

Cox Brook Dam Removal, Northfield VT

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WATERSHED
MANAGEMENT DIVISION

RIVERS PROGRAM

Steps in the right direction....

FEMA Hazard Mitigation Assistance (HMA) Program

1. Ecosystem Service Benefits Calculator
2. Pre-disaster Mitigation 2016 - prioritized floodplain and stream restoration

Executive Order 13690 – Federal Flood Risk Management Standard:

"Where possible, an agency shall use natural systems, ecosystem processes, and nature-based approaches when developing alternatives for consideration."



The Challenge....



Almost 50
years old (!)

Cox Brook Dam Removal

- ▶ 1930s low head run-of-river gravity dam
- ▶ Barrier to fish passage/sediment transport.
- ▶ Flood hazard



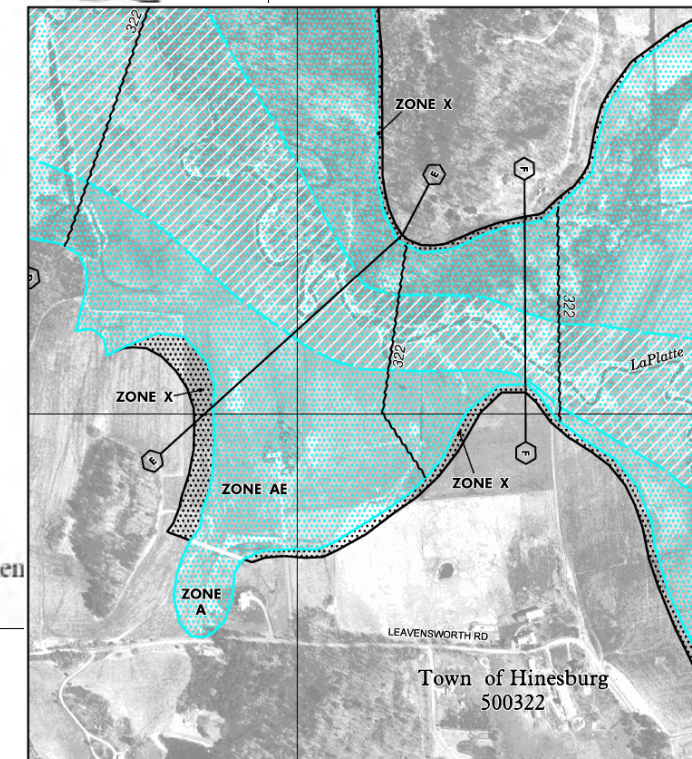
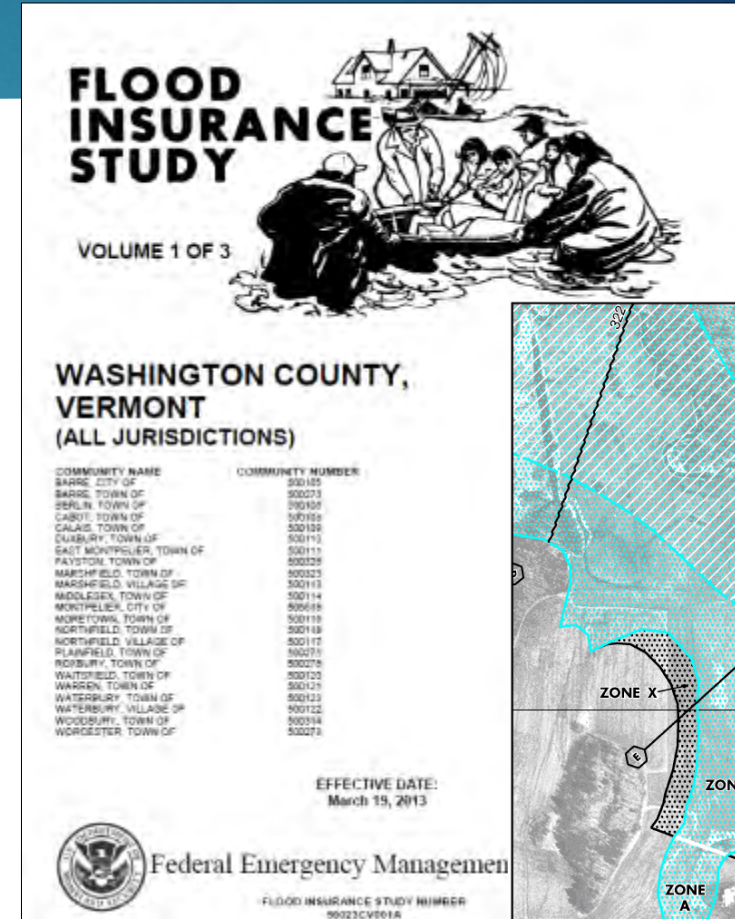
Cox Brook Dam removal = Development



NFIP Mapping Requirements

44 CFR § 65.3 - Requirement to submit new technical data

Letter of Map Revision (LOMR) required if physical changes impact base flood elevations



Cox Brook Dam Removal

\$37,000 Project Budget

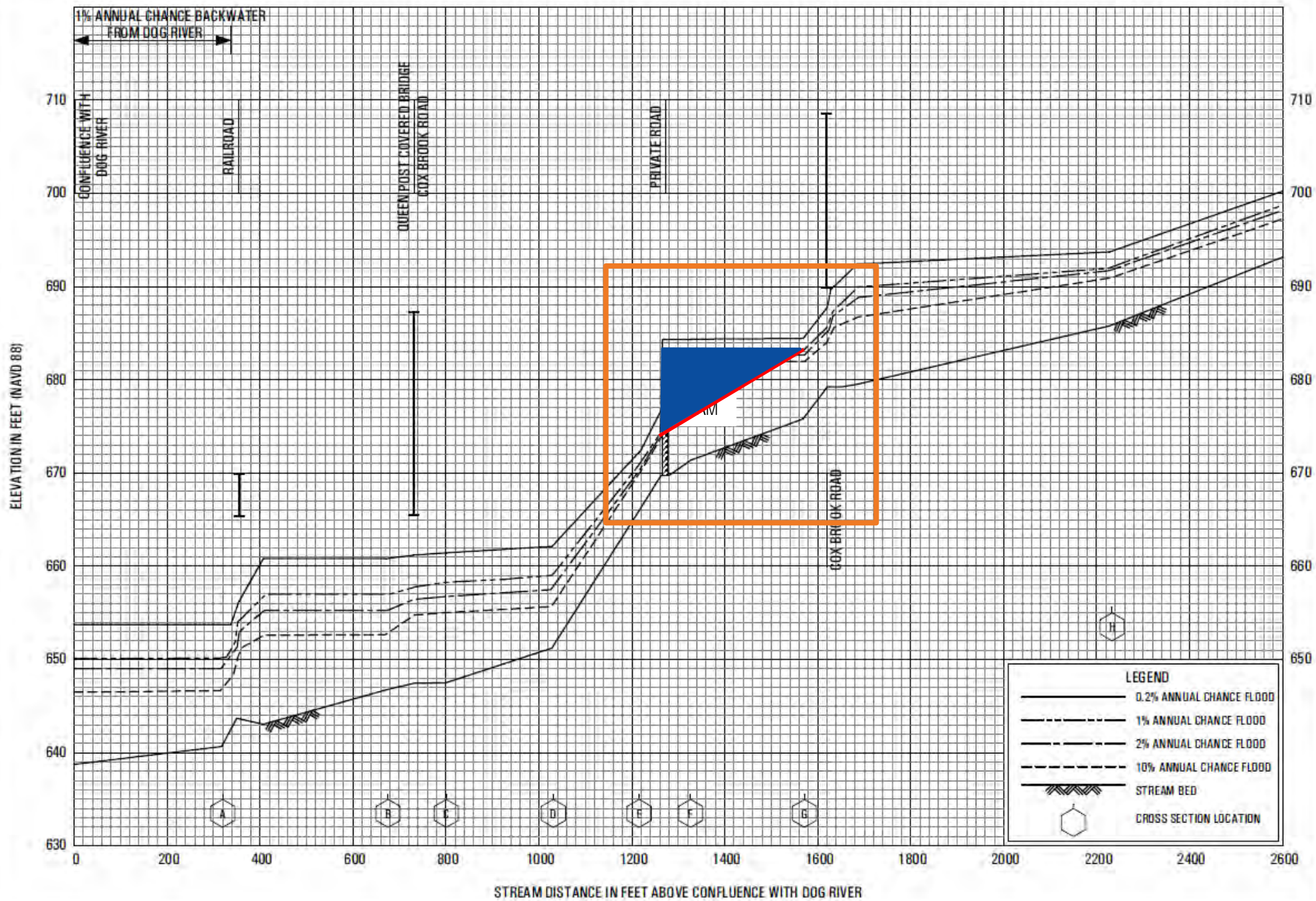


Cox Brook Dam Removal



Limited impact on
Flood Insurance
Study and mapping





FLOOD PROFILES

COX BROOK

FEDERAL EMERGENCY MANAGEMENT AGENCY
 WASHINGTON COUNTY, VT
 (ALL JURISDICTIONS)

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Charles Folsom Brook								
A	106 ¹	97	238	6.8	752.7	750.3 ³	750.3	0.0
B	370 ¹	60	167	9.6	752.7	752.0 ³	752.0	0.0
C	581 ¹	200	1,510	1.1	765.6	765.6	765.6	0.0
Cox Brook								
A	320 ²	35	200	13.0	650.3	650.3	650.3	0.0
B	675 ²	60	325	8.0	657.0	657.0	657.0	0.0
C	800 ²	80	560	4.6	658.3	658.3	658.3	0.0
D	1,030 ²	155	850	3.0	659.0	659.0	659.0	0.0
E	1,215 ²	80	260	10.0	671.0	671.0	671.0	0.0
F	1,325 ²	80	760	3.4	683.3	683.3	683.3	0.0
G	1,570 ²	100	615	4.2	683.5	683.5	683.5	0.0
H	2,230 ²	70	265	9.8	692.9	692.9	692.9	0.0
I	3,310 ²	50	225	11.5	717.5	717.5	717.5	0.0
J	4,400 ²	70	265	9.8	728.7	728.7	728.6	0.1
K	5,450 ²	50	575	4.5	749.6	749.6	749.6	0.0
L	6,280 ²	85	260	10.0	755.6	755.6	755.6	0.0
M	7,360 ²	230	400	6.5	773.1	773.1	773.1	0.0

¹Feet above confluence with Mad River

²Feet above confluence with Dog River

³Elevation computed without consideration of backwater effects from Mad River

TABLE 7

FEDERAL EMERGENCY MANAGEMENT AGENCY

WASHINGTON COUNTY, VT
(ALL JURISDICTIONS)

FLOODWAY DATA

CHARLES FOLSOM BROOK – COX BROOK

Cox Brook Dam Removal

Limited impact on Flood Insurance Study and mapping

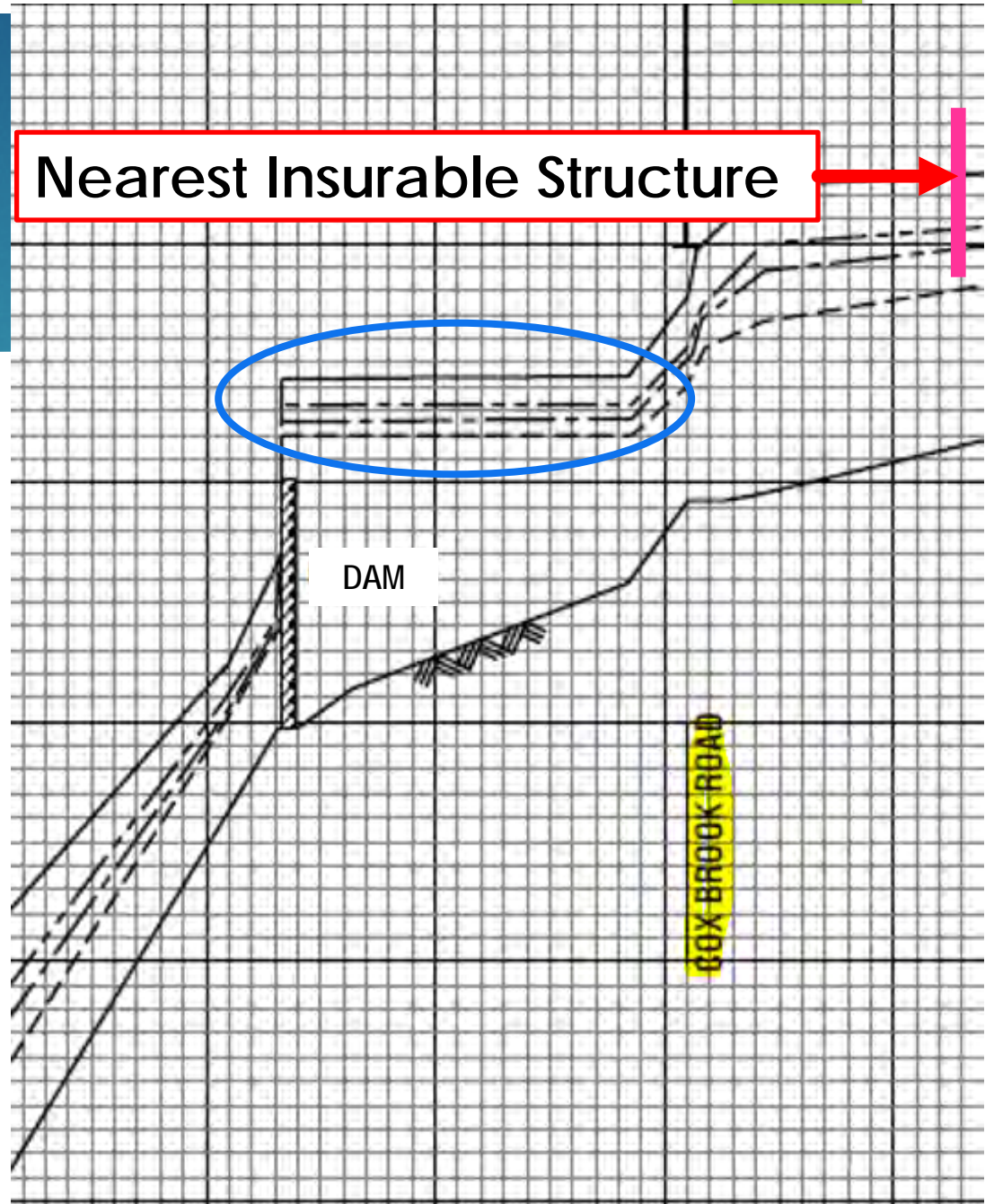
No Flood Insurance Implications



Cox Brook Dam Removal

Limited impact on Flood
Insurance Study and
mapping

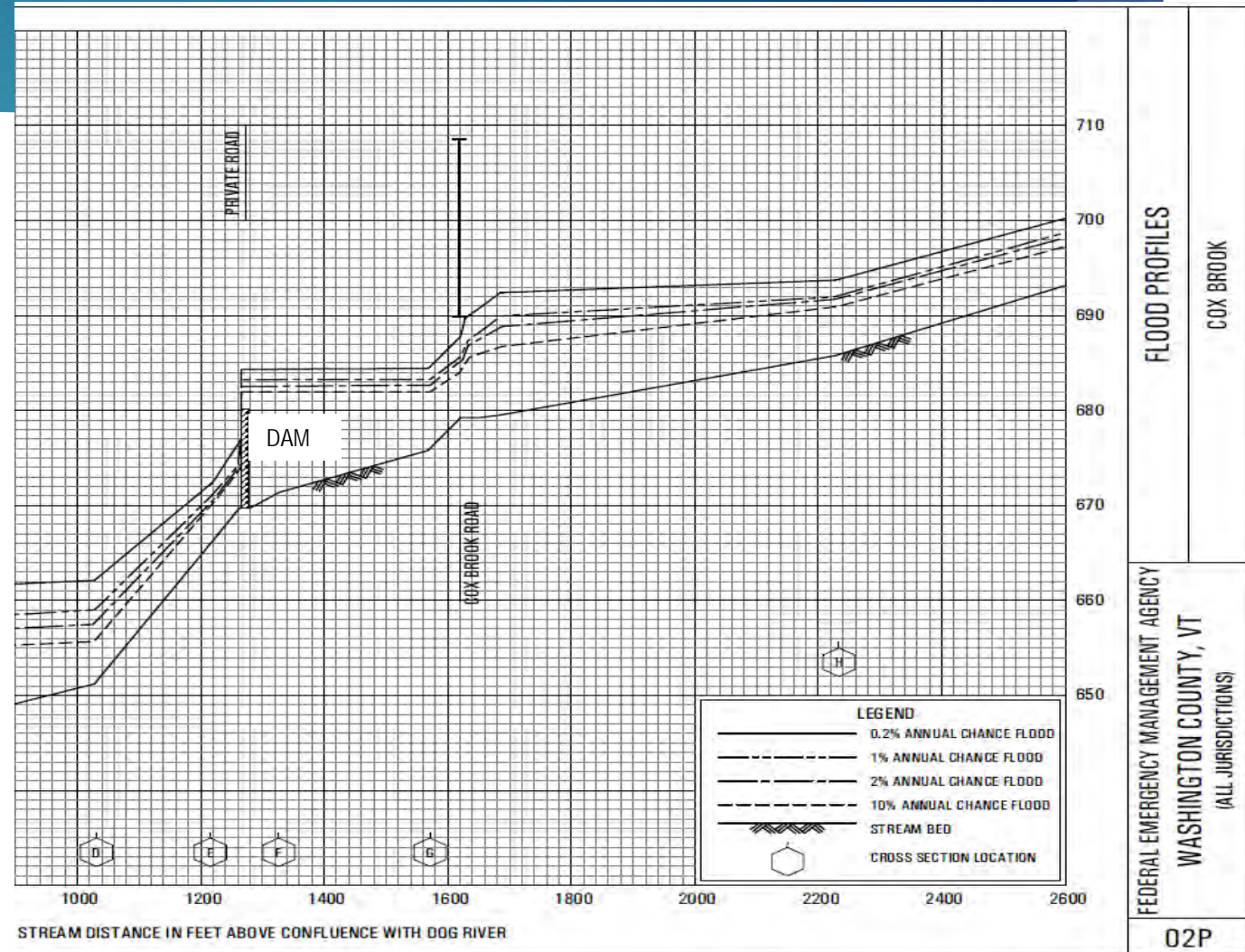
No Flood Insurance
Implications



Cox Brook Dam Removal



- ▶ Limited impact on Study and Mapping
- ▶ No Flood Insurance Implications
- ▶ Age of Flood Insurance Study



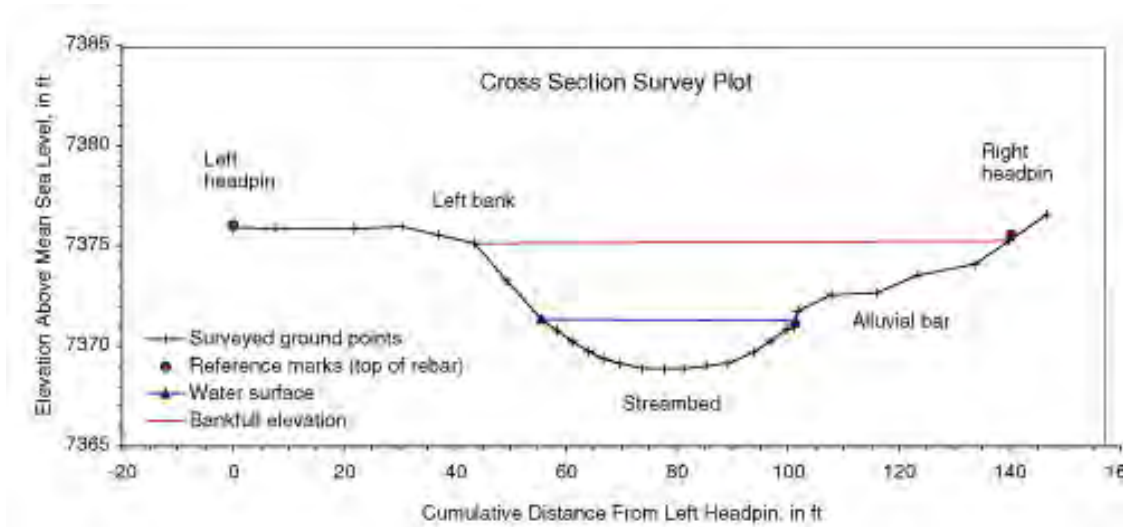
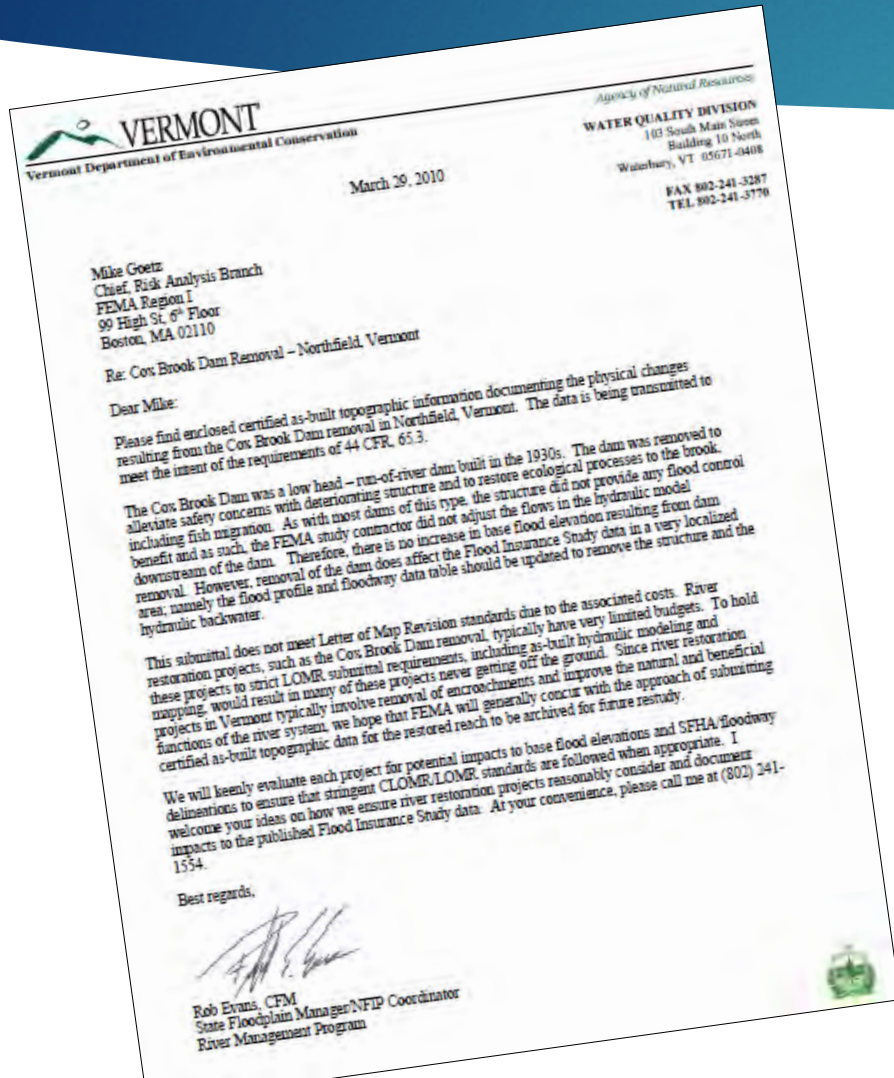
Cox Brook Dam Removal In Summary

Project resulted in:

- ▶ Minimal impact to mapped Special Flood Hazard Area
- ▶ Very localized reductions in Base Flood Elevations
- ▶ No impacts to insurable structures
- ▶ No LOMR application due to relative cost



Cox Brook – Sharing the As-built Data



Beyond dam removals?



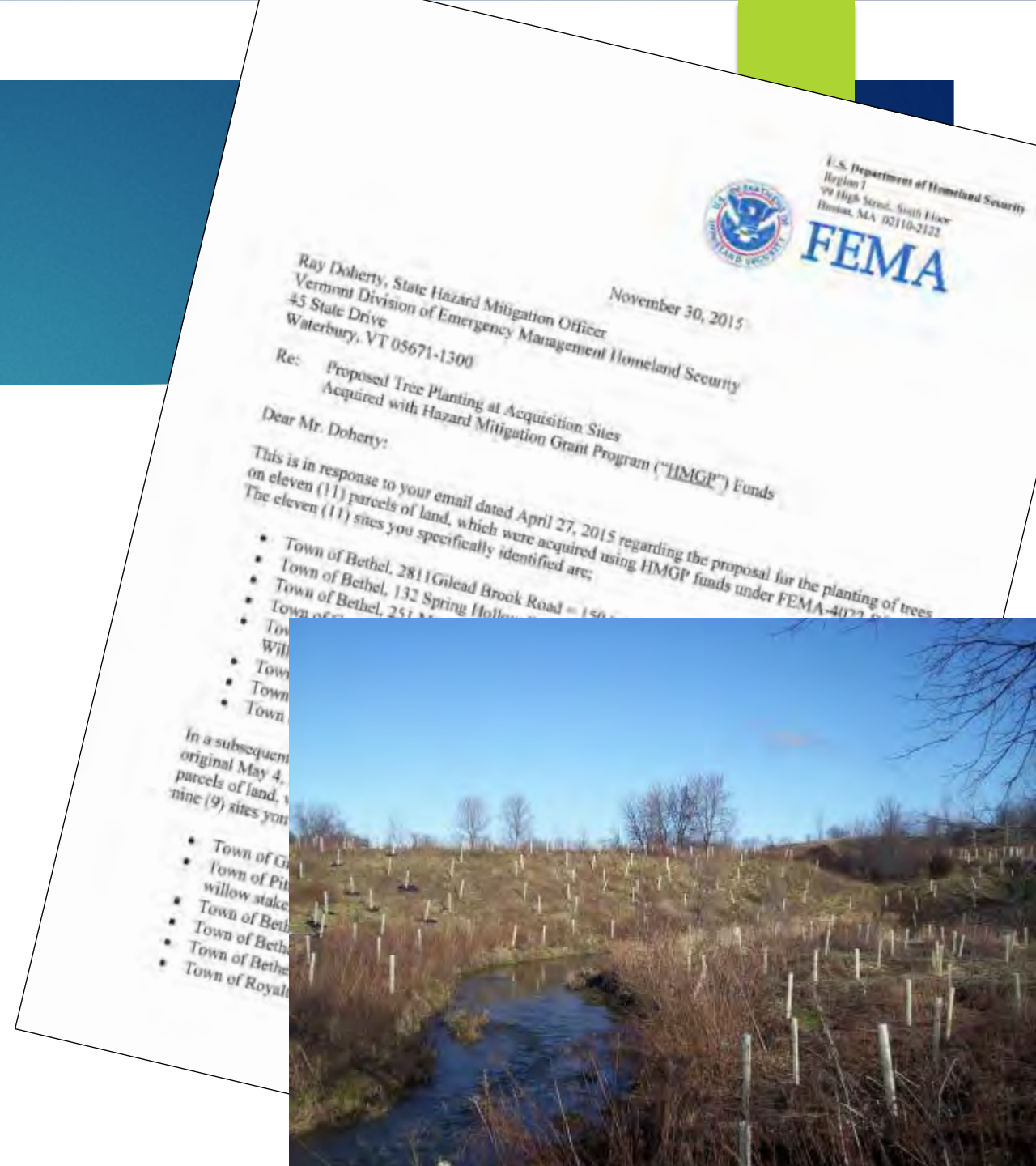
Recommendations

- ▶ Create policies that provide reasonable accommodation of restoration projects;
- ▶ Establish more formal protocol for sharing as-built data w/o embarking on full-blown LOMR process;
- ▶ Create a companion screening tool to aid in determining whether CLOMRs/LOMRs are needed and establish documentation requirements.



Floodway requirements on planting projects....

- ▶ Buffer plantings are an encroachment in the floodway.
- ▶ Must obtain a CLOMR or certified hydraulic analysis
- ▶ Modeling must assume trees and full maturity



HMA Grant Guidance

Property Acquisition & Structure Demolition:

The property must be deed-restricted in perpetuity to open space uses to **restore and/or conserve the natural floodplain functions.**



Thank You

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