Mountain Lakes District Water Committee Report for April 2013

This report covers the meeting of 4/4/13

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Status: Draft as of 4/8/13 – Reviewed as of 5/9/13 – Approved as of 5/9/13

This was the April 2013 Water Committee Meeting. It was held from 7:30 to 8:55 on 4/4/13.

Attendees: Ed Rajsteter – Chair, Don Drew – Water Department, Bob Long – Commissioner, Robert Roudebush, Ken King, Tony Salvucci – on phone.

Meeting Background

The first part of the meeting was a conference call with Shawn Patenaude of Dubois & King (D&K). Don had sent Shawn a list of questions and Shawn replied as follows:

On Wed, Mar 27, 2013 at 11:45 AM, donald drew maintenance & water dept. <mtnlakeswater@yahoo.com> wrote:

Shawn,

> The Mountain Lakes water committee met this morning to review the Lower Mountain Lake Dam Repair Concepts you sent March 12, 2013. Before we can give D&K a direction to go we would like to have a meeting (via phone) (April 4th 7:30 am) to discuss some options and answer some questions that we have regarding the concepts A B and C.
>
> * Do any of these address lagoon level (Infiltration Well)

No, Chuck Goodling is working with the District regarding the domestic water issues.

* What is the visual appearance of the new riser

The new riser would be at and below the water surface so there would be little visual change on that part. The trash rack on top could be different depending upon which style is choosen. A "poly" or HDPE from StormRax (click link) would be a bit different from what's there now.

* Has DES reviewed any of these concepts

No, NH DES has not reviewed these specific concepts. These concepts were developed through conversations with NH DES, Jeff Blaney, and conform to their objective of addressing the deficiencies. Please note that Jeff Blaney has moved on from the Dam Bureau and one of the other engineers will be the point of contract from here on out.

* Will DES except the hydraulic changes in A and B

They will (should) have no problem with the concepts so long as the regulations are adhered to; which they will be. This includes providing the appropriate free board for the design storm, 2.5 x 100 year flood event.

* How long will these repairs last A and B

Option A has the shortest design life, which depends on the longevity of the base section of the original riser. At this point it is solid but it will continue to deteriorate. 20 years would not be unrealistic to expect the base section to last. Options B and C are equivalent in design life. All currently

deteriorating components are replaced as part of these concepts. The issue with slip-lining is shrinkage and cracking of the grout between the new pipe and the host pipe. Cracking could allow preferential flow paths and exacerbate piping and internal erosion. This is worse-case, but could be expected within the next 50 years, especially as the host pipe (outer) continues to rust and deteriorate. Option C can be expected to last beyond 50 years, but again after that some rehabilitation repair will possibly be required. In summary: Option A: 20-25 years, Option B: 50 years, Option C: 50+ years.

* How long will the concrete reconstruction last in C

See my answer to the previous question. Pre-cast concrete pipe has been in use for several decades and is performing quite well. Not only that, the designs are improving. That said, there are not a lot of examples were RCP has been in service for more than 50 or so years. Estimating a design life beyond 50 years is more speculation than verifiable.

* Estimated cost for engineering for A B and C

There are certain tasks that are common to each option: permitting and hydraulic analysis. Even though the DES is generally supportive of either option they will have requirements specific to whichever option is chosen. This will affect the engineering costs. We estimate, based on experience, design and permitting costs will fall in the following range: $20,000 - $35,000. Please note, since this is a high hazard dam, engineering observation will be required during construction on a full time basis. These fees are highly dependent on the duration of the construction effort. Our recommendation is to budget for an additional $20,000 - $30,000 for this effort. That is based on an assumption of 25-30, 8 hour days at $100 per hour plus expenses.

* Should the upper spillway be addressed with the lower spillway work

If the District is the position to address these same issues at the upper dam, we would encourage you to do so. In the future, the same issues will arise at the upper dam eventually.

* Making the two lakes one level using a large culvert

Under this configuration the upper lake would have to be set at the same elevation as the lower lake. This is due to the hydraulic capacity of the lower dam. We would have to confirm this, but I believe there is not enough capacity at the lower dam if the water surface was raised 1.5 feet. A "bridge" or large box culvert is feasible, but would likely be more expensive than rehabilitating the outlet barrel and riser at the upper dam.

The purpose of the conference call was to further discuss the above items.

There was a question about the need for always having an engineer on the site as this is a high hazard dam. Shawn said that the engineer is only required when the work being done has the capacity to effect the dam. He expects 25 to 30 days of work over a period of 6 to 8 weeks depending on the Option chosen.

There was a question about the slip-line method used in Options A and B and what happens in 50 years when it starts to fail. The answer is that you have to dig down and insert more grout as the original metal pipe decays over that period of time.

There was an extended discussion about the weep holes and the level of water in the lagoon. When we get the permit for any option, Shawn expects that state will set conditions on the weep holes and the water level. The current conditions were set by Jeff Blaney NH DES. However, Jeff is leaving the Dam Bureau so a different person will be assuming responsibility for the Mountain Lakes dams.

All of the options provide a way to influence the level of water in the lagoon. By positioning the plastic pipe insert we can gain about one foot. In option C, we redo everything and could probably gain another foot. It is also possible to leave the lagoon at the same level but make it larger in size.

We told Shawn that he had to coordinate this project with the other D&K project being run by Chuck Goodling on water sources. If we decide to restore the infiltration well, the level of the lagoon is an important factor. Shawn agreed to coordinate with Chuck and to also find out who the replacement is for Jeff Blaney and to start working with that person. Once we have agreed on the Option to be followed, we need to have a meeting with us, D&K and the state DES people

We talked about the fact that all options require excavation and this requires the lake to be lowered. Shawn said that this project needs to be done in the summer. His suggestion was to start right after the July 4th weekend. So the lower lake will be lowered for that entire summer. The current thought is 2015. We will have to notify all of the homeowners on the lower lake and move any summer beach plans to the upper lake.

We talked more about the possibility of doing the causeway dam repair at the same time. Shawn said that having the lower lake partially drained would allow us to inspect the causeway dam and that we could always amend our permit if we find that repairs need to be done. We talked about running both lakes at the same level and using a concrete box culvert. Shawn estimated the cost of doing that at $50,000 and said that just doing a slip-line pipe and riser would cost less. We can not raise the level of the lower lake by 1.5' so we would have to lower the level of the upper lake to match the lower lake and that would certainly effect the homeowners on the upper lake.

D&K will help us with the bid process for this work. They will prepare the bid documents and identify 6 contractors that they have worked with. We will then get bids from those 6 contractors.

There was a question about using all plastic instead of a combination of plastic and concrete. Shawn said that was not possible as they do not make plastic parts such as elbows that are large enough.

We ended our phone conversation with Shawn and went on with the rest of the meeting.

There seemed to be an agreement that Option C was the best one to pursue. It fixes everything for 50 years and gives us more flexibility in working with the infiltration well.

Ed will send the EFC we have been working with the information on Option C and the total estimated cost of $180,000. We need to understand just what we will be doing for water sources and pursue all of these items at the same time and look for possible funding options for everything.

We approved the minutes of the 3/27/13 meeting.

Don reported that water usage is running about 25 to 27 thousand gallons per day. We did receive the bill from WWL at the new rate of $5.51/thousand gallons. We will pay it but also include a letter with a copy to the state that we are not satisfied with the WWL rates and are pursuing other water supply options.

Don reported that Scott Clang from Granite State Rural Water Association is still willing to work with us at any time in discussing water source options. They will also continue to help us with leak detection.

Don reminded people that he will be on vacation for 9 days starting on 4/6/13.

Our next scheduled meeting is May 2nd .