



The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES



Robert R. Scott, Commissioner

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

February 12, 2018
Letter of Deficiency
DSP #18-010

RE: Mill Pond Dam #D071003, Durham

Dear Ms. Talon:

The New Hampshire Department of Environmental Services, Dam Bureau (NHDES) is responsible for ensuring the safety of dams in New Hampshire through its dam safety program. In accordance with RSA 482:12 and Env-Wr 302.02, an inspection of the subject dam was conducted on December 8, 2017. Based upon the results of that inspection, NHDES is issuing this Letter of Deficiency (LOD) to advise you that it believes the following deficiencies can be remedied in accordance with the deadlines indicated:

By May 1, 2018:

1. Perform a baseline inspection of the entire structure, including the interior of all cells below the spillway and the exterior of the right abutment and gate structure. The inspection should include detailed descriptions and measurements of all cracks, spalls, deteriorated concrete, exposed rebar, etc. to fully characterize the dam's current condition. Representative photos should be taken. NHDES's most recent inspection revealed many visual deficiencies that are, or may be, indicators of more significant issues related to structure integrity and overall dam stability. Such things as widespread and significant concrete deterioration, multiple cracks/voids and leakage are some of the indicators in the cells below the spillway (see photos A, B, C, D, E, F, and G for typical examples) and on the right abutment wall housing the gates (see photos I, J, and K for typical examples). Several areas of deterioration have visibly increased since the 2008 inspection performed by Stephens Associates Consulting Engineers. Submit to NHDES the findings of the baseline inspection along with photos of items inspected.
2. Update NHDES with intentions on proceeding with reconstruction of the dam. The 2008 Stephens Associates Consulting Engineers Dam Evaluation Report and the 2011 Dr. David Gress report on concrete expansion at the dam, both indicate that due to continued concrete deterioration the dam will need to be repaired in the near future. Also previous hydraulic and hydrologic analyses, as supported by several overtopping events, indicate that the dam lacks adequate discharge capacity during the 50 year event. Current regulations require that a minimum of 1 foot of freeboard is required for Low hazard structures as outlined in Env-Wr 303.11.
3. Update the 2008 Operation, Maintenance and Response form (OMR) to include current emergency contact information and any other updated information. Further,

the OMR should include provisions for a detailed biannual inspection to review and update the findings of the baseline inspection conducted as part of item #1, above. A link to the current OMR template may be found on DES's website on the Dam Bureau page.

By December 1, 2018:

4. Remove the trees and brush in the following locations. All trees and brush should be removed from the footprint of the dam and for a distance of 15 feet beyond the footprint of the dam and establish a hardy grass cover on all portions of the embankment that are not protected by other erosion resistant materials (i.e. rip rap, gravel road on crest, etc.).
 - a. Within 15 feet of the fish ladder and the left abutment. (See photos L, M and N); and
 - b. Within 15 feet of the downstream side of the right abutment and along the downstream right training/retaining wall. (See photos O and P). The large mature tree should also be removed to limit further deterioration of the wall.

5. Reseal the vertical joints at the following locations to limit water infiltration into the joints.
 - a. Along the fish ladder. (See photo Q for a typical example); and
 - b. Along the joint between the right end of the spillway and the adjacent right concrete abutment/gate structure. (See photos C and R).

By December 1, 2019:

6. Submit all necessary environmental permit applications (dam reconstruction and dredge and fill) for reconstruction of the dam. This application should be prepared by a qualified consultant familiar with dams and include a design of the dam that allows for the passage of the required design storm as well as all other applicable provisions of Env-Wr 400.

By December 1, 2020:

7. Complete the reconstruction of the dam and downstream areas as necessary in accordance with any permits issued as part of item# 6.

NHDES did not complete an assessment of either the hydrology of the contributing watershed or the hydraulic capacity of your dam as part of the most recent inspection. Further, no effort was made to review the areas downstream of the dam in order to reassess the dam's current hazard classification. These analyses are performed less frequently, but will be conducted as part of a future inspection of your dam. The findings related to these more detailed analyses could result in the need to complete additional and/or more extensive repairs than those identified above. Should you consider performing modifications to spillways or other outlet works, or work that otherwise meets the definition of "reconstruction" (see below), then a more in-depth analysis of the dam related to its watershed, structural characteristics and hazard classification must be completed to assure that modifications are made that meet the design requirements consistent with an up to date hazard assessment.

RSA 482:2X. "Reconstruction" means:

- (a) A change in the height, length, or discharge capacity of the structure;
- (b) Restoring a breached dam or one in ruins;
- (c) Modification of flashboards which either increases their height or increases the headwater elevation at which the flashboards will fail; or
- (d) A change in the structural configuration of a dam

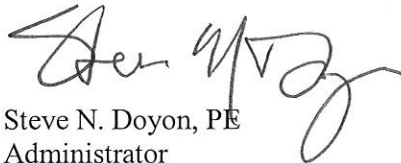
Please note that under New Hampshire's state statute RSA 482:89, NHDES may commence proceedings to levy fines of up to \$2,000 per violation per day against a dam owner who does not respond within 45 days of receipt of a written order, directive, or any notice of needed maintenance, repair, or reconstruction issued by NHDES. To avoid proceedings under this provision, you **must respond** to this LOD. If you fail to return this form within 45 days or fail to otherwise respond in writing within 45 days indicating your intent to remedy the identified deficiencies, you will not have the benefit of the compliance deadlines indicated on the form and NHDES will commence a proceeding under RSA 482:89 to seek administrative fines for the identified deficiencies. Please note that responding as required does not preclude NHDES from pursuing other appropriate action for the identified deficiencies, in accordance with NHDES Compliance Assurance Response Policy, available on-line at <http://des.nh.gov/organization/commissioner/legal/carp/index.htm>.

We believe the easiest way to respond is to sign and return the attached "Intent to Complete Repairs" form, either agreeing to correct the identified deficiencies by the dates indicated OR by proposing amendments to the listed work items or dates, which you may do by writing directly on the form. NHDES will evaluate and respond to any reasonable requests for proposed amendments in a timely manner. We have enclosed a self-addressed stamped envelope for you to return this form. You may also scan and e-mail the completed form to damsafety@des.nh.gov or fax it to (603) 271-6120.

Our intent in issuing this LOD is to make you aware of items that require your attention to ensure the continued safe operation of your dam. It is our hope that, through the return of the attached form and correction of the identified deficiencies, you will develop and maintain a commitment to keeping a safe and well-maintained dam.

If you have any questions or comments regarding this LOD or would like to be present at future inspections, please contact Corey Clark, P.E. at 271-7507 or me at 271-3406 or write to the address for the Water Division listed on the bottom of the cover page.

Sincerely,



Steve N. Doyon, PE
Administrator
Dam Safety & Inspection Section

Attachments: Photos, Copy of 2008 OMR, Blank OMR form, DB8, DB13
cc: NHDES Legal Unit
Certified #7016 1970 0000 4865 7645

DAM #D071003, MILL POND DAM, DURHAM, INSPECTED DECEMBER 8, 2017



A



B



C



D

DAM #D071003, MILL POND DAM, DURHAM, INSPECTED DECEMBER 8, 2017



E



F



G



H

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I



J



K



L

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M



N



O



P

DAM #D071003, MILL POND DAM, DURHAM, INSPECTED DECEMBER 8, 2017



Q



R