



The State of New Hampshire  
**Department of Environmental Services**



**Robert R. Scott, Commissioner**

Ms. April Talon, Town Engineer  
Department of Public Works  
Town of Durham  
100 Stone Quarry Drive  
Durham, NH 03824

April 17, 2020

RE: Mill Pond Dam – D071003

Dear Ms. Talon;

The intent of this letter is to provide information and determinations on issues associated with the above-referenced dam. Such issues include the dam's current hazard classification and how the New Hampshire Department of Environmental Services, Dam Bureau (NHDES) may regulate the dam moving forward. This latter issue includes both dam reconstruction permitting and ongoing dam safety regulation.

As noted in its September 20, 2018 letter NHDES, based upon information that was available at the time, considered the dam to be classified (at a minimum) as a Low hazard structure for two reasons. The first relates to anticipated dam failure impacts to property at the dam's right abutment (20 Newmarket Road). Specifically, a failure of the dam in this area would likely cause significant erosion damage to property other than the dam owner's and, in NHDES's opinion, result in "low economic loss" in accordance with Env-Wr 101.24. Specifically, meaning "reversible environmental loss to undeveloped land or minor damage to uninhabited structures, such as storage sheds, or to sites listed or tracked by the natural heritage inventory, as maintained by the department of resources and economic development". Second, in accordance with Env-Wr 101.28(a), since the dam has a height of greater than 6 feet and a storage capacity of greater than 50 acre-feet it cannot be considered a Non-Menace structure. Such dams are informally known as 6/50 dams.

Further, as suggested by the September 18<sup>th</sup> letter, a more detailed assessment of the potential impacts associated with dam failure was performed by Weston & Sampson. Both a summary memorandum (dated March 2<sup>nd</sup>) and associated electronic HEC-RAS files were provided to NHDES for review on March 4<sup>th</sup> of this year. NHDES concurs with the methods used to model the impacts of failure as well as the conclusion made. Findings indicate that, even though the adjacent residence receives flooding during the 50 and 100-year events by 3 and 9 inches, respectively, failure of the dam under those conditions does not result in any increase in flooding. Further, failure under the threshold (water about to enter the residence) and the full pool conditions actually causes a slight drop in water levels. Based on these results, the dam will remain classified as a Low hazard structure.

As you are aware, in accordance with current dam safety regulations, Low hazard dams must normally be equipped to pass the runoff resulting from the depth of rainfall associated with the 50-year/24-hour storm event. As the property at 20 Newmarket Road has been identified as the sole development to be impacted, NHDES has agreed that it would consider waiving the design requirements associated with Low hazard dams in lieu of those pertaining to Non-Menace dams if certain conditions could be met. These are a) the need to enter into a formal agreement with the owner of the 20 Newmarket Road property and b) the requirement that any reconstruction alternatives chosen be such that the current dam's unoperated discharge capacity is not reduced. For the former condition, the agreement, easement or right should reflect the town's (dam owner) responsibility for any maintenance, operation or reconstruction activities and access to accomplish such, along with assurances that any damages that might be incurred to the property on account of the dam will be the responsibility of the town to address. Ideally, any instrument crafted between parties should be tied to the property itself and be filed at the Strafford County Registry of Deeds.

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Besides the potential to be regulated as a Non-Menace dam for the purposes of reconstruction, NHDES will also change its practices associated with routine dam safety inspections. As a Low hazard dam, inspections will continue to occur on a 6-year schedule and the annual dam registration fee (currently \$400/yr.) will continue to be assessed; however, the results of the inspections will be communicated via Notices of Inspection rather than Letters of Deficiency. This is a current practice applicable to dams whose hazard classifications are based solely on their height and storage characteristics – or 6/50 dams. The benefit here is that our findings will be presented as recommendations for your consideration rather than requirements.

Finally, NHDES has reviewed the findings resulting from the detailed inspection that Pare Corporation performed in December of 2019. We agree with its assessment that the dam is in poor condition, and note that the conditions observed within the spillway cells (spillway piers and slab sections within the individual Ambursen sections) have, in several cases, worsened since NHDES's last observation of these areas in December 2017. The report summarizes the results of stability analyses completed by Stephens Associates in 2009. Certainly, should reconstruction be the selected alternative, the findings of the 2019 inspection should be used to update the assessment of the dam's stability and its related needs.

If you have additional questions as you move forward with plans to either reconstruct or remove the dam, please contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Steve N. Doyon". The signature is fluid and cursive, with the first name being the most prominent.

Steve N. Doyon, P.E.  
Administrator  
Dam Safety & Inspection Section