To the Board of Directors
October 2019

The Lake Dam Committee requests that you thoroughly review two possible Inn Island mitigation scenarios and take action soon to prevent further costly erosion damage.

Per the justifications stated below we request:

- Shaving up to 2 inches from the "top" Lake Limerick dam weir board, and
- Resetting the existing log boom (currently floating near the dam) to its historic location in front of the Inn Island where the erosion is most prevalent.

A Brief History

Late in 2012, the weir board system at the Lake Limerick dam was re-engineered because the original system was failing. The General Manager produced the engineering diagrams at the January 5, 2013 Lake Dam Committee Meeting. It was installed in spring of 2013 and reported as in place per the June 1, 2013 Lake Dam Committee Meeting Minutes. At the same meeting it was noted that the water level was higher than "normal." The June 30th, 2013 Lake Dam Committee minutes continued the conversation about the higher than normal water levels. At this time of year, heavy rains are no longer contributing to any perceived extra water in the lake and so the higher than normal water levels take on a new significance.

After examining the remodeled engineering diagrams, on February 17th, 2014 Dave Kohler, Chairman of the Lake Dam Committee sent an e-mail to the engineer with the following observation:

> *On the page labeled "Bottom Notch" you'll see the proposed configuration of the frame that sits in the bottom of the notch at the top of the spillway. You'll also notice that the frame has a ledge on it that effectively raises the bottom of the Weir board 2 inches from the bottom of the spillway notch.*
>
> *Given that the new Weir board is the same height as the old Weir board, the fact that the board no longer sits on the bottom of the spillway notch would imply that the weir board is effectively 2 inches taller now."*

The diagram referenced above is attached, with a second diagram added to "highlight" the question Dave Kohler put to the engineer. On March 3rd, 2014 the engineer responded with a request to meet and discuss it in person. While the engineer wouldn't agree with what is obvious in writing, it is telling that he didn't discount it outright.

A meeting between the engineer, general manager, Brian Smith, member of the Lake Dam Committee, Penny Cory, a member of the Board of Directors and a maintenance representative took place on March 19th, 2014 to discuss this issue amongst others. Brian summarized the conversation in an e-mail dated April 2nd, 2014. The following is an excerpt from the e-mail as it related to the new weir board and erosion:

> *With regard to the new Lake Limerick weir boards:*
> *1. The new weir boards are designed to bring the summer pool elevation to that originally intended with the original weir board system.*
> *2. For about the last ten years the old weir boards have not maintained the summer elevation as intended due to leakage and not seating properly.*
> *3. The primary purpose of the weir board system is to maintain adequate summer flows in downstream Cranberry Creek.*
> *4. The new weir board system can be more finely tuned to respond to actual flows into and out of the lake because the board height can be adjusted more easily (it's not all or nothing).*
> *5. Ken will be working with Larry to come up with the protocols for adjusting the weir boards to maintain downstream flows as well as a recreational pool in the Lake.*
> *6. Ken says that after April first, the first 1 or 2 rows of the new weir boards could be put in.*
>
> *With regard to erosion issues, Ken offered the following:*
> *1. Due to the sporadic rainfall and very cold temperatures this has been a bad year for erosion--the freeze/thaw of exposed cut banks has loosened soils and subsequent heavy rains can cause greater erosion.*
> *2. Vegetation growing along the banks/lakeshore can reduce erosion at least two ways--the vegetation can insulate the banks from freezing effects, and the roots stabilize the banks. Removing vegetation increases erosion.*
> *3. The new weir boards may actually help erosion by keeping water levels higher and reducing the amount of bank exposed to active wave action.*

4. The Inn Island shows erosion where there is no vegetation. The log boom that used to be in front probably reduced wave action on the banks. Using a more solid line around the swimming area could reduce wave impacts on the island. Larry has researched a floating block line he thinks would reduce wave action, provide a place for swimmers to rest on the line, and would not have to be removed each winter.

Item 4 under erosion above provides us a timeline as to when the log-boom was removed from its historic protective location. Since then, there has been significant erosion to the Inn Island. The placement of 500 sand bags in front of the Inn Island to armor the shoreline against further erosion, in March and April 2017, has merely slowed down the process.

Today, despite countless hours of effort by the Community Association Manager, the Lake Dam Committee, the Board of Directors, the engineer and maintenance personnel offering numerous proposals, ideas and bids, we are no closer to solving the erosion issue today than we were in 2013. There is no agreed upon design, no budget and there's an additional problem with the Inn Island bridge being unable to support heavy equipment until it is repaired or replaced. At best guess, we're at least 2 - 3 years from doing anything substantial to solve the erosion issue, let alone restoration.

What we haven't done yet is to "repair" the log boom that still exists in the lake or shave off an inch or two of the weir-board. And the question brought up at recent Lake Dam Committee meetings is – what have we got to lose?

A major component we've struggled with is permits. We've been concerned that unpermitted actions could jeopardize future permitting requests. While we know that new projects related to shoreline modifications require shoreline permits, there's room in the regulations to interpret whether or not repairs of structures already in existence (whether originally permitted or not) require permits. While the permitting authorities would have us believe that repairs require permits, its less definitive in the rules and open to interpretation.

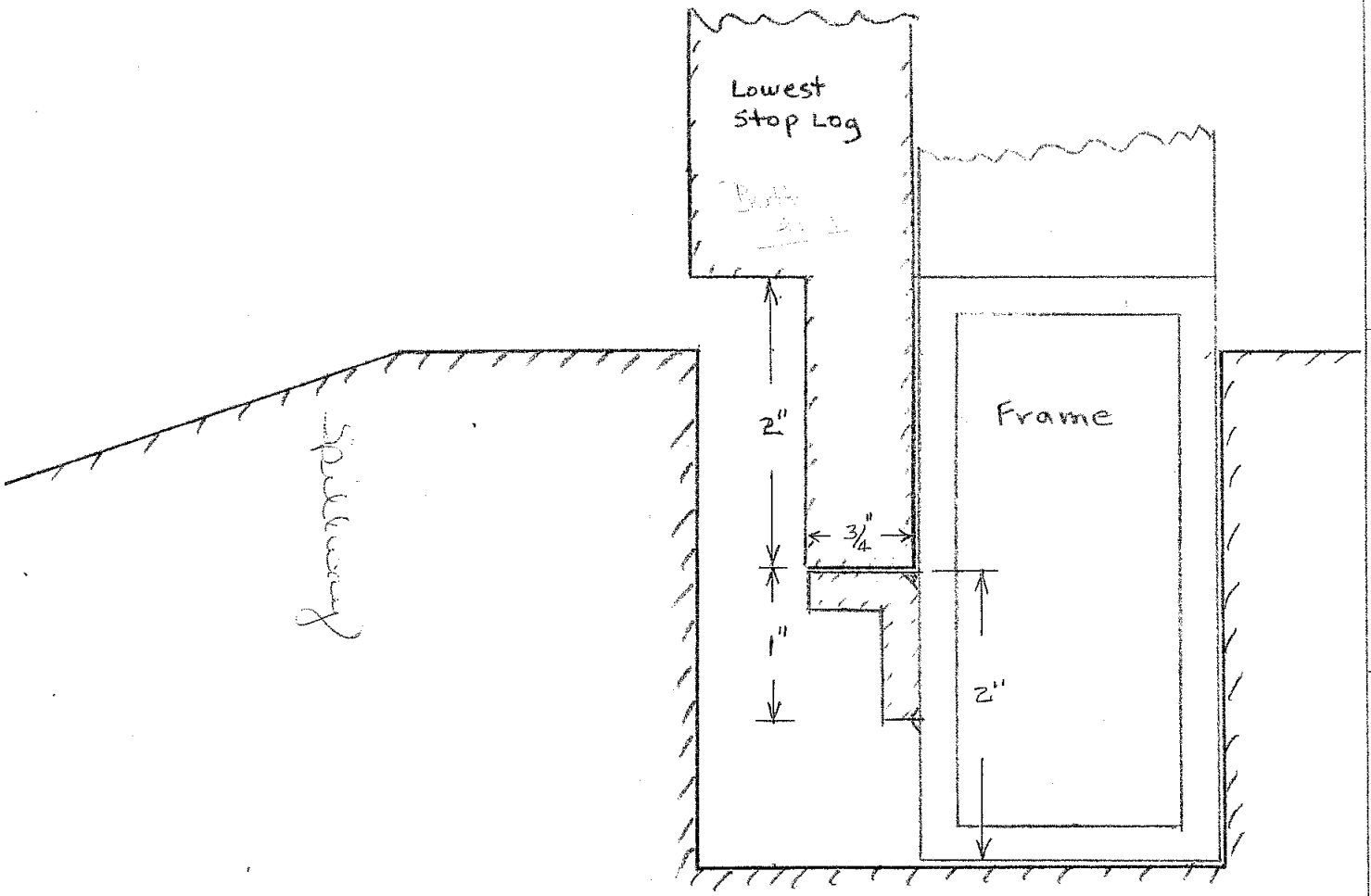
However, recently the conversation has looked at risk assessment. What if we put the log boom back in its historical protective location? What would be the likelihood of a governmental agent even noticing an old log boom, let alone remembering if he had seen it there before, assuming he'd been at the lake before? And, if he did notice it there – what would he do? Fine us? Ask us to remove it? What if we shaved off a couple inches of the weir board? Who would notice? Who would care? Would they fine us? Would they ask us to put the 2" x 6" back in place of the 2" x 4"? Would they care enough to make note of either of these issues in our "file" that would affect future permit requests? Could the less than adequate definitions in shoreline management rules regarding repairs of structures in place be determined to be sufficient to provide grounds for action by governmental entities? And would it be worth the cost for the governmental agencies to pursue "corrective actions?" The committee believes the answer to any of these questions is "negligible" or "highly unlikely" at best.

If we could discover the log boom anchors were intact, then we could examine the logs and the chains connecting them for soundness. If they were considered sound, we could take our existing log boom and chain it back to its anchors in its historical protective location. As the log boom has been in the lake this entire time, there can't be an argument that we've put something new in the lake. We already have a volunteer to verify the location and soundness of the anchors for the cost of bottles of oxygen. Maybe a thank you dinner to boot. If the anchors are sound, then it would require some time and effort of the maintenance personnel to examine the log boom to be sure it was also sound. Finally, if everything was in good condition, then we could re-set the log boom and see if it prevented additional erosion – or at least slowed it down. This effort could cost less than $5,000. If it was successful in slowing or eliminating the erosion issue, we could repair the log-boom one log at a time, one chain at a time, thereby giving us time to formulate a restoration plan with all of the components required to accomplish it.

Regarding "shaving" the top weir board, the engineer has already stated that there really is no issue with modest modifications. In this case, it would be a test, for the cost of a board.

The Lake Dam Committee has herein suggested two courses of action to prevent further damage to the Inn Island due to erosion and has requested that such actions be taken as soon as possible. The benefit of doing so far exceeds the risk at minimal cost. Furthermore, it could give us information we are currently lacking as to what may work in the future which could save us a great deal of time and money. Finally, it would buy us some time we desperately need given budgeting and permitting restraints. What do we have to lose?

Respectfully submitted by the Lake Dam Committee



Bottom Notch