



transform your environment

February 1, 2022

TJ Blair, PE
Stephen Spink, PE

Lake Boon Dam Rehabilitation Project

Design Update



Background

- **Large size, Significant hazard potential**
- **Constructed ca. 1870**
- **Dam is currently structurally deficient and in **Poor** condition**
- **State order to repair, breach, or remove**
- **Emergency repairs to spillway required in August 2021**

dcr
Massachusetts


April 18, 2017
Certified Mail No. 7013 1090 0000 4863 5724
Return Receipt Requested

Town of Stow
c/o Michael Clayton, Superintendent
88 South Acton Rd
Stow, MA 01775

Subject: CERTIFICATE OF NON-COMPLIANCE and DAM SAFETY ORDER

Dam Name:	Lake Boon Dam
Location:	Stow
National ID No:	MA00137
Known Condition:	Poor
Hazard Potential:	Significant
Middlesex Registry of Deeds:	Book 10194, Page 35

Dear Mr. Clayton:

In accordance with 302 CMR 10.08, the Department of Conservation and Recreation (DCR), Office of Dam Safety (ODS) has determined that Lake Boon Dam does not meet accepted dam safety standards and is a potential threat to public safety. Therefore, DCR hereby issues a **CERTIFICATE OF NON-COMPLIANCE and DAM SAFETY ORDER**.

ODS records indicate that the Town of Stow is the Owner of the Lake Boon Dam, National Inventory of Dams No. MA00137. ODS classifies the dam as a **Large Size, Significant Hazard Potential Structure**. Significant Hazard Potential Dams are dams that may cause the loss of life and property damage in the event of dam failure.

COMMONWEALTH OF MASSACHUSETTS - EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS

Department of Conservation and Recreation 251 Causeway Street, Suite 600 Boston MA 02114-2119 617-626-1259 / 617-626-1351 Fax www.mass.gov/dcr	 Charles D. Baker Governor	Matthew A. Boston, Secretary Executive Office of Energy & Environmental Affairs Karyn Pello Lt. Governor Leo Ray, Commissioner Department of Conservation & Recreation
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Project Overview

- Clear problematic vegetation from dam / embankment
- Replace spillway
- Modify roadway alignment near spillway
- Install permanent sheet pile wall
- Flatten and reshape embankment slope within existing dam footprint
- Relocate section of intermittent stream encroaching on embankment

January 2021 Action Items

- Avoid, minimize and mitigate...
 - Further evaluate locations to replicate wetlands
 - Completed additional wetland survey on July 1, 2021
 - Completed additional topographic survey on July 14, 2021
 - Evaluate private property alternatives
 - Town representatives met with abutter
 - Attempt to further reduce construction footprint

2021 Interim Spillway Repairs

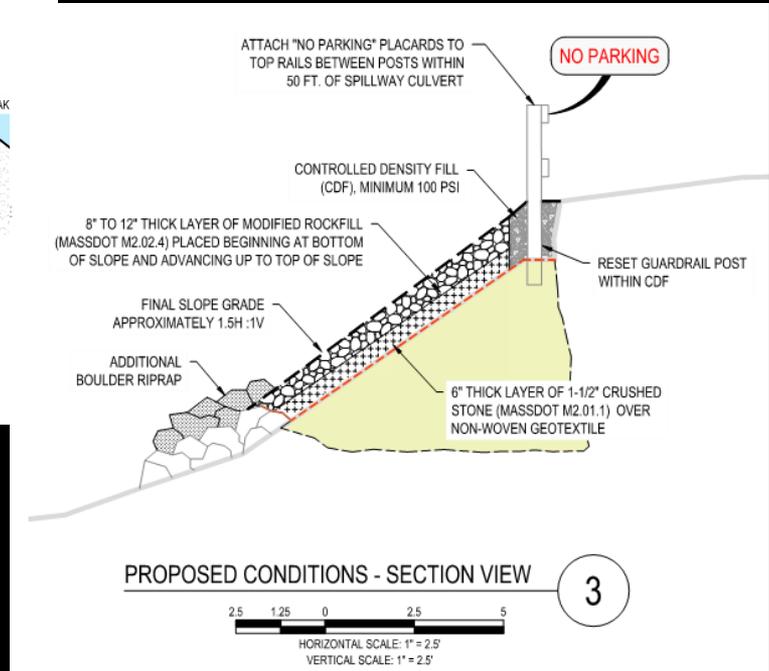
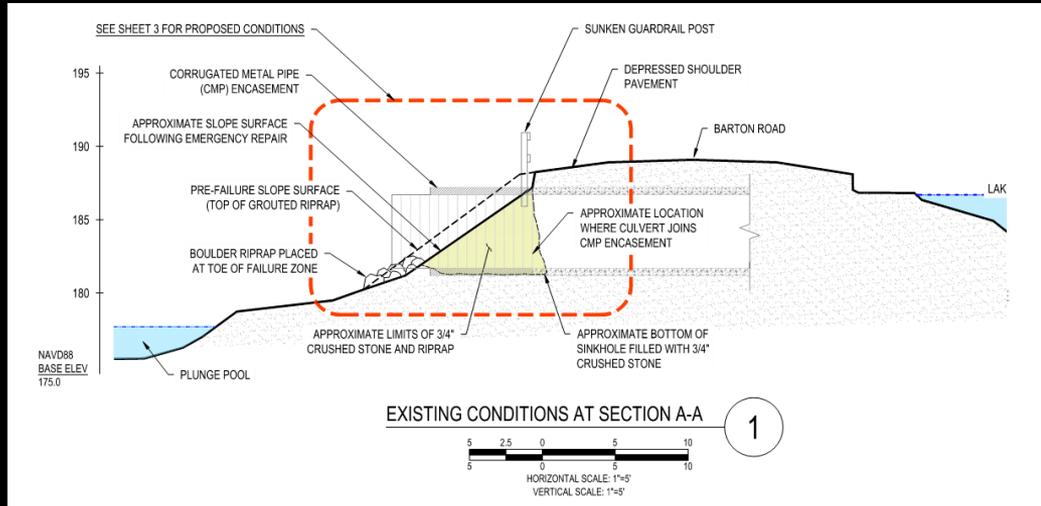


**Sinkhole developed along
spillway**



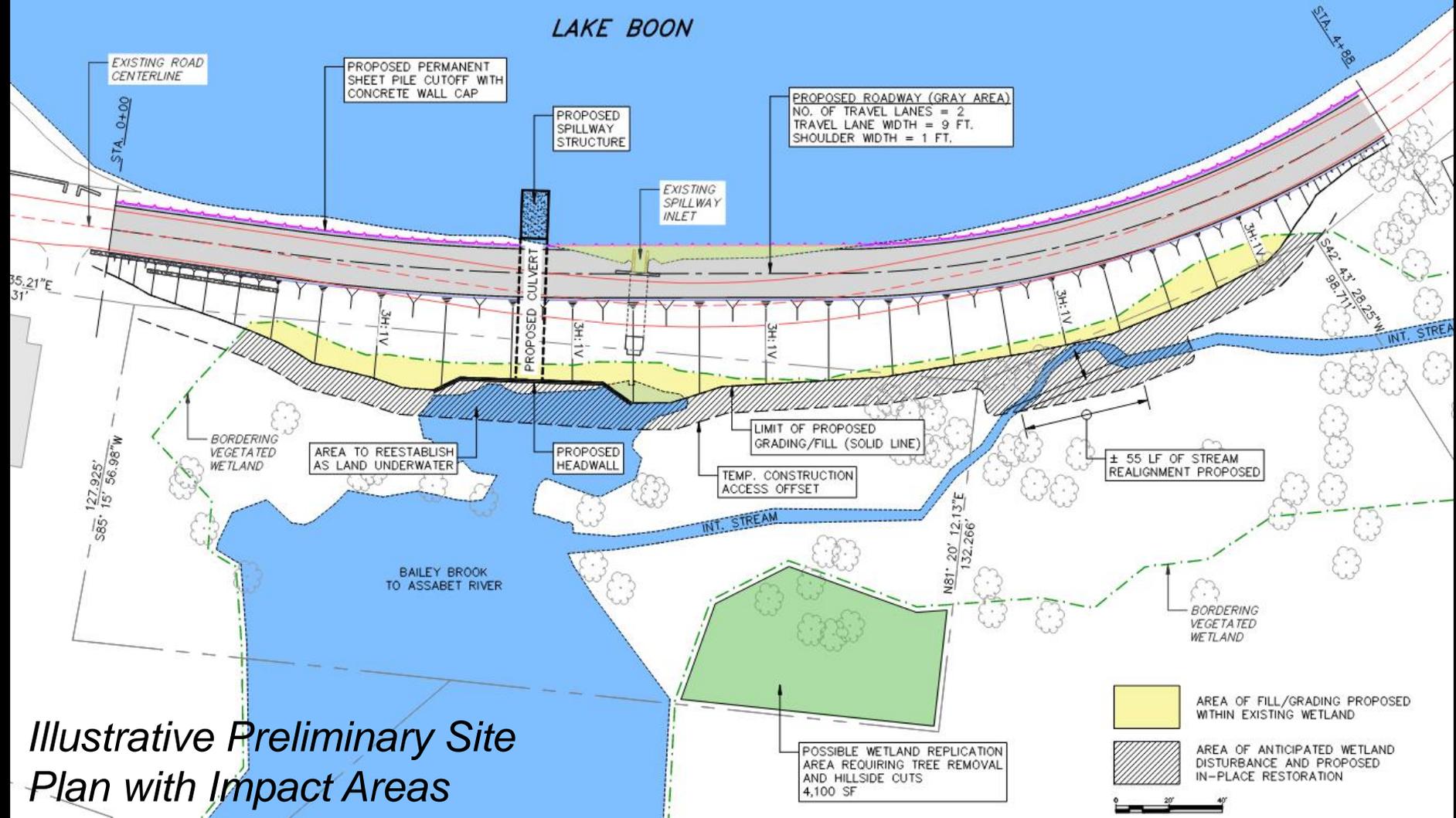
**Spillway voids patched and
repaired**

Spillway Emergency Repairs



Modified Design

LAKE BOON



Illustrative Preliminary Site Plan with Impact Areas

Revised Design Benefits

- Stays within the footprint of the existing dam
- Reduces vegetated wetland and land underwater impacts
- Less filling in the downstream floodplain
- Optimizes construction access
- Provides new spillway with low-level outlet if/when needed
- Design flood requirements met
- Improved ability to operate reservoir levels without changing current practices
- Maintainable slope with DPW mowing equipment
- Less abutter impacts

Preliminary Resource Impacts

	Jan 2021 Impact Estimates (Square Ft.)			Feb 2022 Impact Estimates (Square Ft.)			Reduction (Sq. Ft.)
	BVW	LUW	Total	BVW	LUW	Total	
Filling	4,000	1,000	5,000	2,550	600	3,150	1,850
Clearing	7,150	1,600	8,750	4,430*	1,030*	5,460	3,290

* To be reestablished/restored in-place

Anticipated Next Steps

- Apply for EEA Dam Grant – due February 3, 2022
- Progress design plans to 90% in coordination with Town
- Apply for applicable permits
- Receive permits and finalize bid package