

From: [Andrew Goode](#)

Sent: Sunday, January 17, 2016 9:48 AM

To: 'Myron'

Cc: 'Chuck Vaughan'

Myron,

I am writing to follow-up on a recent Coopers Mills Dam Committee mtg. The committee unanimously voted in favor of a proposal that will remove the spillway, and retain the abutments and rebuild the near shore abutment that is detailed in a landscape design plan to restore and preserve the history of the site with additional work done to reveal and preserve the old mill foundation and walls. As part of the proposal, three new dry hydrants would be constructed just upstream and over in the West Branch of the river on Route 17.

However, the committee is interested in understanding a bit more about the idea you raised of fixing the culverts on the far side and Chuck and I were tasked with contacting you. I did speak to the dive companies you mentioned to better understand how they operate and understand the process is pretty similar to going the traditional contractor route. They would need to be provided with a design to then provide an estimate etc., etc.

So a few questions for you:

1. If we fixed the two culverts, do we know if the increased volume of water in the impoundment would then increase the volume of the other leaks in the dam or make it susceptible for additional leaks to develop? **Water level in the pond will be higher during low flow season which may increase leakage during that time.**
2. Are we sure all 10cfs is coming from culverts/gates and there will be no other leakage through this area after they are fixed? **I didn't see significant leakage at the area during the September inspection. In the report, I recommended to re-inspect the area during higher pond level to prove/disprove this observation.**
3. Do we still need the hydraulic capacity of two gates to draw down the impoundment for future inspection and repairs of dam? **both culverts will be used during the proposed dam repair. One culvert would be enough for maintenance purposes. The culvert can lower the pond only during the low stream flow but not below the culvert invert. Below the culvert level a diving inspection is needed to observe the dam.**
4. In addition to your thought of filling one culvert with concrete, is there a need to also put something at upper end so it lasts over time? There has been some previous attempt to seal/fix these gates that did not work but I don't think there was any real engineering work that guided those repairs. **Instead of permanent concrete seal a removable steel bulkhead could be installed over the culvert intake.**
5. Why is the concrete overlay of right non-overflow only covering half the length given the poor condition of the upstream side of the abutment? **This is the second remedial option dealing only with leakage reduction. This option left many other parts of the dam in the existing state of disrepair.**
6. Is there a need to put in new pipe (culvert) in back of new gate? **Yes, in a long-term. Current culverts are acceptable for short-term (5-10 years)**
7. Do we know that dowels can be firmly set in to interior concrete given its condition? Is there work such as grouting or injecting something or otherwise that needs to accompany new gate.

it's likely boreholes for gate dowels will be grouted and re-drilled prior to permanent installation of dowels.

8. How is new gate to be accessed and used? The gate can be accessed from the west dam abutment. The gate may be used once a year to lower the pond for inspection or maintenance or provide minimum downstream environmental flow releases as needed.
9. It seems like old gates have been susceptible to debris. Does or should design call for grizzly rack (we typically use them)? Minor debris can be flushed through the culvert. Larger debris are usually handled by the spillway. The trashracks could be blocked by debris which requires regular racking and cleaning.

How do we best get a good estimate of what all the costs might be to fix the two culverts/gates? Ideally we would like a cost estimate that includes all the costs such as engineering design, permitting, construction oversight, and cost of repairs. Do we need more design work at this stage and if so what would that cost and what would be the timing? Alternatively, could further design work until a later point in the process when we know if the town wants to pursue it more? Is there a write-up you might be able to provide that would provide a clearer picture of the costs even if there is some plus/minus brackets around it? It requires some time to develop a proposal and construction cost estimate. My guess \$30K-\$60K would be needed to cover engineering, permitting and construction costs.