Scoping Meeting for Dean Creek Watershed Pelto and Ed Pylkas Dams Tioga County, New York

JANUARY 21, 2021

Today's Objectives

- Review National Dam Rehabilitation Program
- Review Information on the Pelto and Pylkas Dams
- Determine "Scope" of the Project
- Encourage Input and Contributions By Others During Planning Process

Protocol and Expectations

Prepared PowerPoint Presentation.

Will go over the Scoping Tables and get your input:

- 31 Resource Concerns (Soils, Water, Air, Plants, Animals, Human)
- Ecosystem Services

Question and Answer Session at the End.

- Hold questions till the end because your questions may be answered during the presentations

Raise your hand or Type Questions into Chat box.

We will accept comments on Scoping until February 26th.

Turn it over to David Walowsky

USDA

United States Department of Agriculture

New York
Natural
Resources
Conservation
Service

Dean Creek Watershed Dam Rehabilitation
Public Scoping Meetings – Why Are We Here?

January 21, 2021 | David M. Walowsky Jr., Civil Engineer, NRCS, Syracuse, NY

Natural
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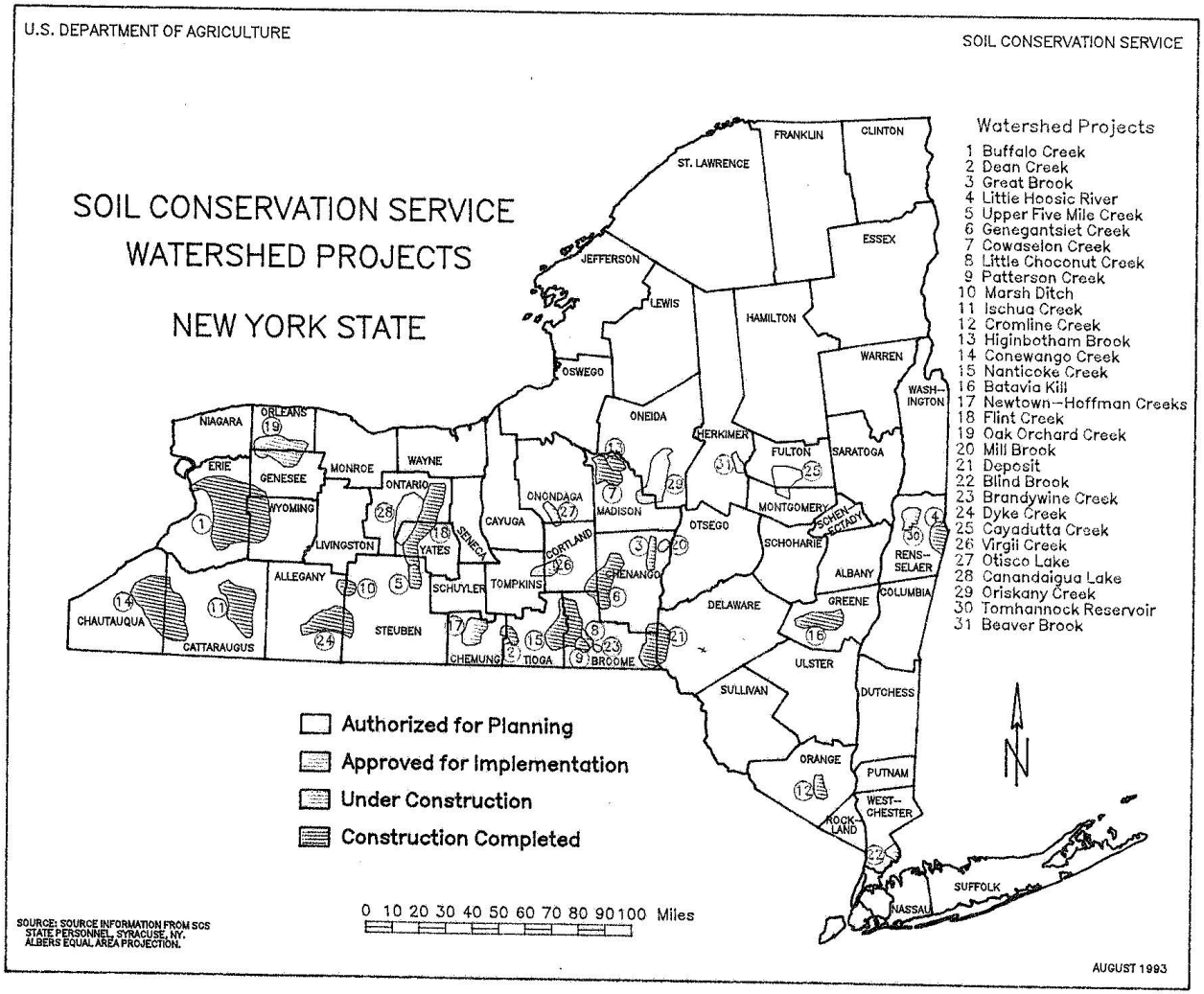
nrcs.usda.gov/

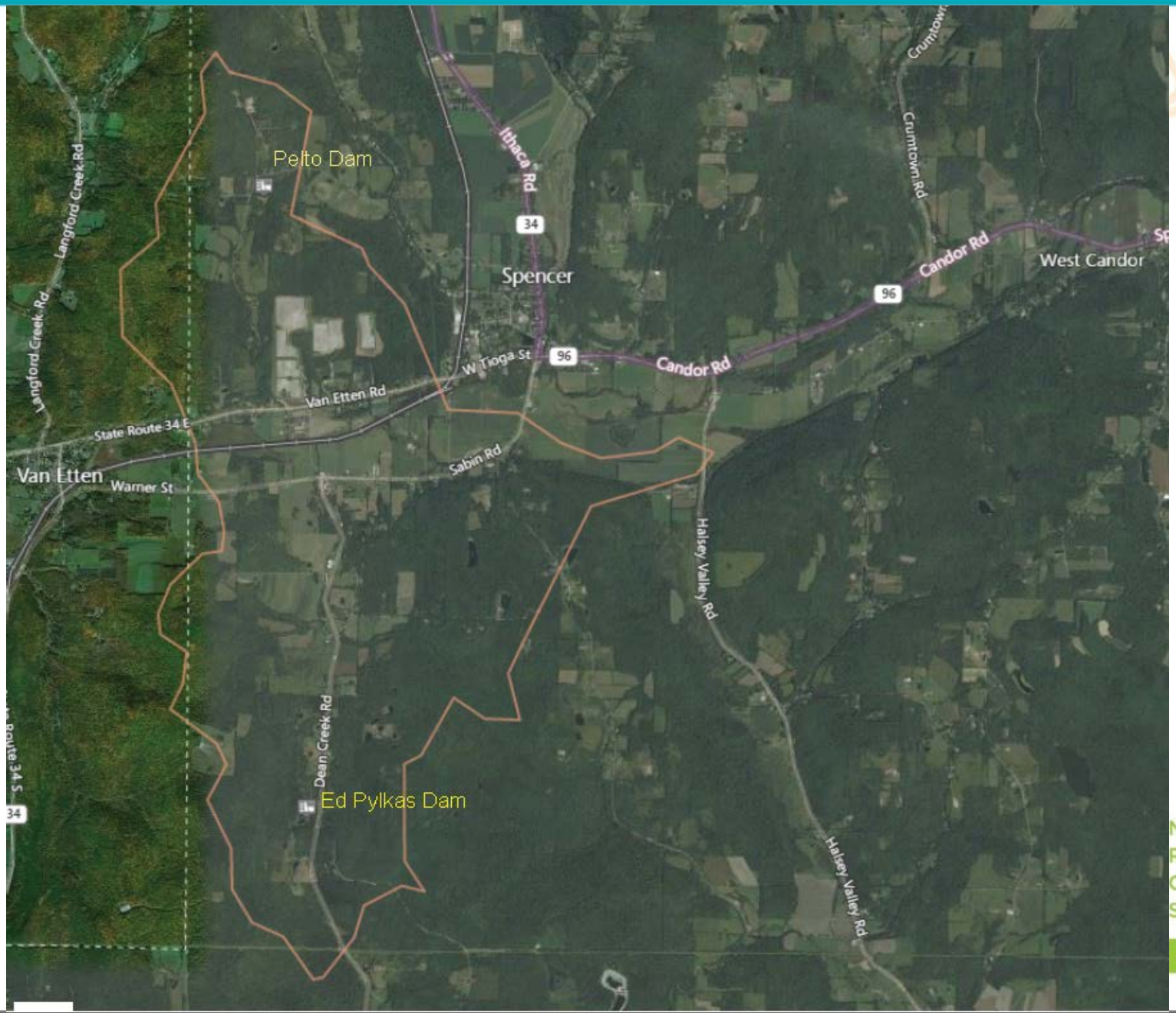
Dean Creek Watershed Dam Rehabilitation Overview

- Brief History of the Dams
- Why Consider Rehabilitation?
- How does the process work?



PL83-566 Watershed Protection and Flood Prevention Act (Public Law 83-566) of 1954

USDA
United States Department of Agriculture



Natural Resources Conservation Service

nrcs.usda.gov/


65+ years later,
now what?

The Small Watershed Rehabilitation Amendments of 2000 (Dam Rehabilitation Program)

- Watershed Protection and Flood Prevention Act (PL-566) was amended in 2000.
  - Allows NRCS to assist communities with rehabilitation of their aging dams.
- Address public health and safety concerns and potential environmental impacts
- Provides technical and financial assistance in planning, designing, and implementing watershed rehabilitation projects.

A Proactive Approach…

Tioga County Soil & Water Conservation District applied to have the dams assessed, which compare how the dams were originally designed to today's modern dam design criteria and best practices.

What has changed in 65 years?

- Rainfall
- Population
- Infrastructure
- Safety Standards

Inspected annually by Tioga County and NRCS. Inspected bi-annually by NYS DEC, Division of Dam Safety.

No imminent dam safety hazards have been identified.

The dams are aging gracefully.

The Watershed Rehabilitation Process

A Proactive Approach…

The Tioga County Soil & Water Conservation District has applied to rehabilitate both of the Dean Creek watershed dams.

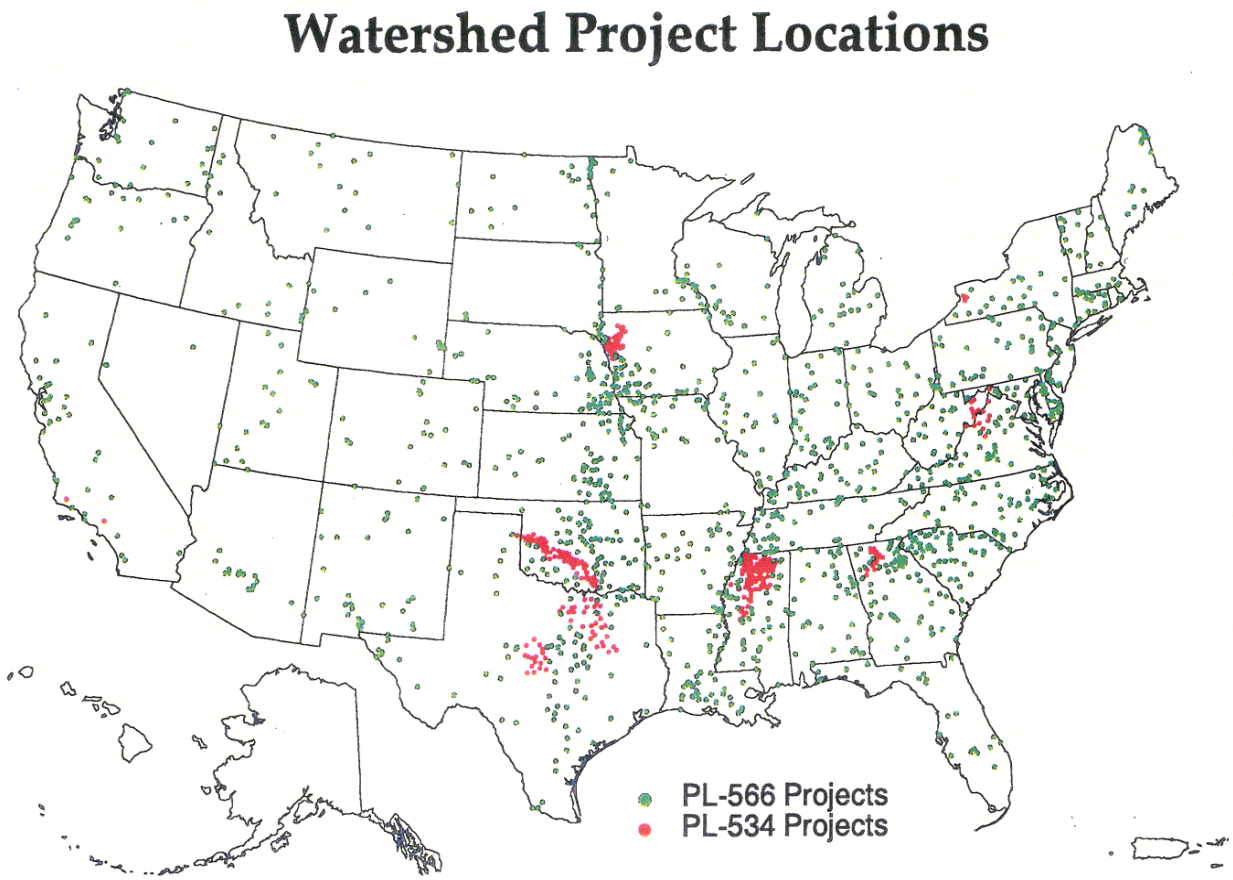
Supplemental Watershed Project Plan

- Feasibility Study
- Considers all possible alternatives
- Evaluates alternatives against environmental and public concerns
- Determines if rehabilitation (or another alternative) should be funded.

Turn it over to Wendy Walsh

Turn it over to Wade Biddix

Small Watershed Program



NRCS has assisted communities build almost 12,000 dams since 1948

Eligibility Criteria

The only dams eligible for rehabilitation under this program are those originally built with SCS/NRCS assistance

Limitations

No Operation and Maintenance Work

Sediment storage life between 50 and 100 years must be achieved

Rehabilitation Actions

Protect the integrity of the dam, extend service life, and meet applicable safety and performance standards

Replace deteriorating components

Repair after catastrophic events

Upgrade to meet dam safety laws

Decommission (removal)

Key Players in Planning Process

Three Local Sponsors

- Tioga County Soil and Water Conservation District
- Tioga County Legislature
- Town of Spencer

Technical Support– USDA, NRCS

Technical Support Contractor

- Schnabel Engineering
- Wade Biddix, Planning Coordinator
- Sal DeCarli, Environmental Scientist
- George Oamek, Economist

Dam Rehabilitation Program Assistance Steps

1. Sponsor application
2. Site assessment and risk analysis
3. Ranking of applications
4. Project Planning
5. Design
6. Construction

Purpose and Need for Action

Purpose: Provide the current level of flood protection and recreation benefits for the next 50-100 years while minimizing environmental, economic, and social impacts.

Need: The current structures do not meet current NRCS and NY State Dam Safety performance and safety standards, therefore action is needed. To reduce the risk of flood damage to homes, commercial facilities, and an expanded infrastructure as well as to reduce the risk of loss of life and property damage due to a flood event, action is necessary.

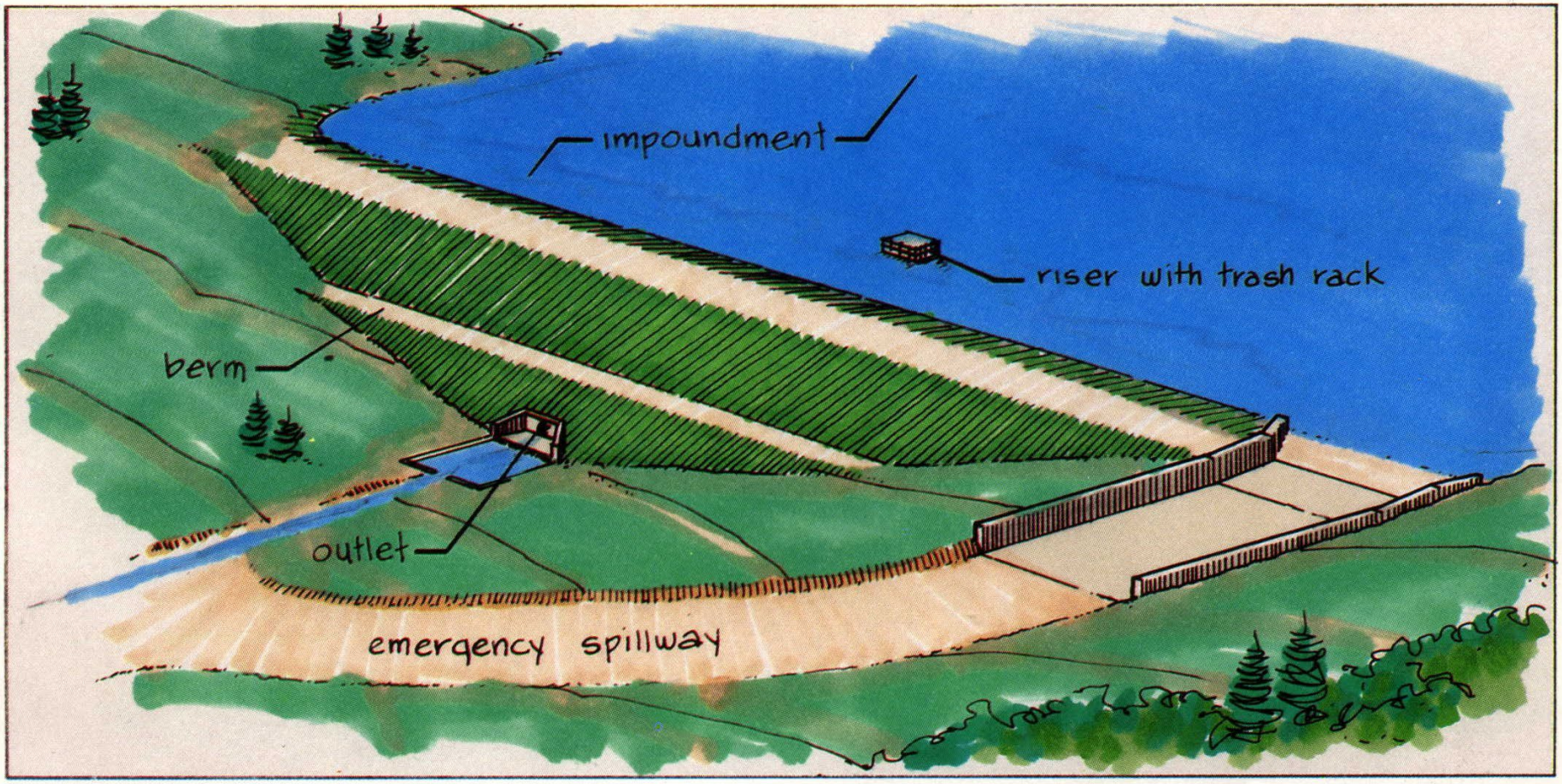
Overall Planning Schedule

- Identify Problems and Determine Objectives by July 2021
- Formulation/Evaluation of Alternatives by January 2022
  - Includes a Public Meeting in December 2021
- Prepare Watershed Plan by October 2022
  - Includes NRCS technical review and Interagency and Public Review of Draft Plan
- Steps by NRCS and Sponsors to Proceed to Design and Construction
  - Request Authorization of Rehabilitation Plan by Chief of NRCS
  - Request Funding for Design and/or Construction

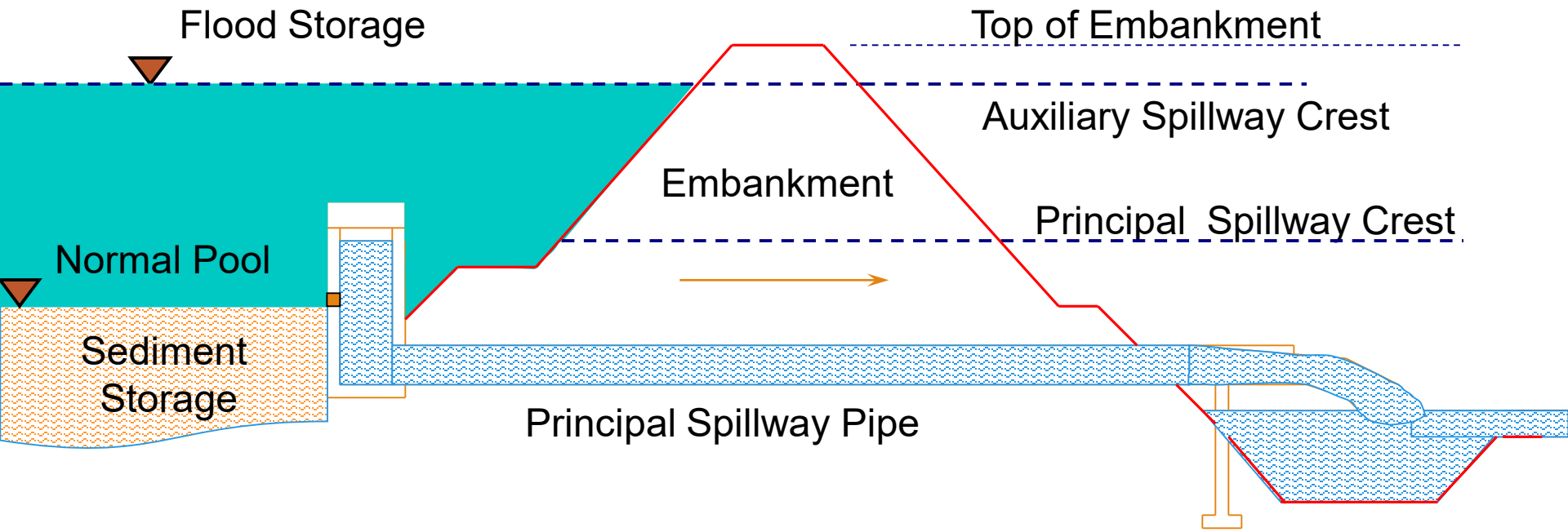
Cost-Share With Dam Rehab.

- NRCS Funds
  - 100% of Planning Costs
  - 100% of Design Costs
  - 65% of Total Project Costs (NTE 100% of Construction costs)
  - NRCS Staff Costs are paid 100% by NRCS
- Local Sponsors Fund
  - 35% of Total Project Costs (Cash or In-Kind Credit)
  - 100% of Permit Costs

Typical Earth Dam



Cross-Section of a Typical Floodwater Retarding Structure



Dean Creek Watershed

- Original Dean Creek Watershed Plan developed in 1954 as part of the Pilot Watershed Program. These plans were authorized for implementation under the Department of Agriculture Appropriation Act of 1954.
  - Planned works of improvement included:
    - Two floodwater retarding dams
    - 2.9 miles of stream channel improvement
    - 11 debris basins
    - Installation of land treatment measures in the upstream watershed for conservation of water and watershed lands.

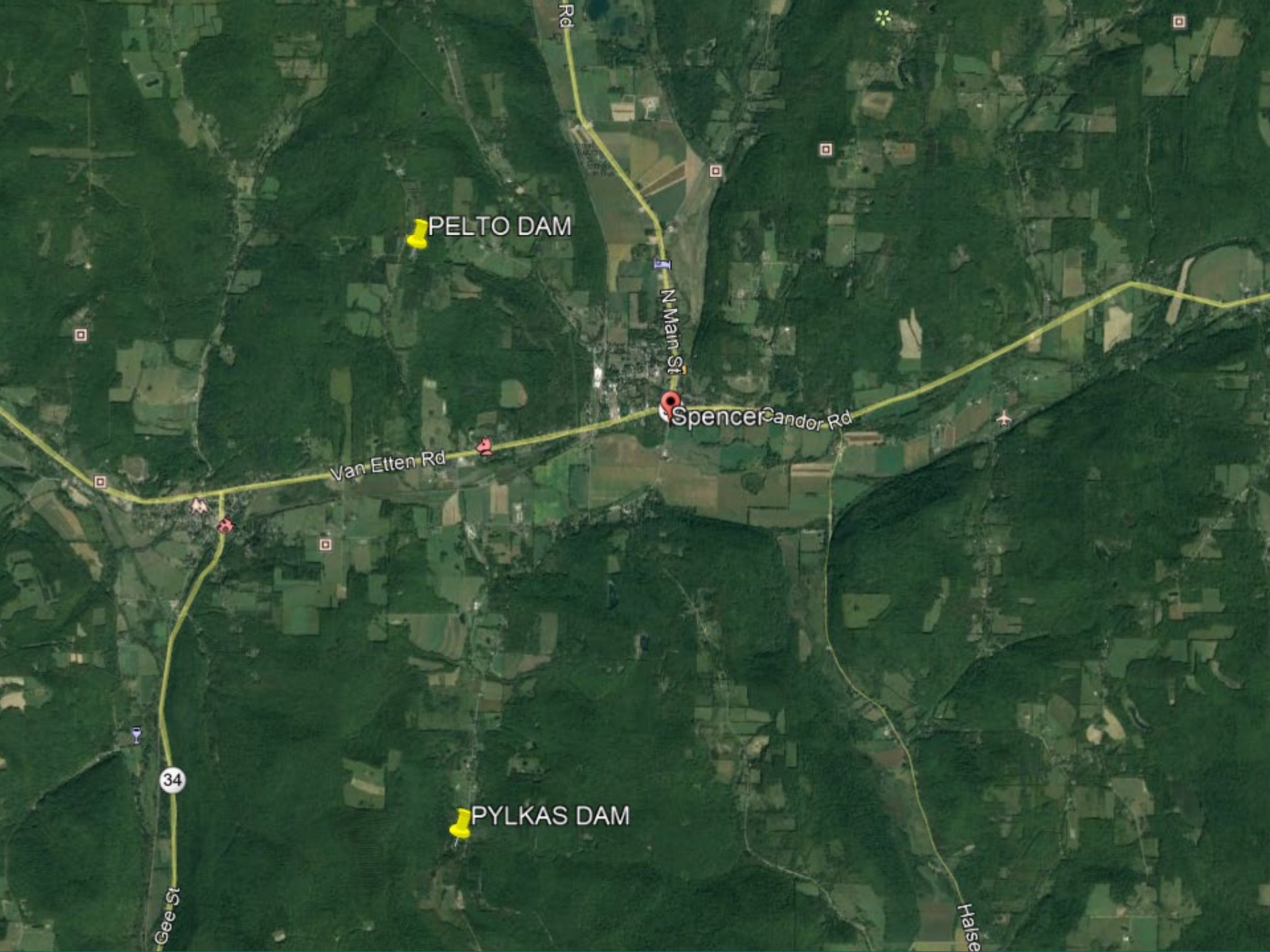
Recent History

- Dam Assessments were completed in 2016.
  - Included sediment survey and CCTV of spillway conduit.
  - Hydrologic & hydraulic analyses of watershed, dam, and downstream areas.
  - Geotechnical desktop analyses (no site-specific data available).
- Sponsors requested Federal Assistance in March 2020.
- NRCS received funding for planning in April 2020.
- Planning contract awarded for dam rehabilitation planning in November 2020.

Initial Planning Activities

- Develop a Draft Purpose and Need Statement
- Develop a Plan of Work and Schedule
- Develop a Public Participation Plan
- Initial Site Visit to Gather Data for Hydrologic Analysis and Identify Potential Planning Concerns
- Inspections of Both Dams
- Land survey
- Geotechnical Explorations to Collect Subsurface Soil, Rock, and Seepage Data (begins January 25th)

Turn it over to Brian Toombs


PELTO DAM
N Main St
Spencer
Candor Rd
Van Etten Rd
34
PYLKAS DAM
Gee St

Pelto Dam

- Located in Town of Spencer
- Maintained by the Tioga County SWCD
- Built in 1955 as a single purpose flood control dam
- Drainage area = 275 acres or 0.43 square miles
- Length = 350 feet
- Height = 42 feet
- Auxiliary Spillway Width = 45 feet
- Principal Spillway is 24” Reinforced Concrete Conduit that transitions to a 24” Corrugated Metal Pipe (final 20 feet)
- Classified as a “High” hazard potential dam


PELTO DAM

Pelto Dam Photos – December 2020

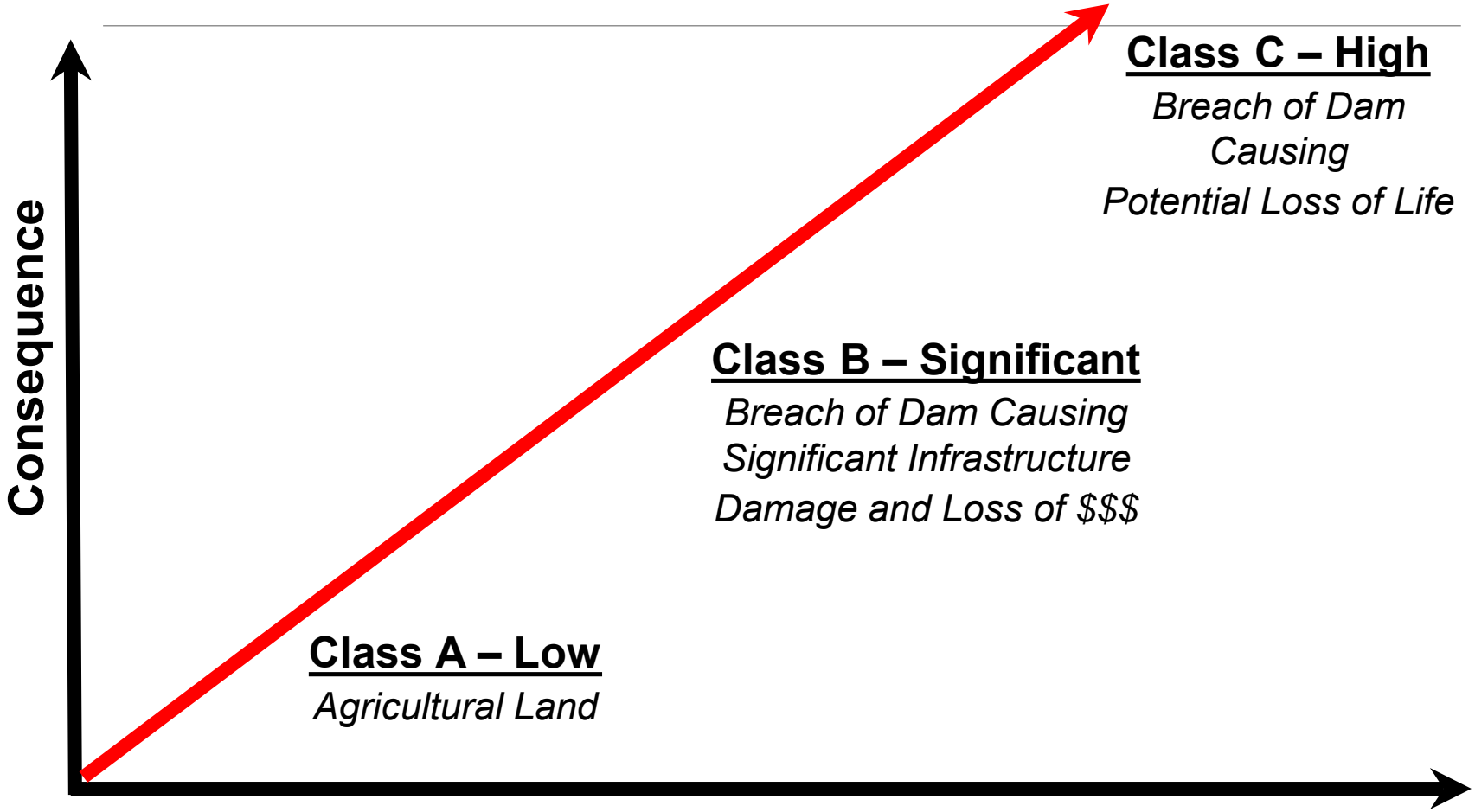
Ed Pylkas Dam

- Located in Town of Spencer
- Maintained by the Tioga County SWCD
- Built in 1955 as a single purpose flood control dam
- Drainage area = 435 acres or 0.68 square miles
- Length = 420 feet
- Height = 37 feet
- Auxiliary Spillway Width = 54 feet
- Principal Spillway is 24” Reinforced Concrete Conduit that transitions to a 24” Corrugated Metal Pipe (final 18 feet)
- Classified as a “High” hazard potential dam


PYLKAS DAM
802
Dean Creek Rd


Pylkas Dam Photos – December 2020

Hazard Classes of Dams



Inundation Mapping – Pelto Dam

From 2016 Dam Assessment

Schnabel ENGINEERING

Notes:
1. Mapping of flooded areas is approximate. Extent of actual inundation may differ from information presented on this map.
2. It is prudent to assume that areas outside, but adjacent to, the inundation limits shown could be flooded.
3. Due to the topography, floodwave similarities, and map scale, inundation lines may obscure other inundation lines at some locations on the map.
4. The dam's hazard potential classification information shown in the map documents the conditions at the time the map was produced.

Pelto Dam

Burheight Glen Road

Overtopping Depth - 6.5 ft Rainy Day Breach
Overtopping Depth - 1.9 ft Sunny Day Breach
Arrival Time - < 5 minutes

Residential Driveway

Overtopping Depth - 8.6 ft Rainy Day Breach
Overtopping Depth - 1.9 ft Sunny Day Breach
Arrival Time - < 5 minutes

Burheight Glen Road

Overtopping Depth - 5.2 ft Rainy Day Breach
Overtopping Depth - 1.0 ft Sunny Day Breach
Arrival Time - 5 minutes

Route 34 (Van Etten Road)

Overtopping Depth - 1.2 ft Rainy Day Breach
Overtopping Depth - NA
Arrival Time - 7 minutes

Legend

FBH Dam Breach

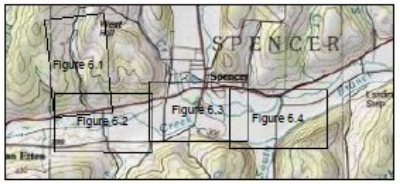
FBH No Dam Breach Inundation Boundary

Max. Flooding Depth

Sunny Day Inundation Boundary

High : 28.201

Low : 0.0010376



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Projection: NAD 1983 StatePlane New York Central FIPS 3102 Feet
Aerial imagery obtained from ArcGIS Online Aerial Service Basemap using ArcMap 10.0

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Scale: 1 inch equals 500 feet

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PELTO DAM ENGINEERING ASSESSMENT
TIOGA COUNTY SOIL AND WATER
CONSERVATION DISTRICT
TIOGA COUNTY, NEW YORK

PROJECT NO. 15925011.00

DAM BREACH
INUNDATION MAPS

Figure 6.1

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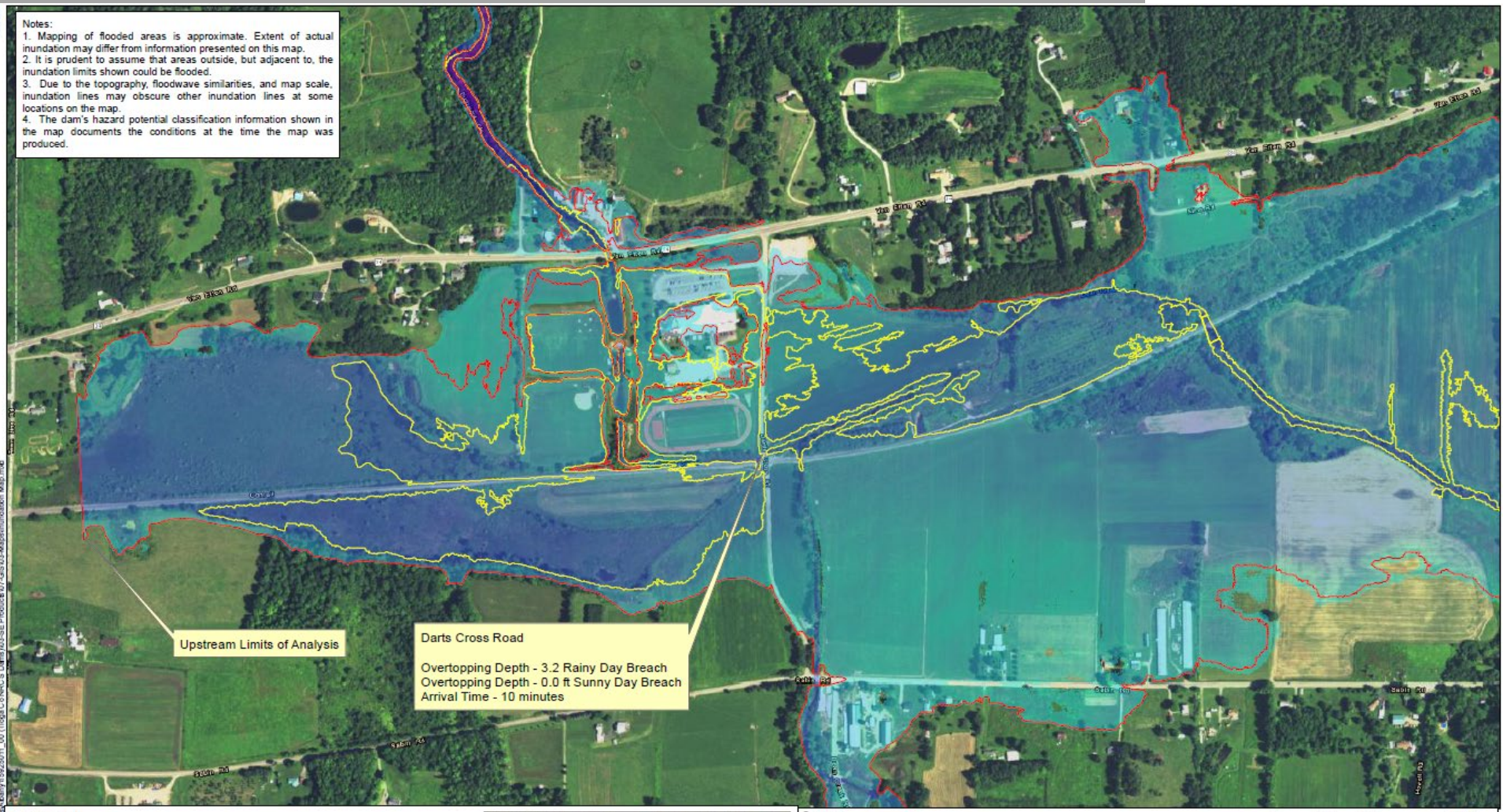

Legend

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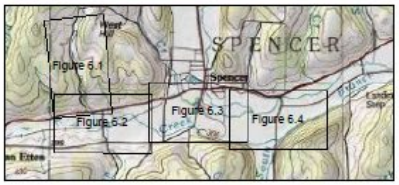

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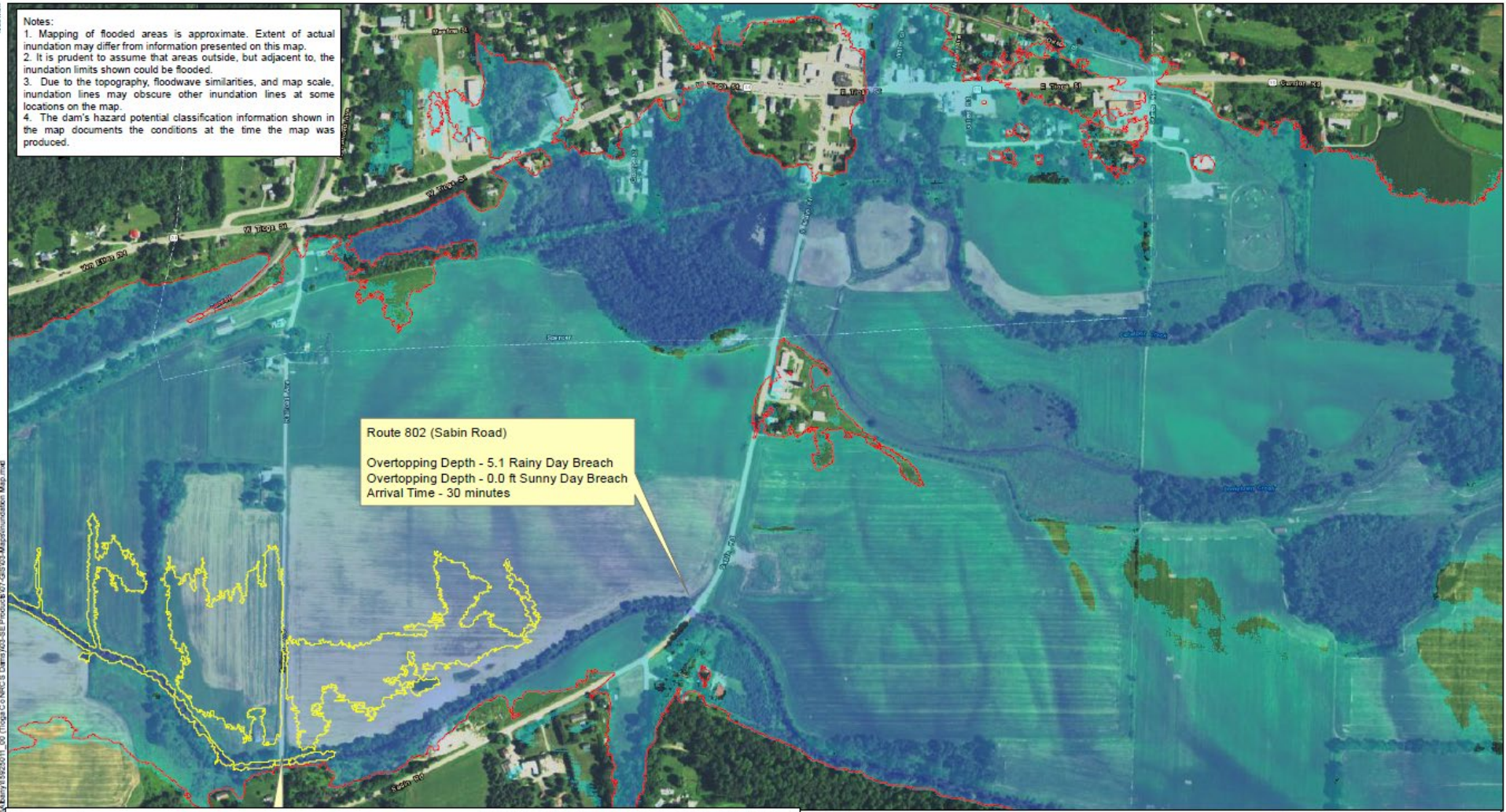
DAM BREACH INUNDATION MAPS

Figure 6.2



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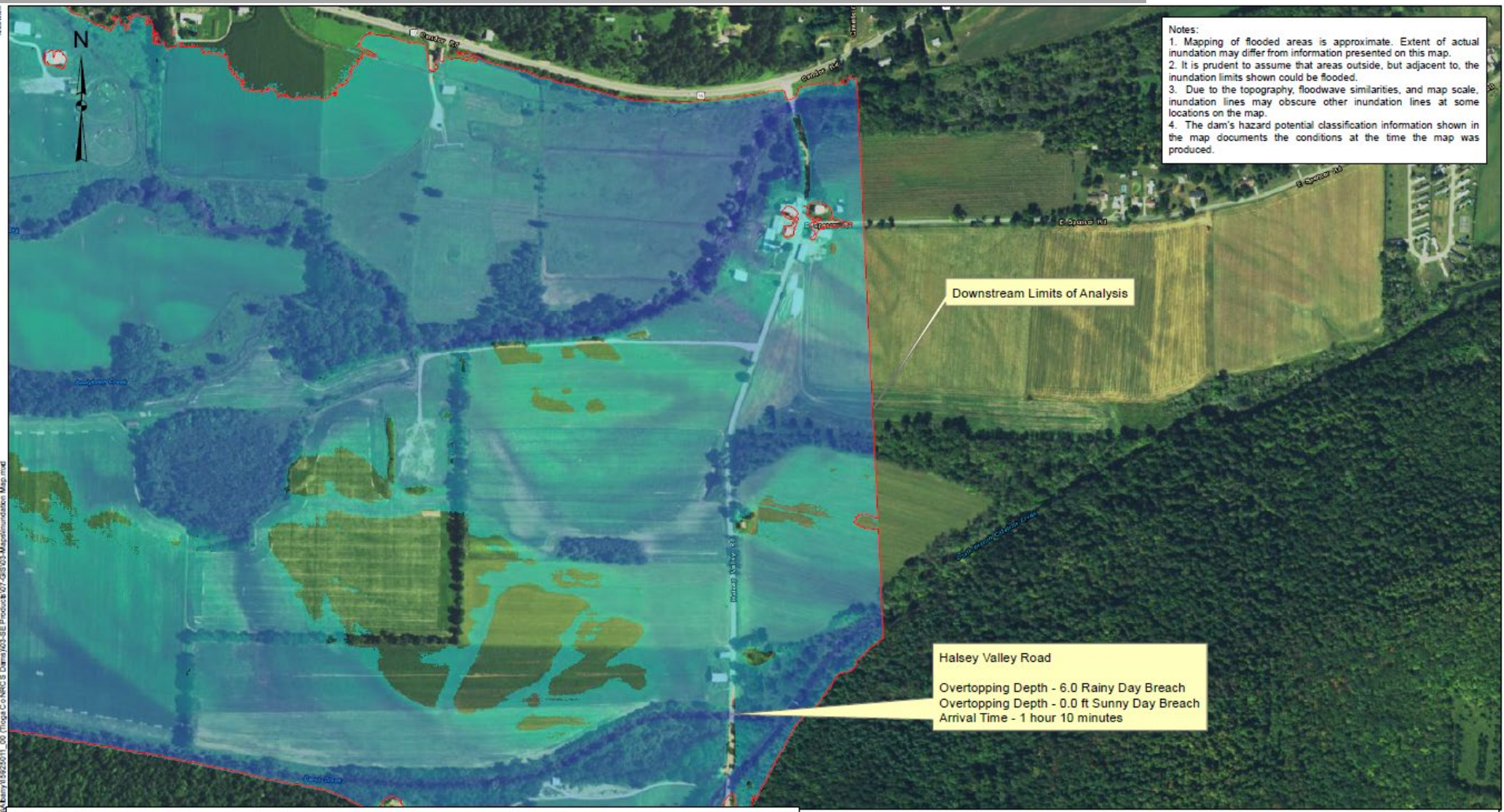
DAM BREACH INUNDATION MAPS

Figure 6.3



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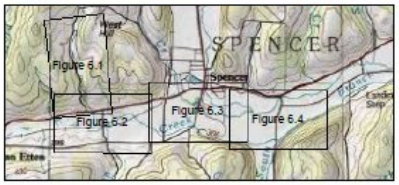

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TIOGA COUNTY SOIL AND WATER CONSERVATION DISTRICT
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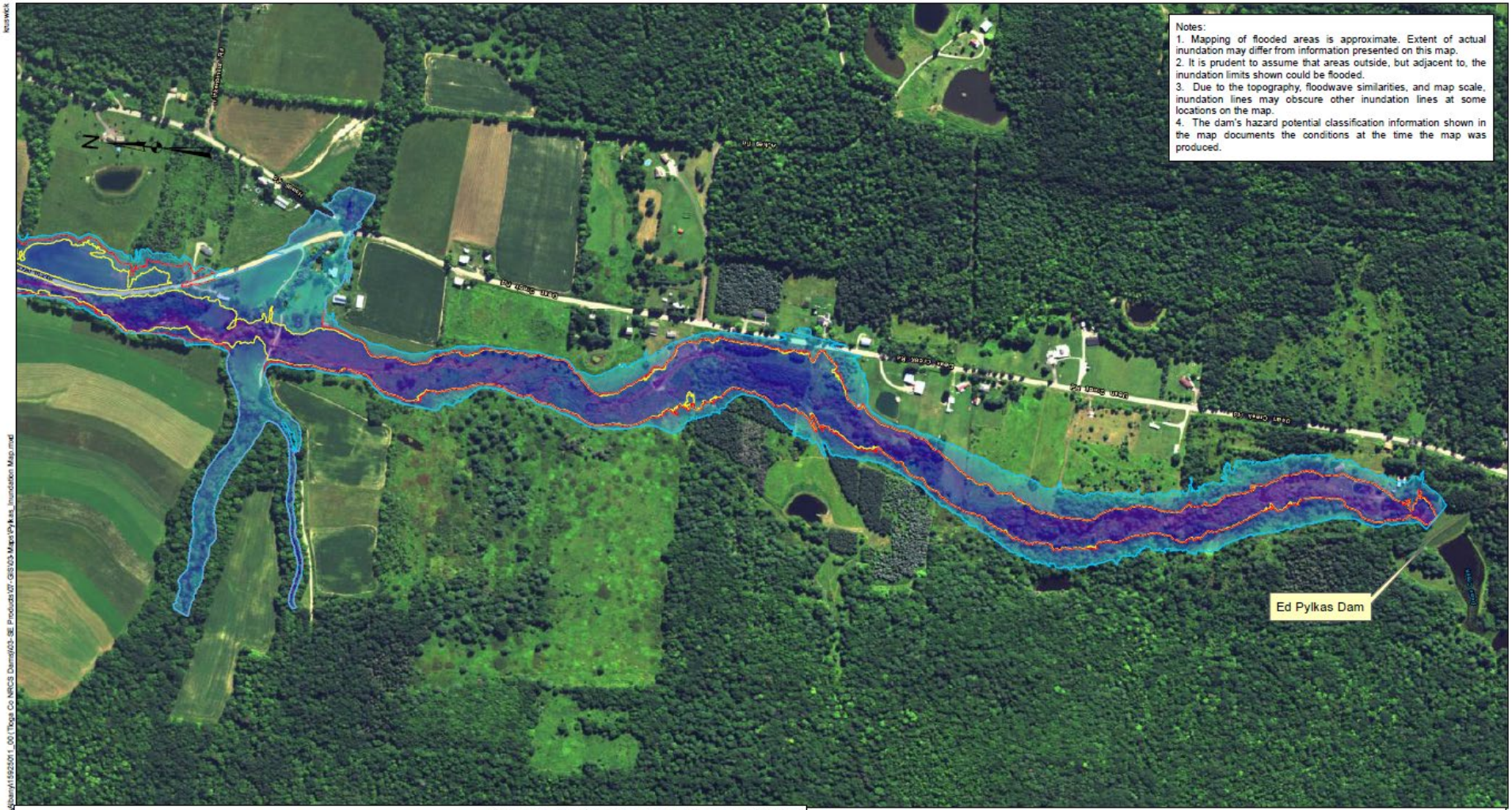
DAM BREACH INUNDATION MAPS

Figure 6.4

Inundation Mapping – Pylkas Dam

From 2016 Dam Assessment



Legend

FBH Dam Breach — FBH No Dam Breach Inundation Boundary

Maximum Flood Depth — Sunny Day Inundation Boundary

High : 15.2 ft

Low : 0.0 ft

Source:
Projection: NAD 1983 StatePlane New York Central FIPS 3102 Feet
Aerial imagery obtained from ArcGIS Online Aerial Service Basemap using ArcMap 10.0

0 250 500 1,000 Feet

Scale: 1 inch equals 500 feet

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DAM BREACH INUNDATION MAPS

Figure 6.1

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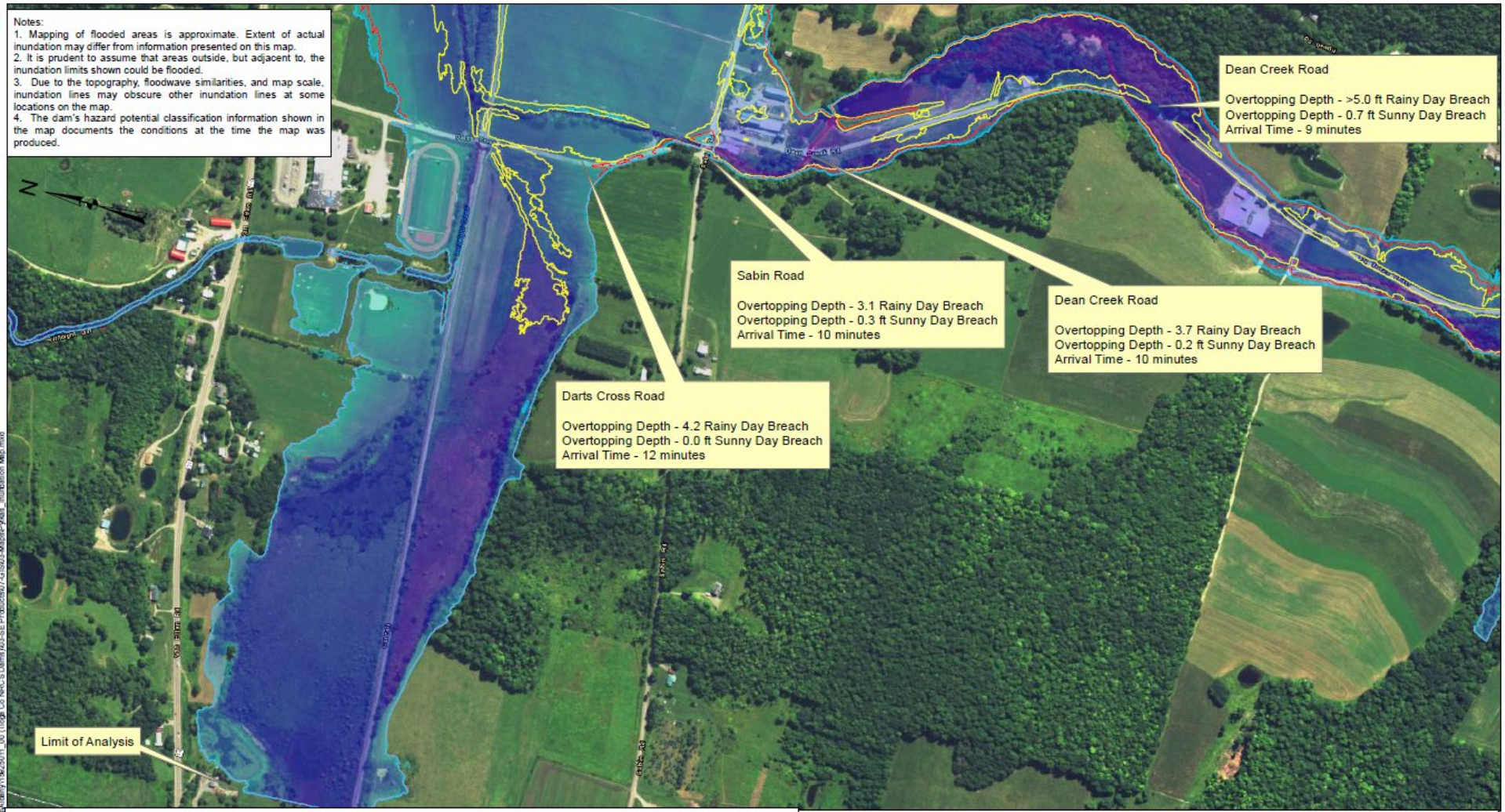

Legend

FBH Dam Breach

FBH No Dam Breach Inundation Boundary

Sunny Day Inundation Boundary

Maximum Flood Depth

High : 15.2 ft

Low : 0.0 ft

Source:
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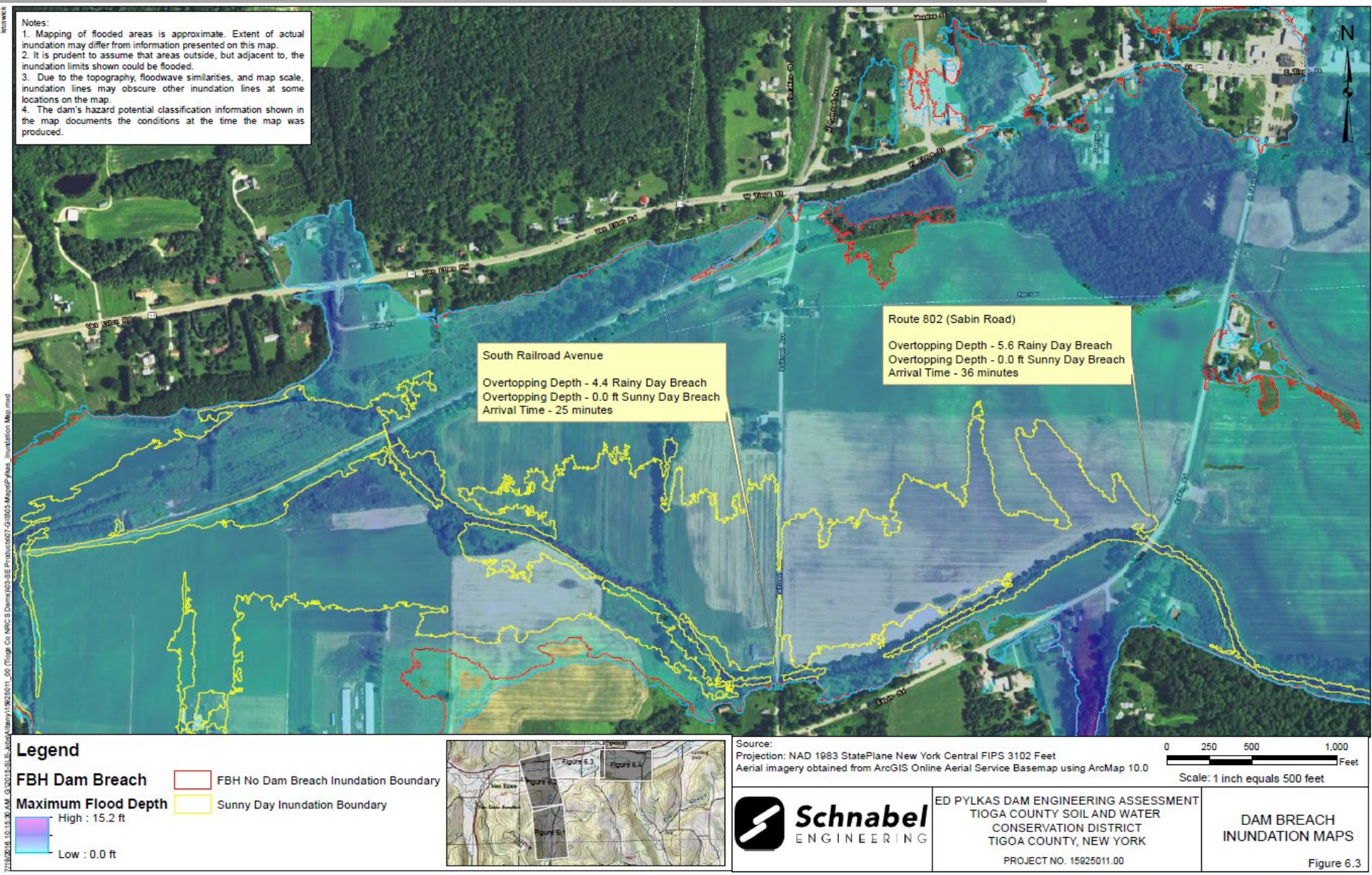
DAM BREACH INUNDATION MAPS

Figure 6.2



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N

Downstream Limits of Analysis

Halsey Valley Road

Overtopping Depth - 6.3 Rainy Day Breach
Overtopping Depth - 0.0 ft Sunny Day Breach
Arrival Time - 1 hour 7 minutes

Legend

FBH Dam Breach
FBH No Dam Breach Inundation Boundary
Sunny Day Inundation Boundary

Maximum Flood Depth
High : 15.2 ft
Low : 0.0 ft

Source:
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DAM BREACH INUNDATION MAPS
Figure 6.4

General Condition of the Dams

- Inspected annually.
- Regularly mowed and maintained.
- Overall good condition.
- Downstream slopes are very steep (2H:1V slope).
- Principal spillway risers are non-standard.
- Some rehabilitation to outlet pipes completed in 1985.

Pelto Dam Safety Deficiencies

- The auxiliary spillway has inadequate hydraulic capacity to pass the 6-hour and 24-hour storms without overtopping the embankment. The dam would overtop by 2 feet in the 24-hour probable maximum flood.
- Auxiliary spillway crest is 2.5 ft lower than required by NRCS.
- Auxiliary spillway has inadequate stability against erosion during the probable maximum flood.
- The dam does not meet requirements for downstream embankment slope stability (based on data available at 2016 Assessment).
- Lack of an internal seepage filter drainage system.
- Lack of a functional low-level outlet.
- Non-standard riser.

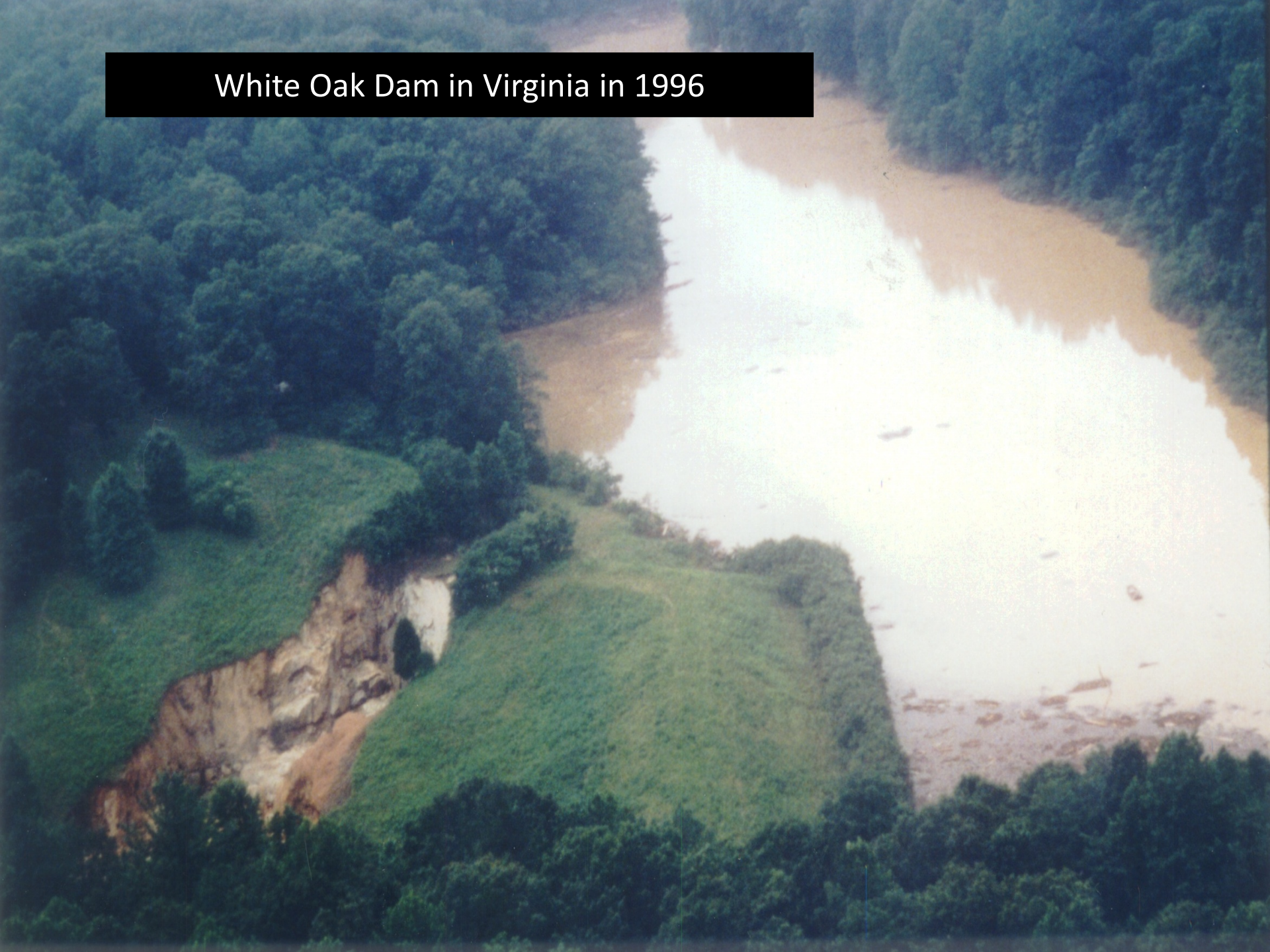
Ed Pylkas Dam Safety Deficiencies

- The auxiliary spillway has inadequate hydraulic capacity to pass the 6-hour and 24-hour storms without overtopping the embankment. The dam would overtop by 2.9 feet in the 24-hour probable maximum flood.
- Inadequate integrity of the vegetated auxiliary spillway during 24-hour storm. Headcutting erosion would breach the structure.
- Lack of an internal seepage filter drainage system.
- Lack of a functional low-level outlet.
- Non-standard riser. Frequent maintenance is required to clear debris.

Turn it back to Wade Biddix


Auxiliary Spillway Flow in PA in 2006


Damage to ASW Exit Slope


White Oak Dam in Virginia in 1996

Auxiliary Spillway Breach in MA (initiation)


Final Breach

Required Alternatives to be Considered

- Future Without Federal Investment (No Action)
- Decommissioning (removal)
- Nonstructural Alternatives (elevation, relocation, zoning, etc.)
- Rehabilitate to current criteria

Photos of Possible Structural and Nonstructural Alternatives

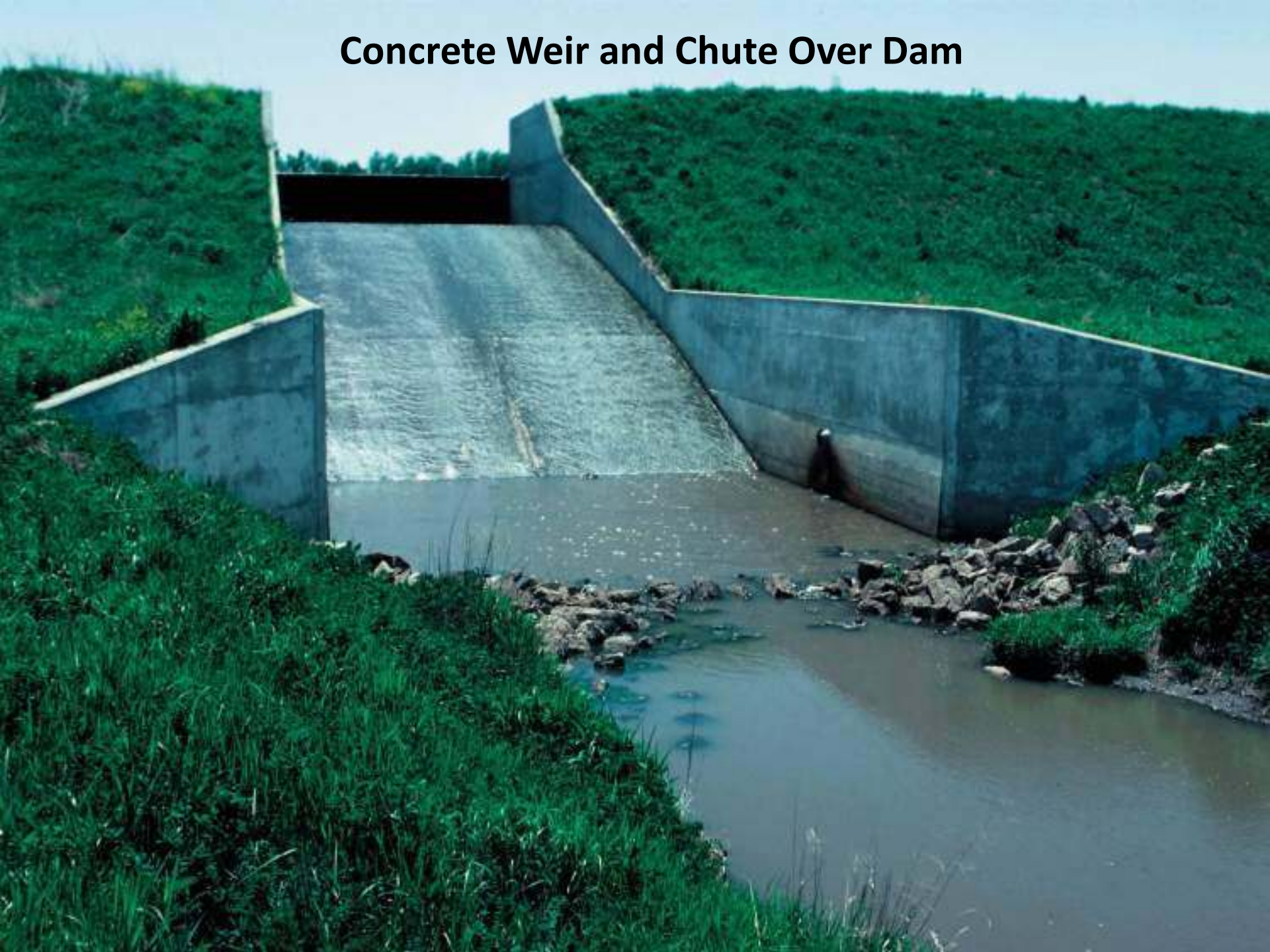

Installing Articulated Concrete Blocks to Armor Auxiliary Spillway

Roller Compacted Concrete Protection (construction)

Roller Compacted Concrete Protection (finished)

Labyrinth Weir in Virginia

Concrete Weir and Chute Over Dam



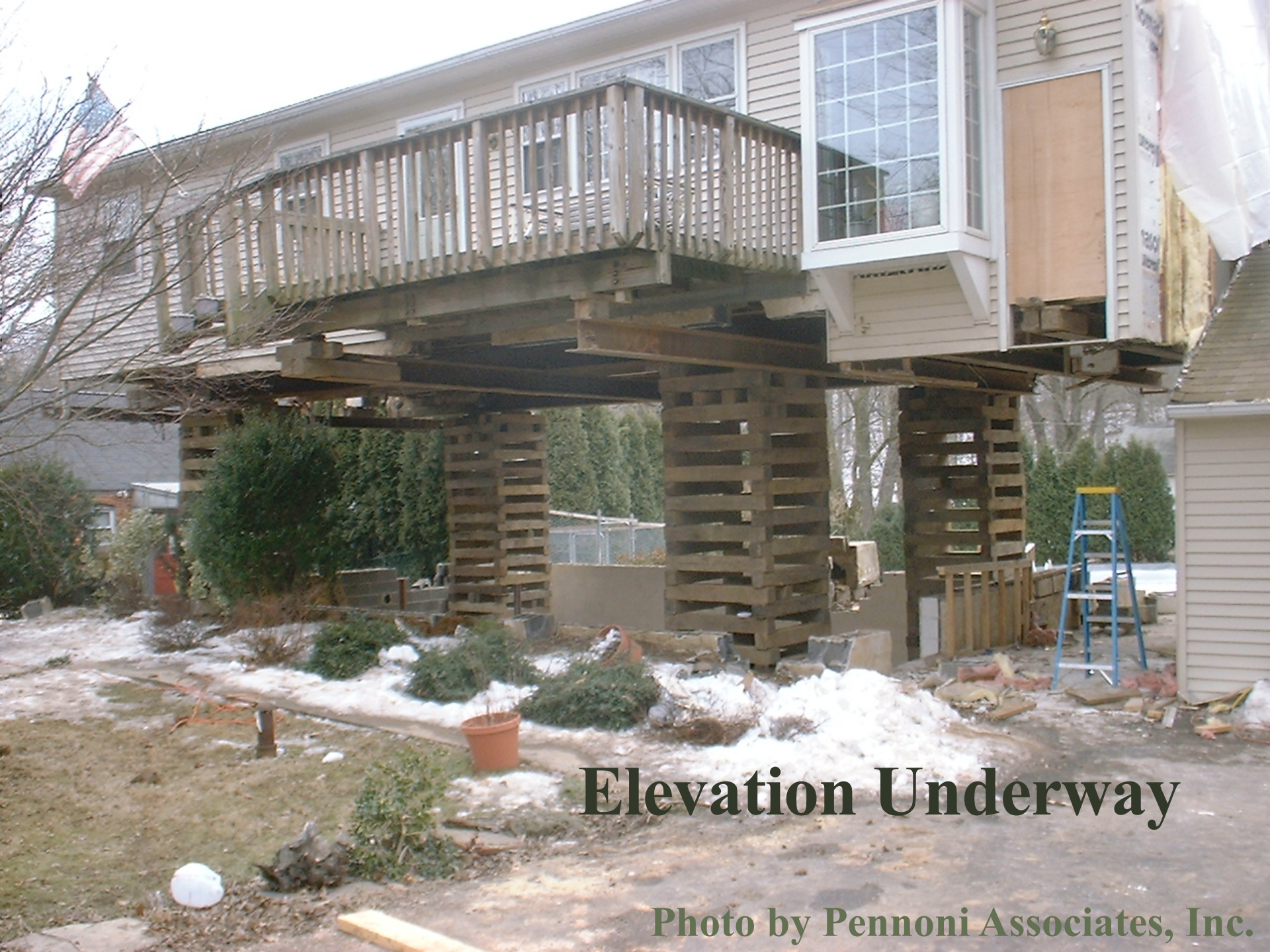
Nonstructural Alternatives

House Acquisitions

Acquisition and Site Restoration

House Elevations

Photo by Pennoni Associates, Inc.


Elevation Underway
Photo by Pennoni Associates, Inc.


Elevation Completed
4/23/2003

Other Nonstructural Options

- Flood Warning System
- Floodproofing, such as ring levees or dikes around individual houses

Scoping

- Council on Environmental Quality (CEQ) defines “Scope” as the range of actions, alternatives, and impacts considered (40 CFR 1501.7).
- Scoping is used to:
  - **Identify the significant issues to be analyzed in detail**
  - **Eliminate from detailed study the issues that are not significant**

Scoping Table

As we work through the potential resource issues for the project,

Keep in Mind These Key Items:

- The existing condition already has the dams onsite. The impacts are changes with the dams in place; not for new dams.
- Project Purpose and Need
  - Maintain current flood protection
  - Reduce risk to loss of life and property damage
  - Minimize social, cultural and environmental effects
- Reasonable Rehabilitation Alternatives

We Need Your Input

If you have any specific information on the overall watershed or these dams, upstream or downstream, adjacent properties, or the embankments, reservoirs, etc., please **let us know by February 26, 2021.**

Points of Contact

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walshw@co.tioga.ny.us

Tioga County Website

Tioga County Website is www.tiogacountyny.com

Information on the dams and planning process will be posted here (including this PowerPoint and a recording of the meeting).

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