Rehabilitation/Overtopping Protection of Existing Dam Structure Utilizing DT Products

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1. Background of project

2. Timeline

3. Plans and Cross Sections Gabions and Reno Mattresses

4. Photos of the project
1. Background
Mountain Valley Lake Dam
Mendham, NJ

• Rehabilitation of the dam was mandated by the NJDEP.
• Spillway did not pass safely for 100 year event.
• Dredging of the lake was recommended
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Project Location
HISTORY – How did we get here?

• 1948 – Original Construction of Dam
• 1990 – NJDEP designates dam as “CLASS II – SIGNIFICANT HAZARD”
• 2000 – Spillway concrete was refurbished
• 2001 – Spillway Design Flood (SDF) was set at the 100 Year Flood
• 2003 – Lake was dredged
• 2012 – Dam Break Analysis & Emergency Action Plan were prepared
• 2012 – NJDEP Mandates Dam rehabilitation to safely pass the SDF
• 2016 – Permits obtained for Dam rehabilitation and lake dredging
INUNDATION MAP — 100 Year Flood with breach

100 year flood overtops earth embankment by 12 inches
2016 INSPECTION CONCLUSIONS

Dam is in POOR condition due to inadequate spillway capacity, tree growth on the dam, and deteriorating concrete.

Required and recommended improvements:

• Remove trees and brush on from earth embankment
• Backfill erosion at spillway abutment.
• Replace headwall on downstream channel.
• Repair spalling and cracking concrete on spillway.
• Install overtopping protection in accordance with permit.
• Lake dredging should be considered to remove sediment.
- Three large trees growing on earth embankment
- Embankment can erode from overtopping waters
• Deteriorated concrete in spillway
- Crumbling headwall on downstream channel
2. Timeline
1. TIMELINE

- March 2014- Maccaferri was contacted by engineer to provide design assistance

- January-March 2017- soil sampling was done

- March 2017- Public bid

- April 2017- Relocated fish to a lower lake (performed under a separate bid)

- October 2017- work began

- January 2018- work completed
What needed to be done prior to the project starting:

- Lake sediments needed to be sampled for contaminants
- Bid documents, plans and specs finalized
- Easements obtained from downstream homeowners
  - Formal Construction Inspection Program approved by NJDEP
  - Lake lowering permit obtained from NJ Department of Fish & Wildlife
  - Public bid
  - Award contract
  - Award contract
3. Plans & Cross Sections
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Strettamente confidenziale
1. Gabion Elements

Gabions
- Rectangular Cage
- Hexagonal Double Twist Wire
- Fill with Cobbles or Quarry Stones
- Divided into Cells By Diaphragms

Reno/Gabion Mattress
- Large Thin Structures
- Hexagonal Double Twist Wire
- Fill with Cobbles or Quarry Stones
- Divided into Cells By Diaphragms
4. Installation Photos
Tiered Mattress Structure
Completed Project
Questions?
Thank You!

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