

An aerial photograph of a pond with a stone dam. A small building with a blue roof is situated on the right side of the dam. The background is filled with trees, some of which have autumn-colored foliage.

Engineering Update

APDVD Public Meeting
10/8/26

APDVD
Ashuelot Pond Dam
Village District



Purpose of meeting

APDVD has been preparing for possible modifications to our dam's design since NH DES changed the dam's hazard rating to "High" in 2023.

This is an [informational update on proposed design options](#) from our engineering consultants, Dubois & King Inc. DES is still reviewing recent hydrological analyses* by D&K, so the design options may be subject to change. A vote is not requested at this time.

[Questions and comments](#) are welcomed.

* Detailed study of data on water flows into our lake from various sources and continuing on downriver, and the resulting changes in lake and river elevations.

Project background

NH RSA 482 and Env-Wr 101.07 classify dam hazard ratings as shown at right based on threat to life and property if the dam failed.

- High hazard potential
- Significant hazard potential
- Low hazard potential
- Non-menace

A “high hazard” dam is in a location and of a size such that failure or misoperation would result in probable loss of life; e.g., expected flooding of one foot or more above the lowest finished floor elevation of an occupied structure.

In 202³, NH DES raised the Ashuelot Pond Dam’s hazard rating from “significant” to “high”. APDVD committed to dam redesign to improve flow rates and ensure the dam’s stability relative to the so-called 1000-year “design flood” (Env-Wr 303.10 and 101.01).

2026 work to date

APDVD “Request for Proposal” for engineering services* was drafted in March 2026 and circulated to area firms known to NH DES for particular competence in dam engineering.

Dubois & King, Inc. was chosen based on its strong reputation and quality of response. APDVD contracted for an assessment phase in **mmm**. Hydrology and EAP work added to scope later.

What follows is a presentation from D&K on their assessment and potential design options.

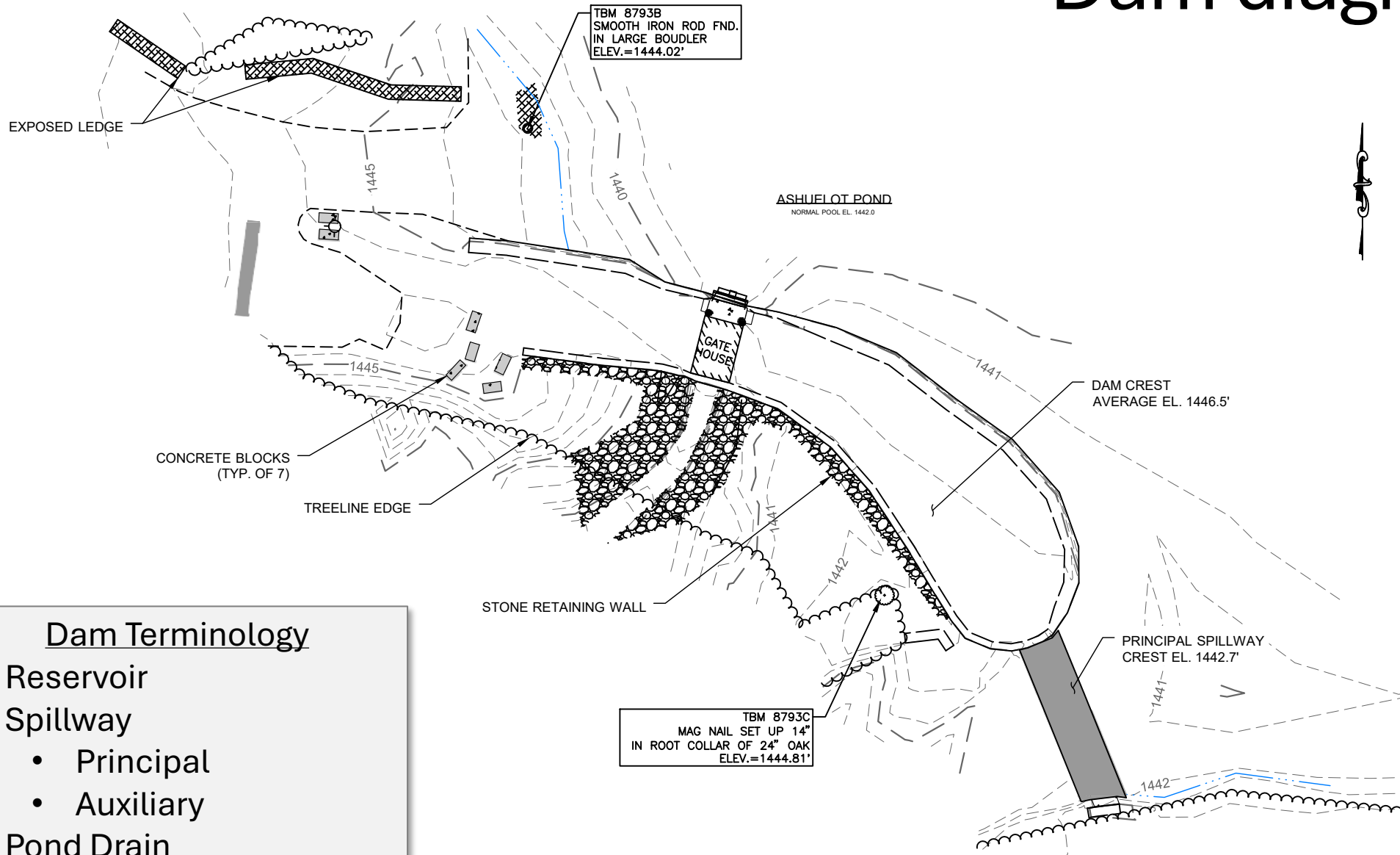
RFP elements

- Dam overview
- Scope of engagement
 - **Assessment**
 - Dam rehab engineering and project management
 - Possible other support
- Schedule
- Selection criteria
- Contact info

*Available at [APDVD.org](https://www.apdvd.org)

Dam diagram

DuBois
& King^{INC.}



Dam Terminology

- Reservoir
- Spillway
 - Principal
 - Auxiliary
- Pond Drain
- Outlet Channel

Current condition

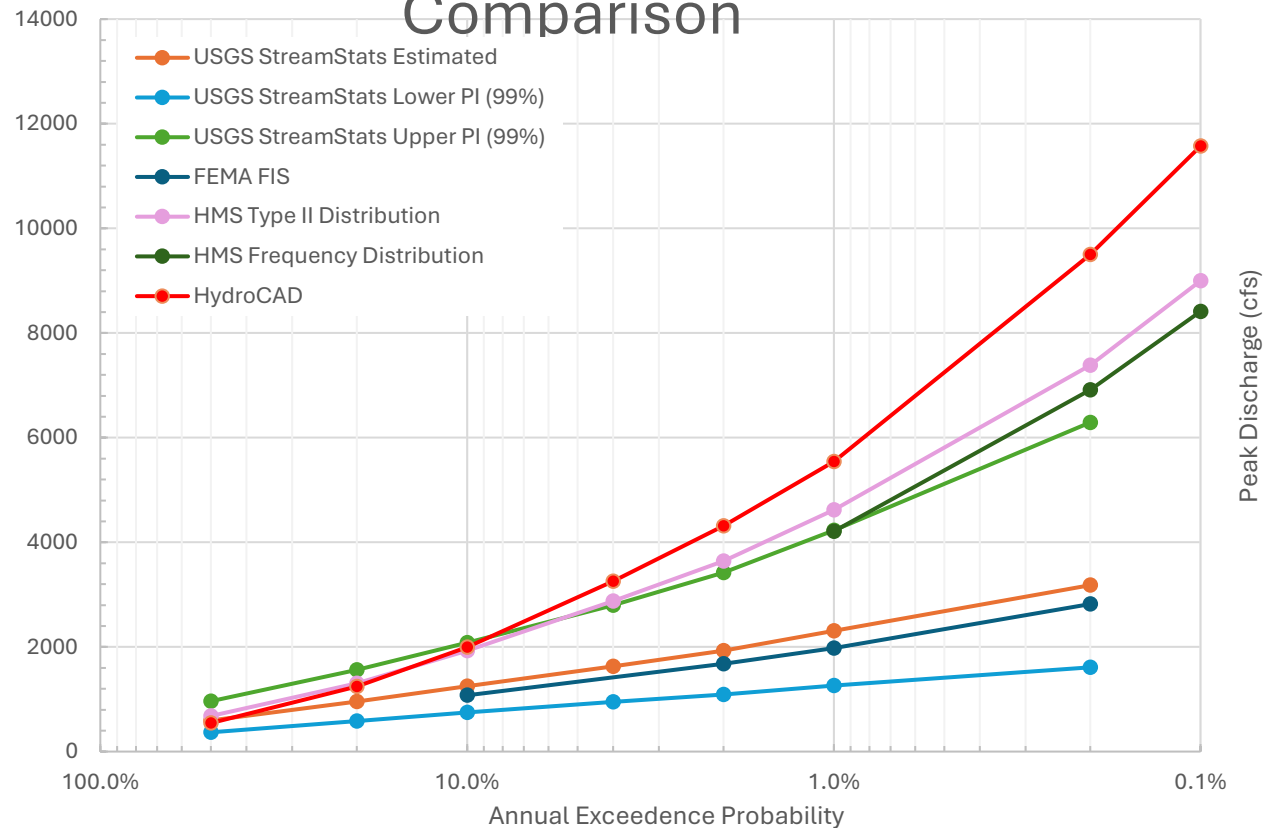


- Earthen embankment dam originally constructed in 1872; reconstructed in 1925
- Stone masonry walls form the upstream and downstream faces of the embankment
- Dam crest at approximately El. 1446.5 ft, about 4.5 ft above normal pool
- Principal spillway: ~37-ft-long stone/concrete structure; concrete and masonry are in poor condition
- Far spillway: stone/concrete structure approximately 600 ft away from the dam; appears to control the normal pond level
- Continuous flow observed through voids in both spillway structures
- Existing pond drain and gatehouse were rehabilitated in 2022–2024 and are currently operational
 - Existing system can lower the pond approximately 12 ft
- Historic sinkholes near the upstream wall and gatehouse have raised concerns regarding potential internal erosion
- Several camps currently access the southeast side of the dam by crossing the principal spillway

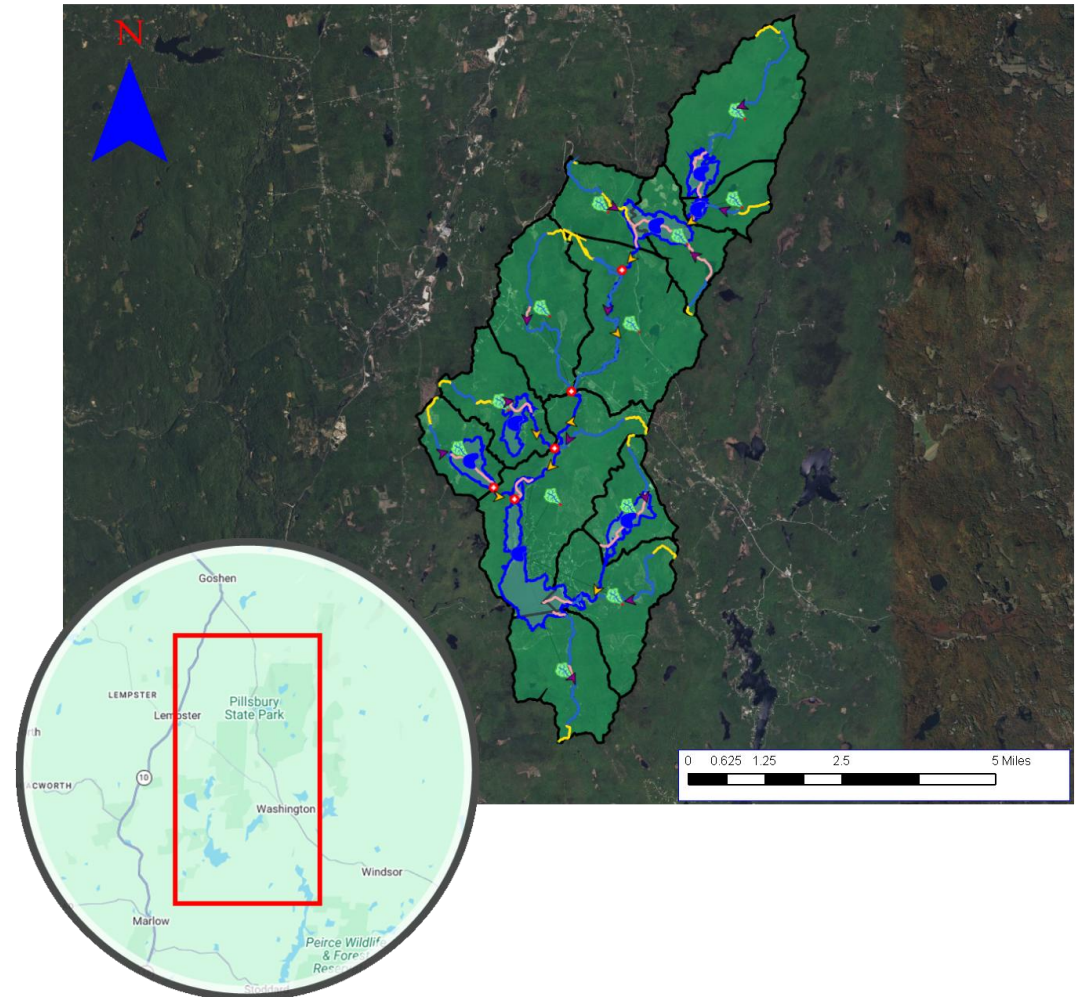


Hydrology

Peak Discharge Estimate Comparison



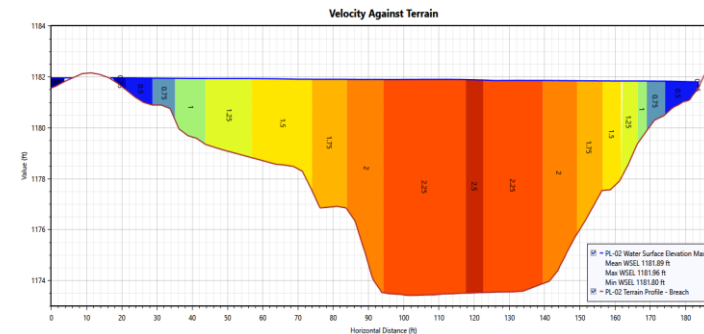
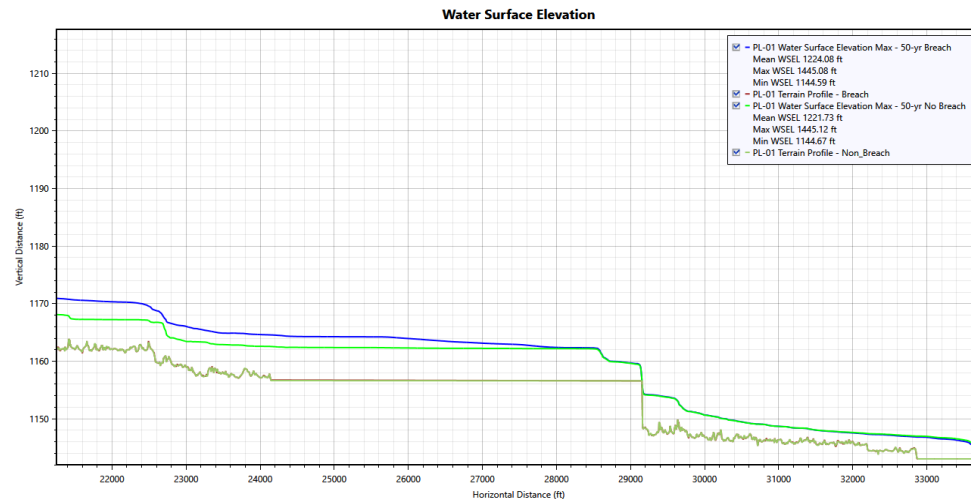
Peak Discharge (cfs)



Hydraulic result



Event	Parameter	Output
SCS 50 Year Flood	Peak Inflow	3643 cfs
	Peak Outflow	1,324 cfs
	Peak Pool Elevation (Average Top of Dam 1446.5-ft)	1445.1 ft
FS 100 Year Flood	Peak Inflow	4,209 cfs
	Peak Outflow	1,721 cfs
	Peak Pool Elevation (Average Top of Dam 1446.5-ft)	1445.6 ft
FS 1000 Year Flood	Peak Inflow	8,412 cfs
	Peak Outflow	4,550 cfs
	Peak Pool Elevation (Average Top of Dam 1446.5-ft)	1447.6 ft



Deficiencies



- Inadequate hydraulic capacity to meet current high-hazard dam requirements
- Existing system does not provide the required 1 ft of freeboard during the 1,000-year IDF
- Modeling indicates approximately 13 inches of overtopping under existing conditions
- Existing principal and far spillway have deteriorated stone/concrete construction and uncontrolled flow through the structures
- Dam embankment relies in part on the existing masonry walls for stability
- Historic sinkholes indicate potential internal erosion concerns
- Overtopping could result in erosion of the downstream embankment and potential breach
- Public safety concern from camp access across the principal spillway during periods of high flow
- Long-term rehabilitation remains necessary despite closure of the 2022 NHDES Letter of Deficiency



Alternative #1: NHDams geocell



- Previously presented by NHDams to APDVD
- Install geocell erosion protection on downstream slope
- Increase capacity of existing principal spillway utilizing 18-inch flashboards requiring reconstruction of the principal spillway
- Limited raising of dam crest
- Estimated construction cost: \$279,000 (\$375,000 all-in*)
- Relatively limited construction compared to complete spillway replacement
- Does not provide full downstream slope protection against overtopping
- Requires construction within/around existing spillway and water-control measures

* The “all-in” estimate adds engineering, permitting, construction admin and observation costs to the construction estimate



**NOT FOR
CONSTRUCTION
PRELIMINARY
PLANS**

REVISIONS	DATE	BY

CLIENT NAME
**ASHUELOT POND
DAM VILLAGE
DISTRICT**

P.O. BOX 105,
WASHINGTON, NH
03280

PROJECT NAME
**ASHUELOT POND
DAM CONCEPTUAL
ALTERNATIVE
ANALYSIS**

SHEET TITLE
**ALTERNATIVE
A PLAN
VIEW**

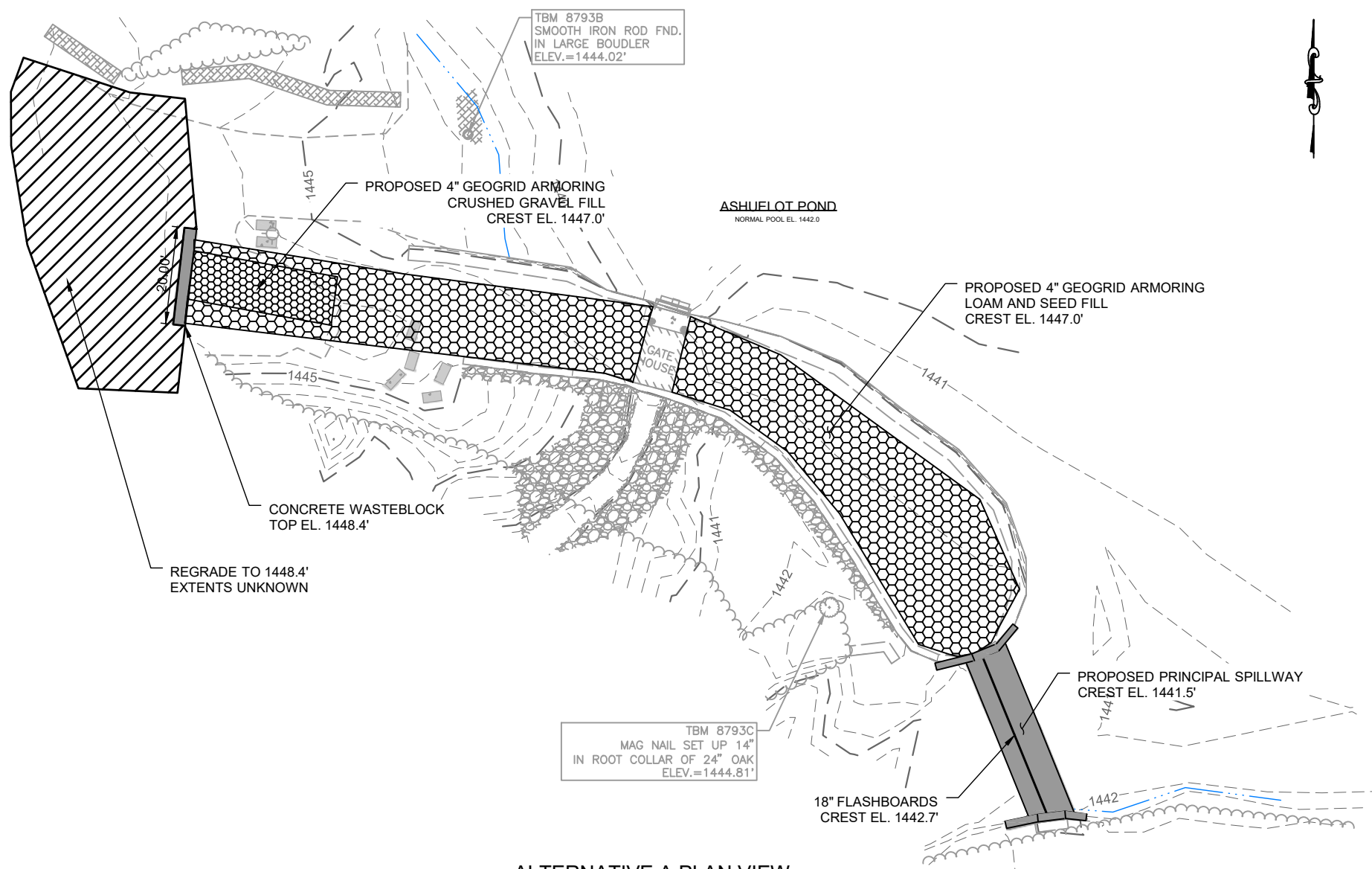
D&K PROJECT # 831468	PROJ. ENG. CWJ
DRAWN BY EDJ	CHECKED BY MXS

DATE
SEPTEMBER 2026

SHEET NUMBER

4

SHEET: 4 of 11



ALTERNATIVE A PLAN VIEW
SCALE: 1" =20'



SCALE IN FEET

PROGRESS PRINTS
NOT FOR CONSTRUCTION
9/11/2026

Alternative #2: labyrinth spillway



- Construct new labyrinth weir to increase spillway capacity
- Provides substantially greater hydraulic capacity
- Designed to meet the 1,000-year IDF with required freeboard
- Reduces reliance on overtopping of the existing dam crest
- Requires significant modification/reconstruction of the existing spillway system
- Greater excavation, concrete construction, and water-control requirements
- Highest construction complexity and cost
- Estimated construction cost: ~\$1.29 million (\$1.5 mm all-in)



**NOT FOR
CONSTRUCTION
PRELIMINARY
PLANS**

REVISIONS	
NUMBER	DATE

CLIENT NAME
**ASHUELOT POND
DAM VILLAGE
DISTRICT**

P.O. BOX 105,
WASHINGTON, NH
03280

PROJECT NAME

**ASHUELOT POND
DAM CONCEPTUAL
ALTERNATIVE
ANALYSIS**

SHEET TITLE
**ALTERNATIVE
B
PLAN
VIEW**

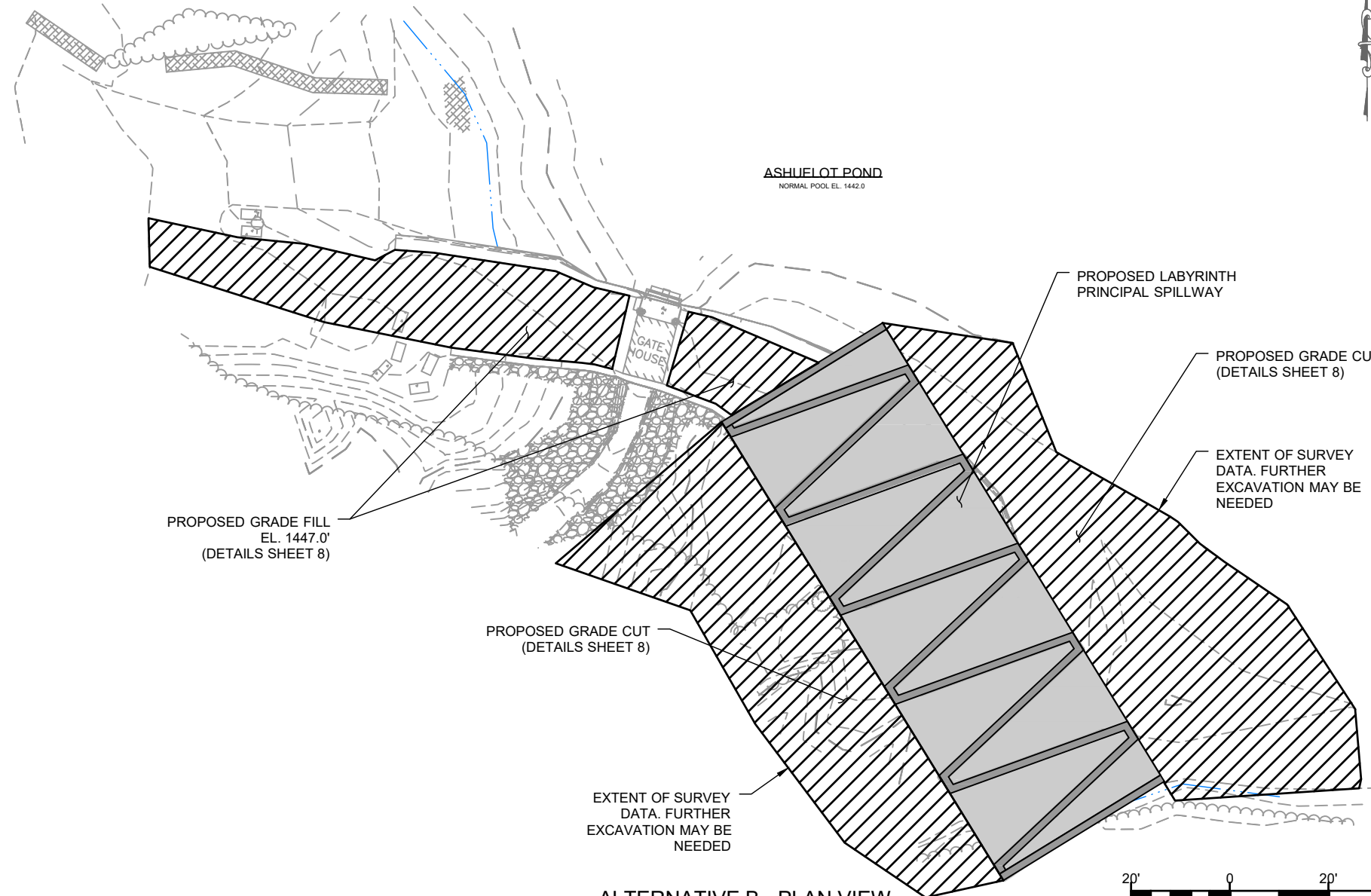
DSK PROJECT # 831468	PROJ. ENG. CWJ
DRAWN BY EDJ	CHECKED BY MXS

DATE
SEPTEMBER 2026

SHEET NUMBER

7

SHEET: 7 of 11



ALTERNATIVE B - PLAN VIEW
SCALE: 1" = 20'



SCALE IN FEET

PROGRESS PRINTS
NOT FOR CONSTRUCTION
9/11/2026

Alternative #3: articulated concrete blocks



- Retain existing principal spillway
- Establish a defined, armored overtopping path across the dam crest
- Extend protection down the downstream slope
- Use erosion-resistant protection to safely convey overtopping flows
- Provides a controlled flow path during extreme events
- Avoids major reconstruction of the existing principal spillway
- Reduces excavation, concrete work, and water-control requirements
- Addresses the primary risk associated with uncontrolled overtopping
- Estimated construction cost: \$410,000 (\$520,000 all-in)



**NOT FOR
CONSTRUCTION
PRELIMINARY
PLANS**

REVISIONS		
NUMBER	DATE	DESCRIPTION

CLIENT NAME
ASHUELOT POND
DAM VILLAGE
DISTRICT

P.O. BOX 105,
WASHINGTON, NH
03280

PROJECT NAME

ASHUELOT POND
DAM CONCEPTUAL
ALTERNATIVE
ANALYSIS

SHEET TITLE
**ALTERNATIVE
C
PLAN
VIEW**

DSK PROJECT # PROJ. ENG.
831468 CWJ

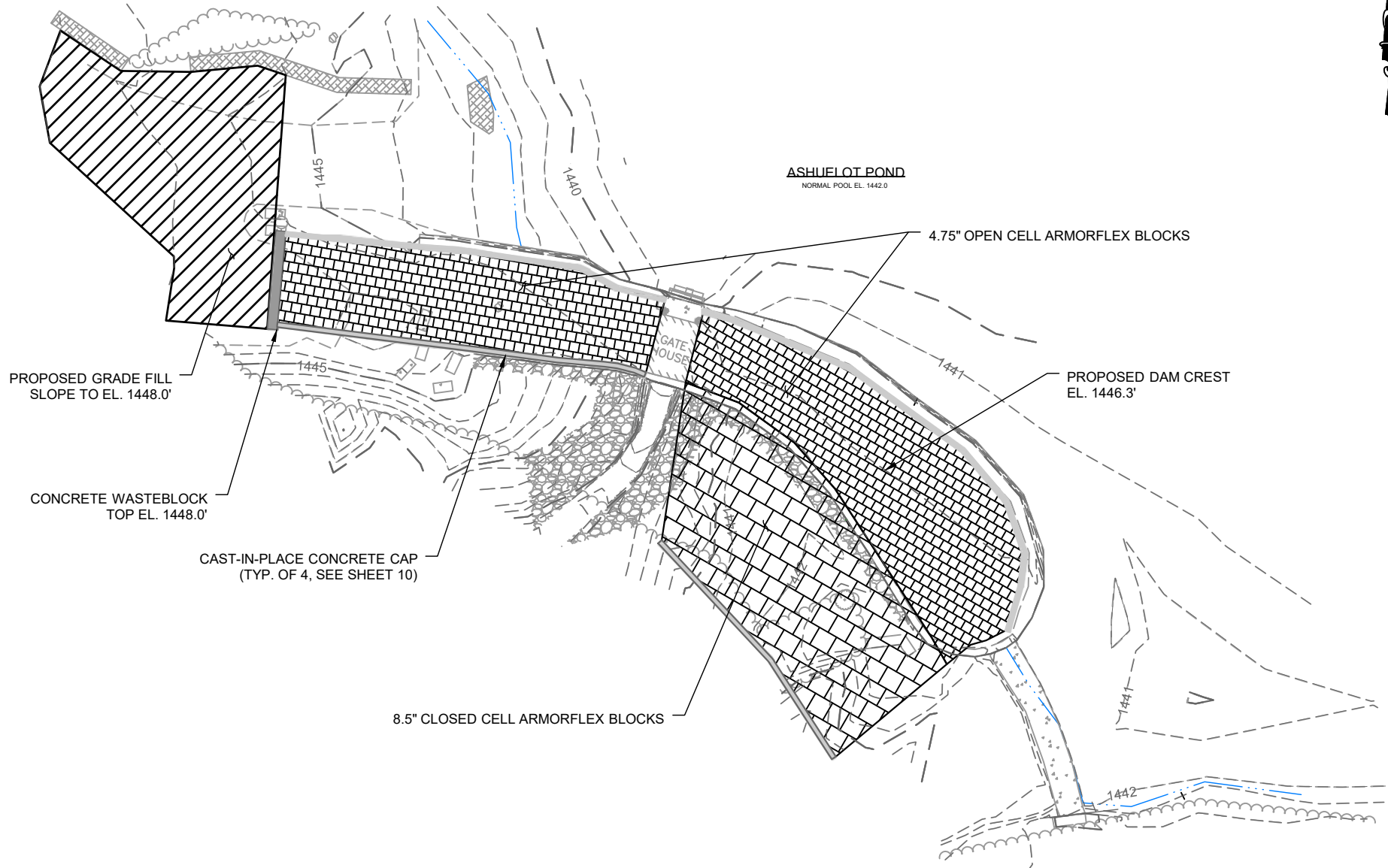
DRAWN BY CHECKED BY
EDJ MXS

DATE
SEPTEMBER 2026

SHEET NUMBER

9

SHEET: 9 of 11



ALTERNATIVE C - PLAN VIEW
SCALE: 1" = 20'



SCALE IN FEET

PROGRESS PRINTS
NOT FOR CONSTRUCTION
9/11/2026

Next steps

2026

- DES dam bureau feedback on hydrology
- Refinement of preliminary design options (TBD)
- Preliminary selection of a design option
- Follow-up with DES on proposed designs

2027

- Update(s) to Town of Washington Hazard plan and FEMA submission
- **APDVD vote** to formally proceed with detailed engineering design & construction
- **FEMA HHPD grant status**

2027?
2028?

- Kickoff: engineering detailed design, contractor selection, construction