History and Deferred Maintenance of the South Branch Park River Flood Control System

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Natural Resources Conservation Service

A Voluntary Federal Technical Agency

1954 PL 566 Allowed NRCS to do Flood Control Projects

Why the South Branch Park River Watershed Flood Control Channels Were Constructed



Confluence of Trout and Piper Brooks, Elmwood Section of West Hartford

- Flooding and Loss of Life from 1955 Hurricane Diane
- \$3.69 Million in damages (\$49 Million today)
- West Hartford, Newington, and the City of Hartford request assistance.
- State *applied* for NRCS help after the 1955 flood.

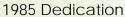
South Branch Park River Flood Control Channels

- Part of the Park River
 Watershed, a large complex system including
 - 5 SBPR Watershed Dams
 - 10+ miles of Channels with many channel types
- Largest NRCS Project in CT
- Took 30 years to build
- Cost \$29M in Federal Dollars



- NRCS planned, designed, and built SBPR dams and channels over the 30 year period ending in 1993
- DEEP as sponsor signed an Operations & Maintenance (O&M) Agreement with NRCS







Trout Brook upstream of Farmington Ave. 1985

SBPR Channels Benefits

- Protect Lives, Property, and Businesses surrounding the SBPR
- \$2.6 million Flood Damage Savings/year
- Flood Insurance not required
- Walking trails and Parks along the stream.

O&M Problems (2010)

- Large trees and brush on the banks
- Sediment accumulations in the channels
- ► Full Sediment ponds
- Earthen bank and concrete wall failure

Sediment accumulation







Brush and trees on channel banks



Cracked wall

Trees and Brush are a Problem!

- Dislodged trees could plug bridges and culverts
- A plugged bridge could fail catastrophically
- A plugged bridge is Public Safety threat!!!



Rockledge Brook after a storm



Annual accumulation of branches on Farmington Ave culverts on Trout Brook

Other Problems with Trees and Brush

- Not designed for brush and trees on the banks
- Reduce channel capacity by blocking/slowing storm water flow
- Slowed water causes upstream floodwaters to rise
- Uprooted trees cause channel bank failure



Mowing banks of Piper Brook a few years after construction



Unmaintained banks Piper Brook in 2014



Trout Brook Channel near New Britain Ave in 2014

Sediment is a Problem!

- Sediment obstructs the channel and reduces its capacity
- Vegetation grows in the sediment reducing capacity
- Reduced capacity causes upstream rise in floodwaters



Trout Brook Sediment Pond 5 in 2014



Trout Brook Design Condition



Trout Brook Current Condition

When there is No Regular Maintenance at SBPR Flood Control Channels

- Maintenance work grows
 exponentially and becomes a large
 job to return it to design conditions
- It is a violation of the O&M Agreement
- NRCS sends Notice of O&M Violation to DEEP requiring it to be done

Why Is Maintenance Required?

- Public Safety and Flood Protection
- Low or no flood insurance rates to local residents and businesses
- Maintain NRCS Certification

Consequences of Decertification

- CT would lose future Federal funds for
 26 High Hazard Dams across the State –
 \$75M est.
- Increased flood insurance premiums
- Require DEEP to reimburse the Federal Government \$15M or more







Why Us? Why now?



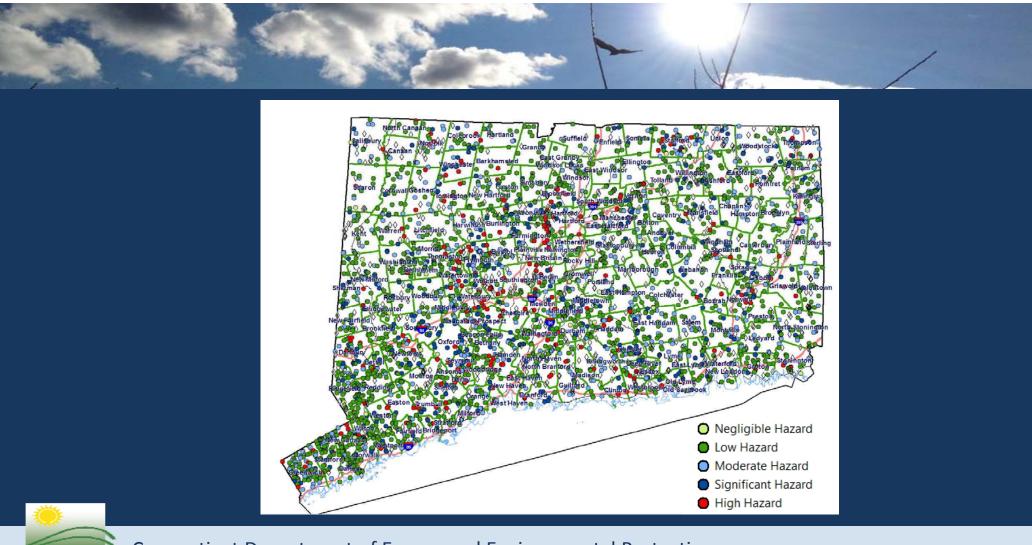
Who are we?

CT Dam Safety Programs

Two programmatic areas:

- Statewide dam safety regulatory program (IWRD)
 - 3086 regulated dams
- Oversight of state-owned dams (IWRD and Support Services Division)
 - 265 state-owned dams





Connecticut Department of Energy and Environmental Protection

What does that mean?

- CTDEEP is responsible for operation and maintenance of 239 of these dams, which includes 28 flood control dams/dikes protecting towns such as Bloomfield, Hamden, Hartford, Stafford, Torrington, and Waterbury
- DEEP is responsible for day-to-day operations and maintenance, as well as overseeing repairs, upgrades & construction contracts.



South Branch of the Park River (SBPR)

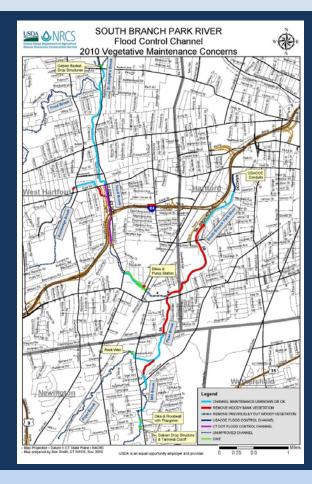
- 1961 Agreement between the SCS, the State and the municipalities (West Hartford, Newington and Hartford) in response to the Flood of '55
- 1964 Agreement with Hartford to make channel improvements
- 1972 Agreement with West Hartford to include channel improvements
- 1986 Agreement with Newington to make channel improvements to Piper Brook
- Towns to incur costs to maintain vegetation and the state to incur costs to make future capital improvements
- Last major maintenance project occurred in 1999-2000



NRCS Overview Map from 2010 Inspection

South Branch Park River Overview

- Includes maintenance in Hartford, West Hartford and Newington – all three towns received copies of this as well as previous and subsequent annual inspection reports
- Work includes:
 - Tree and vegetation removal
 - Sediment removal
 - Structural repair to floodwalls and flap gate structures.







State Funding

Permitting ober 23, 2014

State

Contracting

Awarding Contract

Outreach

Project Start

- •April 27, 2012 State Bond Commission funding for design and permitting of necessary repairs and maintenance
- •July 25, 2014 State Bond Commission funding of \$4.5M for construction
- October 23, 2014
 Notice of Tentative
 Determination to
 Issue a Dam Safety
 Permit published
- •December 19, 2014 Dam Safety Permit Issued
- •June 11, 2015 Bid advertisement
- •July 30, 2015
 Bid opening.
 Paganelli
 Construction
 corporation selected

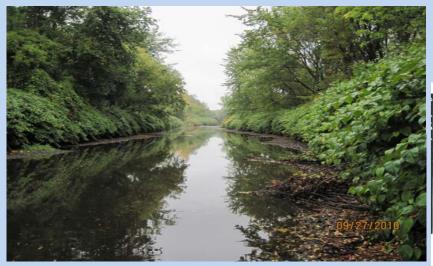
•June 25, 2015

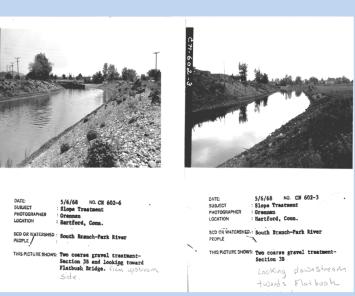
Meeting

Mandatory Pre-bid

- •September 16, 2015 Letter to local abutting residents and businesses regarding project status.
- October 1, 2015
 Preconstruction
 meeting with
 contractor, CTDEEP
 and towns

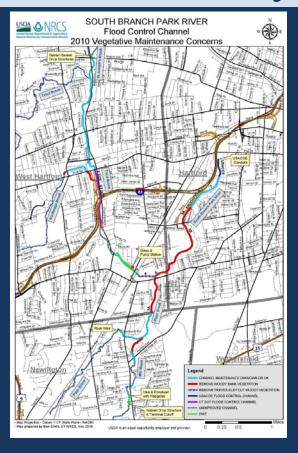








Project Scale



Overall project:

Vegetation Removal Type I – 15.2

acres

Vegetation Removal Type II – 36.2

acres

Sediment removal:

16 dewatering/stockpile sites

Approximately: 25,000 cubic yards

26 Construction entrances/exits



When work began







79 Elm Street • Hartford, CT 06106-5127

www.ct.gov/deep

Affirmative Action/Equal Opportunity Employer

September 17, 2015

Dear Resident/Business Owner.

The State of Connecticut Department of Energy and Environmental Protection (DEEP) under the direction of the United States Department of Agriculture's (USDA) Natural Resource Conservation Service (NRCS) will be performing required maintenance and repairs to the South Branch of the Park River (SBPR) which includes Trout, Rockledge and Piper Brook in West Hartford; Piper and Mill Brook in Newington and Park River down to Hamilton Avenue in Hartford. DEEP is required to perform this deferred maintenance in order for the flood control system to remain certified by NRCS.

The \$4.5 million dollar project will involve clearing trees and vegetation as well as sedimentation removal from the floodway along all reaches of these watercourses. Some concrete work will be performed on the floodwalls in various locations. This will require contractors to work in and along the existing watercourses. You may see equipment and workers in and next to watercourses as work progresses. This may include truck traffic on roads near your home. DEEP owns or has access easements along the watercourse through all properties to perform this work and will attempt to minimize the length of time the contractors will be performing work.

The SBPR flood control system was constructed starting in Hartford back in 1964 and the final (Piper/Mill Brook) section completed in 1991. The waterways involved were engineered to alleviate flooding in the upper reaches of the watershed by quickly moving flood waters out of the impacted areas. Removing decades old trees, vegetation and obstructions from these channels allows the system to function as designed. This work benefits all residents and businesses that live along the flood channel.

DEEP expects the work to commence daily (approximately 7 am to 4:30 pm) mid-October 2015 and continue through June 2016 (weather dependent). Dredging operations will involve working in the watercourse to remove accumulated sediments from existing sedimentation ponds. This work was last performed in 1999.

Please contact Dan Biron at (860) 424-3892 or dan.biron@ct.gov with any questions or concerns. Thank you.

Information, plans, photos and updates are available on the DEEP State Dam website:

http://www.ct.gov/deep/cwp/view.asp?a=2720&Q=554158&PM=1

South Branch Park River Flood Control System Maintenance Public Information Meeting West Hartford

November 4, 2015







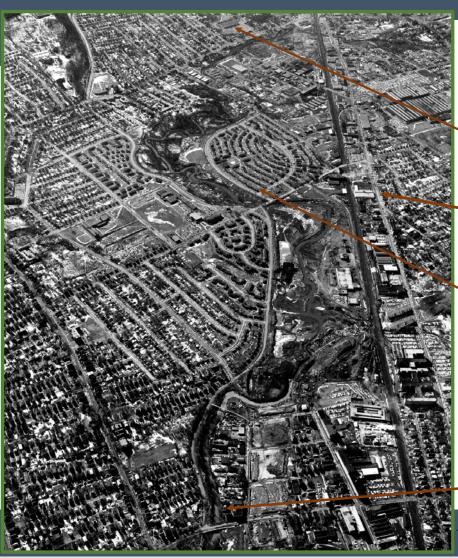
NRCS Overview Map from 2010 Inspection

South Branch Park River Overview

- Work commenced in Fall/Winter 2015
- Work completed August 2016







Park River in Hartford Circa 1964

New Britain Avenue

New Park Avenue

Flatbush Avenue

Hamilton Street Bridge

tal Protection





Pond #5 Trout Brook at Linbrook and Linard Roads







Hamilton Avenue Bridge Sediment Dam 07/22/2015

Hamilton Avenue Bridge Cleaned 01/13/2016

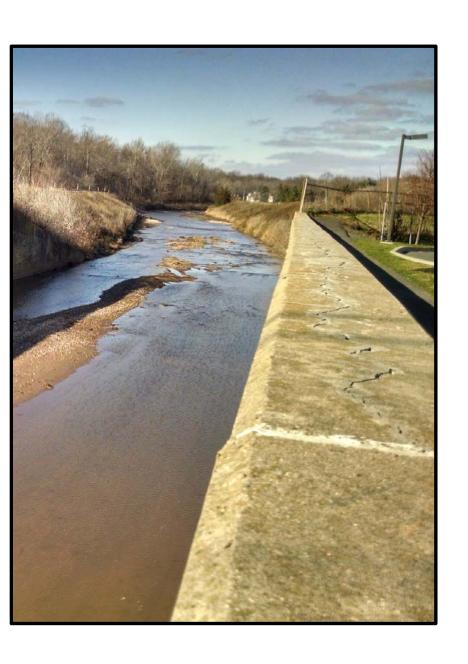






Sawcutting of Existing Floodwall on Trout Brook





Floodwalls – Before and After Repairs



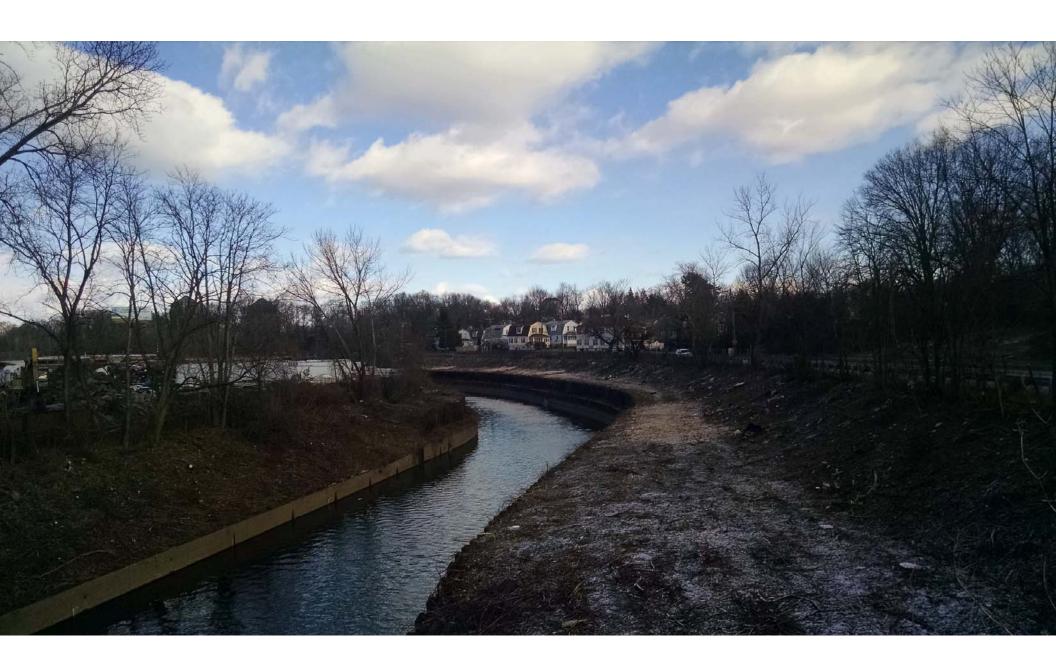


Park River Upstream of Newfield Avenue Bridge in Hartford

← BEFORE Maintenance











Final Cost to State Taxpayers- \$5,560,000.00

- Type I and II Vegetation Removal 260,000 yd² \rightarrow \$462,033.05
- Sediment Testing, Excavation and Disposal 27,423 yd³ \rightarrow \$2,902,447.18
- Concrete Floodwall Repairs \$76,900
- 2 Week Project Shutdown \$182,285.26
- West Hartford Neighborhood Enhancements -
 - Tree Plantings Linbrook/Linard Neighborhood -\$36,802.50
 - Southwood Neighborhood Field Underdrain \$51,683.75



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Questions?