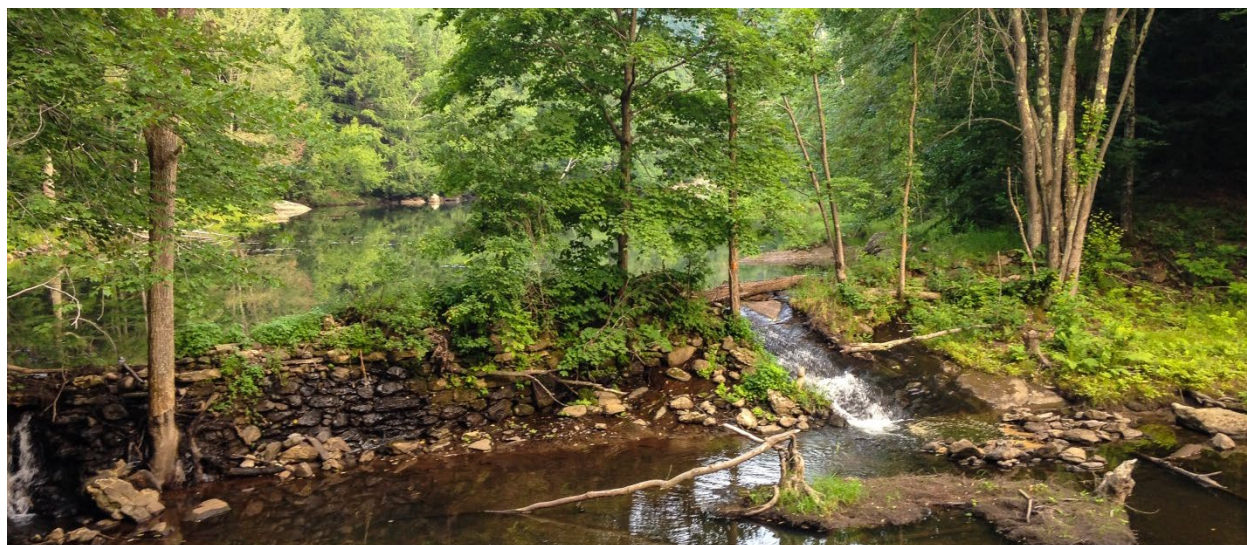


Richmond Conservation Reserve Fund Application

Gillett Pond Dam Replacement



Submitted by: Richmond Land Trust and Friends of Gillett Pond

Date: March 6, 2017

Revised: June 1, 2017

Revised June 5, 2023

Table of Contents

<u>Introduction</u>	<u>3</u>
<u>Budget</u>	<u>4</u>
<u>Overall Conformance with CRF Guidelines</u>	<u>5</u>
<u>Detailed Conformance with CRF Policy</u>	<u>6</u>
<u>Project Significance – Specific Criteria</u>	<u>12</u>
<u>Other Important Values</u>	<u>15</u>
<u>Summary</u>	<u>16</u>
<u>Site Plan</u>	<u>17</u>

Introduction

The Richmond Land Trust (RLT) and The Friends of Gillett Pond (FoGP) submit this application to the Richmond Conservation Commission (RCC) for Conservation Reserve Funding (CRF) to support the cost of replacing the Gillett Pond dam.

RLT owns 110 acres immediately surrounding and including Gillett Pond, including the dam which impounds the Pond. Funds to purchase the property from the Girl Scouts of the Green and White Mountains were raised from a broad appeal to residents of Richmond, Huntington, and surrounding communities. The aggregate cost of purchase and related costs (e.g. property appraisal, title search) was \$80,000.

RLT and FoGP contracted with Weston and Sampson Engineering to develop engineering plans for a new concrete gravity dam based on the requirements of the Vermont Dam Safety Division. Based on these plans RLT has obtained all local, state, and Federal permits to remove the current dam and construct a new dam in the same location, including a six car parking lot to the south of the dam. (See attached site plan.)

Fundraising for the project has been ongoing since 2017. Many individuals from the Richmond and Huntington communities have contributed to the project, and funds have been received from the Town of Richmond Conservation Fund, the Town of Huntington Conserve Fund, and the office of Senator Patrick Leahy, through the Congressionally Directed Spending Program (CDS). (See Budget for more information.)

After a successful bidding process this Spring, RLT intends to sign a contract with J.A. McDonald, Inc. to remove the existing dam and construct a new dam, for a total cost of \$770,150. Accounting for funds raised to date, committed funds, and anticipated costs for engineering oversight and construction contingency, RLT must raise an additional \$101,964. (See Budget.)

In 2017 RLT requested \$200,000 from the Richmond Conservation Commission for the Gillett Pond Project. The RCC granted RLT \$150,000 from the Conservation Reserve Fund toward the cost of replacing the dam. At the time, RLT raised the possibility of coming back to the RCC for the additional funding if necessary to help close any fundraising gaps once actual costs were known. (See Budget)

The updated application and Budget follow.

**RICHMOND LAND TRUST
GILLETT POND DAM REPLACEMENT
PROJECT BUDGET**

EXPENSES	
Dam Construction Contract (J.A. McDonald, Inc.)	\$ 770,150
Construction Contingency	\$ 40,000
Engineering Oversight (Weston & Sampson)	\$ 40,000
TOTAL	\$ 850,150
SOURCES	
Fundraising to Date (cash on hand)*	\$ 498,136
CDS Funding (Senator Leahy)	\$ 250,000
<i>(funds in hand)</i> SUBTOTAL	\$ 748,136
Richmond Conservation Reserve Fund (requested)	\$ 50,000
Additional Community Fundraising	\$ 51,964
<i>(to be raised)</i> SUBTOTAL	\$ 101,964
TOTAL	\$ 850,150

* Includes Richmond Conservation Reserve Fund Grant (\$150,000) and Huntington Conservation Reserve Fund Grant (\$75,000)

Overall Conformance with CRF Guidelines

Below is a summary of the reasons why RLT and FoGP believe CRF funds are appropriate, touching on four priority areas defined in CRF guidelines: the value of the Pond as a natural resource; the recreational uses it provides; the educational opportunities it presents; and its historic importance to the Town of Richmond.

- The Pond is of highest significance as a natural resource as evidenced by:
 - Scientific assessment by the State's BioFinder Program.
 - Scientific assessment by the Chittenden County Regional Planning Commission.
 - Scientific assessment by Science to Action.
 - Its contiguity with Robbins Mountain Wildlife Management Area.
 - Annual records of wildlife, including mammals, water birds and other aquatic life.
 - Its use by naturalists for field studies.
 - Its use by wildlife experts for field trips (Poleman – UVM; Morse – Keeping Track).
 - Its use by Richmond and Huntington Schools for field trips.
 - Its use by the Girl Scouts.
 - Intervale Conservation Nursery riparian planting projects.

- The Pond is used heavily for recreational purposes as demonstrated by evidence-based surveys undertaken by the FoGP, including:
 - Canoeing / kayaking.
 - Year-round Fishing.
 - Hunting.
 - Wildlife observation.
 - Winter sports including skiing, snowshoeing, skating and walking.

- The Pond is used by the Richmond and Huntington School systems for educational purposes, as evidenced by the trips undertaken and reports generated.

- The Pond is of historical value to Richmond, as evidenced by correspondence from the Richmond Historical Society and the University of Vermont, with the values including:
 - Documented use by Richmond's earliest settlers.
 - Historical evidence for a dam since before the mid-1850s.
 - Use in the early 1900s by Richmond Power and Electric as an additional water resource for power generation at the Huntington River power station.
 - Inclusion of the Pond within the Natural Park that was to be part of the Green Mountain Parkway.
 - Scenic beauty.

Detailed Conformance with CRF Policy

The CRF was “established to benefit both current residents and future generations as our town grows and the demands and pressures on important but limited resources grow. It was created ‘for the purpose of preserving water quality, providing outdoor recreational opportunities, protecting wildlife, and conserving important natural, agricultural and historic resources.’ ”

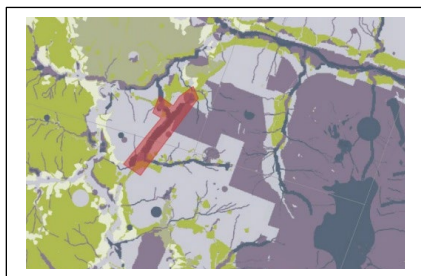
CRF Criteria

RLT and FoGP believe this project meets all seven General Criteria of the Conservation Reserve Fund.

1. Contributes toward the acquisition or permanent protection of natural, agricultural or historical resources in and of importance to Richmond.

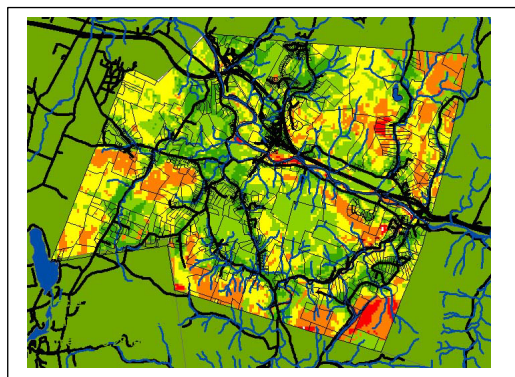
The values of Gillett Pond as a natural and historic resource have been established.

- Its value as a natural resource has been documented by the State’s Biofinder program, which has: identified the Pond as one of 100 "representative lakes/ponds" in Vermont; as one of approximately two dozen "Mesotrophic, Low Alkalinity Ponds"; and ranked the pond as "tier 1 / greatest" in importance in a six-category classification of "contribution to biodiversity" as determined by combination of numerous, weighted factors, including representative lakes/ponds, rare species, habitat blocks, wildlife road crossings, etc. Further details regarding these findings can be found at: (<http://biofinder.vermont.gov/>)



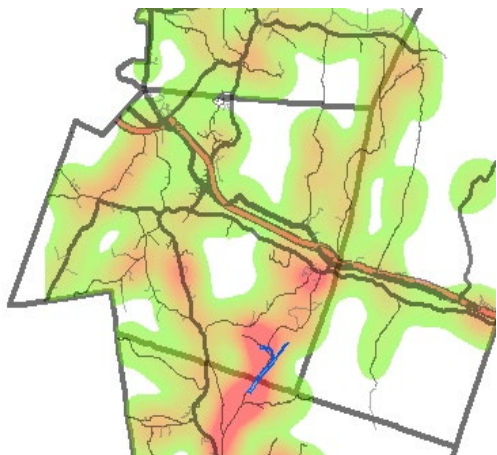
- A 2009 Report from the Chittenden County Regional Planning Commission (CCRPC) gave the Pond and the area surrounding it the highest score from the point of view of its value as a natural resource:

Final Score: Dark Green = 0.25-1.0;
Light Green = 1.0-2.0;
Yellow = 2.0-2.75; Orange = 2.75-3.75;
Red = 3.75-5.0 (Best)

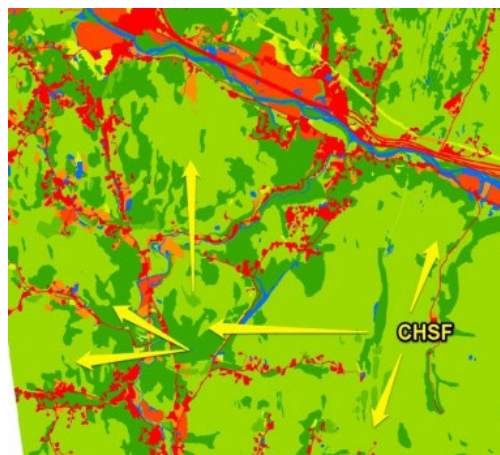


- The 2013 Arrowwood “Science to Action” study provides documentation that the Pond and surrounding area are characterized by:
 - Core Wildlife Forest on the North and East sides of the Pond;
 - Contiguous wildlife habitat;
 - Service as an important wildlife corridor, known for a high density of road crossings and providing for wildlife dispersal from the large unfragmented population source in the Camels Hump State Forest / Chittenden Uplands region to smaller islands of core forest to the west;
 - Provision of cover and movement afforded by the Gillett Pond region in its current state allowing dispersal of a varied species list to these core forest islands in Richmond and beyond.
 - Track density at a snapshot in time greater in the Gillett Pond region than other places throughout the four town project area.
 - Hydrologic support of an expansive wetland complex and diverse mix of natural communities.
 - Threat of an eventual increase in human development that would imperil the permeability of the area for wildlife should the Gillett Pond cease to exist.

Road Wildlife Tracking -1:



Wildlife dispersion



- The Richmond Historical Society (RHS) and the University of Vermont's Consulting Archeology Program have documented the Pond's historic values:
 - a. The history of Gillett Pond began long before the pond itself came into existence. Its northeast-southwest orientation does not fit the general orientation of landforms in the area. Some 15,000 years ago, the Winooski River valley was cut off by glaciers near Jonesville. Water traveling down the ancient Winooski River was diverted in a southwesterly direction towards what is now Huntington, creating a "cut" that would later become the pond "basin." The diverted waters flowed through the Huntington Lower Village area, out Hollow Brook and into what is now Lake Champlain. The gravel pits of Hinesburg Sand & Gravel at the west end of Hollow Road were left by water that slowed as it entered the lake.
 - b. Early settlers established thriving farms in the fertile lands spreading north and south of the wetland area that came to be called Gillett's Pond. As early as the late 1700's Asa Gillett's family farmed in the area. They may have trapped mink and beaver in the deep wetland area between the two ridges that still rise steeply above Gillett Pond to the east and west as well as harvested ice in winter to keep milk cold all through the hot summer months. There is no known record of what the valley looked like prior to the dam, though based on rock formations and recent soundings it was likely to have been a series of stream-connected pools.
 - c. Evidence from maps and deeds indicates there was a dam already in place in this wetland valley by the mid-1800s. The water in the narrow north-south ravine flows from streams that originate in the Camel's Hump foothills; the outflow brook empties into the Huntington River just above the Gorge. The history of the present dam dates back to the turn of the 20th century.
 - d. Circumstances surrounding construction of the dam are described in the Richmond Historical Society's book, *Richmond Vermont: A History of More than 200 Years* and in *Historic Resources Review of the Gillett Pond Dam*, by Kate Kenney and Catherine Quinn of UVM's Consulting Archeology Program.

In 1902, Richmond Light and Power Company began converting an old mill on the Huntington River, the Robinson Mill, into the town of Richmond's first power-generating plant. Recognizing the need for a backup water source when the Huntington River was running low, the power company purchased Gillett Pond, whose outlet lay about half a mile east of, and 350 feet higher than, the mill pond for the power plant. At the location of the previously existing dam, they added a cap with a gate in its outlet, substantially raising the water level in Gillett Pond. Masonry from this construction still can be found at the base of the dam today.

In times of low water on the Huntington River, a Richmond Light and Power worker had to hike uphill from the generating plant, estimate how much to open the gate, then hurry back down to the untended plant before the added water could reach the mill pond. If he had guessed incorrectly, another hurried uphill trip would be necessary. A covered bridge was constructed to allow the workers safely to cross the river and climb the steep slope to the gates of the Gillett Pond dam. It also allowed cows to be brought to and from pastures in the upper fields of Wes White Hill. The foundations of the electrical plant and bridge can still be seen at Huntington Gorge. The generation of electrical power at this site lasted only a few years, however, as the generating plant was shut down in 1910.

- e. Gillett Pond has been important to Richmond for more than 150 years. Its identity has changed over the years, from being a part of a farming economy, to part of the town's first hydroelectric system, to a recreational retreat and site of tremendous biological diversity. These changes in turn bear witness to the evolving culture and values of the town itself. Among its many other assets, Gillett Pond is an educational resource for those interested in preserving and sharing Richmond history.
- f. The closure of the hydroelectric plant made way for a deepening appreciation of Gillett Pond's scenic beauty. This was confirmed in 1933 when the National Park Service proposed the Green Mountain Parkway, a National Park highway that would run along the spine of the Green Mountains. As mapped, the section north of the Lincoln and Appalachian Gaps would generally follow the road from Lower Huntington to Richmond, but the narrow National Park corridor was widened at the Richmond/Huntington border to include Gillett Pond and the hills around it. Though Vermont voters defeated the Parkway proposal in 1936, the fact that the National Park Service included Gillett Pond in its proposed plan attests to the pond's historic significance as a scenic natural area.

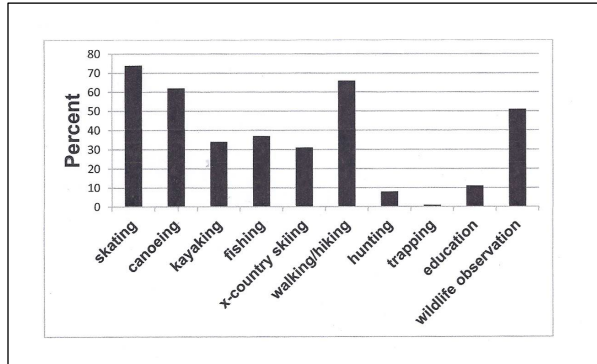
2. Will yield a clear, sustainable benefit to Richmond residents in the form of permanently preserving or improving water quality, wildlife, recreational, historic, cultural, scenic or environmental values, including the preservation of significant natural, agricultural and historic resources.

The detailed information above demonstrates that the proposal addresses this criterion. In addition, the Pond is a well-used, year-round community recreational resource. In spring, summer and fall it is enjoyed for fishing, canoeing, kayaking, wildlife observation, scenic photography in spring, summer and fall. Throughout the winter it is a popular site for skating, skiing, walking, and wildlife observation. The extent of recreational use was documented in an early 2014 survey carried out by the Friends of Gillett Pond, details of which can be found at:

http://huntingtonvt.org/index.php?option=com_content&view=article&id=152&Itemid=200416

Gillett Pond Survey - 01/27/14		
If so, what were your reasons for being at the pond (Can choose more than 1)?		
Answer	Response #	Response %
Skating	151	74.4
Canoeing	125	61.6
Kayaking	69	34.0
Fishing	76	34.0
X-Country Skiing	63	31.0
Walking / Hiking	133	65.5
Hunting	17	8.4
Trapping	1	0.5
Education*	22	10.8
Wildlife Observation	104	51.2
Other (please specify)		24.0

* (school field trip, tracking class, etc.)



3. Will help the Town of Richmond meet natural resources planning goals identified in the Richmond Town Plan or other representative community forum.

The 2018 Richmond Town Plan (Plan) contains numerous statements and references regarding the need to protect important natural, scenic, and recreational resources within Richmond's borders, including Gillett Pond. These statements include:

Vision Section (Plan, P.3)

- *Wisely steward our natural and working lands, ensuring the beauty and health of our landscapes, waterways, open spaces, wildlife, and agricultural resources*

In the **Natural Resources** section of the Plan Gillett Pond is specifically cited as a **Conservation Priority** to protect the Town's important **Geology and Landforms** and also to protect the Town's **Wetlands, Riparian Areas, and Surface Waters** (Plan, P. 32)

The **Natural Resources** section also includes this goal:

GOAL 1: Protect priority natural areas in order to maintain the health and function of those areas and their ecosystem services

These and other statements in the Plan speak to the importance of multiple features represented by Gillett Pond and the surrounding area.

4. Will protect, enhance and provide public access to a natural resource or recreation area.

The land surrounding the Pond is to be conserved and designated as public access.

5. Is directed at threatened resources.

The present character of the Pond area as a natural resource will be lost should the dam not be repaired and maintained. This includes all water-related recreational and educational opportunities identified above.

6. Expands an existing, protected resource, including those that benefit not only Richmond but also neighboring communities and those beyond.

The area of the Pond adjoins the Robbins Mountain Wildlife Management area and the Camels Hump State Forest. Accordingly, conserving the lands surrounding the Pond will expand existing protected resources, including for both Richmond and Huntington. The 2014 FoGP survey and Friends list documents widespread use of the Pond and surrounding area throughout Chittenden County and well beyond.

7. Attracts and leverages funds from other sources

It is anticipated that there will be a 4:1 leverage of CRF funds as described in the project Budget. To date, more than \$800,000 has been raised (this includes funds raised to purchase the Pond, shoreline, and dam).



Project Significance – Specific Criteria of CRF Guidelines

Natural Resources Protection

The Gillett Pond Dam replacement meets at least seven of the nine Natural Resource Protection criteria.

1. Preserves river, stream, and wetland quality.

An important wetland exists at the Huntington end of the Pond. An aerial photo from the 1920s when the dam was breached shows that this area became a farm field.

Though there likely would remain some wetland, and perhaps some ephemeral open water areas maintained by beaver activity, the diverse assemblage of natural communities currently existing at the Huntington end of the Pond would substantially be lost. For sure, the deeper pond margin habitat would be lost as would the aquatic habitats existing today. While some portions of the current pond could be replaced by shrub wetland, the existing and extensive alder swamp and emergent communities at the southern end might disappear. At least as recently as the 1940s,

significant portions of today's alder swamp were cropped and pastured, again suggesting loss of hydrologic regime supported by the pond may again result in considerable reduction in the extent and reach of the wetland communities. As the hydrology is lost, land use changes become more likely risking future encroachments of development and agriculture. Disruption of the area of the Pond would have substantial impact not only on wildlife that currently inhabits the area but could seriously degrade an area that scientific evidence indicates is an important north-south and east-west wildlife corridor. Disruption only would become more serious as the area became available for human development.

2. Significantly reduces point or non-point source pollution to ground or surface water by protecting an area from development.

Conservation of the land surrounding the Pond would preclude the area from development. As well, the Pond would continue to serve as a buffer against runoff after major storms.

3. Provides a naturally vegetated buffer zone around or between significant wetlands, streams or rivers, and human activities.

Conservation of the land surrounding the Pond would preclude the area from development. Current forest and vegetation would remain in place providing a buffer zone.

4. Preserves or restores biodiversity by providing areas for wildlife to live, feed and reproduce.

The importance of the Pond area as a natural resource has been detailed above. Successful completion of the Pond project would preserve this invaluable asset.

5. Provides a corridor linking wildlife habitats

Scientific evidence as to the importance of the Pond area as a north-south and east-west wildlife corridor has been provided above.

6. Maintains woodlands, meadows, or pastures

The wooded areas surrounding the Pond would be preserved and maintained through land conservation.

7. Supports no or low-cost outdoor recreational activities...

Evidence for the recreational values of the Pond area has been detailed above. Public access to these recreational opportunities would be preserved.

8. Preserves outstanding scenic views or is scenic itself.

The Pond area is well known for its north-south vistas, as well as forest and remote pond views. Many photographs illustrating this were purchased at an art exhibition in Richmond and Huntington in support of fund-raising efforts. Additional photos can be provided upon request.

Related, the Gillett Pond area was to be part of a National Park highway proposed in the 1930s, which was to run along the spine of the Green Mountains. (Also see below under historical values). As mapped, the section north of the Lincoln and Appalachian Gaps would generally follow the road from Lower Huntington to Richmond, but the narrow National Park land corridor was widened at the Richmond/Huntington border to include Gillett Pond and the hills around it. (The proposal was voted down by state-wide vote.)

9. Preserves forest resources and a working landscape by means of a sustainable management plan.

Logging and other forest management practices defined under Current Use protocols would be practiced.

Historical Resources Protection

The project meets at least two of the CRF's Historical Resources Protection criteria. Details from the RHS are included above.

1. Defines and maintains special landscape or setting.

As detailed in the aforementioned descriptions from RHS and the University of Vermont, the dam will preserve and protect a landscape that has been intact and utilized by generations of Richmond residents since the mid-1850s. Modern permitting and safety requirements preclude replicating the original stone construction of the dam. However, the new dam will be faced with a neutral shade of concrete to minimize any distraction from the historic setting. The dam will weather over time with moss, lichens and other natural growth. RLT and FoGP would ultimately like to add a stone façade as a visual reference to the original stone face of the dam.

2. Preserves, enhances and / or rehabilitates historical structures, features and character.

The proposal is to replace the existing dam with a concrete "gravity" dam, with the intent of recreating the historically-important stone façade consistent with permitting requirements.

3. Represented an important central function in Richmond's past, or is associated with an important person, movement, industry or function.

There was a saw mill below the dam in the mid-1880s (Beers Atlas). In addition is the re-construction of the dam by Richmond Light and Power as described by RHS, and a January 2, 2015, article in the *Burlington Free Press*, and the September, 2016, “Historic Resources Review of the Gillett Pond Dam” by UVM’s Consulting Archeology Program.



The proposed concrete gravity dam is designed to meet state permitting requirements based on a 100 year storm event. A concrete form liner will be used to simulate the look of natural stone, similar to the method recently used when constructing the new retaining wall on Dugway Road at Huntington Gorge.

Other Important Values of Gillett Pond

Riparian Nursery

The Intervale Conservation Nursery has used the wetlands at the Huntington end of the Pond to harvest various willows and Red Ozier Dogwood for use in riparian planting projects around the state.

Education

The following illustrate the educational values the Pond provides.

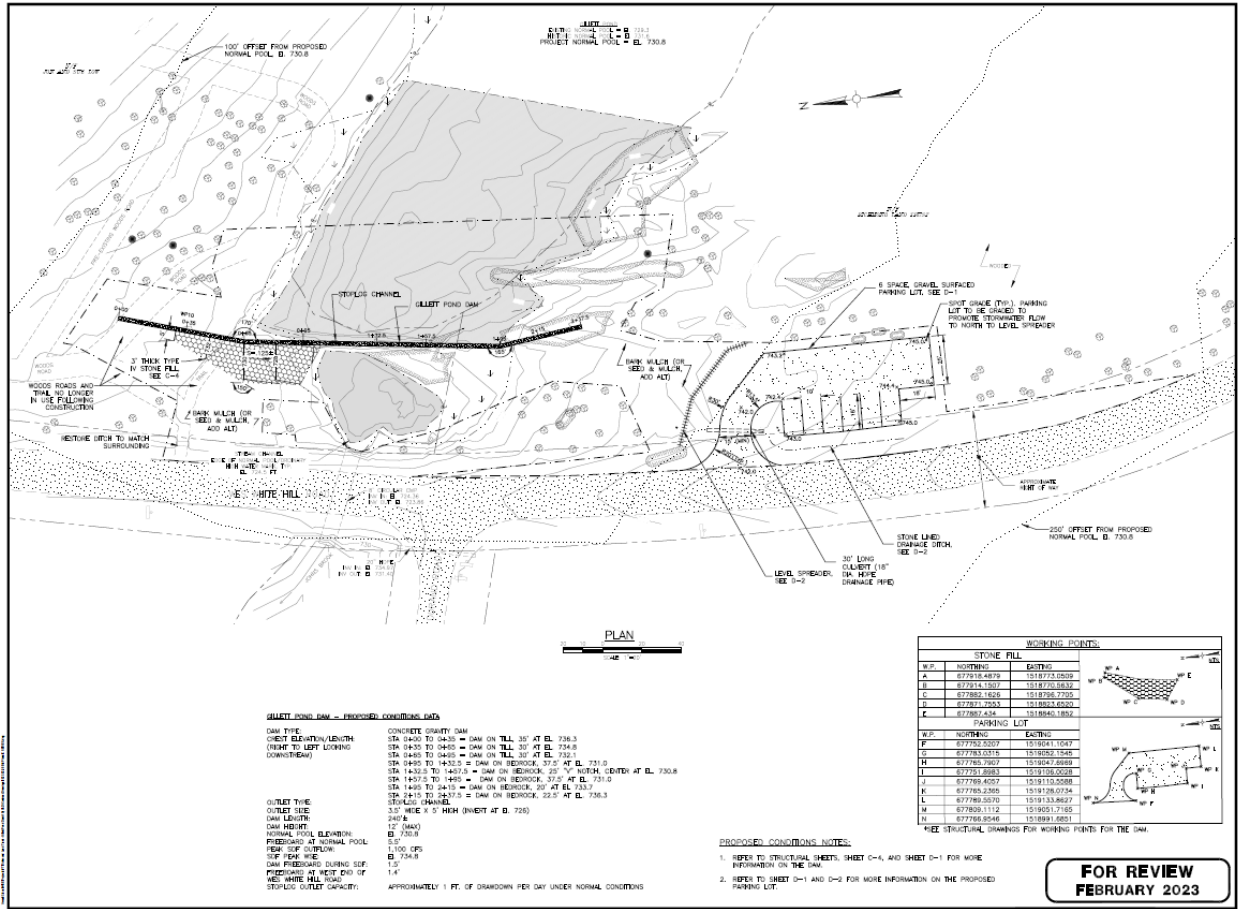
- Walter Poleman’s 2001 Richmond PLACE presentations did so much to describe history and wildlife and to allow Richmond residents and others to appreciate the wildlife offerings the Pond provides.
- Gale Lawrence and local residents over a number of years have documented bird species that live near the pond, helping to define local nesting patterns.
- Amy Seidl of Huntington, has kept a naturalist’s watch over the Pond for so many years and written a book about her experiences.
- Wildlife tracker, Sue Morse, has used the Pond for her public tracking outings.

- The Huntington amphibian study has centered activities at the Pond, monitoring the amphibian population and warning of amphibian crossings. (To be completed.)
- Wally Jenkins of Huntington uses the Pond in his public education outings, including the study of dragonflies that inhabit the area. Totals to date are 33 species (22 dragonflies and 11 damselflies). In contrast to smaller bodies of water (beaver ponds) in this area, Gillette Pond seems to be particularly good habitat for damselflies, with large concentrations at specific times of the year. Vesper Blue was identified this past summer, a Chittenden County record for the species.
- Neighbors to the Pond keep an annual list of bird species identified over the year, always reaching at least into the 90s.
- Camel's Hump Middle School teacher, Sandy Fary, teaches 7th grade science and English / Language Arts. For over 10 years, she has been using Gillett Pond as a field study site for her ecology unit. She and her students have tracked wildlife, canoed the wetlands, and helped with night time amphibian crossings.
- Brewster-Pierce teacher Aimee Motta has conducted field trips to the Pond for her 4th grade class.
- Studies of the history of the Pond by Tim Whalen, University of Vermont Graduate Student, have documented the role of glaciers in carving out the area now covered by the Pond as well as in creating Hinesburg Hollow and the Hinesburg Sand & Gravel deposits.

Summary

Gillett Pond has long been a haven for wildlife, and a scenic and recreational treasure for people throughout Richmond and surrounding communities. Replacement of the dam will enable the preservation of the Pond as a natural, recreational, educational and historic resource for future generations.





OUTLET POND DAM - PROPOSED CONDITIONS DATA

DAM TYPE	CONCRETE GRAVITY DAM
CREST ELEVATION/LENGTH	STA 0430 TO 0435 = DAM ON TILL 35' AT EL. 736.3
(RAMP TO LEFT LOOKING DOWNSTREAM)	STA 0435 TO 0440 = DAM ON TILL 35' AT EL. 734.8
	STA 0440 TO 0445 = DAM ON TILL 35' AT EL. 732.1
	STA 0445 TO 1432.0 = DAM ON BEDROCK 35.0' AT EL. 731.0
	STA 1432.0 TO 1437.0 = DAM ON BEDROCK 25' "V" NOTCH CENTER AT EL. 730.8
	STA 1437.0 TO 1440.0 = DAM ON BEDROCK 35.0' AT EL. 731.0
	STA 1440.0 TO 2415 = DAM ON BEDROCK 35' AT EL. 733.3
	STA 2415 TO 2417.0 = DAM ON BEDROCK 35.0' AT EL. 736.3
STYLOS CHANNEL	
OUTLET TYPE	3.0' HIGH X 6' HIGH (INVERT AT B. 728)
OUTLET SIZE	240" B
DAM HEIGHT	12' (MAX)
NORMAL POOL ELEVATION	B. 730.8
FLOODS AT NORMAL POOL	1.0' (MAX)
FEAR OF OVERTOP	1.100 CFS
SEF FLOW RATE	B. 024.8
DAM FLOODING DURING SEF FLOODING AT NEXT END OF ALL WARE HILL ROAD	1.4'
STYLOS OUTLET CAPACITY	APPROXIMATELY 1 FT. OF DRAINOWN PER DAY UNDER NORMAL CONDITIONS

WORKING POINTS

STONE FILL	
N.P.	EASTING
A	877918.4879
B	877914.1887
C	877883.1836
D	877913.7553
E	877883.4336

PARKING LOT	
N.P.	EASTING
F	877783.5337
G	877783.0375
H	877783.7807
I	877783.8883
J	877786.4057
K	877786.2365
L	877789.5570
M	877826.1112
N	877786.8546

- PROPOSED CONDITIONS NOTES:**
1. REFER TO STRUCTURAL SHEETS, SHEET C-4, AND SHEET C-1 FOR MORE INFORMATION ON THE DAM.
 2. REFER TO SHEET C-1 AND C-2 FOR MORE INFORMATION ON THE PROPOSED PARKING LOT.

FOR REVIEW
FEBRUARY 2023

RICHMOND LAND TRUST
RICHMOND LAND TRUST
OUTLET POND DAM REPLACEMENT

Weston Sompoort
Weston Sompoort, Inc.
10 South Main Street, Suite 7
Burlington, VT 05401
P.O. BOX 607
www.westonsompoort.com

BID SET

Date: FEBRUARY 2023
Drawn By: BMM
Reviewed By: BMM
Approved By: DCB
Field Project No: B23-083
Add'l Project No: B23-083

PROPOSED CONDITIONS PLAN

Sheet No: **C-3**