Watershed Restoration Program and Purpose of the Sherwood Forest Stream Restoration Project

March 7, 2012
Westover Elementary School

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Introductions

- Claire O'Neill and Carol Ohl
  - U.S. Army Corps of Engineers (USACE)
- Bob Palmer
  - Rummel, Klepper & Kahl (RK&K)
- Doug Redmond
  - Maryland National Capital Park & Planning Commission (MNCPPC)
- Jennifer St. John, Paul Bogle and Craig Carson
  - Montgomery County Department of Environmental Protection (MCDEP)

Meeting Agenda

- 7:00 – Start of meeting; Poster session
- 7:30 – Presentation
- 8:00 – Q&A; Poster session
- 8:30 – End of meeting

Outline

- What is the Problem?
- Background on Project Selection
- Project Goals
- Problems & Opportunities
- 95% Design
- Typical Details
- Restoration Monitoring
- Schedule
- RainScapes Rebate Program

What is the Problem?

- Impervious (hard surfaces) = Increased runoff & pollutants
- Reduced groundwater recharge (infiltration)

- Streams eroded, incised

- Increased storm flows & decreased base flows

- Storm drain systems convey heated, dirty water directly to streams

- Infrastructure threatened

- Degraded aquatic habitat & water quality

What is the Problem?

- Stormwater Flows in Sherwood Forest Tributary, Sept 2011

What is the Problem?

- Stormwater Flows in Sherwood Forest Tributary, Sept 2011

- Videos: click to play

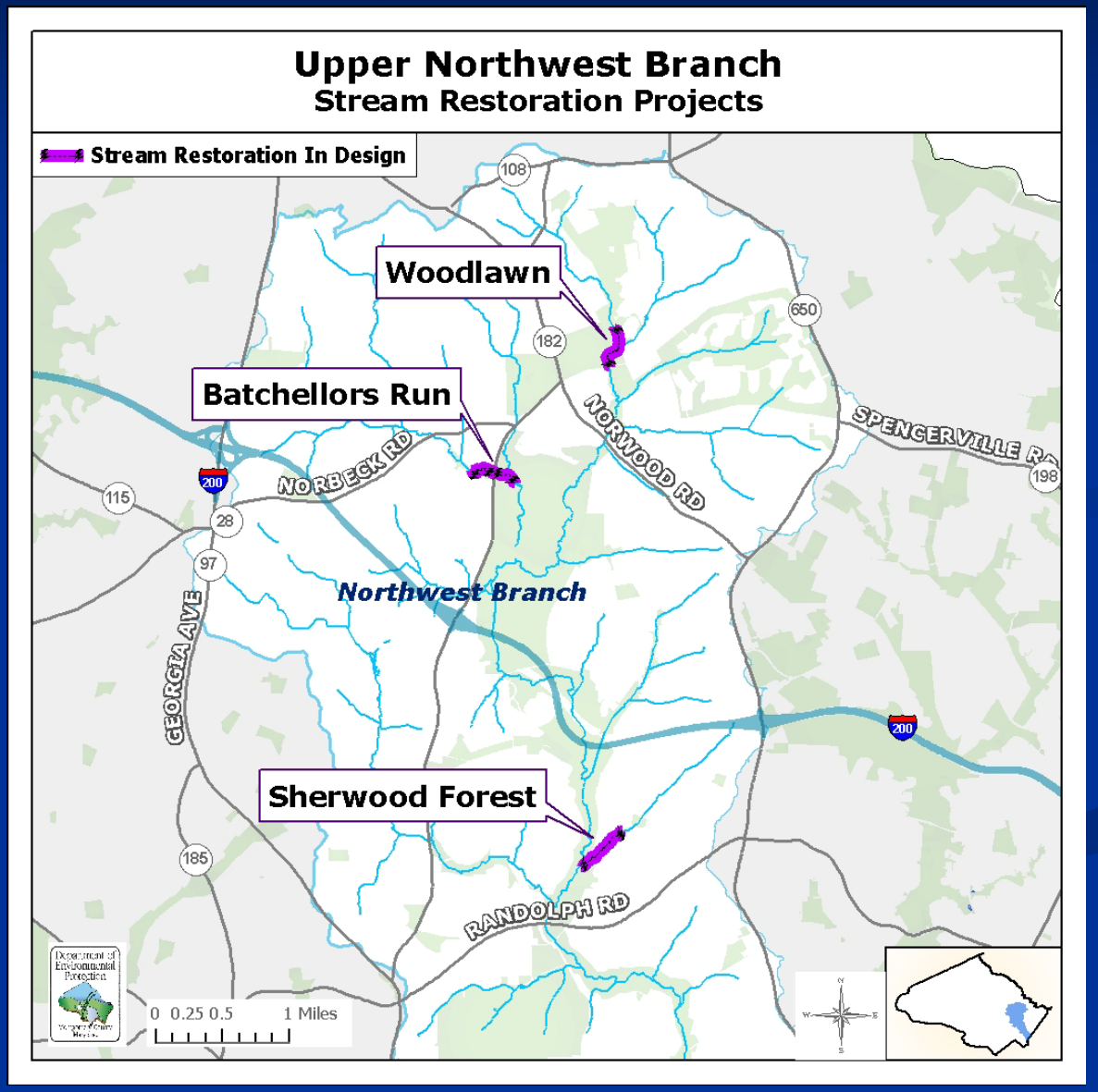
Background on Project Selection

- The Sherwood Forest tributary was identified as a priority for restoration in the Northwest Branch Watershed Feasibility Study (July 2000).

- Montgomery County's National Pollutant Discharge Elimination System (NPDES) Permit (issued in 2010) Requires:
  - New stormwater management for 20% of existing impervious area that is currently unmanaged (~ 4,300 acres).
  - Meet goals set forth in the "Potomac River Watershed Trash Treaty"
  - Identify pollution sources and improve water quality in all county watersheds
  - Increase use of Environmental Site Design (ESD), or Low Impact Development (LID)

Background on Project Selection

- Sherwood Forest tributary flows into the Northwest Branch watershed, and eventually the Anacostia River.
- Two other stream restoration projects planned in the Upper Northwest Branch to be completed with the Sherwood Forest stream restoration project: Batchellors Run and Woodlawn.



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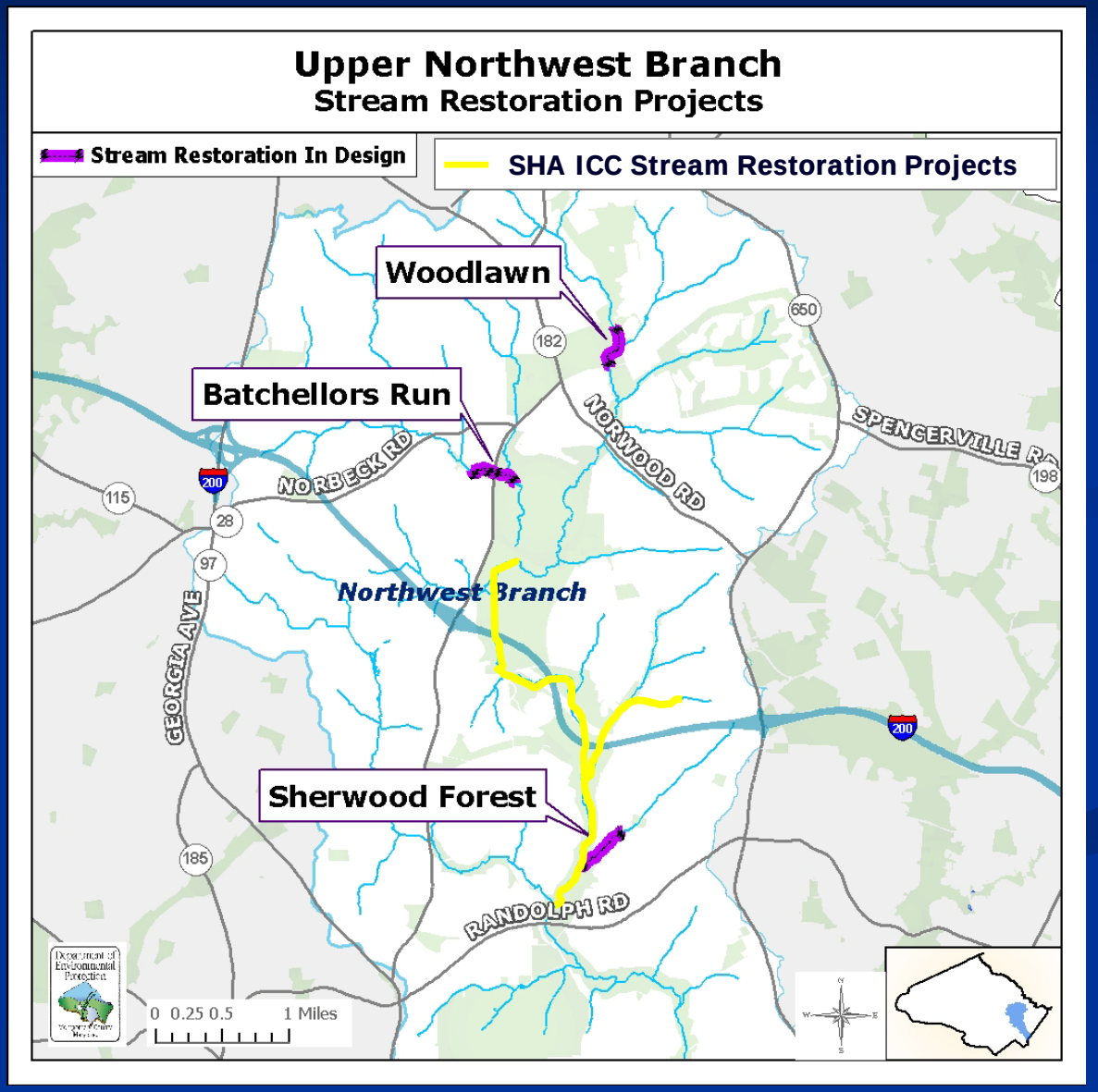
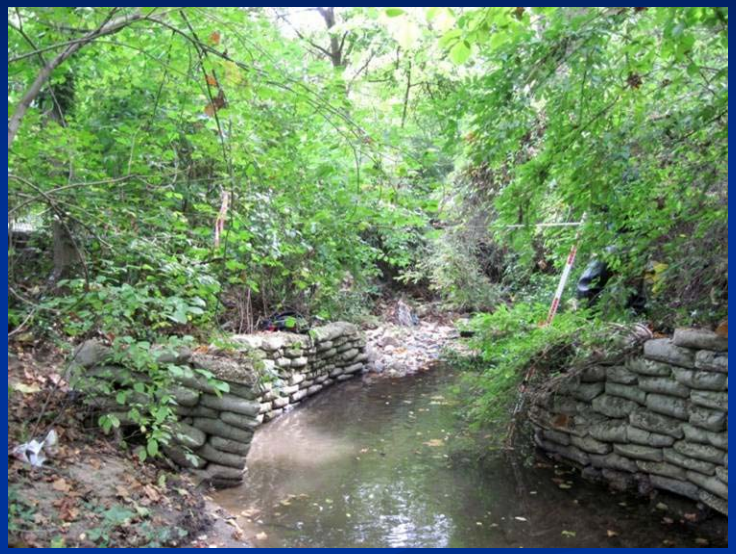


Project Goals

- Improve aquatic habitat by enhancing pool and riffle fish habitat and creating overhead cover for fish;
- Stabilize eroding streambanks to reduce sediment entering the stream;
- Reforest stream banks for added bank stability and overhead cover; and
- Construct wetlands for amphibian habitat and improved water quality.

Problems & Opportunities

- Channel Constrictions



Existing

Proposed

Problems & Opportunities

- Channel Constrictions
- Grade Control

Existing

Proposed

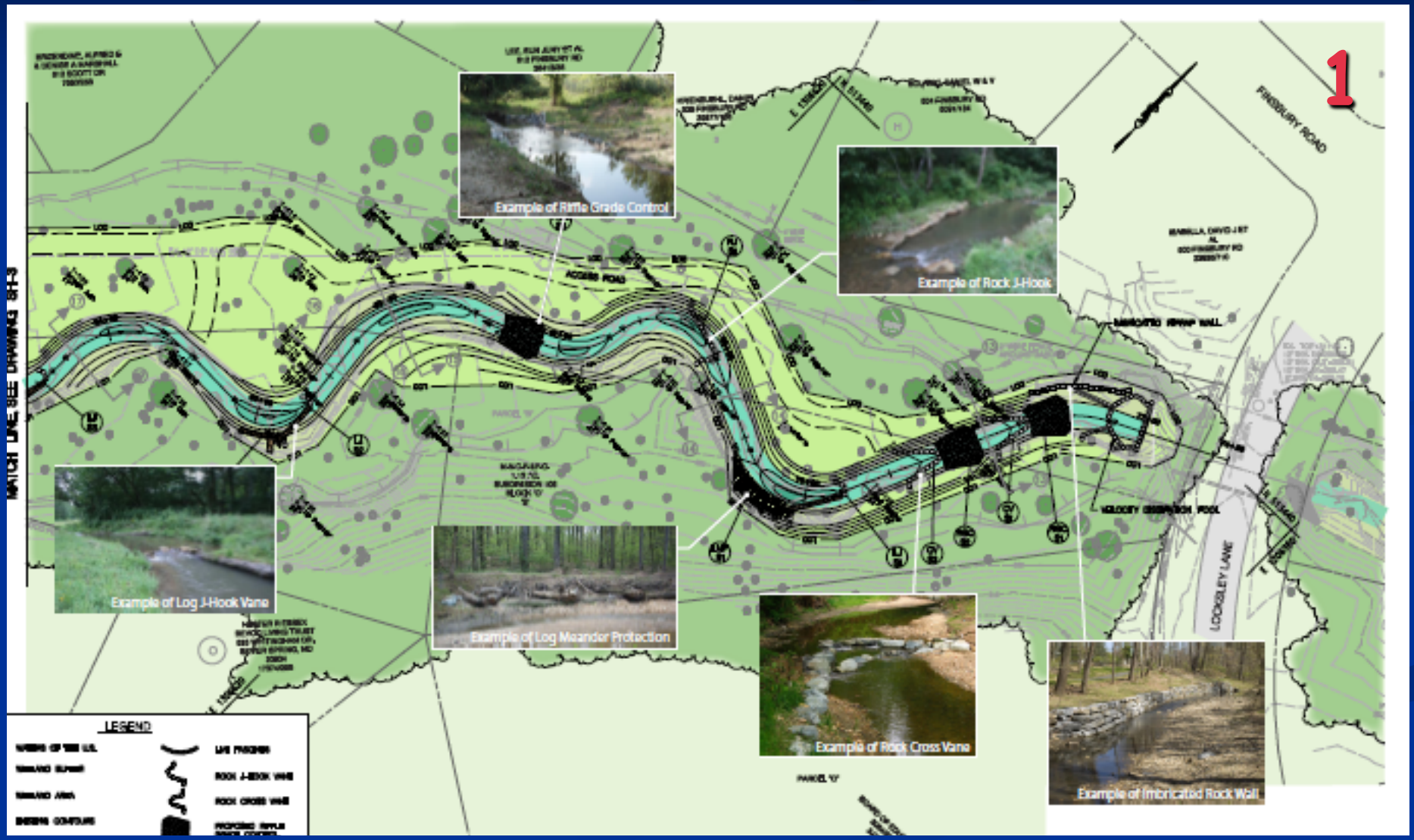
Problems & Opportunities

- Channel Constrictions
- Grade Control
- Eroded streambanks & inadequate stream buffers

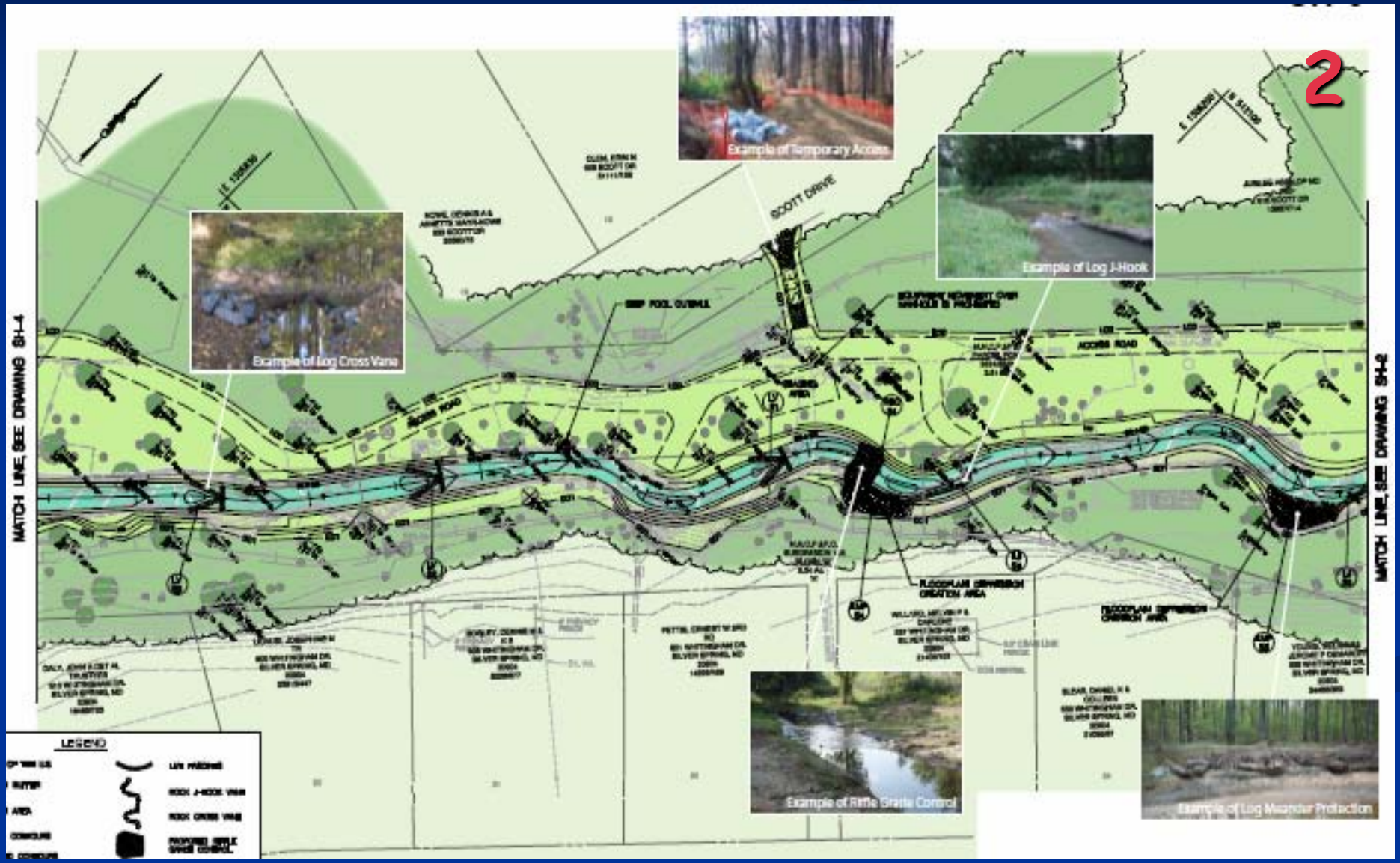
Existing

Proposed

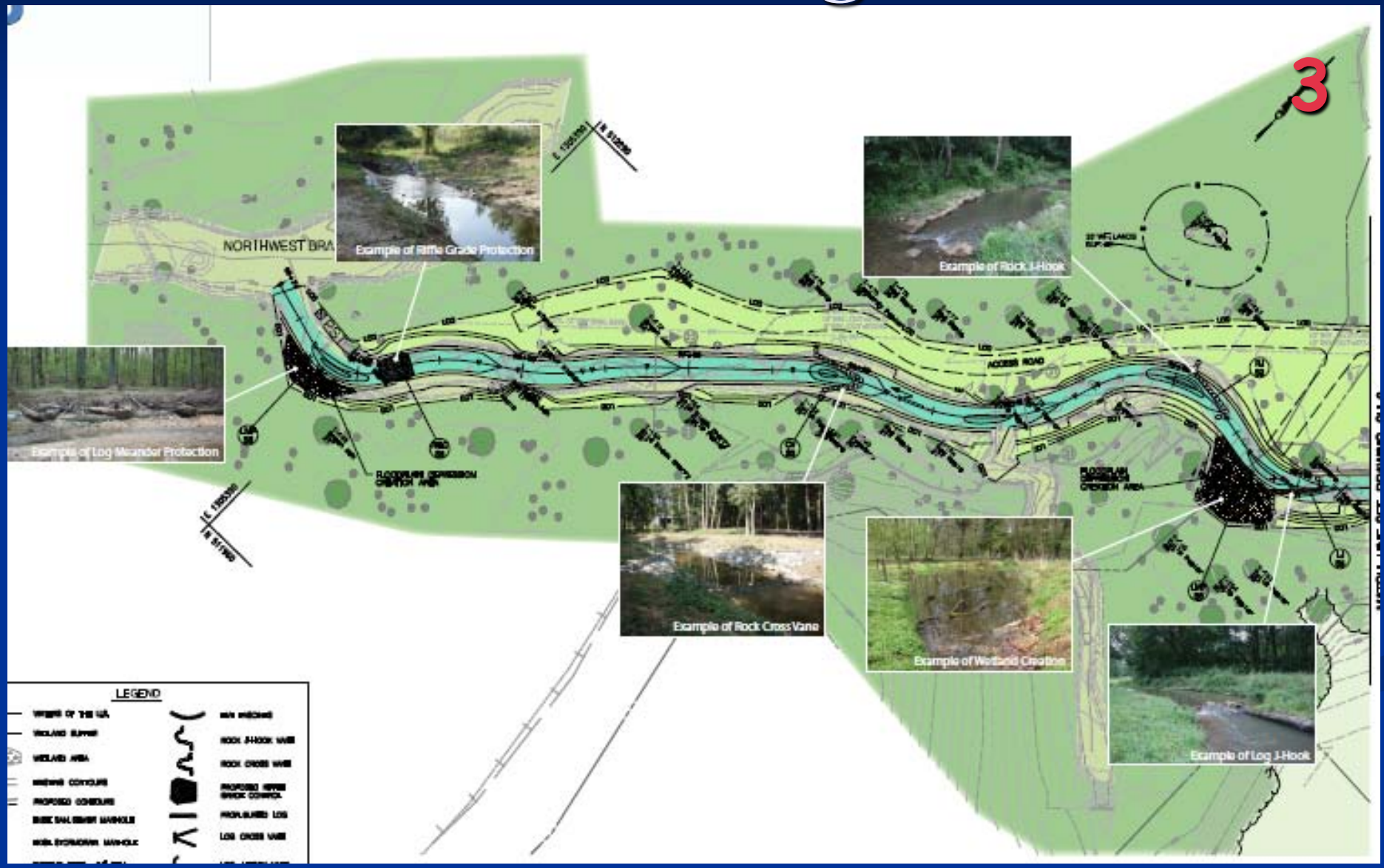
95% Design


1
Example of Riffle Grade Control
Example of Rock J-Hook
Example of Log J-Hook Vane
Example of Log Meander Protection
Example of Rock Cross Vane
Example of Imbricated Rock Wall
FINSBURY ROAD
LOCKSLEY LANE
ACCESS ROAD
LEGEND

95% Design

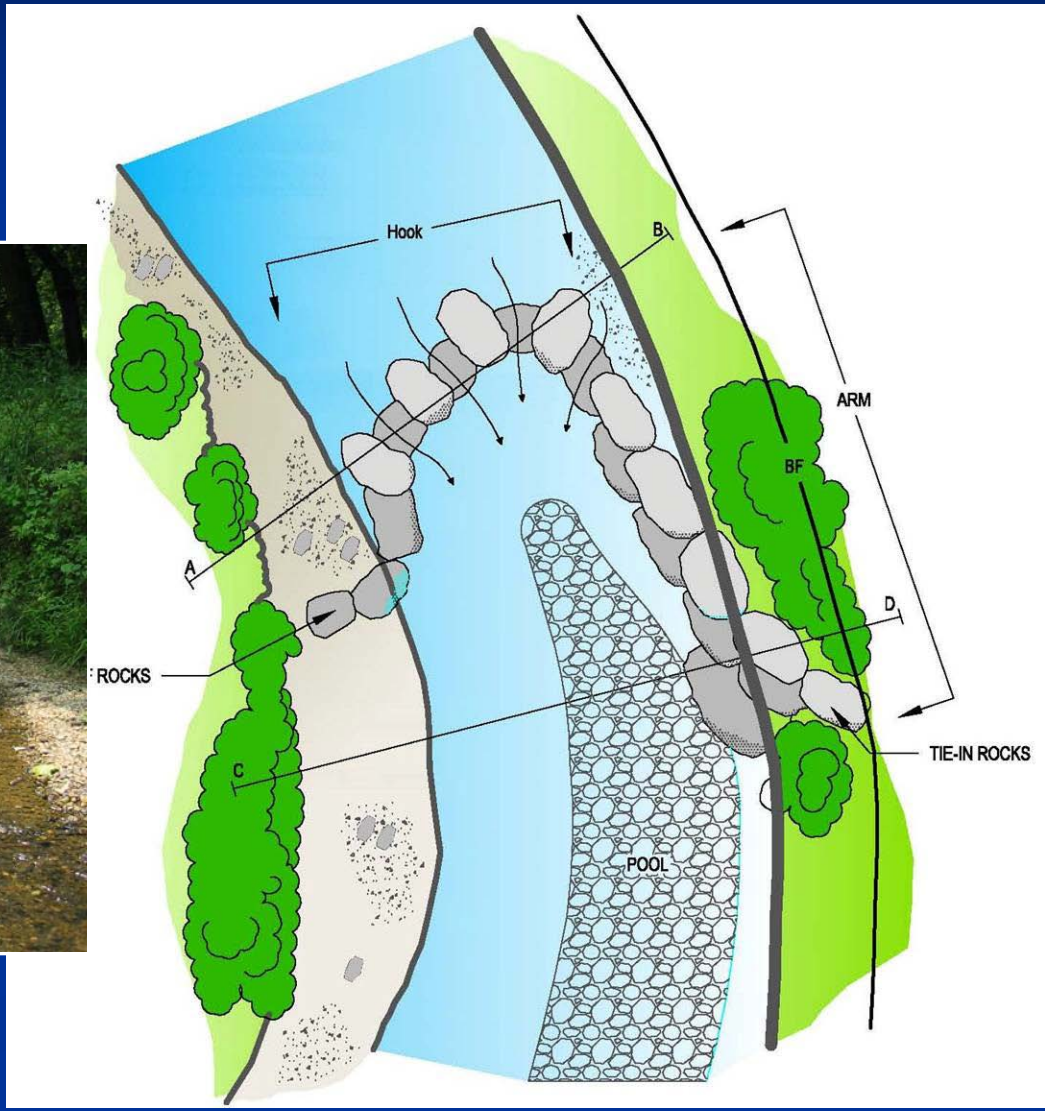

2
Example of Temporary Access
Example of Log J-Hook
Example of Log Cross Vane
Example of Riffle Grade Control
Example of Log Meander Protection
SCOTT DRIVE
ACORN ROAD
FLOODPLAIN DEPRESSION CREATION AREA
MATCH LINE SEE DRAWING SH-1
MATCH LINE SEE DRAWING SH-2
LEGEND

95% Design


3
Example of Riffle Grade Protection
Example of Rock J-Hook
Example of Log Meander Protection
Example of Rock Cross Vane
Example of Wetland Creation
Example of Log J-Hook
NORTHWEST BRA
ACCESS ROAD
LEGEND

Typical Details

- Boulder J-hook



Typical Details

- Boulder/ Log Boulder J-hook

Boulder J-Hook

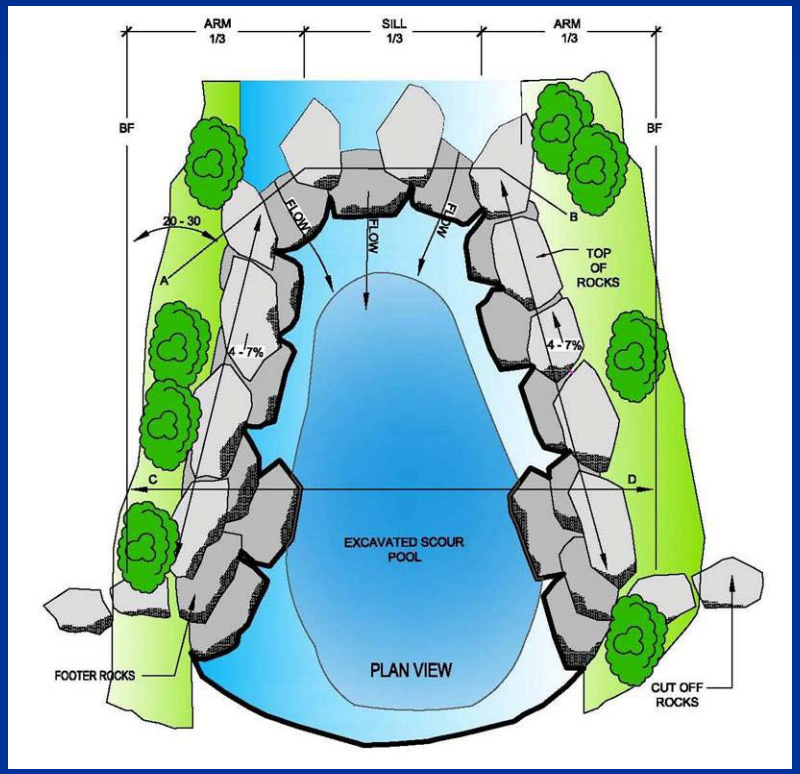
Log Boulder J-Hook

Typical Details

- Bankfull Bench

Typical Details

- Cross Vane



Typical Details

- Constructed Riffle

Typical Details

- Imbricated Rock Wall

Typical Details

- Log Meander Protection

Typical Details

- Temporary Construction Access

Typical Details

- Wetland Creation

Typical Details

- Wetland Creation

Typical Details

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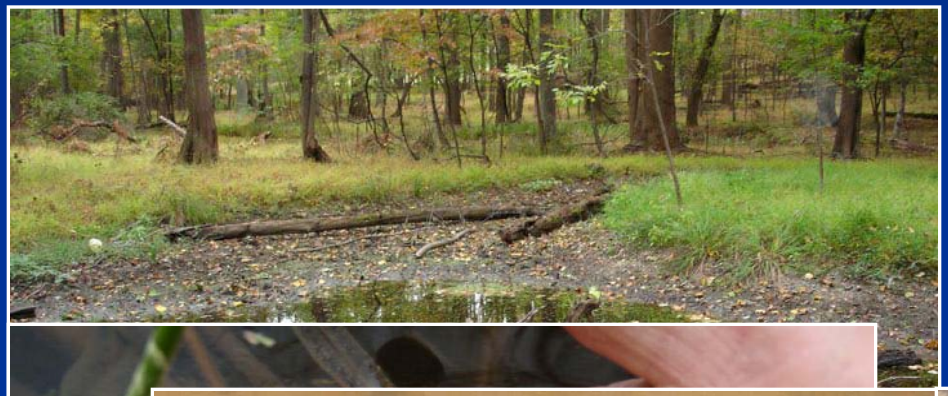
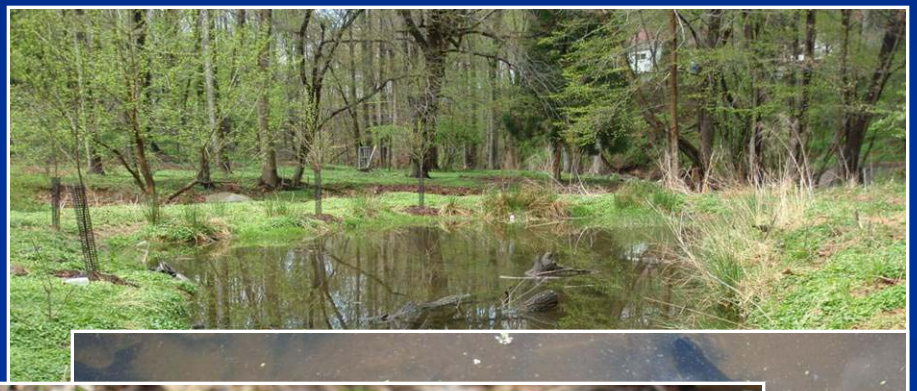
Typical Details

- Wetland Creation



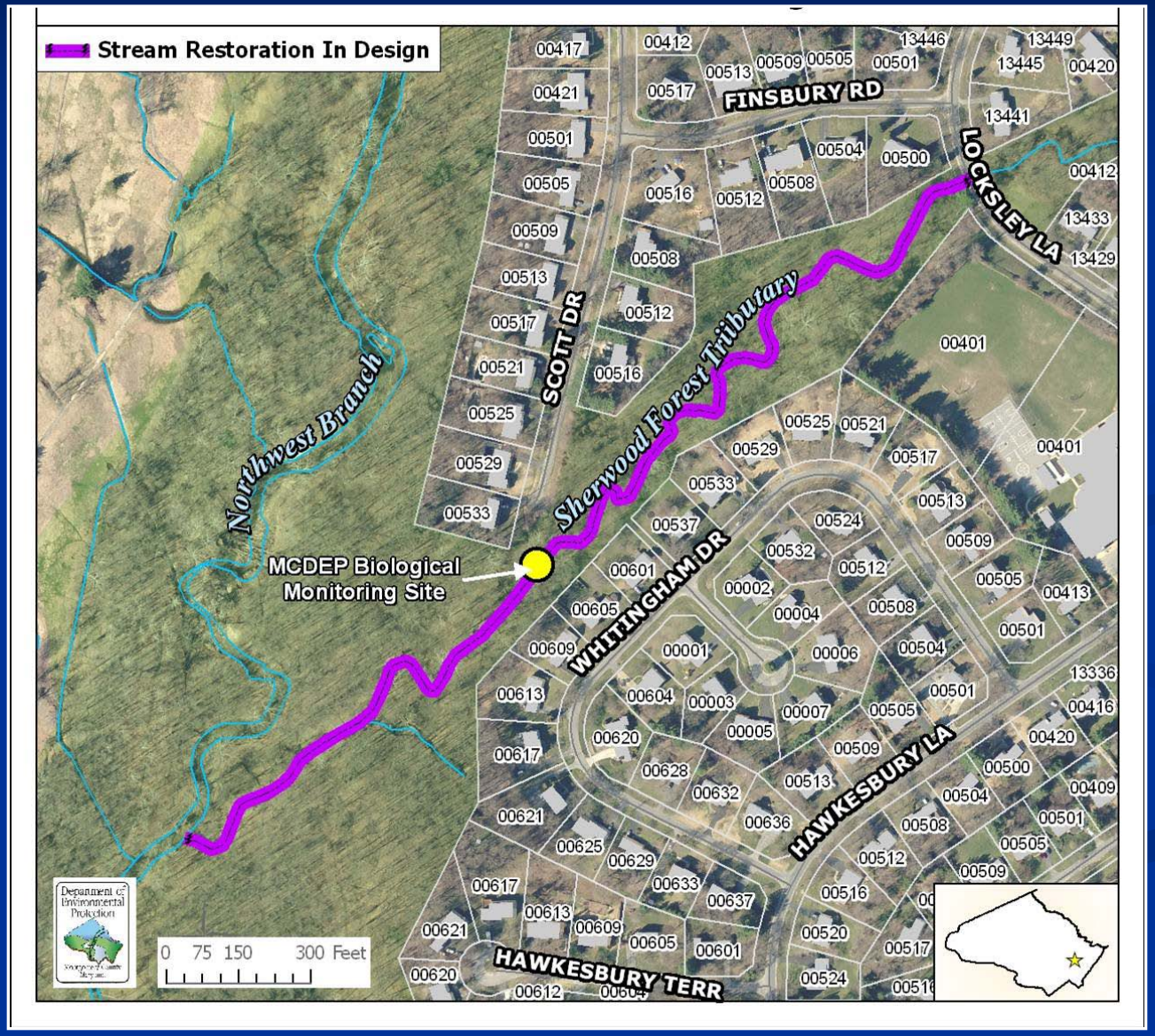


- **Maryland Amphibian & Reptile Atlas (MARA)**
  - Volunteers needed!
  - 5-year atlas documenting amphibian & reptile distributions in Maryland.
  - **www.marylandnature.org/mara/index.htm**

Restoration Monitoring

Project Goal	Monitoring
Improve aquatic habitat by enhancing pool and riffle fish habitat and creating overhead cover for fish	Benthic and Fish Sampling; Rapid Habitat Assessments, and Physical Chemistry Measurements
Stabilize eroding streambanks to reduce sediment entering the stream	Quantitative Surveys (Longitudinal profile, cross sections, bed material characterization, and Bank Erosion Hazard Index (BEHI), Photo-documentation)
Reforest streambanks and riparian area alongside stream for added bank stability and overhead cover	Botanical Reforestation Surveys; Photo-documentation
Construct wetlands for amphibian habitat and improved water quality	Wetland/ Vernal Pool Herpetofauna Surveys

Restoration Monitoring



Restoration Monitoring

Type	Sample Date	Percent Score	Condition
Benthics	4/23/2009	20	Poor
Fish	7/8/2009	64	Fair

Fish Found in 2009	
Blacknose Dace	Silverjaw Minnow
Rosyside Dace	Bluntnose Minnow
Longnose Dace	Tesselated Darter
White Sucker	Fantail Darter

Schedule

- Tentative Schedule (Subject to change):
  - March 2012 - Public outreach meeting
  - May 2012 – Public outreach field walk
  - May-June 2012 – Final designs
  - Aug-Sept 2012 – Award project to contractor
  - Jan-Dec 2013 - Construction

RainScapes Rebate Program

Maximum Rebate
for a Residential Property:

$1,200

RainScapes Techniques:

- Downspout Diversion
- Rain Barrels, Cisterns (water re-use)
- Rain Gardens
- Permeable Pavers
- Green Roofs
- Native/Naturalized Landscaping
- Urban Tree Canopy
- Pavement Removal
- Dry Wells
- Soil Reconditioning and Amendment

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Questions?