginning in the winter of 2025-2026, the winter drawdown can be no more than 3 feet below the normal operating level (1,399.39 feet NGVD 29), unless maintenance, snow-water content, or high flow forecasting criteria are met.

Between May 1 (or the date of refill to normal operating levels of Peacham Pond) and July 31 (or the date that the Vermont Agency of Natural Resources (VANR) determines that loon nesting is complete at Peacham Pond, whichever is earlier), GMP maintains water levels in accordance with loon protocols. This includes managing pond levels as close to the normal operating level as is feasible and safe within 0.5-feet above or below normal operating levels. Between August 1 (or the date that VANR determines that loon nesting is complete at Peacham Pond, whichever is earlier) and November 30, Peacham Pond levels within 1-foot of the Peacham Pond normal operating level.

Conservation flows to Sucker Brook vary throughout the year. The Peacham Pond development operates in run-of-river (ROR) mode from May 1 (or Peacham Pond refill date if later) to November 30. Between December 1 and May 1 (or the date that Peacham Pond is refilled to the normal operating level), a minimum conservation flow requirement is in place. Ramping occurs for transitions between drawdown, refill, and ROR operations. GMP releases minimum flows during Peacham Pond refill of 6.7 cubic feet per second (cfs) at the dam outlet, or net inflow-evaporation if less to the Sucker Brook. The Project has a maximum peak flow of 25 cfs, or inflow if higher, during normal winter drawdown operations, with higher flows only as needed for maintaining steady pond levels for dam safety due to high inflows. Water flows from the outlet works at the Peacham Pond dam through 0.6 miles of the Sucker Brook into the Molly's Falls Reservoir, which provides additional storage.





**Figure 3**      **Peacham Pond Development**



**Figure 4** Peacham Pond Outlet Works and Access Bridge





**Figure 5** Peacham Pond Outlet Works and Access Bridge



**Figure 6** Peacham Pond Outlet Works, viewed from the Access Bridge





**Figure 7 Peacham Pond Development Overview**

### 1.1.2 Marshfield Development

The present-day Marshfield No. 6 dam was completed in 1927. The corresponding Molly's Falls Reservoir was filled that same year and is impounded by the Marshfield No. 6 dam. The Marshfield Development consists of 1,100-foot long rolled earthfill dam, with a 48.5-foot maximum height and a dam crest elevation of 1,240.5 feet NAVD 88<sup>2</sup> (Figure 8). The dam has two spillways, one service and one emergency. The spillways are not normally used to release water from the reservoir except that previously 1.6 cfs would leak through the current emergency spillway and former service spillway stoplogs. The penstock is the primary source of releasing water and controlling water levels of the Molly's Falls Reservoir. The service spillway is 40 feet wide, has a pair of side-by-side slide gates that may be raised or lowered independently of each other to provide more precise control of flows in the service spillway (Figure 9 and Figure 10). Each gate has a width of 18 feet 7 inches and a sill elevation of 1,224.2 feet NAVD 88 and a top elevation of 1,230.7 feet NAVD 88 feet when closed and can be raised to 1240.3 feet NAVD 88 when fully open.

The emergency spillway is 46 feet wide and is a 370-foot-long channel consisting of an upstream concrete structure with gates and an stepped concrete channel with sidewalls leading to the plunge pool in Molly's Brooks (Figure 10). The spillway is stepped to dissipate energy during a high flow event, to reduce risk of scour or erosion at the toe. There is a gate structure at the upstream part of the emergency spillway that retains water in the reservoir and can be opened if needed to release water into the spillway. There are two gates each 23 feet wide that consist of three bays of stoplogs and stanchions. The gates have a sill elevation of 1,223.6 feet NAVD 88 and a top elevation of 1,235.2 feet NAVD 88 when all the stop logs are in place.

The dam forms a 377-acre reservoir at normal full pond elevation at 1,223.7 feet NAVD 88. The development has a 2.0-foot winter drawdown below normal operating levels to 1,221.7 feet NAVD 88<sup>3</sup>. Water is conveyed to the powerhouse through a 6-foot diameter, 8,700-foot long penstock. The development's intake is submerged in the reservoir 80 feet offshore from the gatehouse (Figure 11). The intake is oriented at an angle with a height of 9.75 feet above the invert, and is approximately 38 feet below the normal operating level. Water is conveyed to the gatehouse on the dam via a concrete portion of the penstock. The gatehouse includes a motorized shutoff gate that can be remotely closed through SCADA and can be manually closed, if necessary, with a hand crank. From the gatehouse, water flows through a 340 ft concrete pipe that passes through the dam to

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<sup>2</sup> All Marshfield Development elevations in this report are reported in NAVD88. To convert back to local datum, subtract 692.0 ft from the NAVD88 elevation.

<sup>3</sup> Greater drawdowns to lower levels are allowed under specific circumstances, see the 2024 FWLMMP for further details.

the toe of the dam. At the toe of the dam, the penstock converts to a welded steel penstock installed between 2007 and 2011 and continues to the surge tank. From the surge tank to the powerhouse, the penstock consists of the original 1927-era steel riveted penstock. Directly upstream of the intake there are steel trashracks. The trashracks measure 12-feet-wide by 14-feet-tall. The 3-inch-deep by 3/8-inch-thick bars are spaced 4-inches on center and supported by concrete at the top and bottom by two horizontal steel I-beams.

The Marshfield development contains a penstock (as described above), which connects the Marshfield No. 6 dam to the Project's only powerhouse (elevation 850 feet NAVD 88 at the tailrace), located on the Winooski River (Figure 12). The Project is equipped with a single Norcan vertical Francis turbine, with a rated hydraulic capacity of 200-210 cfs, but is operationally restricted to 103 cfs to 173 cfs, based on testing completed by the manufacturer. The turbine operates at a single speed and the flow rate cannot be adjusted, due to cavitation problems. From November 1 through March 31, the normal flow rate for generation is 135 cfs, corresponding to 3.5-MW. During the rest of the year, the normal flow rate for generation is generally 103 cfs, corresponding to 2.4 MW. Higher generation rates do occur to match the rate of inflow to Molly's Falls Reservoir. The tailrace discharges from the powerhouse building and directly into the Winooski River (Figure 13).

From May 1 to November 30, water levels in the Molly's Falls Reservoir are maintained at the normal operating level of 1,223.7 feet NAVD 88. This level is intended to be slightly below the sill of the service spillway to reduce risk of formation on the spillway and gates. During this time period, allowable fluctuation limits vary. From May 1 (or refill if later) until Loon Nesting begins, a 0.5-foot fluctuation from normal operating level is allowed. During Loon Nesting season, the Molly's Falls Reservoir levels are maintained as stable as is feasible and safe. From August 1 (or end of loon nesting, whichever is earlier) until November 30, a 1-foot fluctuation from normal operating levels is allowed. At any time of the year, higher fluctuations are permitted due to storms and heavy snowmelt/rainfall.

Winter drawdowns of the Molly's Falls Reservoir begin on December 1, at the earliest, and are completed prior to mid-March. Refill begins after the maximum drawdown has been reached and is normally completed by May 1. Under normal circumstances, the maximum winter drawdown depth is 2.0-feet below the normal operating limit, or is no lower than 1,221.7 feet NAVD 88. Larger drawdowns can occur if unusually high amounts of snow-water equivalent or precipitation are forecasted, in order to manage downstream flows safely.



Conservation flows to the head of Molly's Brook are provided either via the bypass pipe, which provides cool water from approximately 28-feet-deep in the reservoir, or via the service spillway slide gates. The conservation flows released via the bypass pipe are preferable as the cool water supports higher-quality habitat for fish in Molly's Brook. Conservation flows to Molly's Brook vary seasonally. From July through March, a minimum conservation flow of 8.5 cfs must be released. From April through June, a minimum conservation flow of 12 cfs must be released.



**Figure 8      Marshfield Earthfill Rolled Dam**



**Figure 9** Marshfield Service Spillway and Gate



**Figure 10** Marshfield Emergency Spillway (right), and Service Spillway (left), and Plunge pool (foreground)



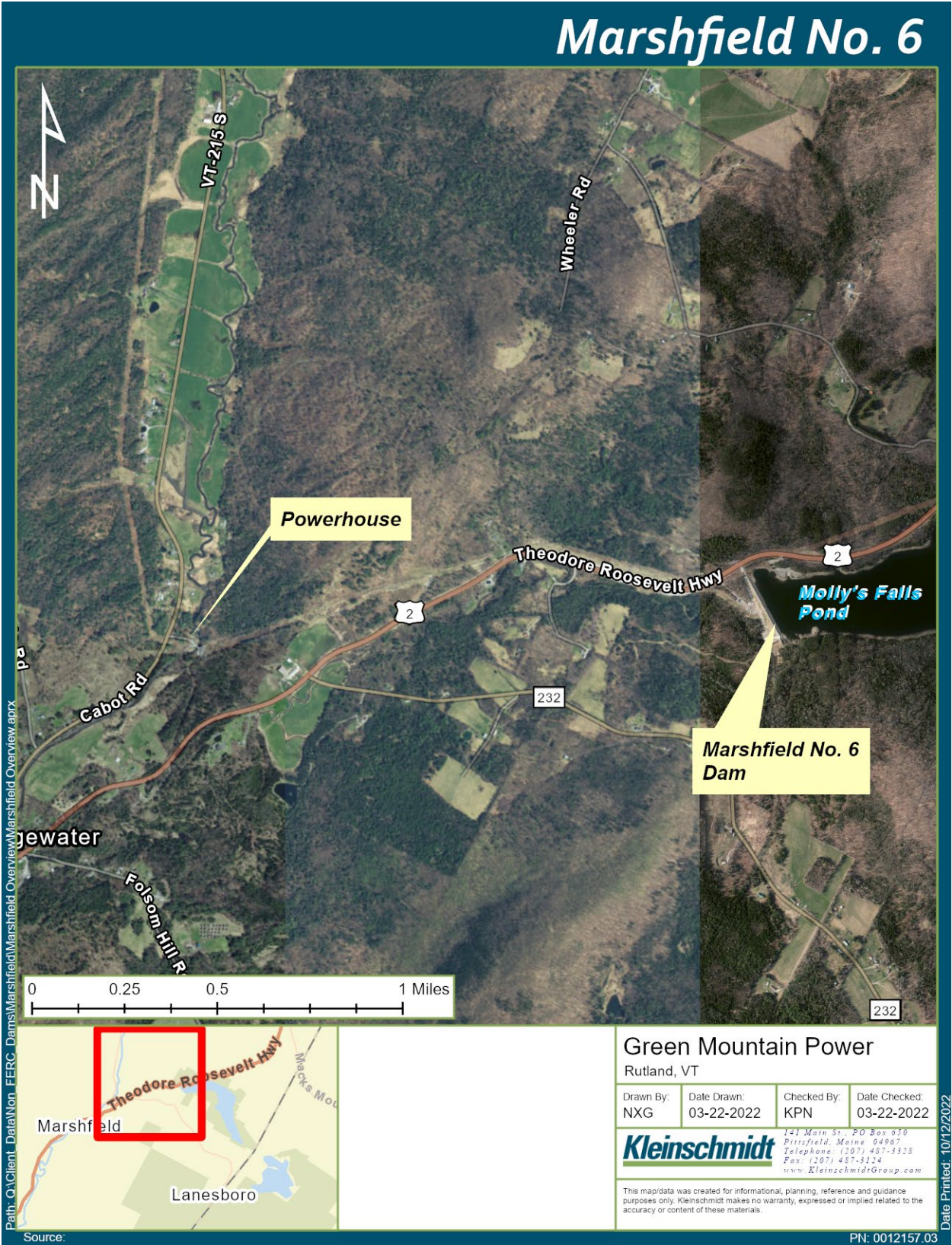


**Figure 11 Molly's Falls Reservoir Gate House**



**Figure 12 Marshfield No. 6 Powerhouse**





**Figure 13 Marshfield Development Overview**

## 2.0 FACILITY INFORMATION

**Table 1 Facility Information**

<b>Item</b>	<b>Information Requested</b>	<b>Response (include references to further details)</b>	
		<b>Marshfield Development</b>	<b>Peacham Development</b>
<b>Name of the Facility</b>	Facility name (use FERC project name or other legal name)	Molly's Falls Hydroelectric Project	
<b>Reason for applying for LIHI Certification</b>	<ol style="list-style-type: none"> <li>1. To participate in state RPS program</li> <li>2. and specify the state and the total MW/MWh associated with that participation (value and % of facility total Mw/MWh).</li> <li>3. To participate in voluntary REC market (e.g., Green-e)</li> <li>4. To satisfy a direct energy buyer's purchasing requirement</li> <li>5. To satisfy the facility's own corporate sustainability goals</li> <li>6. For the facility's corporate marketing purposes</li> <li>7. Other (describe)</li> </ol>	GMP is applying for LIHI certification to participate in the NEPOOL REC Program. The Project would continue to receive RECs with Maine Class II and VT Tier I.	
	If applicable, amount of annual generation (MWh and % of total generation) for which RECs are	The Project would expect to receive RECs for 100% of generation. From 1980 to 2019, annual generation averaged approximately 7,310 MWh. Project operations changed based on the conditions in the August 2019 MOU between GMP and VANR. GMP expects a decrease in annual generation with the implementation of these conditions.	



<b>Item</b>	<b>Information Requested</b>	<b>Response (include references to further details)</b>	
		<b>Marshfield Development</b>	<b>Peacham Development</b>
	currently received or are expected to be received upon LIHI Certification	In 2021, the Marshfield Project generated 6,444 MWh. The Peacham Development does not generate electricity.	
<b>Location</b>	River name (USGS proper name)	Winooski River	
	Watershed name - Select region, click on the area of interest until the 8-digit HUC number appears. Then identify watershed name and HUC-8 number from the map at: <a href="https://water.usgs.gov/wsc/map/index.html">https://water.usgs.gov/wsc/map/index.html</a>	Winooski - 02010003	
	Nearest town(s), <u>county(ies)</u> , and state(s) to dam	Towns of Marshfield, and Cabot; Washington County; Vermont	Town of Peacham; Caledonia County; Vermont
	River mile of dam above mouth	83.8 of the Winooski River	83.8 of the Winooski River
	Geographic latitude of dam <sup>4</sup>	44.36058912	44.33680979
	Geographic longitude of dam	-72.30367921	-72.26505939
<b>Facility Owner</b>	Application contact names (Complete the Contact Form in Section 7.0 also):	John Tedesco – Green Mountain Power Corporation Andy Qua – Kleinschmidt Associates Karen Bishop – Kleinschmidt Associates Please see Section 7.0 for the Facilities Contact Form	
	Facility owner company and authorized owner representative name.	Green Mountain Power Corporation (GMP or Licensee)	

<sup>4</sup> Latitude and longitude information obtained from the Vermont Agency of Natural Resources GIS Map – accessed from [Dams | Dams | VTANR Open Data \(vermont.gov\)](#) on May 10, 2023.

<b>Item</b>	<b>Information Requested</b>	<b>Response (include references to further details)</b>	
		<b>Marshfield Development</b>	<b>Peacham Development</b>
	<b>For recertifications: If ownership has changed since last certification, provide the effective date of the change.</b>		
	FERC licensee company name (if different from owner)	N/A	
<b>Regulatory Status</b>	FERC Project Number (e.g., P-xxxxx), issuance and expiration dates, or date of exemption	The Molly's Falls Project is not a FERC regulated Project. The facility is exempt from FERC license requirements because it was constructed in 1927 prior to the enactment of licensing regulations.	
	FERC license type (major, minor, exemption) or special classification (e.g., "qualified conduit", "non-jurisdictional")	N/A	
	Water Quality Certificate identifier, issuance date, and issuing agency name. Include information on amendments.	No Vermont Water Quality Certification (WQC) applies to this Project, as it predates the implementation of the Vermont Water Quality Standards (VWQS). However, GMP has entered into an MOU with VANR to develop a detailed scope of work and schedule to demonstrate that the Project is in compliance with VWQS. See Appendix A.	
	Hyperlinks to key electronic records on FERC e-library website or other publicly accessible data repositories <sup>[1]</sup>	<p>This Project is not regulated under FERC. Therefore, records are not available on the FERC e-library website. Please refer to Appendix A to see the key documents listed below.</p> <p>September 20, 2012 MOA between GMP and the Vermont Agency of Natural Resources – The MOA was established to support upgrades to the Mollys Falls facility that would require a Certificate of Public Good (CPG) from the Vermont Public Service Board (PSB), requiring compliance with the VWQS.</p>	

<b>Item</b>	<b>Information Requested</b>	<b>Response (include references to further details)</b>	
		<b>Marshfield Development</b>	<b>Peacham Development</b>
		<p>Green Mountain Power Molly's Falls Hydroelectric Project Study Report – The purpose of the Study Report is to describe the site-specific scientific studies of the Mollys Falls Project that investigated the areas and issues associated with the Project that were identified in an MOA between GMP and VANR, dated September 20, 2012.</p> <p>GMP Mollys Falls Project MOU Operational Changes Summary Table (July 2019) – This table describes the operational changes to be implemented at the Molly's Falls Project following improvements based on the MOU between GMP and VANR.</p> <p>Flow and Water Level Management and Monitoring Plan (FWLMMP) (February 2024 Final) – This Plan describes water levels, flows, and schedules that are required for the Molly's Falls Hydroelectric Facility following completion of construction of the physical improvements that the PUC approved in its March 2020 Order.</p> <p>Dissolved Oxygen (DO) Monitoring Plan (February 2024 Final) – This monitoring plan was proposed to confirm that DO conforms with the current VWQS criteria following the physical and operational changes to the Project described in the PUC Final Order Granting 10 V.S.A. Chapter 43 Authorization for Improvements at the Molly's Falls Hydroelectric Facility, dated March 27, 2020, and pursuant to the MOU between GMP and VANR dated August 8, 2019.</p> <p>Riparian Zone Restoration Plan (February 2024 Final) – This final plan describes riparian zone restoration along an approximately 3.15-mile reach of the Winooski River in Cabot and Marshfield, Vermont.</p> <p>Memorandum of Understanding Between GMP and VANR (December 23, 2020) – The Parties agree to the terms and conditions to be included in any Order or CPG issued by the PUC related to the improvements at the Molly's Falls Project. GMP filed the</p>	

<b>Item</b>	<b>Information Requested</b>	<b>Response (include references to further details)</b>	
		<b>Marshfield Development</b>	<b>Peacham Development</b>
		<p>required plans (FWLMMP, DO Monitoring Plan, and Riparian Zone Restoration Plan) with the Commission following receiving final comments from the VTANR on March 8, 2024.</p> <p>State of Vermont Public Utility Commission Final Order Granting 10 V.S.A Chapter 43 Authorization for Improvements at the Molly's Falls Hydroelectric Facility (March 23, 2021) – The Order grants GMP's request for authorization to upgrade the service spillway and install a bypass flow pipe at the Molly's Falls Dam.</p>	
<b>Powerhouse</b>	Date of initial operation (past or future for pre-operational applications)	1927	1930
	Total installed capacity (MW) <b>For recertifications: Indicate if installed capacity has changed since last certification</b>	5 MW	N/A – The Peacham development does not generate hydroelectric power
	Average annual generation (MWh) and period of record used <b>For recertifications: Indicate if average annual generation has changed since last certification</b>	Monthly generation ranges throughout the year from 250 MWh to 900 MWh, seasonally. From 1980 to 2019, annual generation averaged approximately 7,310 MWh. Project operations changed based on the conditions in the August 2019 MOU between GMP and VANR. GMP expects a decrease in annual generation with the implementation of these conditions. In 2021, the Marshfield Project generated 6,444 MWh.	N/A

<b>Item</b>	<b>Information Requested</b>	<b>Response (include references to further details)</b>	
		<b>Marshfield Development</b>	<b>Peacham Development</b>
	<u>Mode of operation</u> (run-of-river, peaking, pulsing, seasonal storage, diversion, etc.) <b>For recertifications: Indicate if mode of operation has changed since last certification</b>	Limited seasonal peaking mode, seasonal storage	Run-of-River, except during winter draw-down and spring re-fill operations. The pond is maintained at full-pool between Memorial Day and Labor Day each year, with draw-down beginning in late November and ending in early January.
	Number, type, and size of turbine/generators, including maximum and minimum hydraulic capacity and maximum and minimum output of each turbine and generator unit	One (1) Norcan vertical Francis turbine with a rated hydraulic capacity of 200-210 cfs. The turbine's actual hydraulic capacity for safe operations is 103 cfs to 173 cfs, based on testing completed by the manufacturer.	There is no power generating capacity at the Peacham Pond development.
	Trashrack clear spacing (inches) for each trashrack	The trashrack consists of 3/8 inch thick by 3-inch-deep bars spaced at 3 inches on center.	The trashrack consists of 1/2 inch bars by 3-inch bars with a 2.5-inch spacing.
	Approach water velocity (ft/s) at each intake if known	This information is not readily available.	N/A



	<p>Dates and types of major equipment upgrades</p> <p><b>For recertifications: Indicate only those since last certification</b></p>	<p>From 2018 through 2020, the following work was completed:</p> <ul style="list-style-type: none"> <li>• Gatehouse improvements, including headgate refurbishment, walkway installation, and replacement of actuator and electronic and mechanical equipment with improved equipment enabling remote gate operation</li> <li>• Service spillway concrete resurfacing</li> <li>• Replacement of the service spillway gates with vertical steel slide gates and a steel support structure that can be operated remotely or locally</li> <li>• Installation of personnel and public safety features</li> <li>• Installation of an emergency generator to provide backup power for the operation of the new vertical slide gates and existing headgate</li> <li>• Increase the height of the service spillway walls to a minimum of 2 feet above the water surface</li> </ul> <p>In 2021 and 2022, the following work was completed:</p>	<ul style="list-style-type: none"> <li>• Peacham Pond Outlet Works upgrades</li> <li>• Installation of power, new valve, and actuator to enable remote operation of the Peacham Pond outlet gate</li> <li>• Replacement of Intake Walkway Bridge</li> <li>• Installation of a gatehouse on the deck of the intake</li> </ul>
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Item	Information Requested	Response (include references to further details)	
		Marshfield Development	Peacham Development
		<ul style="list-style-type: none"> <li>• Installation of a minimum-flow bypass structure and pipe system to release flows into Molly's Brook</li> <li>• Installation of an aeration system at the powerhouse to increase DO levels</li> <li>• Construction of a new concrete chute spillway and underdrain system for the emergency spillway</li> <li>• Replacement of current temporary extensions to abutment walls with reinforced concrete extensions of the emergency spillway</li> <li>• Amor existing plunge pool of the emergency spillway</li> </ul>	
	Dates, purpose, and type of any recent operational changes <b>For recertifications: Indicate only those since last certification</b>	<ul style="list-style-type: none"> <li>• Pursuant to the 2019 VANR MOU, GMP implemented a Flow and Water Level Management and Monitoring Plan, a Dissolved Oxygen Monitoring Plan, and a Control of Water Plan in 2021<sup>5</sup>. Within these Plans, the following operational changes are discussed in depth:</li> </ul>	<ul style="list-style-type: none"> <li>• Pursuant to the 2019 VANR MOU, the following operational changes have recently been made to Peacham Pond<sup>6</sup>: <ul style="list-style-type: none"> <li>• Normal operating level (NOL) shall be reached by May 1 each year, or later based on ice on</li> </ul> </li> </ul>

<sup>5</sup> Case No. 20-2570-PET Final Order

<sup>6</sup> Operational changes subject to the conditions of Attachment A of the 2019 VANR MOU

<b>Item</b>	<b>Information Requested</b>	<b>Response (include references to further details)</b>	
		<b>Marshfield Development</b>	<b>Peacham Development</b>
		<ul style="list-style-type: none"> <li>• A new normal operating level (NOL) of 1,223.7 feet NAVD 88</li> <li>• Reduction default winter drawdown depth to 2.0 feet or less (depending on snowpack and forecasted rainfall)</li> <li>• Winter drawdowns shall be staged such that they do not exceed 12 inches per week prior to December 15 each year</li> <li>• NOL shall be reached by May 1 each year, or later based on ice on pond surface and/or snowpack in watershed</li> <li>• Water level management changes to be compatible with loon nesting from refill through July 31 and within 1 foot above/below NOL from August 1 through November 30</li> <li>• Higher minimum flow rates for Sucker Brook, Molly's Brook, and the Winooski River</li> <li>• Peaking flow rate restriction from Peacham Pond Dam and the powerhouse at Marshfield Dam</li> </ul>	<p>pond surface and/or snowpack in watershed</p> <ul style="list-style-type: none"> <li>• Maintain Peacham Pond in accordance with loon protocols between May 1 and July 31</li> <li>• Maintain water levels within 1 foot of NOL between August 1 and November 30 (upon completion of loon nesting)</li> <li>• Winter drawdowns may not exceed 6.6 feet from NOL (between December 1 and April 30). Upon completion of upgrades and by 2025-2026, winter drawdowns may not exceed 3 feet.</li> <li>• Winter drawdowns shall be staged such that they do not exceed 12 inches per week prior to December 15 each year</li> </ul> <p>Operational changes related to Sucker Brook:</p> <ul style="list-style-type: none"> <li>• Release from Peacham Pond to Sucker Brook a minimum conservation flow of the lesser of either the inflow to Peacham</li> </ul>

<b>Item</b>	<b>Information Requested</b>	<b>Response (include references to further details)</b>	
		<b>Marshfield Development</b>	<b>Peacham Development</b>
		<ul style="list-style-type: none"> <li>• Implement ramping of generation flows, except in emergencies or high natural flow events</li> <li>• Reduction in the frequency of generation cycles</li> <li>• Align generation with high natural flows</li> <li>• Smooth flow-rate transitions between drawdown, refill, and run-or-river operations at Sucker Brook</li> <li>• Smooth flow-rate transitions between generation-start and end, and non-generation periods in the Winooski River</li> </ul>	<p>Pond or 6.7 cfs, or net inflow-evaporation if less</p> <ul style="list-style-type: none"> <li>• Reduced peak flows for normal winter drawdown operations of 25 cfs, or inflow if higher. Higher flows may only be released as needed for maintaining steady pond levels for dam safety.</li> <li>• Between May 1 and November 30, or the date NOL is reached at Peacham Pond, whichever is later, Peacham Pond shall be managed in ROR mode</li> <li>• Include ramping plan for drawdown, refill, and ROR transitions at Peacham Pond and Sucker Brook to the FWLMMP</li> </ul>
	Plans, authorization, and regulatory activities for any facility upgrades or license or exemption amendments	N/A	N/A



<b>Item</b>	<b>Information Requested</b>	<b>Response (include references to further details)</b>	
		<b>Marshfield Development</b>	<b>Peacham Development</b>
<b>Dam or Diversion</b>	Date of original dam or diversion construction and description and dates of subsequent dam or diversion structure modifications	<p>Three (3) different facilities were operated at this location prior to 1914<sup>7</sup></p> <ul style="list-style-type: none"> <li>• A 155-foot-head dam used by Molly's Falls Electric Light &amp; Power Co.</li> <li>• A 200-foot-long storage dam with a 9-foot head located roughly three quarters of a mile upstream</li> <li>• A dam and lumber mill formerly known as Bruce's Mill was located near the present Sucker Brook culvert.</li> </ul> <p>1927 – current dam and appurtenances</p>	<p>The Peacham Pond dam was constructed in 1930 on Sucker Brook. The Project was originally constructed for water storage, but with provision made for the future addition of a power plant.</p>
	Dam or diversion structure length, height including separately the height of any flashboards, inflatable dams, etc. and describe seasonal operation of flashboards and the like	<ul style="list-style-type: none"> <li>• 1,100-foot-long rolled earthfill dam</li> <li>• 48.5-foot maximum height</li> <li>• Crest elevation 1,240.4 feet NAVD 88</li> <li>• One 12-foot-wide by 13.8-foot-long rectangular intake structure with a height of 9.75 feet.</li> <li>• One 40-foot-wide, 260-foot-long service spillway with a concrete crest at 1,240.43 feet NAVD 88 that is equipped with a pair of side-by-side slide gates</li> </ul>	<ul style="list-style-type: none"> <li>• 710-ft-long earthfill dam</li> <li>• 25.6-ft-height</li> <li>• Spillway elevation: 1,403.84 feet NGVD 29</li> <li>• 90-foot-wide overflow spillway <ul style="list-style-type: none"> <li>• The spillway is maintained in an open configuration and is not equipped with stoplogs or other devices to impound water</li> </ul> </li> </ul>

<sup>7</sup> VHB 2016

<b>Item</b>	<b>Information Requested</b>	<b>Response (include references to further details)</b>	
		<b>Marshfield Development</b>	<b>Peacham Development</b>
		<ul style="list-style-type: none"> <li>One 370-foot-long 46-foot-wide emergency spillway consisting of an upstream concrete structure with gates and an earthen channel leading to the plunge pool</li> </ul>	
	Length and type of each penstock and water conveyance structure between the impoundment and powerhouse	One (1) penstock: <ul style="list-style-type: none"> <li>8,700 feet long</li> <li>6-foot diameter</li> </ul>	The Peacham Development does not generate power, and therefore does not have a powerhouse
	Designated facility purposes (e.g., power, navigation, flood control, water supply, etc.)	Power generation, recreation, storage	Recreation, storage
<b>Conduit Facilities Only</b>	Date of conduit construction and primary purpose of conduit	Molly's Falls Hydroelectric Project is not a conduit facility	
	Source water	N/A	
	Receiving water and location of discharge		
<b>Impoundment and Watershed</b>	Authorized maximum and minimum impoundment water surface elevations <b>For recertifications: Indicate if these values have changed since last certification</b>	Normal full pond elevation at 1,223.7 feet NAVD 88. From August 1 to November 30, a 1-foot fluctuation from normal full pond levels is allowed. From December 1 to mid-March, the impoundment may be drawn down 2 feet. Minimum: 1,221.7 feet NAVD 88 Maximum: 1,224.2 feet NAVD 88	Normal full pond elevation of 1,402.39 feet NGVD 29. Winter low water level (through 2024-2025): 1,395.79 feet NGVD 29 Winter low water level (2025-2026 onward): 1,399.39 feet NGVD 29
	Normal operating elevations and normal fluctuation range	NOL is 1,223.7 feet NAVD 88.	NOL is 1,402.39 feet NGVD 29. These levels are maintained from May 1 to

Item	Information Requested	Response (include references to further details)	
		Marshfield Development	Peacham Development
	<b>For recertifications: Indicate if these values have changed since last certification</b>	May 1 (or refill if later) until Loon Nesting: 0.5-foot fluctuation from NOL End of Loon Nesting/August 1 to November 30: 1-foot fluctuation from NOL December 1 to mid-March: 2-foot drawdown Mid-March to May 1: Refill to NOL	November 30. From May 1 to July 31, water levels are maintained in accordance with loon protocols. From August 1 to November 30, pond levels are maintained within 1-foot of the NOL. Winter drawdowns begin December 1 and are completed December 31. The winter drawdown below NOL is 6.6-feet through 2024-2025 and will be limited to 3-feet from 2025-2026 onward.
	Gross storage volume and surface area at full pool <b>For recertifications: Indicate if these values have changed since last certification</b>	Total storage of 6,032 acre-feet with a surface area of 377 acres.	Total storage of 7,800 acre-feet with a surface area of 382 acres.
	Usable storage volume and surface area <sup>8</sup> <b>For recertifications: Indicate if these values have changed since last certification</b>	740 acre-feet of usable storage, and a water surface area of 377 acres at normal full pool.	2,056 acre-feet of usable storage, and a water surface area of approximately 382 acres at normal full pool.
	Describe requirements related to impoundment inflow and outflow, elevation restrictions (e.g., fluctuation limits, seasonality)	Please see section related to recent operational changes in this chart	Please see section related to recent operational changes in this chart

<sup>8</sup> Information obtained from the Vermont Agency of Natural Resources GIS – accessed from [Dams | Dams | VTANR Open Data \(vermont.gov\)](#) on May 11, 2022



<b>Item</b>	<b>Information Requested</b>	<b>Response (include references to further details)</b>	
		<b>Marshfield Development</b>	<b>Peacham Development</b>
	up/down ramping and refill rate restrictions.		
	Upstream dams by name, ownership, and river mile. If FERC licensed or exempt, please provide FERC Project number of these dams. Indicate which upstream dams have downstream fish passage.	There are no dams upstream of the Molly's Falls Project	
	Downstream dams by name, ownership, river mile and FERC number if FERC licensed or exempt. Indicate which downstream dams have upstream fish passage	<p>There are no other dams located on Sucker Brook or Mollys Brook, but there are six dams on the Winooski River between its confluence with Mollys Brook and its terminus at Lake Champlain:</p> <ul style="list-style-type: none"> <li>• Winooski One/Chace Mill Project (FERC No. 2756), owned by the Burlington Electric Department</li> <li>• Gorge No. 18 Dam (non-FERC jurisdictional), owned by GMP</li> <li>• Essex No. 19 Project (FERC No. 2513), owned by GMP</li> <li>• Bolton Falls Project (FERC No. 2879), owned by GMP</li> <li>• Middlesex No. 2 Dam (non-FERC jurisdictional), owned by GMP</li> <li>• Winooski No. 8 Project (FERC No. 6470), owned by the Winooski Hydroelectric Company</li> </ul> <p>There is a trap-and-truck fish facility that has been operated since 1993 that transports fish. Walleye are transported from the Winooski One Project to the base of the Gorge No. 18 Dam. Landlocked salmon and steelhead trout are transported upstream of the Essex No. 19 Project.</p>	
	Operating agreements with upstream or downstream facilities	There are no operating agreements in place that affect water availability and facility operation.	

<b>Item</b>	<b>Information Requested</b>	<b>Response (include references to further details)</b>	
		<b>Marshfield Development</b>	<b>Peacham Development</b>
	that affect water availability and facility operation		
	Area of land (acres) and area of water (acres) inside FERC project boundary or under facility control. Indicate locations and acres of flowage rights versus fee-owned property.	The Project is not FERC regulated and therefore does not have a FERC project boundary. GMP has 23 acres of land at the Marshfield Development that include the hydroelectric dam, buildings for the hydropower facility, and spillways on the reservoir. At the Peacham Development, GMP has 24.7 acres of land under facility control.	
<b>Hydrologic Setting</b>	Average annual flow at the dam, and period of record used	<p>The Molly's Falls Project is a ponding unit, with varying annual flows at the dam.</p> <p>Average annual flow was calculated to be 677 cfs. This was calculated using data from USGS Gage No. 045286000 for the period of record 1980 - 2024. Values are prorated to the Marshfield Dam using the ratio of the drainage area of the dam (23.3 square miles) to the drainage area of the gage (397 square miles).</p>	
	Average monthly flows and period of record used	Average monthly flows were calculated using data from USGS Gage No. 045286000 for the period of record 1980 - 2024. Values are prorated to the Marshfield Dam using the ratio of the drainage area of the dam (23.3 square miles) to the drainage area of the gage (397 square miles).	

Item	Information Requested	Response (include references to further details)																											
		Marshfield Development	Peacham Development																										
		<table><thead><tr><th>Month</th><th>Average Monthly Flow (cfs)</th></tr></thead><tbody><tr><td>January</td><td>552</td></tr><tr><td>February</td><td>484</td></tr><tr><td>March</td><td>894</td></tr><tr><td>April</td><td>1741</td></tr><tr><td>May</td><td>918</td></tr><tr><td>June</td><td>573</td></tr><tr><td>July</td><td>499</td></tr><tr><td>August</td><td>359</td></tr><tr><td>September</td><td>270</td></tr><tr><td>October</td><td>512</td></tr><tr><td>November</td><td>641</td></tr><tr><td>December</td><td>705</td></tr></tbody></table>	Month	Average Monthly Flow (cfs)	January	552	February	484	March	894	April	1741	May	918	June	573	July	499	August	359	September	270	October	512	November	641	December	705	
Month	Average Monthly Flow (cfs)																												
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August	359																												
September	270																												
October	512																												
November	641																												
December	705																												
	Location and name of closest stream gaging stations above and below the facility <sup>9</sup>	Above: <ul style="list-style-type: none"><li>USGS <a href="#">01135150</a> Pope Brook (Site W-3) Near North Danville, VT</li></ul> Below: <ul style="list-style-type: none"><li>USGS <a href="#">04285500</a> North Branch Winooski River at Wrightsville, VT</li><li>USGS <a href="#">04286000</a> Winooski River at Montpelier, VT</li></ul>																											
	Watershed area at the dam (in square miles). Identify if this value is	The Winooski River has a drainage area of 1,080 sq. miles (VTANR, 2017) <sup>10</sup> .																											

<sup>9</sup> Gaging information from the USGS Water Watch website, retrieved from [USGS WaterWatch -- Streamflow conditions](#) on May 12, 2022.

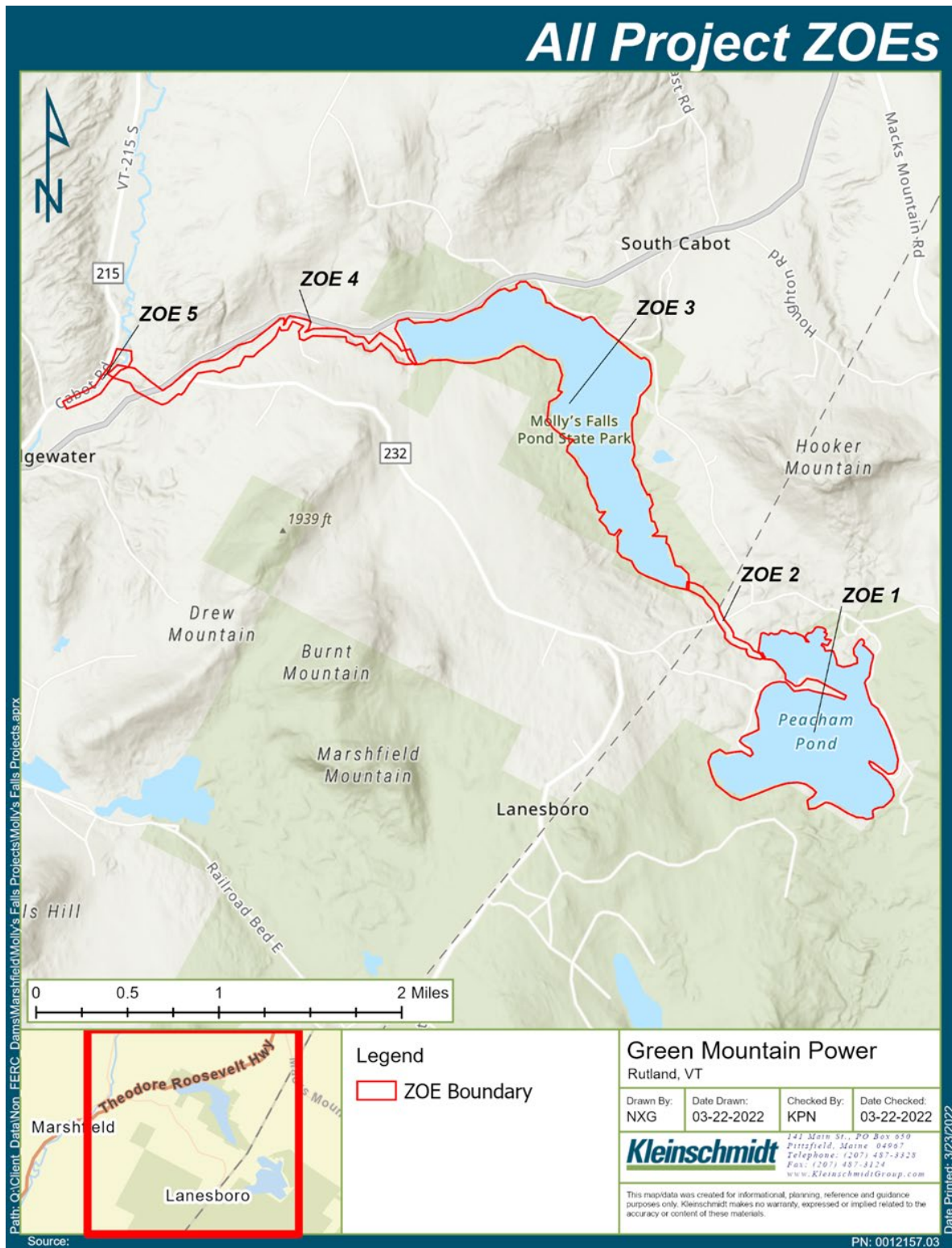
<sup>10</sup> Basin 8 – Winooski River Watershed Water Quality and Aquatic Habitat Assessment Report. Retrieved from [Basin 8 - Winooski River Watershed \(vermont.gov\)](#) on May 12, 2022.



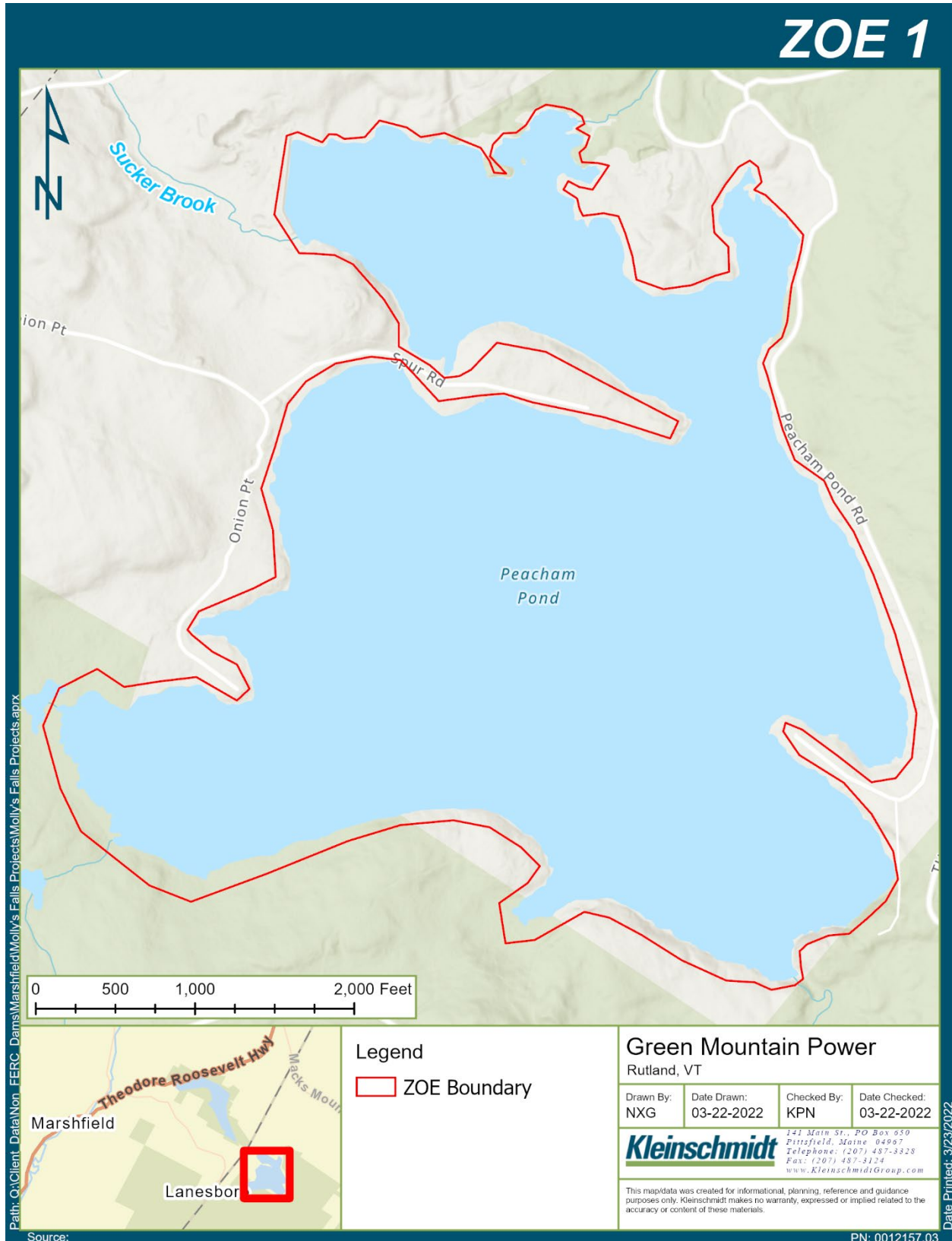
<b>Item</b>	<b>Information Requested</b>	<b>Response (include references to further details)</b>	
		<b>Marshfield Development</b>	<b>Peacham Development</b>
	prorated from gage locations and provide the basis for proration calculation.		
	Other facility specific hydrologic information		
<b>Designated Zones of Effect</b>	Number of zones of effect	There are five zones of effect: 1) Peacham Pond Impoundment, 2) Peacham Pond Downstream, 3) Marshfield Impoundment/Molly's Falls Pond, 4) Marshfield Bypassed Reach, 5) Marshfield Downstream/Winooski River. See Figure 15 to Figure 19 for the approximate areas of the zones of effect.	
	Upstream and downstream locations by river miles	ZOE 3 is the Marshfield Impoundment ZOE 4 is the entirety of Molly's Brook, approximately 2 miles ZOE 5 is from RM 83.8 of the Winooski River to the Project's powerhouse	ZOE 1 encompasses the Peacham Pond impoundment ZOE 2 is the entirety of Sucker Brook

<sup>[1]</sup> For example, the FERC license or exemption, recent FERC Orders, Water Quality Certificates, Endangered Species Act documents, Special Use Permits from the U.S. Forest Service, 3rd-party agreements about water or land management, grants of right-of-way, U.S. Army Corps of Engineers permits, and other regulatory documents. If extensive, the list of hyperlinks can be provided separately in the application.

### 3.0 ZONES OF EFFECT DESCRIPTIONS

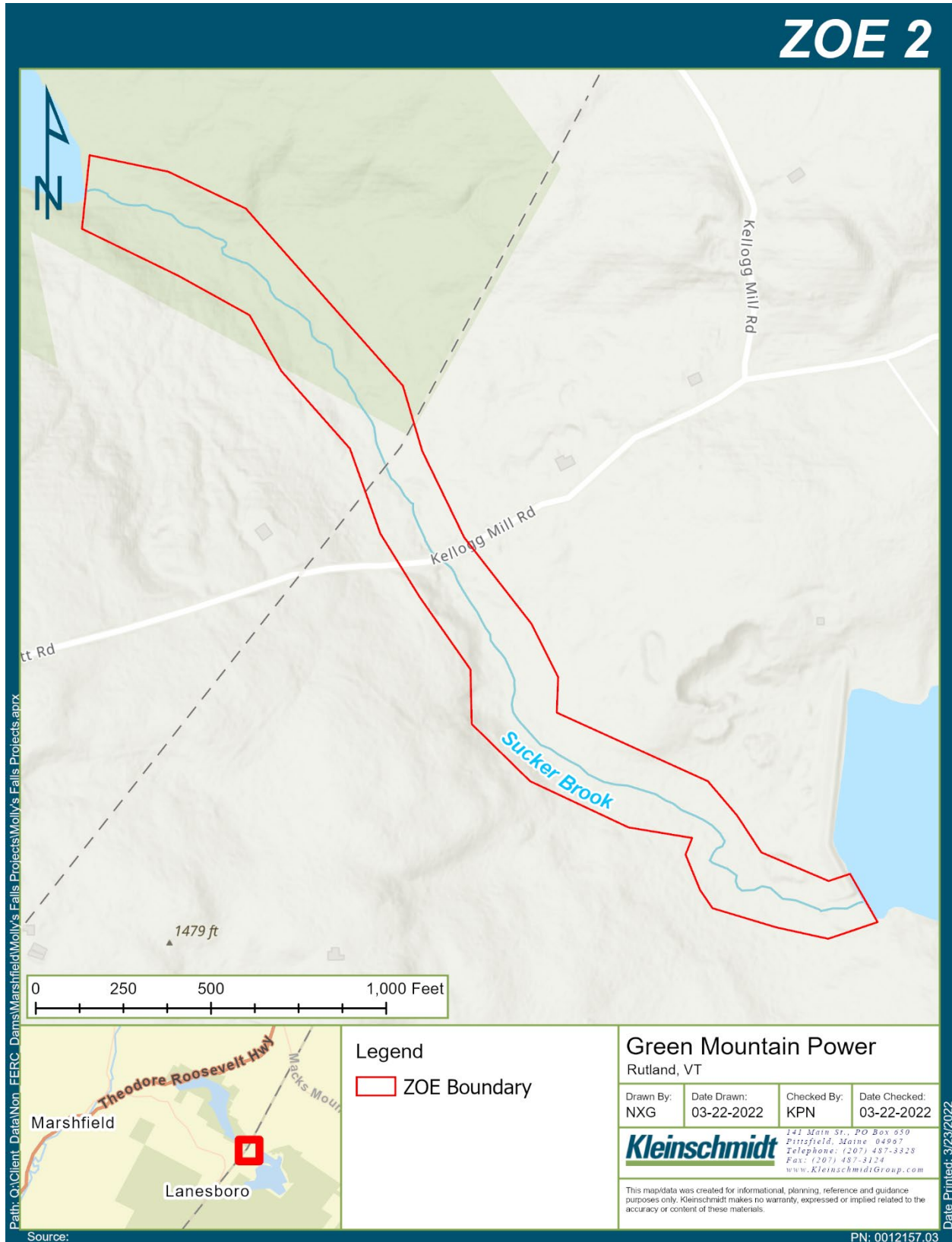


**Figure 14 Molly's Falls Project Zones of Effect**

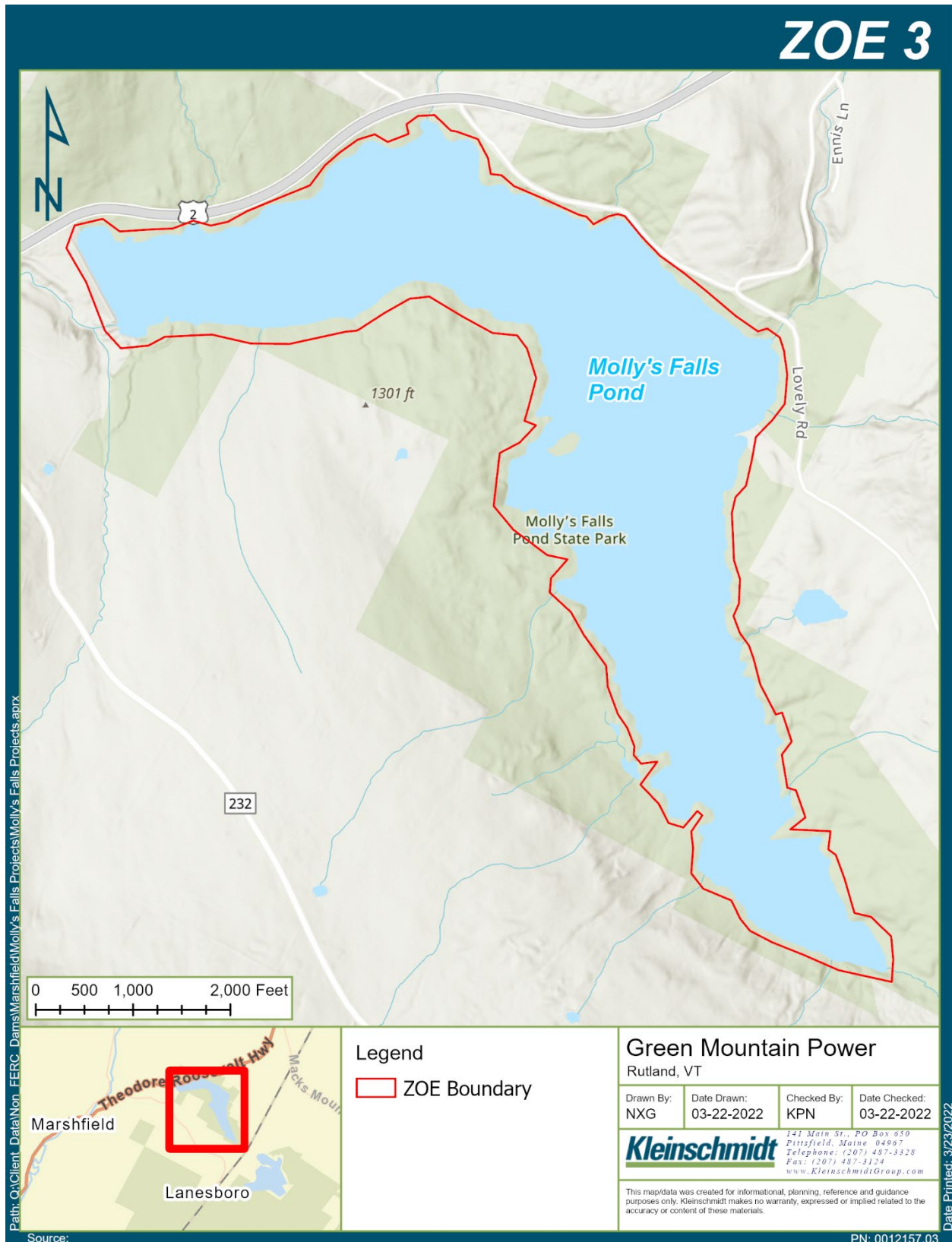


**Figure 15 Peacham Pond Impoundment ZOE 1**

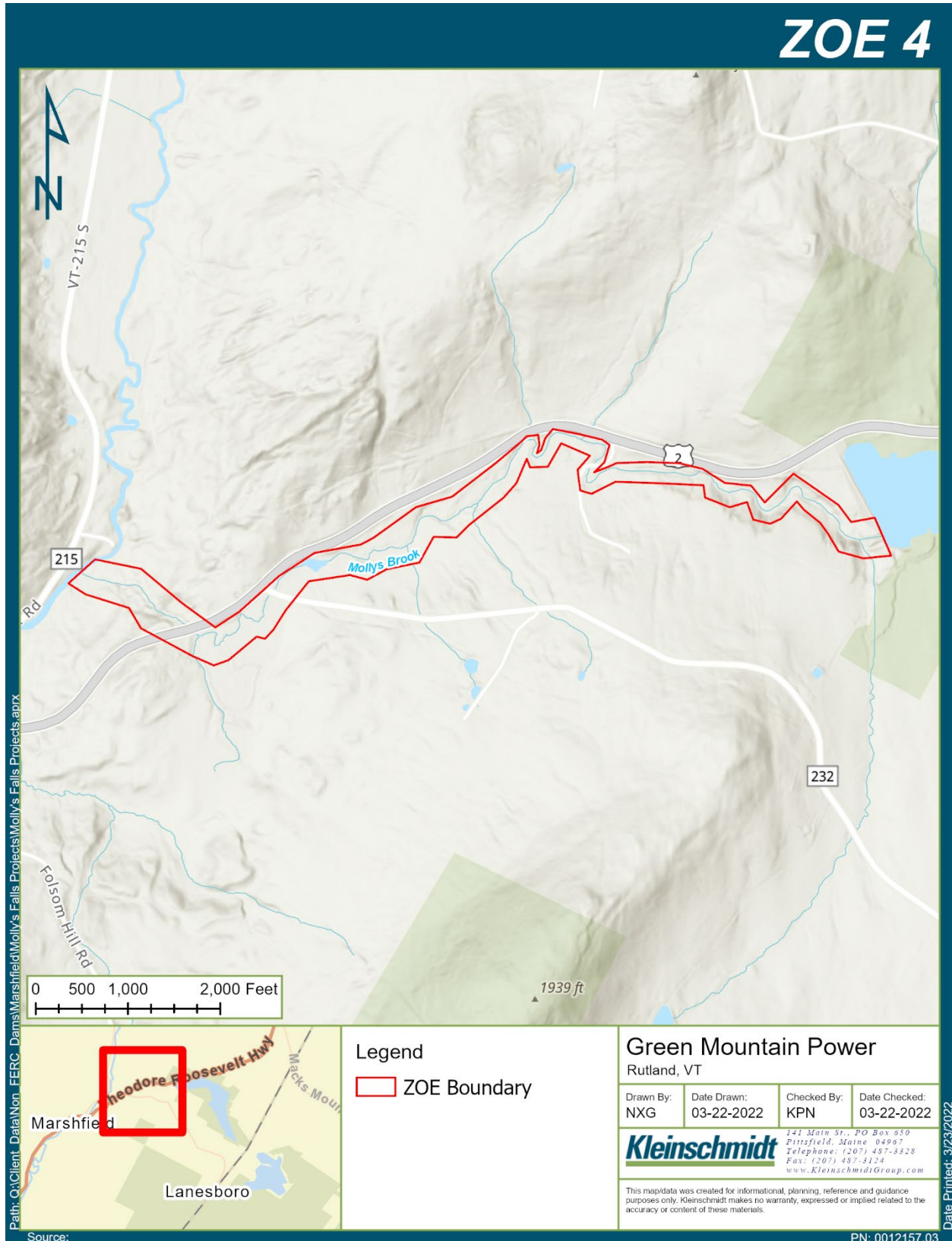




**Figure 16 Peacham Pond Downstream ZOE 2**

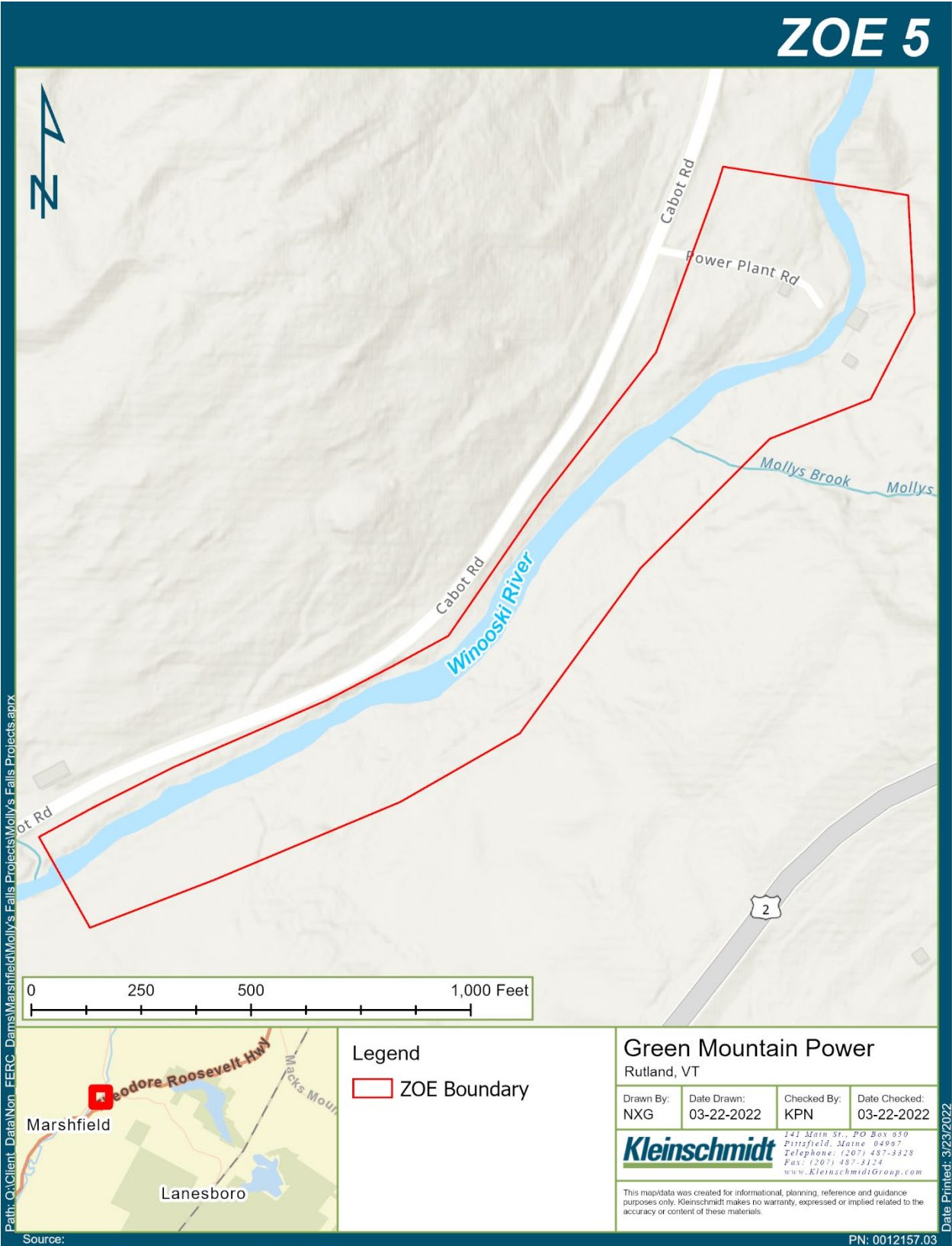


**Figure 17 Marshfield Impoundment/Molly's Falls Pond ZOE 3**



**Figure 18 Marshfield Bypassed Reach ZOE 4**





**Figure 19 Marshfield Downstream/Winooski River ZOE 5**



## 4.0 STANDARD MATRIX

**Table 2 Standards Matrix –Alternate Format Template for Multiple ZOE's**

Zone No., Zone Name, and Standard Selected (including PLUS if selected)	CRITERION							
	A	B	C	D	E	F	G	H
	Ecological Flows	Water Quality	Upstream Fish Passage	Downstream Fish Passage	Shoreline and Watershed Protection	Threatened and Endangered Species	Cultural and Historic Resources	Recreational Resources
ZOE 1 Peacham Pond Impoundment	2	2	1	1	1	2	1	1
ZOE 2 Peacham Pond Downstream	2	2	1	1	1	2	1	1
ZOE 3 Marshfield Impoundment/ Molly's Falls Pond	2	2	1	1	1	2	1	1
ZOE 4 Marshfield Bypassed Reach	2	2	1	1	1	2	1	1
ZOE 5 Marshfield Downstream/ Winooski River	2	2	1	1	2	2	1	1

## 5.0 SUPPORTING INFORMATION

### 5.1 Ecological Flows

**Table 3 Ecological Flows Standards – ZOE 1 Peacham Pond Impoundment**

<b>Criterion</b>	<b>Standard</b>	<b>Instructions</b>
A	2	<p><u>Agency Recommendation (see Appendix A for definition):</u></p> <ul style="list-style-type: none"> <li>Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective).</li> <li>Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement.</li> <li>Explain how the recommendation relates to formal agency management goals and objectives for fish and wildlife.</li> </ul> <p>Explain how the recommendation provides fish and wildlife protection, mitigation, and enhancement (including instream flows, ramping, and peaking rate conditions, and seasonal and episodic instream flow variations).</p>

- The Project's Flow and Water Level Management Monitoring Plan (FWLMMP)<sup>11</sup> was written to comply with the applicable sections of the March 2020 PUC Order and the August 2019 MOU Order with VANR. The FWLMMP describes the following related to ZOE 1: a detailed protocol for how the Facility will be operated to achieve ROR conditions in Sucker Brook, a detailed ramping protocol for how the Facility will be operated to transition between drawdown and refill, and ROR periods at Sucker Brook and Peacham Pond, and information on how the Facility will be managed to avoid non-compliance events with the requirements for the NOL and the winter drawdowns at Peacham Pond.
- The Project includes one intake structure at the dam: The intake structure is located on the right abutment of the upstream toe of the embankment (Figure 4). There is no bypass reach in the impoundment ZOE.
- Vermont WQC does not apply to this project, because it predates the implementation of VWQ standards. Additionally, this project is also exempt from

<sup>11</sup> VHB 2024b  
LIHI Handbook 2.05 Edition  
2025

FERC license requirements because it was commissioned prior to license regulations.<sup>12</sup>

- Water levels in Peacham Pond are normally maintained at the NOL of 1,402.39 feet NGVD 29 from May 1 to November 30. <sup>13</sup>.
  - Starting during the winter of 2020-2021, through the winter of 2024-2025 winter drawdown can be no more than 6.6 feet below the NOL. Starting during the winter of 2025-2026, winter drawdown can be no more than 3 feet below the NOL. Drawdown may start December 1 or later each year. Additionally, pond levels can be drawn down below the criteria if safety or hydrological criteria are met.
  - Impoundment refill typically begins in March but must be completed by May 1 unless hydrological criteria is met.
  - Impoundment elevation is maintained at 1,402.39 feet NGVD 29 (to extent feasible and safe) from impoundment refill (May 1) to July 31 or end of loon nesting season if it is earlier. Impoundment elevation is maintained within 1 foot NOL from August 1 until November 30. GMP can measure Peacham Pond water levels remotely, down to 1,394 NGVD 29 and also via staff gauge at the outlet structure.
- Peacham Pond water levels are read remotely with a transducer that communicates with the Project's SCADA system. A staff gauge on the exterior of the outlet structure allows manual reading of the water level and can be used if water levels are too low for the transducer.
- GMP is implementing a reduction in the drawdown depth in Peacham Pond from previous operations. This provides an ecological benefit to the pond ecosystem without compromising downstream flood protection and the other benefits of the drawdown.
- Ramping requirements apply to the transitions between ROR, pond-drawdown and pond-refill modes.
- The maximum hourly rate of change allowed is a 5.8 cfs increase in flows. Based on the 5.8-square mile watershed of Peacham Pond, the following ramping rates are specified for the transition from ROR to drawdown, which occurs in early December<sup>14</sup>:

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<sup>12</sup> VHB 2016

<sup>13</sup> VHB 2024b

<sup>14</sup> VHB 2024b

**Table 4 Peacham Pond Up-Ramping Limits**

Starting Outflow Rate (cfs)	Next Outflow Rate (1 Hour Interval) (cfs)
0.2	6.0
3.0	8.8
6.0	11.8
9.0	14.8
11.8	17.6
15.0	20.8
17.6	23.4
21.0	25
23.4	25

- For the transition from drawdown to maintaining the pond draw-down, outflow is ramped down from the drawdown rate of no more than 25 cfs or inflow at a maximum rate of change of 0.5 csm per hour. The maximum hourly rate of change is a 3 cfs decrease to minimize impacts to fish and wildlife species. The following ramping rates are utilized:

**Table 5 Peacham Pond Down Ramping Limits**

Starting Outflow Rate (cfs)	Next Outflow Rate (1 Hour Interval) (cfs)
25	22
22	19
19	16
16	13
13	10
10	7
7	6.7 (minimum conservation flow)
7	4 (if equal to inflow)
4	1 (if equal to inflow)



For the transition to refill, outflow is ramped down at a maximum rate-of-change of 0.5 csm per hour and the ramping rates in Table 5 are utilized. When the pond is refilled to the NOL, outflow is adjusted to match inflow following the ramping limits specified in Table 4.

**Table 6 Ecological Flows Standards –ZOE 2 Peacham Downstream – Sucker Brook**

<b>Criterion</b>	<b>Standard</b>	<b>Instructions</b>
A	2	<p><u>Agency Recommendation (see Appendix A for definition):</u></p> <ul style="list-style-type: none"> <li>Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective).</li> <li>Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement.</li> <li>Explain how the recommendation relates to formal agency management goals and objectives for fish and wildlife. Explain how the recommendation provides fish and wildlife protection, mitigation, and enhancement (including instream flows, ramping, and peaking rate conditions, and seasonal and episodic instream flow variations).</li> </ul>

- WQC does not apply to this project, because it predates the implementation of VWQ standards. Additionally, this project is also exempt from FERC license requirements because it was commissioned prior to license regulations.<sup>15</sup>
- The Project's FWLMMP<sup>16</sup> was written to comply with the applicable sections of the March 2020 PUC Order and the August 2019 MOU Order with VANR. This includes information related to ZOE 2 on how the Facility is managed to avoid non-compliance events with maximum flow requirements for Sucker Brook (ZOE 2), a detailed protocol for how the Facility will be operated to achieve ROR conditions in Sucker Brook (ZOE 2), a detailed ramping protocol for how the Facility will be operated to transition between drawdown, refill, and ROR periods at Sucker Brook and Peacham Pond (ZOE 2 and ZOE 1).
- See the ramping limits described for ZOE 1.

<sup>15</sup> VHB 2016

<sup>16</sup> VHB 2024b

- Conservation flows to Sucker Brook (ZOE 2) vary seasonally.
  - May 1 (or Peacham Pond refill if later) to November 30, Sucker Brook is operated in ROR mode, where outflow to Sucker Brook equals the net inflow to Peacham Pond minus surface evaporation, maintaining a steady water level.
  - December 1 to May 1 (or the date Peacham Pond is refilled to NOL if later), Peacham Pond may be drawdown for winter and there is a limit to the maximum outflow.
- When the impoundment is full or fully drawn down, the project operates in run-of-river operation. Minimum release flows to Sucker Brook are provided in accordance with the following terms according to the MOU:
  - Impoundment Drawdown → Maximum 25 cfs or inflow if greater
  - Impoundment Refill → Minimum 6.7 cfs or net inflow – evaporation if less
  - Full-pond or Fully Drawn-Down Pond → Run-of-River operation
- The establishment of a minimum rate of flow release downstream from the Peacham Pond dam during pond refill would provide high quality aquatic habitat that would fully support aquatic biota uses of the stream in accordance with Section 3-04 of the VWQS.
- Flow recommendations to the Sucker Brook were established based on site-specific scientific studies described in VHB 2016 to have the Facility operate in accordance with applicable VANR procedures, including the VANR Streamflow Procedure and the VANR Biocriteria Procedure.

**Table 7 Ecological Flows Standards – Marshfield Impoundment/Molly's Falls Pond ZOE 3**

<b>Criterion</b>	<b>Standard</b>	<b>Instructions</b>
A	2	<p><u>Agency Recommendation (see Appendix A for definition):</u></p> <ul style="list-style-type: none"> <li>Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective).</li> <li>Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement.</li> <li>Explain how the recommendation relates to formal agency management goals and objectives for fish and wildlife.</li> </ul> <p>Explain how the recommendation provides fish and wildlife protection, mitigation, and enhancement (including instream flows, ramping, and peaking rate conditions, and seasonal and episodic instream flow variations).</p>

- The Project's FWLMMP<sup>17</sup> was written to comply with the applicable sections of the March 2020 PUC Order and the August 2019 MOU Order with VANR. This includes information related to ZOE 3 on a detailed protocol for ramping up and ramping down the flows released to the Winooski River from the powerhouse during generation, a description of the protocol for operating the penstock tap valve (conservation flow device) and spillway slide gates under varying flow conditions at the Molly's Falls Reservoir, a detailed protocol for deciding when and how the Facility will be managed in the event of winter drawdowns exceeding 2 feet (or 5.8 feet, as applicable) at Molly's Falls Reservoir.
- WQC does not apply to this project, because it predates the implementation of VWQ standards. Additionally, this project is also exempt from FERC license requirements because it was commissioned prior to license regulations.
- The Project includes a 1,100 long rolled earthfill dam, with a single screened intake submerged in the reservoir. The intake leads to the gatehouse at the dam, through the dam directly to the steel penstock. (Figure 8). There is no bypass reach in the impoundment ZOE. GMP can monitor water levels remotely via a water-level sensor inside the gatehouse or at the staff gage affixed to the gatehouse<sup>18</sup>.

<sup>17</sup> VHB 2024b

<sup>18</sup> VHB 2016

- The Marshfield Impoundment/Molly's Falls Pond ZOE 3 is a 377-acre reservoir at a normal full pond elevation of 1,223.7 feet NAVD 88. Typically, Molly's Falls Reservoir is maintained at NOL from May 1 until November 30. Exceptions are noted below<sup>19</sup>:
  - NOL is maintained within 0.5 feet from May 1 until Loon nesting season begins
  - During Loon nesting season, pond levels are managed as stable as possible, unless unsafe.
  - From August 1 or the end of Loon nesting season (Whichever is earlier), NOL is maintained within 1 foot.
  - At any time of the year due to heavy rain fall or snow melt, GMP shall manage releases as best possible to minimize high water levels. Exceptions are allowed from this normal schedule for water levels depending on weather and safety.
- Drawdown shall start on December 1 or later each year. Prior to December 15, GMP will limit the rate of drawdown to more than 6 to 12 inches per week. The winter drawdown shall be completed by mid-March each year. Once maximum drawdown has been reached, GMP will maintain pond levels until spring snowmelt and then refill the reservoir. Refill does not need to be steady or continuous and may be adapted to manage snow-water content<sup>20</sup>.
  - GMP will draw down Molly's Falls Reservoir no more than 2.0 feet, unless specific criteria is met related to maintenance/repair work, snow-water content, and precipitation forecasts. The depth of the drawdown will be determined by hydrologic forecasting that is needed to manage water levels and downstream flows safely.
- GMP shall refill Molly's Falls Reservoir to the NOL by May 1 of each year unless there is excess snow-water content.
- Ramping rates are described under ZOE 5.

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<sup>19</sup> VHB 2024b

<sup>20</sup> VHB 2024b



**Table 8 Ecological Flows Standards – Marshfield Bypassed Reach - Molly's Brook - ZOE 4**

<b>Criterion</b>	<b>Standard</b>	<b>Instructions</b>
A	2	<p><u>Agency Recommendation (see Appendix A for definition):</u></p> <ul style="list-style-type: none"> <li>Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective).</li> <li>Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement.</li> <li>Explain how the recommendation relates to formal agency management goals and objectives for fish and wildlife. Explain how the recommendation provides fish and wildlife protection, mitigation, and enhancement (including instream flows, ramping, and peaking rate conditions, and seasonal and episodic instream flow variations).</li> </ul>

- The Project's FWLMMP<sup>21</sup> was written to comply with the applicable sections of the March 2020 PUC Order and the August 2019 MOU Order with VANR. This includes information related to ZOE 4 on how the Facility is managed to avoid non-compliance events with the conservation flow requirements for Molly's Brook, and a description of the protocol for operating the conservation flow device and spillway slide gates under varying flow conditions at Molly's Falls Reservoir.
- WQC does not apply to this project, because it predates the implementation of VWQ standards. Additionally, this project is also exempt from FERC license requirements because it was commissioned prior to license regulations.
- GMP maintains seasonal conservation flows to Molly's Brook. These flows are preferably released from the bypass pipe, which provides cool water from an approximate depth of 30 feet in the reservoir. The cool water conservation flows provide higher quality aquatic habitat for fish and aquatic insects in Molly's Brook than the near-surface spillway gates. If the bypass pipe cannot be used, water can also be released from the surface of the impoundment from the spillway gates<sup>22</sup>.
  - July through March – No less than 8.5 cfs, or net inflow-evaporation if less, must be released

<sup>21</sup> VHB 2024b

<sup>22</sup> VHB 2024b

- April through June – No less than 12.0 cfs, or net-inflow evaporation if less, must be released
- Monitoring will be conducted to verify that VWQS are met based on these flows.
- Flows into Molly's Brook (ZOE 4) are controlled by the Service Spillway, Emergency Spillway and bypass pipe. Flows are primarily released via the bypass pipe.
- Flow recommendations to Molly's Brook were established based on site-specific scientific studies described in VHB 2016 to have the Facility operate in accordance with applicable VANR procedures, including the VANR Streamflow Procedure and the VANR Biocriteria Procedure. Flows in Mollys Brook have been increased to meet the VWQS for fish community.
- A technical memorandum in Appendix 6 of VHB 2024b describes the specific data and calculations proposed to determine Molly's Brook flows at the powerhouse based on the rate of change in the water level of Molly's Falls Reservoir.

**Table 9      Ecological Flows Standards – Marshfield Downstream/Winooski River  
ZOE 5**

<b>Criterion</b>	<b>Standard</b>	<b>Instructions</b>
A	2	<u>Agency Recommendation (see Appendix A for definition):</u> <ul style="list-style-type: none"> <li>• Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective).</li> <li>• Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement.</li> <li>• Explain how the recommendation relates to formal agency management goals and objectives for fish and wildlife. Explain how the recommendation provides fish and wildlife protection, mitigation, and enhancement (including instream flows, ramping, and peaking rate conditions, and seasonal and episodic instream flow variations).</li> </ul>

- The Project's FWLMMP<sup>23</sup> was written to comply with the applicable sections of the March 2020 PUC Order and the August 2019 MOU Order with VANR. This includes information related to ZOE 5 on how the Facility is managed to avoid non-compliance events with generation flow requirements for the Winooski River, a detailed protocol for ramping up and ramping down the flows released to the Winooski River from the powerhouse during generation, a water-level trigger for releasing generation flows to the Winooski River, and information on how the Facility is managed to avoid non-compliance events with the requirements for temperature and dissolved oxygen in the Winooski River.
- Flow recommendations to the Winooski River were established based on site-specific scientific studies described in VHB 2016 to have the Facility operate in accordance with applicable VANR procedures, including the VANR Streamflow Procedure and the VANR Biocriteria Procedure.
- WQC does not apply to this project, because it predates the implementation of VWQ standards. Additionally, this project is also exempt from FERC license requirements because it was commissioned prior to license regulations.
- GMP maintains generation flows released into the Winooski River must be regulated based on natural streamflow, water levels in Molly's Falls Reservoir and time of the year. At all times when Molly's Falls Reservoir inflow is within range of the turbine (103 to 173 cfs), GMP may generate to match inflow. Higher flow rates may only be used when the Emergency Action Plan (EAP) is triggered<sup>24</sup>.
- Under normal circumstances, the turbine operates at a flow rate of no less than 103 cfs and no more than 173 cfs. These flows are then discharged into ZOE 5.
- Flows from the powerhouse to the Winooski River are controlled by adjusting the percent-opening of the wicket gates that regulate flow into the generating turbine.
- Table 10 details the generation flow limits per the MOU.

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<sup>23</sup> VHB 2024b

<sup>24</sup> VHB 2024a

**Table 10      Generation Flow Limits per MOU**

<b>Generation Flow Limits per MOU<sup>25</sup></b>			
<b>Time of Year</b>	<b>Trigger</b>	<b>Maximum Generation Flow (cfs)</b>	<b>Corresponding Power at New NOL (MW)</b>
November 1 to March 31	At GMP's discretion	135 cfs	3.5
	If Molly's Falls Reservoir Inflow is within range of turbine (103-173 cfs)	Inflow	2.4 – 4.4
	Emergency*	212	4.8
	Forecasted high-flow weather events	212	4.8
April 1 to October 31	If Winooski River flow is 30 cfs or greater at powerhouse	103	2.4
	If needed to maintain NOL in reservoir	103	2.4
	If Molly's Falls Reservoir inflow is within range of turbine (approximately 103-173 cfs)	Match inflow	2.4 – 4.4
	Emergency*	212	4.8
	Forecasted high-flow weather events	212	4.8

\*Emergencies are generally defined as emergency shutdowns, plant trips, grid outages, grid emergency or capacity scarcity events & high reservoir water levels.

<sup>25</sup> VHB 2024b  
LIHI Handbook 2.05 Edition  
2025



- GMP shall implement ramping for transitioning to and from generation flows, except in emergencies, when the Winooski River flow is 85 cfs or greater at the powerhouse and during High Flow Weather Events. Ramping is controlled remotely using the motor-actuator to adjust the valve and will use the bypass valve and pipe. The following ramping rates are utilized:
  - Up-Ramping:
    - 0 to 103 cfs in 30 minutes
    - April – October: 60 cfs/hour for 103 cfs and above
    - November – March: 103 cfs to 135 cfs in 30 minutes
  - Down-Ramping:
    - Generation rate to 103 cfs in 120 minutes
    - 103 to 0 cfs in 30 minutes
- A technical memorandum in Appendix 6 of VHB 2024b describes the specific data and calculations proposed to determine Winooski River flows at the powerhouse based on the rate of change in the water level of Molly's Falls Reservoir.

## 5.2 Water Quality

**Table 11 Water Quality Standards – Peacham Pond Impoundment and Peacham Pond Downstream ZOE 1 and 2**

<b>Criterion</b>	<b>Standard</b>	<b>Instructions</b>
B	2	<p><u>Agency Recommendation:</u></p> <ul style="list-style-type: none"> <li>• Provide a copy of the most recent Water Quality Certificate and any subsequent amendments, including the date(s) of issuance. If more than 10 years old, provide documentation that the certification terms and conditions remain valid and in effect for the facility (e.g., a letter or email from the agency).</li> <li>• Identify any other agency recommendations related to water quality and explain their scientific or technical basis.</li> <li>• Describe all compliance activities related to water quality and any agency recommendations for the facility, including on-going monitoring, and how those are integrated into facility operations.</li> </ul>

- WQC does not apply to this project, because it predates the implementation of VWQ standards. Additionally, this project is also exempt from FERC license requirements because it was commissioned prior to license regulations.
- The Project is operated to comply with applicable sections of the March 2020 PUC Order and the August 2019 MOU with VANR to meet water quality standards at the Project<sup>26</sup>. GMP needed to receive a CPG to have construction activities occur at the dam, and needed to meet VWQS to move forward. GMP worked collaboratively with both VANR and VFWD to make improvements to decrease impacts to water quality and aquatic populations.
- Minimum flow and maximum flow requirements to Sucker Brook have been established for drawdown and refill procedures at the Project to ensure that VWQS in Sucker Brook are met.
- Between May 1 (or the date of refill to the Peacham Pond NOL, whichever is later) to November 30, GMP manually implements ROR operations in Sucker Brook. This maintains a steady water level in Peacham Pond and allows for outflow to be approximately equal to inflow.
- Ramping is required for transitions between drawdown, refill, and ROR periods at Peacham Pond and Sucker Brook. These ramping rates were established based on the 5.8-square mile watershed of Peacham Pond and keeping the maximum rate-of-change of 1 csm per hour.

<sup>26</sup> VHB 2024b  
LIHI Handbook 2.05 Edition  
2025

**Table 12 Water Quality Standards – Marshfield Impoundment/Molly's Falls Pond, Marshfield Bypassed Reach, Marshfield Downstream/Winooski River ZOE 3, 4 and 5**

<b>Criterion</b>	<b>Standard</b>	<b>Instructions</b>
B	2	<p><u>Agency Recommendation:</u></p> <ul style="list-style-type: none"> <li>• Provide a copy of the most recent Water Quality Certificate and any subsequent amendments, including the date(s) of issuance. If more than 10 years old, provide documentation that the certification terms and conditions remain valid and in effect for the facility (e.g., a letter or email from the agency).</li> <li>• Identify any other agency recommendations related to water quality and explain their scientific or technical basis.</li> <li>• Describe all compliance activities related to water quality and any agency recommendations for the facility, including on-going monitoring, and how those are integrated into facility operations.</li> </ul>

- WQC does not apply to this project, because it predates the implementation of VWQ standards. Additionally, this project is also exempt from FERC license requirements because it was commissioned prior to license regulations.
- The Project is operated to comply with applicable sections of the March 2020 PUC Order and the August 2019 MOU with VANR to meet water quality standards at the Project<sup>27</sup>. GMP needed to receive a CPG to have construction activities occur at the dam, and needed to meet VWQS to move forward. GMP worked collaboratively with both VANR and VFWD to make improvements to decrease impacts to water quality and aquatic populations.
- Generation flows from the Project's powerhouse are regulated based on the time of year, natural streamflows, and water levels in Molly's Falls Reservoir to minimize impacts to water quality in the Winooski River.
- Ramping for transitioning to and from generation flows is implemented.
- The Winooski River and Molly's Brook are classified by the state of Vermont as Class B2 for all designated uses and classified as cold water fish habitat. The VWQS establish DO criteria for salmonid spawning or nursery areas important to the establishment or maintenance of the fishery resource not less than 7 mg/L and 75% saturation at all times, and not less than 95% saturation during late egg maturation and larval development of salmonids. For all other waters, DO criteria must meet instantaneous minimum values of not less than 6 mg/L and 70% saturation at all times.

<sup>27</sup> VHB 2024b

- In 2015, GMP studied the effects that the facility had on DO in Molly's Brook, Sucker Brook, and the Winooski River. The study<sup>28</sup> concluded that DO in the Winooski River downstream of the Molly's Falls Project dropped below the water quality criteria established in the VWQS. The study also found that DO in a portion of Molly's Brook dropped below the criteria, but it was determined that this drop was caused by beaver activity, not Project operations. Following this, both physical and operational changes were made to the Project.
  - A new bypass pipe was constructed to release additional water into Molly's Brook from the reservoir to meet increased minimum conservation flow requirements. The bypass pipe will have water from approximately 30-feet below the surface, leading to the potential of low DO from this depth. Water released from the bypass pipe will be aerated by turbulent flow over rip-rap before reaching to brook to help minimize low DO.
  - GMP has also installed an aeration system at the Marshfield No. 6 powerhouse in February 2022 to add oxygen to the water before it enters the Winooski River in the tailrace. This aeration system consists of a valve installed in the penstock that enables flows to be ramped up and down at the beginning and end of generation cycles. The valve results in large quantities of air entrained in the water which is then released from the penstock into the Winooski River. Operation of the valve occurs automatically any time a generation cycle takes place. This increases the DO content of the water released during ramping and generation.
- GMP has also changed generation operations pursuant to the MOU with VANR so the frequency and magnitude of generation cycles will be reduced, the timing of generation will better align with natural higher-flow events, and ramping requirements will be implemented.
- To ensure that DO criteria are met, monitoring would occur following the first summer that follows both PUC approval of the DO Monitoring Plan<sup>29</sup> and completion of Project construction, including the bypass pipe and powerhouse aeration system. If the results of monitoring show that water quality does not meet the VWQS due to Facility operations, GMP will make additional improvements and would monitor the locations that did not meet VWQS until they are met.
- GMP has developed and submitted a Riparian Zone Restoration Plan<sup>30</sup> to VANR for review and comment. The purpose of this plan is to close the gap between generation flows that are released from the Project's powerhouse into the Winooski River and natural flows in the Winooski River through extensive riparian

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<sup>28</sup> VHB 2016

<sup>29</sup> VHB 2024a

<sup>30</sup> Colarusso and Perry 2024



buffer restoration upstream of the powerhouse. This will improve the shading of the river channel and reduce the peak water temperatures and daily water-temperature fluctuations in the Winooski River.

- An assessment completed by VHB in 2020<sup>31</sup> identified Target Restoration Areas to be addressed for improvement. These Areas were defined as “land within the riparian zone that lacked sufficient shade-bearing vegetation and/or exhibited signs of bank instability and erosion, and where restoration appeared feasible based on existing land uses and development.” The Target Restoration Areas would be improved with native plant species observed in the assessment and plants identified to be suitable shade-providing species. Further description of the proposed restoration activities and plantings can be found in Colarusso and Perry 2024. Following the completion of planting for riparian restoration activities, monitoring will occur annually during the growing season for up to three years. Monitoring will occur in late-spring to early-summer to record growing season conditions and implementing corrective measures. Monitoring activities will include quantifying stem densities to ensure that the stem density goal is being met. GMP does not own the land along this section of the Winooski River, so restoration activities are dependent upon the cooperation of landowners and partner organizations.

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<sup>31</sup> Colarusso and Perry 2024  
LIHI Handbook 2.05 Edition  
2025

### 5.3 Fish Passage

**Table 13 Upstream Fish Passage Standards All ZOE**

<b>Criterion</b>	<b>Standard</b>	<b>Instructions</b>
C	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none"> <li>• Explain why the facility does not impose a barrier to upstream fish passage in the designated zone. Typically, impoundment zones will qualify for this standard since once above a dam and in an impoundment, there is no facility barrier to further upstream movement.</li> <li>• Document available fish distribution data and the lack of migratory fish species in the vicinity.</li> <li>• If migratory fish species have been extirpated from the area, explain why the facility is not or was not the cause of the extirpation.</li> </ul>

- There is no agency recommendation to support upstream fish passage at the Project.
- Sturgeon and Atlantic salmon are naturally occurring potamodromous species within the Lake Champlain Basin. Historically, migratory fish from Lake Champlain ascended many of its tributaries to access spawning waters. However, downstream of the Project, there is a dam in Plainfield, VT near the confluence with Great Brook. This dam blocks the upstream passage of migratory fish. Therefore, Sturgeon and Atlantic salmon do not have access to the Upper Winooski River<sup>32</sup>.
- ZOE 1 is the Peacham Pond impoundment and ZOE 3 is the Molly's Falls Reservoir. Both ZOEs do not have Project facilities' present that act as a barrier to further upstream movement.
- The project impoundments are composed of a typical warm-water lake fishery. The Molly's Falls Reservoir has been documented to have large and smallmouth bass, northern pike, chain pickerel, and yellow perch. Additionally, trout species are stocked in the reservoir to provide angling opportunities<sup>33</sup>. Peacham Pond has documented brown trout (stocked), smallmouth bass (found in 2014), yellow perch, and rainbow smelt present in it<sup>34</sup>.

<sup>32</sup>[https://dec.vermont.gov/sites/dec/files/wsm/mapp/docs/mp\\_UpperWinooskiWatershedFisheriesSummary\\_2017-12-15.pdf](https://dec.vermont.gov/sites/dec/files/wsm/mapp/docs/mp_UpperWinooskiWatershedFisheriesSummary_2017-12-15.pdf).

<sup>33</sup><https://vtfishandwildlife.com/sites/fishandwildlife/files/documents/Learn%20More/Library/FACTSHEETS/FISHING%20INFO/FAMILY%20FISHING%20HOTSPOTS/MARSHFIELD.pdf>

<sup>34</sup>[https://dec.vermont.gov/sites/dec/files/documents/mp\\_WaterQualityAssessmentReport\\_Basin8\\_WinooskiRiverWatershed\\_2016-06.pdf](https://dec.vermont.gov/sites/dec/files/documents/mp_WaterQualityAssessmentReport_Basin8_WinooskiRiverWatershed_2016-06.pdf)

- Within the Marshfield bypassed reach and Sucker Brook, naturalized populations of brown trout and brook trout may occur<sup>35</sup>.
- The Upper Winooski River contains many different fish species that provide recreational opportunities. Many of the streams within the Upper Winooski watershed provide habitat to sustain wild trout populations of both Brook trout and Brown trout. These tributaries are managed as wild-trout waters by VFWD and are not stocked with trout. However, the mainstem upper Winooski River receives annual trout stockings to support recreational fisheries<sup>36</sup>.
- In 2015, GMP's consultant Bear Creek Environmental and the VDFW collaboratively conducted fish population monitoring at ten stations in the vicinity of the Molly's Falls Project<sup>37</sup>. The results of this monitoring included:
  - Resident species in the upper Winooski included brook trout, brown trout, rainbow trout, blacknose dace, common shiner, creek chub, longnose dace, longnose sucker, slimy sculpin, and white sucker.
  - Common resident species in Molly's Brook below the Molly's Falls Reservoir included brook trout, blacknose dace, creek chub, longnose sucker, longnose dace, and northern redbelly dace.
  - Monitoring was not completed in 2015 in the Sucker Brook, but based on surveys conducted by VDFW in 1993, 2004, and 2014, no wild trout were observed in Sucker Brook. Blacknose dace was the only resident fish species that was captured.

**Table 14 Downstream Fish Passage Standards All ZOE's**

<b>Criterion</b>	<b>Standard</b>	<b>Instructions</b>
D	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none"> <li>• Explain why the facility does not impose a barrier to downstream fish passage in the designated zone, considering both physical obstruction and increased mortality relative to natural downstream movement (e.g., entrainment into hydropower turbines). Typically, tailwater/downstream zones will qualify for this standard since below a dam and powerhouse there is no facility barrier to further downstream movement. Bypassed reach zones must demonstrate that flows in the reach</li> </ul>

<sup>35</sup>[https://dec.vermont.gov/sites/dec/files/wsm/mapp/docs/mp\\_UpperWinooskiWatershedFisheriesSummary\\_2017-12-15.pdf](https://dec.vermont.gov/sites/dec/files/wsm/mapp/docs/mp_UpperWinooskiWatershedFisheriesSummary_2017-12-15.pdf)

<sup>36</sup>[https://dec.vermont.gov/sites/dec/files/wsm/mapp/docs/mp\\_UpperWinooskiWatershedFisheriesSummary\\_2017-12-15.pdf](https://dec.vermont.gov/sites/dec/files/wsm/mapp/docs/mp_UpperWinooskiWatershedFisheriesSummary_2017-12-15.pdf)

<sup>37</sup> VHB 2024b

Criterion	Standard	Instructions
		<p>are adequate to support safe, effective, and timely downstream migration.</p> <ul style="list-style-type: none"> <li>• For riverine fish populations that are known to move downstream, explain why the facility does not contribute adversely to the species populations or to their access to habitat necessary for successful completion of their life cycles.</li> <li>• Document available fish distribution data and the lack of fish species requiring passage in the vicinity.</li> <li>• If migratory fish species have been extirpated from the area, explain why the facility is not or was not the cause of the extirpation.</li> </ul>

- There is no agency recommendation to support downstream fish passage at the Project.
- Sturgeon and Atlantic salmon are naturally occurring potamodromous species within the Lake Champlain Basin. Historically, migratory fish from Lake Champlain ascended many of its tributaries to access spawning waters. However, downstream of the Project, there is a dam in Plainfield, VT near the confluence with Great Brook. This dam blocks the upstream passage of migratory fish. Therefore, Sturgeon and Atlantic salmon do not have access to the Upper Winooski River<sup>38</sup>.
- ZOE 5 is downstream from the Project powerhouse, and therefore, does not impose a barrier to downstream fish passage from the Project. The Upper Winooski River contains many different fish species that provide recreational opportunities. Many of the streams within the Upper Winooski watershed provide habitat to sustain wild trout populations of both Brook trout and Brown trout. These tributaries are managed as wild-trout waters by VFWD, and are not stocked with trout. However, the mainstem upper Winooski River receives annual trout stockings to support recreational fisheries<sup>39</sup>.
- ZOE 4 is a bypassed reach of the Project. Minimum conservation flows to the Molly's Falls Brook were increased following the completion of the 2019 MOU with VANR. GMP releases conservation flows into Molly's Brook. These flows are released via the bypass pipe, which provides cool water from approximately 28 feet deep in the Molly's Falls Reservoir to support higher-quality habitat for fish in the brook, as compared to the warm water from the reservoir's surface. GMP

<sup>38</sup>[https://dec.vermont.gov/sites/dec/files/wsm/mapp/docs/mp\\_UpperWinooskiWatershedFisheriesSummary\\_2017-12-15.pdf](https://dec.vermont.gov/sites/dec/files/wsm/mapp/docs/mp_UpperWinooskiWatershedFisheriesSummary_2017-12-15.pdf)

<sup>39</sup>[https://dec.vermont.gov/sites/dec/files/wsm/mapp/docs/mp\\_UpperWinooskiWatershedFisheriesSummary\\_2017-12-15.pdf](https://dec.vermont.gov/sites/dec/files/wsm/mapp/docs/mp_UpperWinooskiWatershedFisheriesSummary_2017-12-15.pdf)

provides minimum conservation flows to Molly's Brook that vary seasonally. From July through March, a minimum conservation flow of 8.5 cfs is released. From April through June, a minimum conservation flow of 12 cfs is released. These flows were determined in the 2019 MOU between VANR and GMP.

- An IFIM study was conducted in 2015<sup>40</sup> to evaluate bypass flows in Molly's Brook and Sucker Brook and to look at project release flows in the Winooski River. The results of the IFIM found that a 5 cfs minimum conservation flow to Molly's Brook would result in a significant improvement in baseflow habitat supply for most target life stages. The results of the IFIM found that a minimum conservation flow of 4.2 cfs in Sucker Brook would show a large improvement in the habitat supply for all the target species/life stages for the spring period.
- The project impoundments are composed of a typical warm-water lake fishery. This includes large and smallmouth bass, northern pike, chain pickerel, and yellow perch. Additionally, trout species are stocked in the reservoirs to provide angling opportunities<sup>41</sup>. The species that are naturally present in the impoundment are not migratory and therefore do not require downstream fish passage facilities.
- In 2015, GMP's consultant Bear Creek Environmental and the VDFW collaboratively conducted fish population monitoring at ten stations in the vicinity of the Molly's Falls Project<sup>42</sup>. The results of this monitoring included:
  - Resident species in the upper Winooski included brook trout, brown trout, rainbow trout, blacknose dace, common shiner, creek chub, longnose dace, longnose sucker, slimy sculpin, and white sucker.
  - Common resident species in Molly's Brook below the Molly's Falls Reservoir included brook trout, blacknose dace, creek chub, longnose sucker, longnose dace, and northern redbelly dace.
  - Monitoring was not completed in 2015 in the Sucker Brook, but based on surveys conducted by VDFW in 1993, 2004, and 2014, no wild trout were observed in Sucker Brook. Blacknose dace was the only resident fish species that was captured.

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<sup>40</sup> VHB 2024b

<sup>41</sup> <https://vtfishandwildlife.com/sites/fishandwildlife/files/documents/Learn%20More/Library/FACTSHEETS/FISHING%20INFO/FAMILY%20FISHING%20HOTSPOTS/MARSHFIELD.pdf>

<sup>42</sup> VHB 2024b



## 5.4 Watershed Protection

**Table 15 Shoreline and Watershed Protection Standards –Peacham Pond Impoundment ZOE 1, Peacham Pond Downstream ZOE 2, Marshfield Impoundment/Molly's Falls Pond ZOE 3, and Marshfield Bypassed Reach ZOE 4**

<b>Criterion</b>	<b>Standard</b>	<b>Instructions</b>
E	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none"> <li>• If there are no lands with significant ecological value associated with the designated ZoE, document and justify this (e.g., describe the land use and land cover within the FERC project or facility boundary, and absence of critical habitat for protected species).</li> <li>• Document that there have been no Shoreline Management Plans or similar protection requirements for the facility.</li> </ul>

- The Molly's Falls Project does not have a Shoreline Management Plan or similar protection requirements for the Project's ZOEs.
- Two state-protected lands surround the two impoundments. More than half of the Peacham Pond development impoundment is surrounded by Groton State Forest. Aside from the dam area, almost the entirety of the Mollys Falls Pond development impoundment is surrounded by Mollys Falls Pond State Park. Additionally, portions of Groton State Forest and Mollys Falls State Park are abutted by Vermont State Land Trust easements. A diverse array of landcover types are found throughout the project area<sup>43</sup>. These land cover types are described further in Table 16.
  - Other than open water, the primary landcover types around the impoundments (Peacham Pond and Mollys Falls Pond) are deciduous forest, evergreen forest, woody wetlands, and emergent herbaceous wetlands. Most of the high, medium, low, and open space development around the impoundments is in the form of residential housing (primarily around Peacham Pond) roads, and parking. The impoundments also contain trace amounts of shrub/scrub, herbaceous, barren land, and hay/pasture.
  - The Sucker Brook area is primarily made up of evergreen forest, mixed forest, and woody wetlands, with smaller amounts of deciduous forest and open space development.
  - The Bypass Reach area is primarily made up of evergreen forest, mixed forests, and woody wetlands, with smaller amounts of high, medium, low,

<sup>43</sup> <https://www.mrlc.gov/viewer/>  
LIHI Handbook 2.05 Edition  
2025

open space development, shrub/scrub, deciduous forest, herbaceous, hay/pasture, and emergent herbaceous wetland areas.

- The Winooski River area is primarily made up of hay/pasture, mixed forest, and shrub/scrub, with trace amounts of evergreen forest, and low, medium, and open space development.

**Table 16 Project Land Cover Classification.**

Class/Value	Classification Description
11	Open Water – areas of open water, generally with less than 25% cover of vegetation or soil.
21	Developed, Open Space – areas with a mixture of some constructed materials, but mostly vegetation in the form of lawn grasses. Impervious surfaces account for less than 20% of total cover. These areas most commonly include large-lot single-family housing units, parks, golf courses, and vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes.
22	Developed, Low Intensity – areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20% to 49% of total cover. These areas most commonly include single-family housing units.
23	Developed, Medium Intensity – areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50% to 79% of the total cover. These areas most commonly include single-family housing units.
24	Developed, High Intensity – highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses, and commercial/industrial. Impervious surfaces account for 80% to 100% of the total cover.
31	Barren Land (Rock/Sand/Clay) - areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of total cover.
41	Deciduous Forest – areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than 75% of the tree species shed foliage simultaneously in response to seasonal change.
42	Evergreen Forest – areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. More than

Class/Value	Classification Description
	75% of the tree species maintain their leaves all year. Canopy is never without green foliage.
43	Mixed Forest – areas dominated by trees generally greater than 5 meters tall, and greater than 20% of total vegetation cover. Neither deciduous nor evergreen species are greater than 75% of total tree cover.
52	Shrub/Scrub- areas dominated by shrubs; less than 5 meters tall with shrub canopy typically greater than 20% of total vegetation. This class includes true shrubs, young trees in an early successional stage or trees stunted from environmental conditions.
71	Grassland/Herbaceous- areas dominated by graminoid or herbaceous vegetation, generally greater than 80% of total vegetation. These areas are not subject to intensive management such as tilling, but can be utilized for grazing.
81	Pasture/Hay-areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20% of total vegetation.
90	Woody Wetlands – areas where forest or shrubland vegetation accounts for greater than 20% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.
95	Emergent Herbaceous Wetlands- Areas where perennial herbaceous vegetation accounts for greater than 80% of vegetative cover and the soil or substrate is periodically saturated with or covered with water.

**Table 17 Marshfield Downstream/Winooski River ZOE 5**

Criterion	Standard	Instructions
E	1	<u>Agency Recommendation:</u> <ul style="list-style-type: none"> <li>• Provide copies or links to any agency recommendations or management plans that are in effect related to protection, mitigation, or enhancement of shoreline surrounding the facility in the designated ZoE (e.g., Shoreline Management Plans).</li> <li>• Provide documentation that the facility is in full compliance with applicable agency recommendations or management plans.</li> </ul>

- The Molly's Falls Project does not have a formal shoreline management in place for the entire facility. However, ZOE 5 is included in the Molly's Falls Hydroelectric Facility Winooski River Riparian Zone Restoration Plan<sup>44</sup>.
- The Riparian Zone Restoration Plan details proposed restoration activities along an approximately 3.15-mile reach of the Winooski River. The purpose of this plan is to help minimize the variability in temperature found in the Winooski River. It has been found that generation flows from the Project's powerhouse during the warm months have a low temperature, whereas the tailrace of the Winooski River has had significant fluctuations. This temperature variation is due to degraded riparian habitat upstream of the powerhouse, as this area consists of mostly agricultural land with little to no buffer. Additionally, "the absence of soil stabilizing vegetation has caused bank instability and erosion along the reach of the river upstream of the powerhouse. Although GMP's facilities and operations do not cause or contribute to the temperature fluctuations, riverbank erosion, and lack of shade upstream of the powerhouse, GMP has nonetheless agreed to development and implement a riparian zone restoration in this area with the intent of improving water quality."<sup>45</sup>
- An assessment completed by VHB in 2020<sup>46</sup> identified Target Restoration Areas to be addressed for improvement. These Areas were defined as "land within the riparian zone that lacked sufficient shade-bearing vegetation and/or exhibited signs of bank instability and erosion, and where restoration appeared feasible based on existing land uses and development." The Target Restoration Areas would be improved with native plant species observed in the assessment and plants identified to be suitable shade-providing species. Further description of the proposed restoration activities and plantings can be found in Colarusso and Perry 2024. Following the completion of planting for riparian restoration activities, monitoring will occur annually during the growing season for up to three years. Monitoring will occur in late-spring to early-summer to record growing season conditions and implementing corrective measures. Monitoring activities will include quantifying stem densities to ensure that the stem density goal is being met. GMP does not own the land along this section of the Winooski River, so restoration activities are dependent upon the cooperation of landowners and partner organizations.

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<sup>44</sup> Colarusso and Perry 2024

<sup>45</sup> Colarusso and Perry 2024

<sup>46</sup> Colarusso and Perry 2024

## 5.5 Threatened and Endangered Species

**Table 18 Threatened and Endangered Species Standards – All ZOE**

<b>Criterion</b>	<b>Standard</b>	<b>Instructions</b>
F	2	<p><u>Finding of No Negative Effects:</u></p> <ul style="list-style-type: none"> <li>Identify all federal and state listed species that are or may be in the immediate facility area based on current data from the appropriate state and federal natural resource management agencies.</li> <li>Provide documentation that there is no demonstrable negative effect of the facility on any listed species in the area from an appropriate natural resource management agency or provide documentation that habitat for the species does not exist within the ZOE or is not impacted by facility operations.</li> </ul>

- Based on an official USFWS IPaC species list generated in 2025<sup>47</sup>, the federally endangered Northern Long-eared Bat (*Myotis septentrionalis*) and the proposed threatened Monarch Butterfly (*Danaus plexipuss*) may occur within the project vicinity. According to the 2025 IPaC, Tricolored Bat (*Perimyotis subflavus*) is no longer considered within the project vicinity. Birds protected under the federal Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act identified within the USFWS species list as species that may have presence within the project area include: Bald Eagle (*Haliaeetus leucocephalus*), Bay-breasted Warbler (*Setophaga castanea*), Black-billed Cuckoo (*Coccyzus erythrophthalmus*), Bobolink (*Dolichonyx oryzivorus*), Canada Warbler (*Cardellina canadensis*), Cape May Warbler (*Setophaga tigrina*), Eastern Whip-poor-will (*Antrostomus vociferus*), Evening Grosbeak (*Coccothraustes vespertinus*), Olive-sided Flycatcher (*Contopus cooperi*), Rose-breasted Grosbeak (*Pheucticus ludovicianus*), Veery (*Catharus fuscescens fuscescens*), and Wood Thrush (*Hylocichla mustelina*).
- The Northern Long-Eared bat may feed within the Project boundary. However, the project boundary does not contain critical habitat for either species. The continued operation of the Project is not anticipated to negatively affect northern long-eared bats that may utilize the area. GMP is in compliance with the current goals for the strategic plan and will continue to comply with resource agency recommendations for any maintenance activities. GMP will consult with agencies if any tree cutting must occur at the Project to minimize impacts.

<sup>47</sup> USFWS 2025



- The Monarch Butterfly (*Danaus plexippus*) was identified as a proposed threatened species within the Project vicinity via USFWS IPaC. Critical habitat for this species has been designated, but it is not overlapping with the project or ZOE. The Monarch Butterfly may be in the project area using common milkweed (*Asclepias syriaca*) for feeding and reproduction, but project operations would not impacts this species.
- In 2015, Biodrawiversity conducted a freshwater mussel survey<sup>48</sup> in the Winooski River in Marshfield, Vermont, in a 2.1-mile reach upstream and downstream from the Molly's Falls Project. The goal of the study was to determine if threatened Eastern Pearlshell (*Margaritifera margaritifera*) occur in the Project vicinity and determine distribution, density, and habitat use of Eastern Pearlshell in the survey areas. The survey found that Eastern Pearlshell existed at very low densities in the area of the Winooski influenced by the Project, with only two live Eastern Pearlshell found downstream of the tailrace and two individuals found in the upstream reference reach. The author of the study report suggested that, "Eastern Pearlshell may be uncommon in the study area due to distance from source populations and dispersal constraints. Information about Eastern Pearlshell distribution in the Winooski River further upstream and downstream from the study area would provide important context."
- Drawdowns of both Peacham Pond and the Molly's Falls Reservoir are limited, minimizing impacts to RTE species and potential habitat along the shoreline.

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<sup>48</sup> VHB 2024b

## 5.6 Cultural and Historical Resources

**Table 19 Cultural and Historic Resources Standards -All ZOEs**

<b>Criterion</b>	<b>Standard</b>	<b>Instructions</b>
G	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none"> <li>• Document that there are no cultural or historic resources located on facility lands associated with the designated ZoE that can be affected by construction or operations of the facility; or</li> <li>• Document that the facility construction and operation have not in the past, nor currently adversely affect any cultural or historic resources that are present on facility lands in the designated ZoE; and</li> <li>• Provide a letter from the state and tribal (if applicable) historic preservation office that confirms no effect (this may be newly obtained or issued during prior FERC licensing or exemption proceedings).</li> </ul>

- The Project is not regulated by FERC and therefore does not have a Cultural Resources Management Plan (CRMP) that it is operated under.
- The Molly's Falls Electric Company originally constructed the Marshfield No. 6 Dam and the Peacham Pond Dam. The company eventually became a unit in the Green Mountain Power Company<sup>49</sup>.
- Due to the age of the Project and the Project's facilities, no cultural or historic resources were documented as affected by construction of the facility.
- Current operations of the facility limit the drawdowns of the impoundments, which helps minimize potential impacts due to erosion.
- A review of publicly available documents on the National Register of Historic Places and the Vermont State Register of Historic Places does not identify any cultural or historic resources in the vicinity of the Project being impacted by Project operations<sup>50</sup>.

<sup>49</sup>Page 17 of

[http://accdservices.vermont.gov/ORCDocs/Marshfield TownReport Miscellaneous 00000020.pdf](http://accdservices.vermont.gov/ORCDocs/Marshfield_TownReport_Miscellaneous_00000020.pdf)

<sup>50</sup> <http://accdservices.vermont.gov/ORC/Home.aspx>

## 5.7 Recreational Resources

**Table 20 Recreational Resources Standards – All ZOEs**

<b>Criterion</b>	<b>Standard</b>	<b>Instructions</b>
H	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <p>Document that the facility does not occupy lands or waters in the designated ZoE to which public access can be granted and that the facility does not otherwise impact recreational opportunities in the facility area.</p>

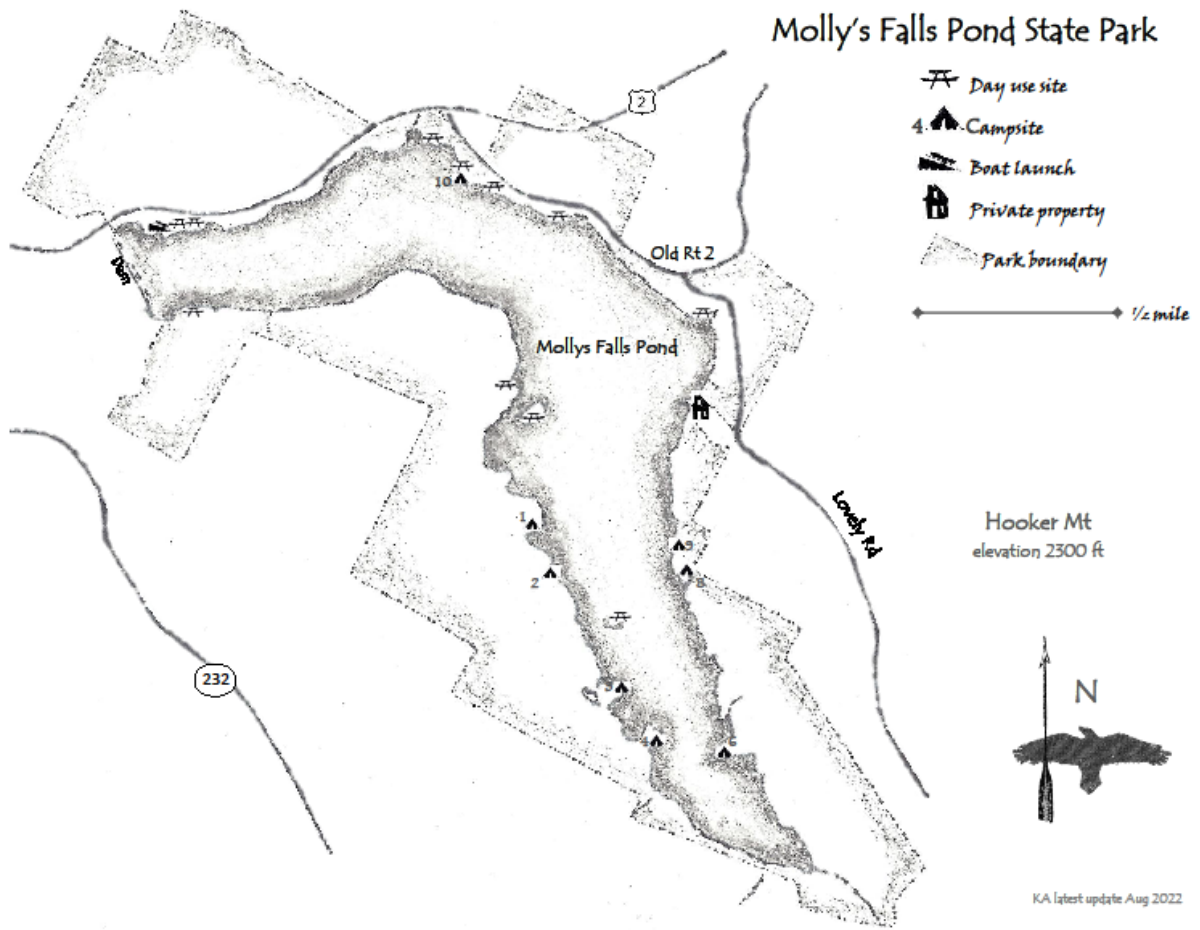
- Waters associated with the Molly's Falls Facility are used by the public for boating, fishing, swimming, and other recreation<sup>51</sup>.
- State park land on the shore of the Molly's Falls Reservoir is accessible for hiking, picnicking and camping. This land makes up the Molly's Falls Pond State Park, owned by the Vermont Department of Forests, Parks and Recreation<sup>52</sup>. The property consists of 1,064 acres. There are 8 unofficial, remote campsites at the park, a boat launch with 2 fishing platforms, a bathroom facility, and ten remote picnic sites (Figure 20).
- Boat ramps at the Molly's Falls Reservoir and Peacham Pond are open to the public.
- The water levels of Peacham Pond and the Molly's Falls Reservoir will not affect scenic values and continue to support the existing uses of the waters by the public<sup>53</sup>.
- Summer homes and camps are located on Peacham Pond and residents have access to the Project's waters<sup>54</sup>.

<sup>51</sup>[https://vtfishandwildlife.com/sites/fishandwildlife/files/documents/Fish/SMA-maps/WinooskiRiverSMA\\_Final.pdf](https://vtfishandwildlife.com/sites/fishandwildlife/files/documents/Fish/SMA-maps/WinooskiRiverSMA_Final.pdf)

<sup>52</sup><https://www.vtstateparks.com/mollysfalls.html>

<sup>53</sup> PUC 2020

<sup>54</sup><https://www.peachampondassociation.org/>



**Figure 20 Molly's Falls Pond State Park<sup>55</sup>**

<sup>55</sup> <https://www.vtstateparks.com/mollysfalls.html>

## 6.0 ATTESTATION AND WAIVER

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### 6.1 Attestation and Waiver Form

All applications for LIHI Certification must include the following statement before they can be reviewed by LIHI:

#### ATTESTATION

*As an Authorized Representative of Green Mountain Power Corporation,  
the Undersigned attests that the material presented in the application is true and complete.*

*The Undersigned acknowledges that the primary goal of the Low Impact Hydropower Institute's certification program is public benefit, and that the LIHI Governing Board and its agents are not responsible for financial or other private consequences of its certification decisions.*

*The Undersigned further acknowledges that if LIHI Certification of the applying facility is granted, the LIHI Certification Mark License Agreement must be executed prior to the final certification decision and prior to marketing the electricity product as LIHI Certified® (which includes selling RECs in a market that requires LIHI Certification).*

*The Undersigned further agrees to hold the Low Impact Hydropower Institute, the Governing Board, and its agents harmless for any decision rendered on this or other applications, from any consequences of disclosing or publishing any submitted certification application materials to the public, or on any other action pursuant to the Low Impact Hydropower Institute's certification program.*

#### FOR PRE-OPERATIONAL CERTIFICATIONS:

*The Undersigned acknowledges that LIHI may suspend or revoke the LIHI Certification should the impacts of the facility, once operational, fail to comply with the LIHI program requirements.*

Authorized Representative:

Name: John Tedesco

Title: Generation Project Coordinator

Authorized Signature: \_\_\_\_\_

Date: Click or tap to enter a date.



## 7.0 CONTACTS FORMS

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All applications for LIHI Certification must include complete contact information.

A. Applicant-related contacts

<b>Facility Owner and Operator:</b>	
Name and Title	John Tedesco
Company	Green Mountain Power Corporation
Phone	(802) 324-7318
Email Address	<a href="mailto:John.Tedesco@greenmountainpower.com">John.Tedesco@greenmountainpower.com</a>
Mailing Address	163 Acorn Lane, Colchester, Vermont 05446
<b>Consulting Firm / Agent for LIHI Program (if different from above):</b>	
Name and Title	Andy Qua
Company	Kleinschmidt Associates
Phone	207-416-1246
Email Address	<a href="mailto:Andy.Qua@KleinschmidtGroup.com">Andy.Qua@KleinschmidtGroup.com</a>
Mailing Address	6 Fundy Road Suite 500 Falmouth Maine 04105
<b>Compliance Contact (responsible for LIHI Program requirements):</b>	
Name and Title	John Tedesco
Company	Green Mountain Power Corporation
Phone	(802) 324-7318
Email Address	<a href="mailto:John.Tedesco@greenmountainpower.com">John.Tedesco@greenmountainpower.com</a>
Mailing Address	163 Acorn Lane, Colchester, Vermont 05446
<b>Party responsible for accounts payable:</b>	
Name and Title	John Tedesco
Company	Green Mountain Power Corporation
Phone	(802) 324-7318
Email Address	<a href="mailto:John.Tedesco@greenmountainpower.com">John.Tedesco@greenmountainpower.com</a>
Mailing Address	163 Acorn Lane, Colchester, Vermont 05446

B. Current and relevant state, federal, and tribal resource agency contacts with knowledge of the facility (copy and repeat the following table as needed).

<b>Agency Contact</b>		<b>Area of Responsibility</b>
Agency Name	Vermont Department of Environmental Conservation	<input checked="" type="checkbox"/> Flows <input checked="" type="checkbox"/> Water Quality <input type="checkbox"/> Fish/Wildlife <input checked="" type="checkbox"/> Watershed <input type="checkbox"/> T&E Species <input type="checkbox"/> Cultural/Historic <input type="checkbox"/> Recreation
Name and Title	Eric Davis, River Ecologist	
Phone	(802) 490-6180	
Email address	<a href="mailto:Eric.Davis@vermont.gov">Eric.Davis@vermont.gov</a>	
Mailing Address	Watershed Management Division, Main Building – 2 <sup>nd</sup> Floor, One National Life Drive, Montpelier, VT 05620	

<b>Agency Contact</b>		<b>Area of Responsibility</b>
Agency Name	Vermont Department of Fish and Wildlife	<input type="checkbox"/> Flows <input type="checkbox"/> Water Quality <input checked="" type="checkbox"/> Fish/Wildlife <input type="checkbox"/> Watershed <input type="checkbox"/> T&E Species <input type="checkbox"/> Cultural/Historic <input type="checkbox"/> Recreation
Name and Title	Mark Ferguson, Zoologist	
Phone	(802) 279-3422	
Email address	<a href="mailto:Mark.Ferguson@vermont.gov">Mark.Ferguson@vermont.gov</a>	
Mailing Address	One National Life Drive, Davis 2, Montpelier, VT 05620	

<b>Agency Contact</b>		<b>Area of Responsibility</b>
Agency Name	Vermont Department of Fish and Wildlife	<input type="checkbox"/> Flows <input type="checkbox"/> Water Quality <input checked="" type="checkbox"/> Fish/Wildlife <input type="checkbox"/> Watershed <input type="checkbox"/> T&E Species <input type="checkbox"/> Cultural/Historic <input type="checkbox"/> Recreation
Name and Title	James Brady, Habitat Protection Specialist	
Phone	Montpelier Office	
Email address	<a href="mailto:James.Brady@vermont.gov">James.Brady@vermont.gov</a>	
Mailing Address	One National Life Drive, Davis 2, Montpelier, VT 05620	

<b>Agency Contact</b>		<b>Area of Responsibility</b>
Agency Name	Vermont Department of Fish and Wildlife	<input type="checkbox"/> Flows
Name and Title	Grace Glynn, Botanist	<input type="checkbox"/> Water Quality
Phone	(802) 505-3439	<input checked="" type="checkbox"/> Fish/Wildlife
Email address	<a href="mailto:Grace.Glynn@vermont.gov">Grace.Glynn@vermont.gov</a>	<input type="checkbox"/> Watershed
Mailing Address	5 Perry St. Suite 40 Barret, Vermont 05641	<input checked="" type="checkbox"/> T&E Species
		<input type="checkbox"/> Cultural/Historic
		<input type="checkbox"/> Recreation

<b>Agency Contact</b>		<b>Area of Responsibility</b>
Agency Name	U.S. Fish and Wildlife Service	<input checked="" type="checkbox"/> Flows
Name and Title	Melissa Grader	<input type="checkbox"/> Water Quality
Phone	(413) 548-8002 x 8124	<input checked="" type="checkbox"/> Fish/Wildlife
Email address	<a href="mailto:Melissa_Grader@fws.gov">Melissa_Grader@fws.gov</a>	<input type="checkbox"/> Watershed
Mailing Address	103 East Plumtree Road Sunderland, MA 01375	<input checked="" type="checkbox"/> T&E Species
		<input type="checkbox"/> Cultural/Historic
		<input type="checkbox"/> Recreation

## **APPENDIX A**

### **REFERENCES OF KEY RECORDS FOR LIHI CERTIFICATION**

**(REFERENCES DOCUMENTS HAVE BEEN FILED WITH LIHI SEPARATELY)**

## References

- Colarusso, Ryan T., and Perry, Meddie J. 2024, February. Winooski River Riparian Zone Restoration Plan for Green Mountain Power: Molly's Falls Hydroelectric Facility. Prepared by VHB. Prepared for GMP.
- Vermont Agency of Natural Resources (VANR). 2017, June. Basin 8 - Winooski River watershed water quality and aquatic habitat assessment report. Vermont. [https://dec.vermont.gov/sites/dec/files/documents/mp\\_WaterQualityAssessment\\_Report\\_Basin8\\_WinooskiRiverWatershed\\_2016-06.pdf](https://dec.vermont.gov/sites/dec/files/documents/mp_WaterQualityAssessment_Report_Basin8_WinooskiRiverWatershed_2016-06.pdf). Accessed on May 12, 2022.
- Vermont Agency of Natural Resources (VANR) and Green Mountain Power (GMP). 2012, September 20. Memorandum of Agreement regarding the status of Mollys Falls Hydroelectric Project and the Parties' Future Intentions with Regard to Regulation and Operation of the Project.
- VANR and GMP. 2020, December. Memorandum of Understanding Between Green Mountain Power Corporation and the Vermont Agency of Natural Resources. Petition of Green Mountain Power Corporation under 10 V.S.A. Chapter 43 and pursuant to the March 27, 2020 Order in Case No. 18-2549-PET for approval of improvements to the Emergency Spillway at the Marshfield #6 Dam in Cabot, Vermont, part of the Molly's Falls Hydroelectric Facility ("ES Project").
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- VHB. 2019, July. GMP Mollys Falls Project: MOU Operational Changes Summary Table. Supplemental Info to PUC CPG-Ch 43 PUC Petition.
- VHB. 2024a, February. GMP Molly's Falls Hydroelectric Facility – Dissolved Oxygen Monitoring Plan. Cabot, Marshfield, & Peacham, VT. Prepared for Green Mountain Power.
- VHB. 2024b, February. Flow and Water Level Management and Monitoring Plan for the Molly's Falls Hydroelectric Facility. Cabot, Marshfield, & Peacham, VT. Prepared for Green Mountain Power.



Vermont Public Utilities Commission (PUC). 2020, March 27. Final Order Granting 10 V.S.A Chapter 43 Authorization for Improvements at the Molly's Falls Hydroelectric Facility. Petition of Green Mountain Power Corporation under 10 V.S.A. Chapter 43 for authorization to make changes to the Molly's Falls Hydroelectric Facility in Cabot, Marshfield, and Peacham, Vermont. Case No. 18-2549-PET.

Vermont Public Utilities Commission (PUC). 2021, March 23. Final Order Granting 10 V.S.A Chapter 43 Authorization for Improvements at the Molly's Falls Hydroelectric Facility. Petition of Green Mountain Power Corporation, under 10 V.S.A Chapter 43 and pursuant to the March 27, 2020 Order in Case No. 18-2549-PET, for approval of improvements to the Emergency Spillway at the Marshfield #6 Dam in Cabot, Vermont part of the Molly's Falls Hydroelectric Facility. Case No. 20-2579-PET.

United States Fish and Wildlife Service (USFWS). 2025. Information for Planning and Consultation (IPaC) Report for Molly's Falls Hydroelectric Project Low Impact Hydropower Institute Certification Application.  
<https://ipac.ecosphere.fws.gov/project/IHNNIUOXGVF25GLCUFFUXBXB2Q/index>