

DRAFT MEMO

To: Dylan Ford, George Coppentrath, Don Easter, Joe Mangiapane,
Richard Downer
From: Red Dufresne
Subject: Minutes of Meeting with Dam Safety on 9-6-2022
Date: September 8, 2022

A meeting was held on the porch at George Coppentrath's house at 2 pm on September 6, 2022. The people named above were in attendance along with Ben Green and Steve Hanna from the Vermont Dam Safety Program (DSP). Prior to the meeting, the DSP staff had completed a routine inspection of the Harvey Lake Dam and will file a report in the near future. Dylan started the meeting and went over the history of previous planning activities and the money spent. Dylan provided DSP staff with an aerial photo showing the dam and upstream area as well as the northern part of the lake. Dylan described the extensive silt deposition which has occurred in the past as evidenced by how fast the area dredged in 2018 has returned to its pre-dredging project condition. George went over the project goals and described some of his historical observations over the 64 years he has been at the house near the dam. George also presented a photo of the previous dam showing its deteriorated condition. George described that the channel was navigable. George indicated the fish ladder is completely dilapidated but had never worked even when it was new. Don indicated that except for the rain of last week, this summer had been so dry that backflow had not occurred. George went over some of the more significant events where South Peacham back flowed into Harvey Lake. The project goals were as follows:

- Reduce the frequency and volume of backflow events in order to reduce adverse water quality effects caused by the backflow of South Peacham Brook into Harvey Lake during high flow events without any major construction modifications at the existing dam.
- Improve the operational safety and security at the existing dam.
- We want to do the best with the existing dam that we have without needing a dam alteration permit.

Red went over the four items the Harvey Lake Dam Committee has identified for beneficial maintenance improvements. These items included:

1. Repair or replace the bottom drain gate, stem, and stanchion and install a trash rack upstream of the bottom drain gate
2. Replace the stop boards with an automatic gate.
3. Cut off a portion of the east wall of the fish ladder at the same elevation as the dam crest.
4. Install some grating and handrails to increase safety during maintenance activities and inspections.

Red presented a folder to Ben Green showing these improvements on paper in greater detail. Red followed up with an 9-7-22 email to Ben Green with a digital copy of this information. This digital information was previously sent out to the individuals shown above on 9-5-22. Joe also was concerned that the dam crest was not level and may have contributed to the significant siltation on the east side of the upstream channel.

Richard confirmed that the dam was designed with a lower dam crest elevation on the west side of the dam. Joe thought that if the dam crest was level, there may be less siltation on the east side. Richard described another alternative for deflector berms that would force the flow east and away from the Machine shop and reduce siltation to the east. Don asked if the DSP staff had any better ideas to accomplish the goals.

Ben Green indicated that the safety decking and safety related items would not require a permit and repair of the stanchion base was also a maintenance items. But the following items would necessitate a dam alteration permit (DAP):

- Dewatering, dredging, and repair or replacement of the drain gate, frame, or operating rod.
- Replacing the stop boards with an automatic gate.
- Cutting off a portion of the east wall of the fish ladder at the same elevation as the dam crest.

Several members of the Dam Committee voiced concerns that there seemed to be no end to previous permit activities and projects never reach construction. Dam Safety members indicated that the backflow has continued to adversely affect the lake and something must be done soon. Dam Committee members indicated that if the lake reached further stages of eutrophication, and the property values dropped, it would be a significant loss of tax revenue to the town and state. DSP staff indicated that the regulations required a permit application that would entail the following items:

- A Basis of Design Report prepared by an engineer
- A Hydraulic and Hydrology (H&H) report
 - One of the concerned would be possible downstream effects
- Final Design Plans and Specifications prepared by an engineer

Red questioned why a complete design was required prior to approval and indicated that normally the concept is approved prior to final design initiation to ensure that the significant cost of preparing plans and specifications was not wasted. DSP staff indicated that they would offer a preapproval of concept prior to final design. There was discussion on why the “passive riffle concept” was not approved after so much money was spent. DSP staff indicated the following were factors in this concept not being approved:

- Steve Hanna indicated that his 30% complete comments were disregarded
- Ben indicated the riffle was proposed in a “terrible” location
- The project required significant earthwork with the loss of wetlands and endangered species habitat
- The riffle as designed would create lake level fluctuations during especially during dry periods

Dylan asked DSP staff how to come out of this DAP successfully. Ben Green indicated that the items described seem to have “legs” and may meet the public good criteria. The improvements seem to be doable. Ben indicated that it may be possible to retool the H&H study for these items. There was discussion on how the potential automatic gate would be controlled and level transmitters at the bridge on West Barnet Road and one at the beach seemed warranted. DSP staff added that they wanted slow changes and not on/off controls. Red asked if they would require flow data or if level data could be used and DSP staff were OK with water level data. The Harvey Lake dam is a

significant hazard dam and as such may require a dam breach analysis. Red related that unfortunately the success or failure of a DAP application extends well beyond the people in this room as other groups will have input on the potential project. Red indicated that these items were identified in hopes that they could be completed as maintenance items and not require a DAP. For instance, the stop board opening was too small to eliminate backflow but would help reduce backflow. And it was likely that cutting off a portion of the fish ladder east wall would also not eliminate backflow but would help. But if they state deemed these items to require a permit, it was possible that the application may include larger gates and perhaps a bladder dam to better reduce backflow.

Red asked if minimum release would be required as part of the permit and DSP staff indicated that it would be required and that flow in would need to be equal to flow out. Red confirmed that there would not be a requirement of a certain cfs per square mile criteria and DSP staff indicated that this would not be required.

Red asked about a bladder dam and Steve Hanna indicated that they asked Jeff Crocker at the state, and he indicated that approval would depend on the specific situation. They had no experience with bladder dams on non-power generation dams. Red asked if there were any analogous dams in Vermont that had a similar situation in that an inlet from a large watershed entered the lake outlet stream just upstream of the dam and DSP staff indicated there were no other similar situations.

DSP staff left and there was a short discussion between local officials after with no decisions made. Perhaps the most important information came from Richard who indicated that if there was a project that eliminated all backflow was a 10 out of 10, this project which replace the stopboards with an automatic gate and cutting off a portion of the fish ladder wall would then be a 4 out of ten in regard to stopping backflow to the lake.