

Watershed Restoration Program and Purpose of the Batchellors Run & Woodlawn Stream Restoration Projects



Jennifer St. John, Watershed Planner
Paul Bogle, Engineer



Introductions

- Claire O'Neill and Carol Ohl
 - U.S. Army Corps of Engineers (USACE)
- Doug Redmond & Stephen Reid
 - Maryland National Capital Park & Planning Commission (M-NCPPC)
- Jennifer St. John, Paul Bogle, and Craig Carson
 - Montgomery County Department of Environmental Protection (MCDEP)

Meeting Agenda

- 6:30 – Start of meeting; Poster session
- 7:15 – Presentation
- 7:45 – Q&A; Poster session
- 8:30 – End of meeting

Outline

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

What is the Problem?

■ Impervious (hard surfaces)
= Increased runoff & pollutants

■ Reduced groundwater
recharge (infiltration)

■ Increased storm flows &
decreased base flows

■ Streams eroded, incised

■ Infrastructure threatened

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

■ Degraded aquatic habitat
& water quality



What is the Problem?

- Videos of Stormwater flows in the Batchellors Run Tributary, Sept 2011

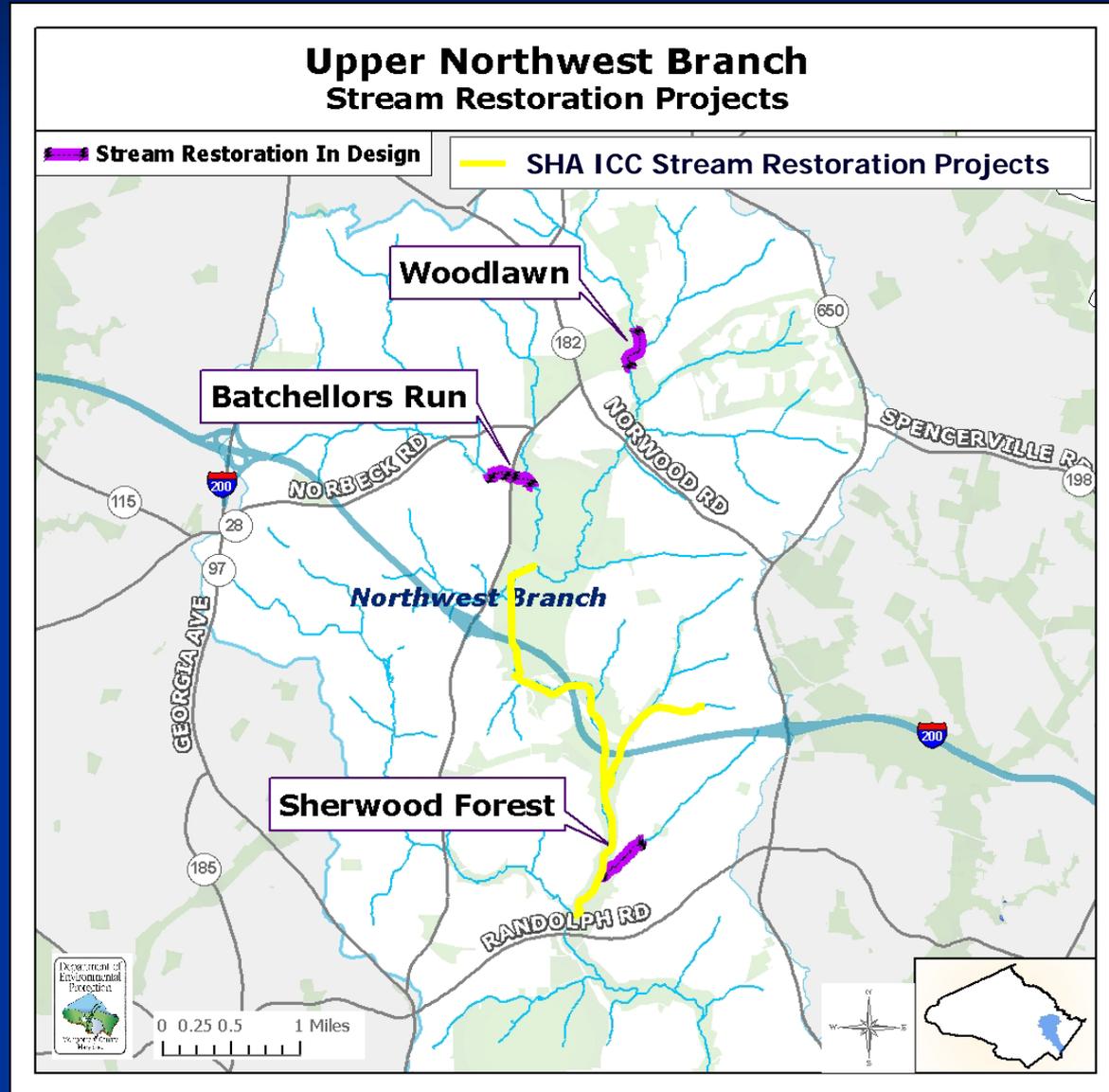


Background on Project Selection

- The Batchellors Run & Woodlawn tributaries were identified as priorities for restoration in the Northwest Branch Watershed Feasibility Study (July 2000).
- These sites were not found to be seriously degraded, but were selected as opportunities to maintain/improve stream stability that would otherwise continue to degrade.
- 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

- The Batchellors Run and Right Fork of the Northwest Branch (Woodlawn Tributary) flow into the Northwest Branch watershed, and eventually the Anacostia River.
- One other stream restoration project is planned in the Upper Northwest Branch to be completed with the Batchellors Run and Woodlawn restoration projects: Sherwood Forest

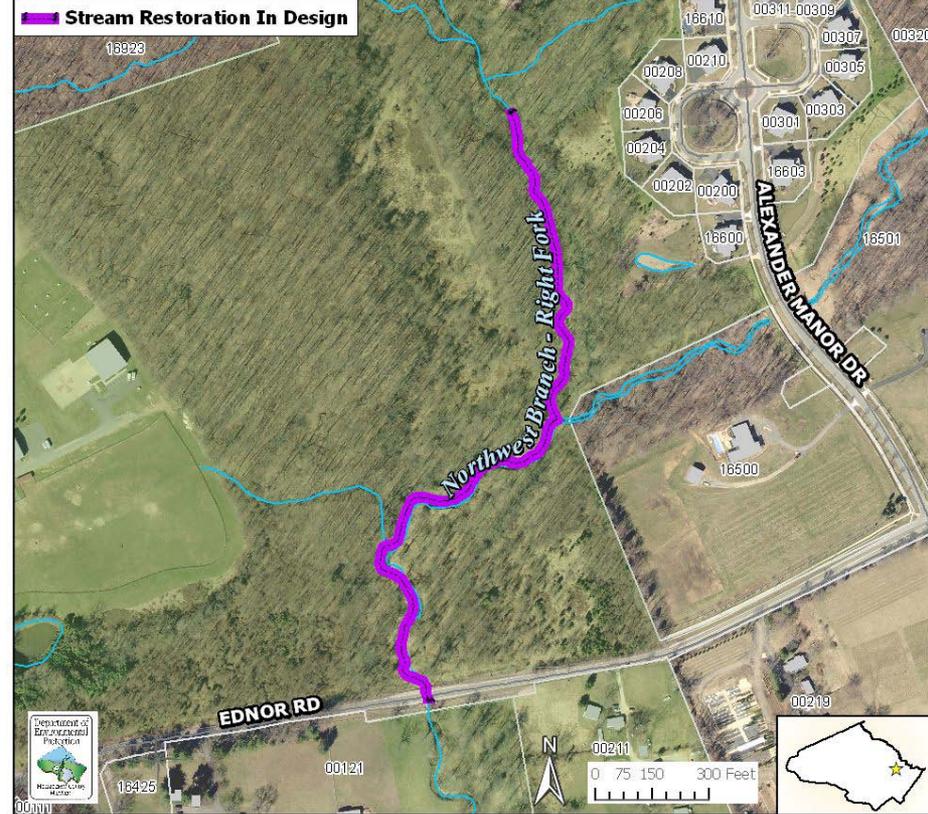


Project Locations

Batchellors Run Stream Restoration In Design



Woodlawn Stream Restoration In Design



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



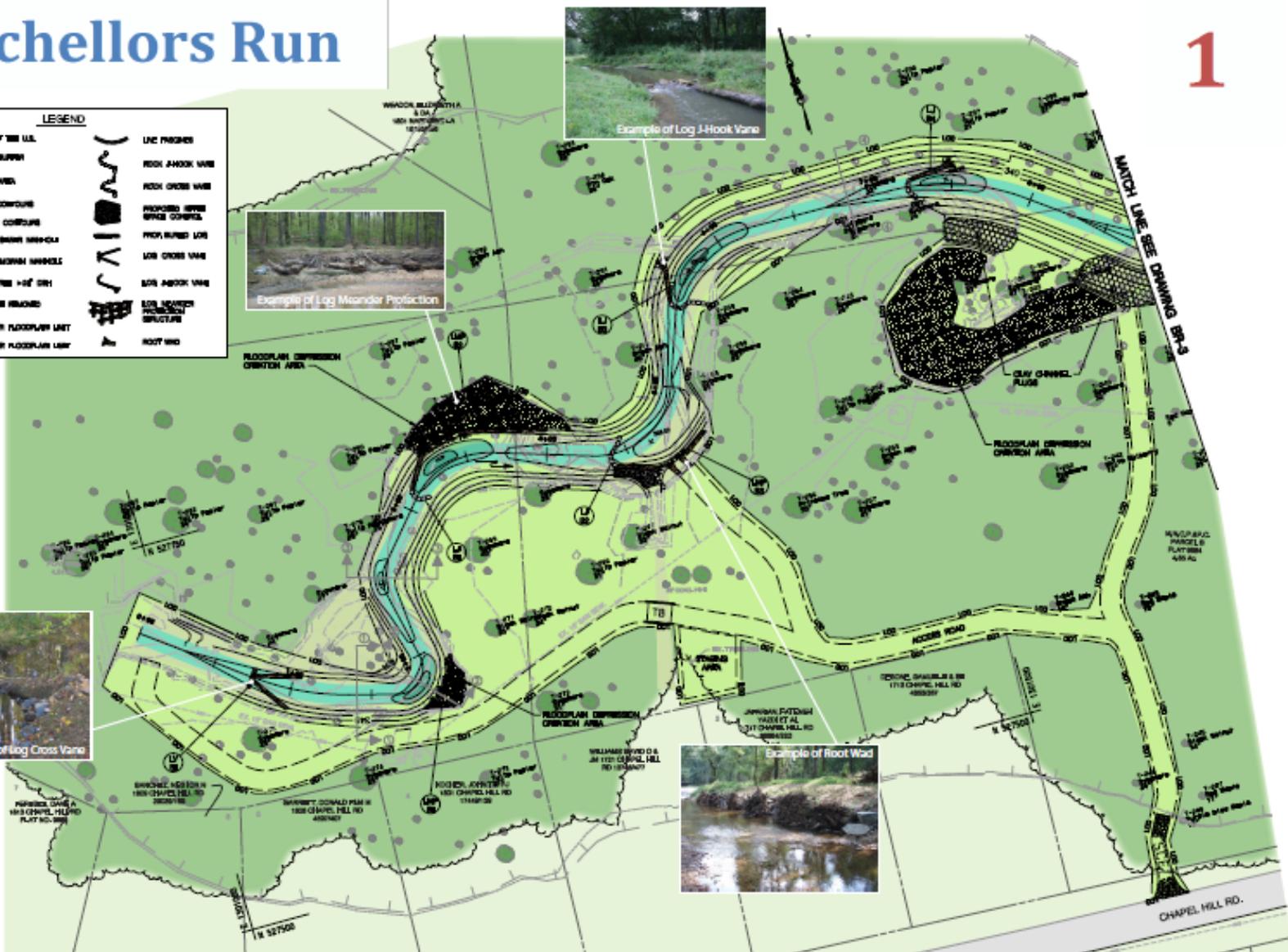
Proposed

Batchellors Run - 95% Design

Batchellors Run

1

| LEGEND | | | |
|-----------|------------------------------|---|---------------------------------|
| — 0-0 — | BOUNDARY OF THE U.S. | — | LINE PROPOSED |
| — 1-1 — | WETLAND BUFFER | — | ROCK SHOULDER VANE |
| — 2-2 — | WETLAND AREA | — | ROCK CROSS VANE |
| — 3-3 — | WETLAND CORRIDOR | — | PROPOSED BRIDGE |
| — 4-4 — | PROPOSED CORRIDOR | — | BRIDGE CONTROL |
| — 5-5 — | PROPOSED CORRIDOR | — | PROPOSED LOG |
| — 6-6 — | CIRCULAR BANK STRUCTURE | — | LOG CROSS VANE |
| — 7-7 — | CIRCULAR BANK STRUCTURE | — | LOG SHOULDER VANE |
| — 8-8 — | BRIDGE TRUSS +/OF CHN | — | LOG BRIDGE PROTECTION STRUCTURE |
| — 9-9 — | TYPE TO BE REMOVED | — | ROOT WAD |
| — 10-10 — | BRIDGE ROAD FLOODPLAIN LIMIT | | |
| — 11-11 — | PROPOSED FLOODPLAIN LIMIT | | |

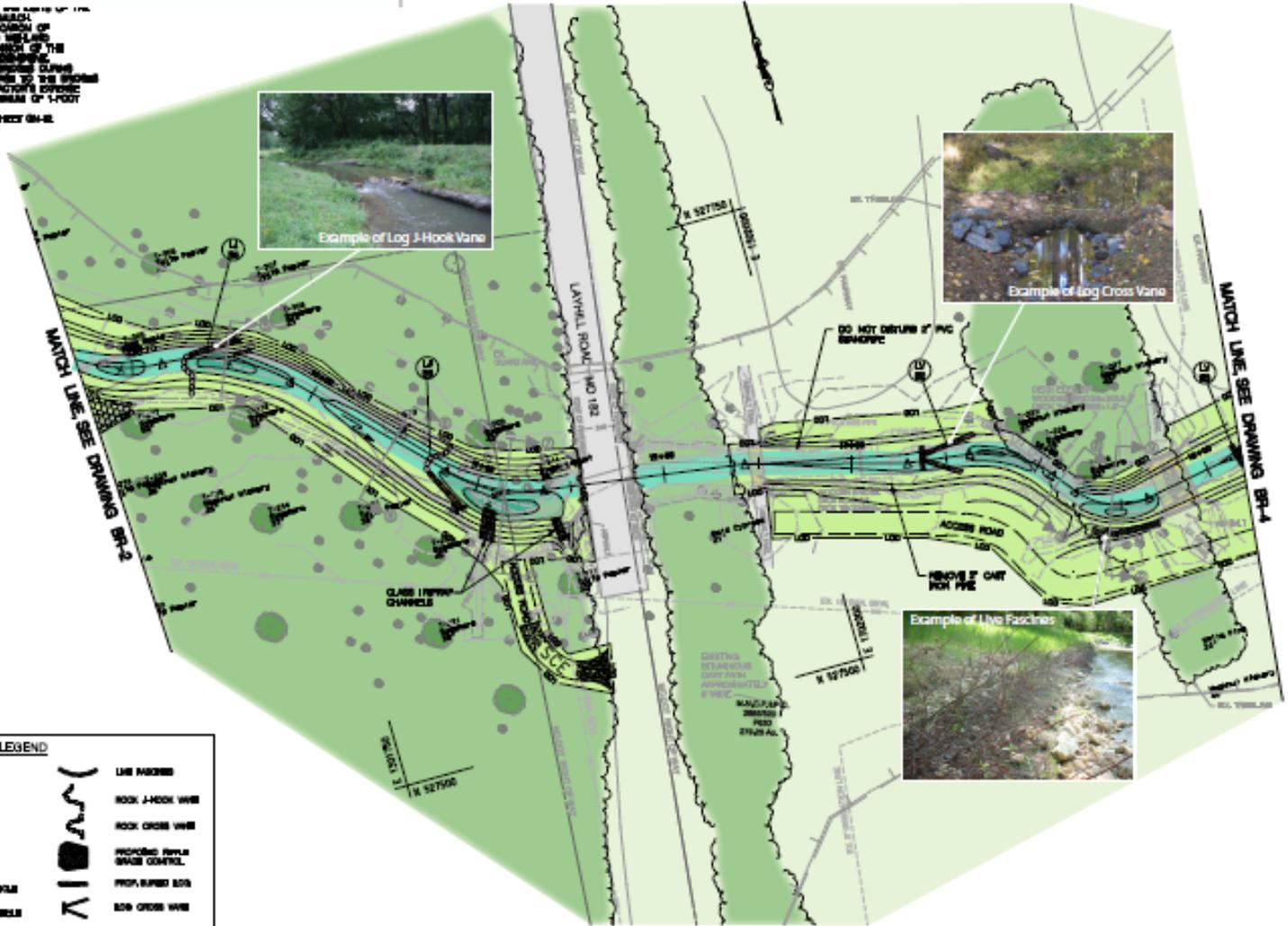


Batchellors Run - 95% Design

Batchellors Run

2

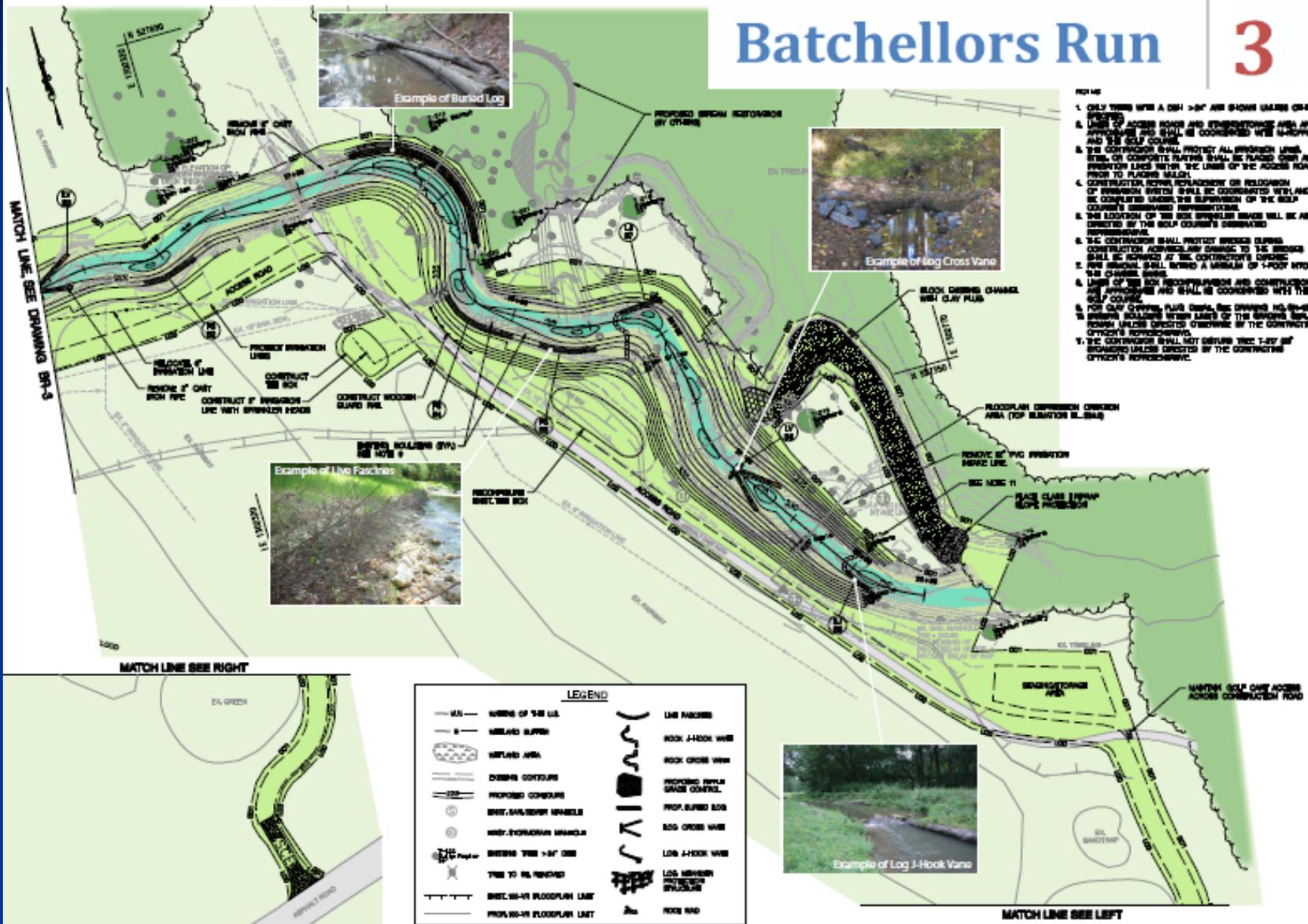
- Notes on Construction: Refer to the notes on sheet BR-1.
1. ACCESS ROAD NEAR TO PLACE BR-1.
 2. ALL POWER REPLACEMENT OR RELOCATION OF BR-1 SHALL BE COORDINATED WITH THE SOIL CONSERVATION SERVICE.
 3. ALL CONSTRUCTION SHALL PROTECT BR-1 DURING CONSTRUCTION ACTIVITIES DUE TO THE BR-1 SHALL BE REMOVED AT THE CONTRACTOR'S EXPENSE.
 4. THE FASCINES SHALL BE A MINIMUM OF 1-FOOT AND THE CHANNEL SHALL BE 1-FOOT.
 5. FOR RAINY CHANNEL, SEE SHEET BR-2.



| LEGEND | |
|----------|----------------------------|
| — U.S. — | WINGS OF THE U.S. |
| — S — | NATUREL BUFFER |
| — W — | WATERL AREA |
| — C — | EXISTING CONTOUR |
| — D — | PROPOSED CONTOUR |
| ⊙ | EXIST. SPLITTER MANHOLE |
| ⊙ | EXIST. RECTANGULAR MANHOLE |
| — F — | LIVE FASCINE |
| — J — | ROCK J-HOOK VANE |
| — C — | ROCK CROSS VANE |
| — S — | WICKING STRIP |
| — B — | SHADE CONTROL |
| — P — | PROP. RUPED LOG |
| — V — | LOG CROSS VANE |

Batchellors Run - 95% Design

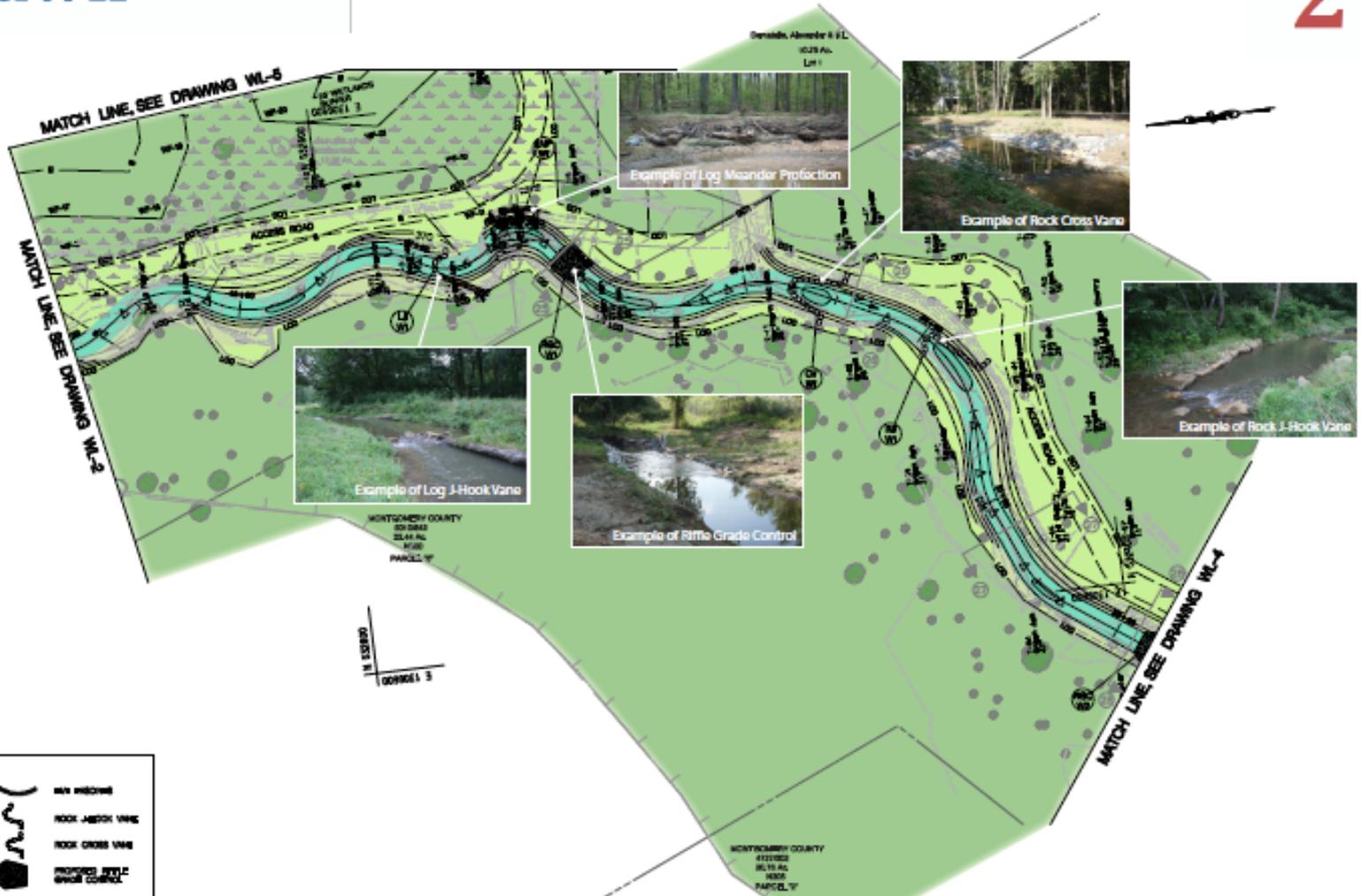
Batchellors Run 3



Woodlawn - 95% Design

Woodlawn

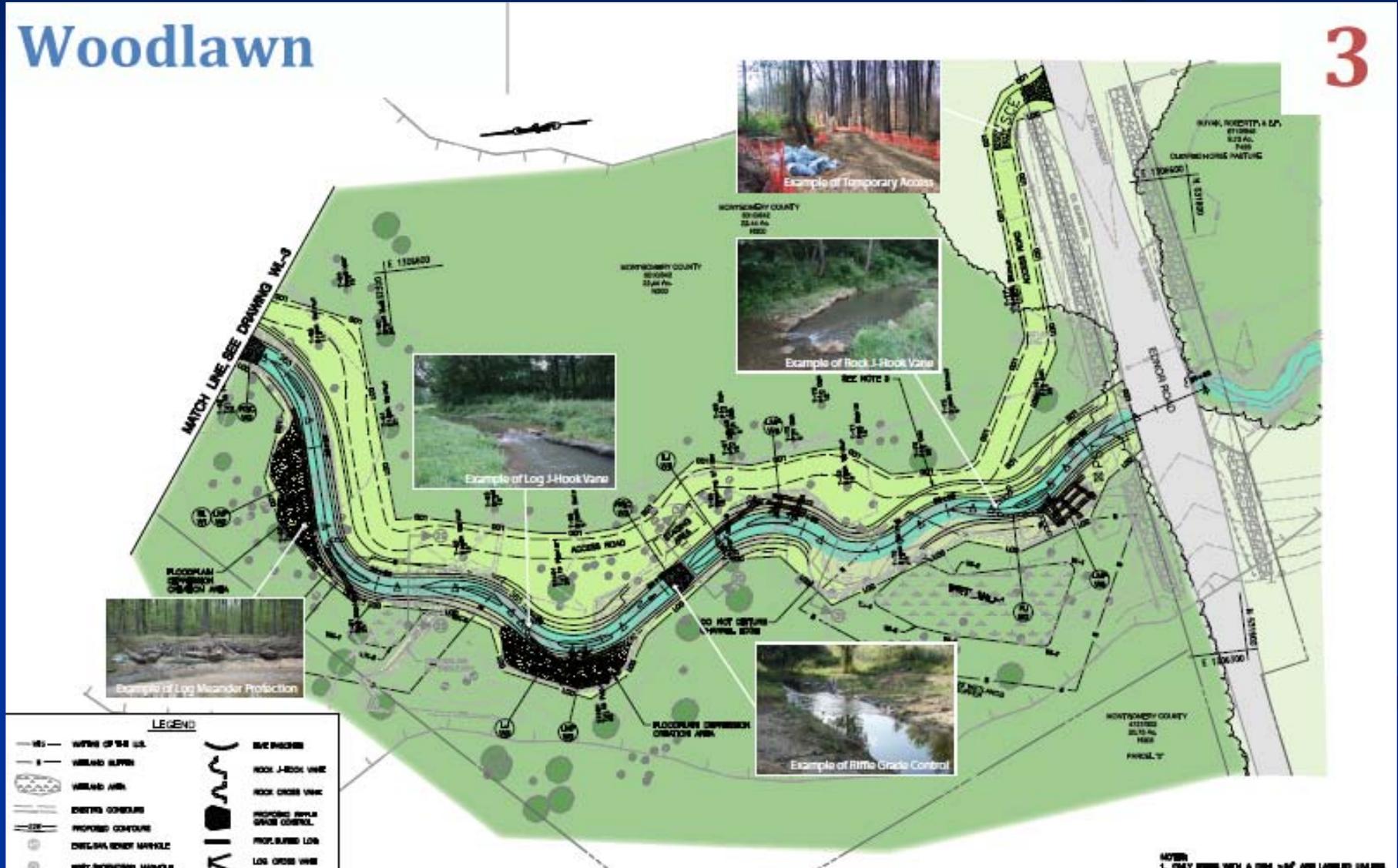
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Woodlawn - 95% Design

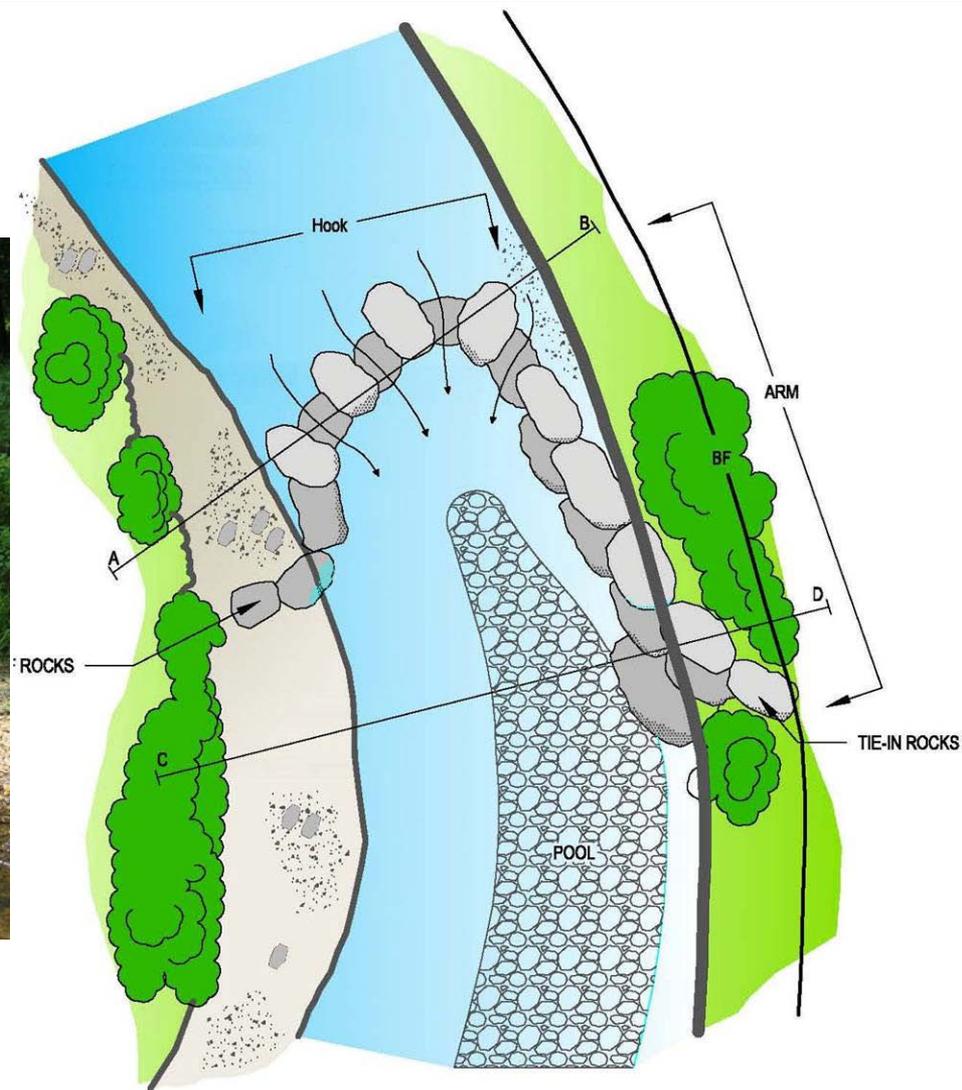
Woodlawn

3



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

■ Constructed Riffle



Typical Details

- Imbricated Rock Wall



Typical Details

- Temporary Construction Access



Typical Details

■ Wetland Creation



Typical Details

■ Wetland Creation



Typical Details

■ Wetland Creation



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

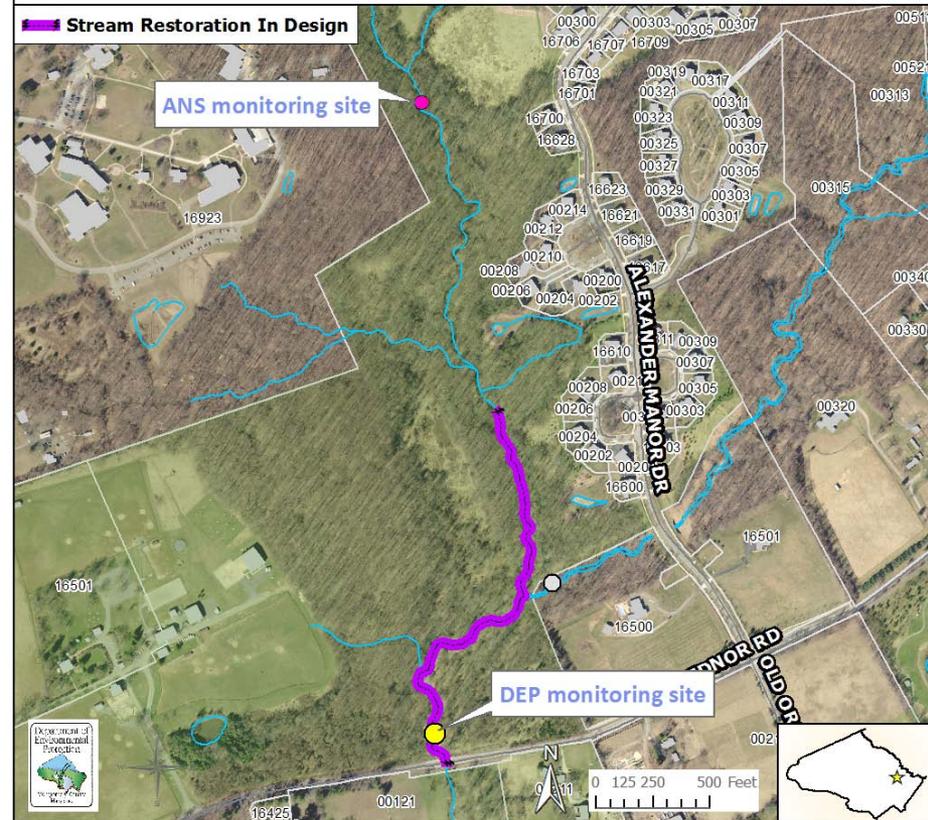
| Project Goal | Monitoring |
|--|---|
| Improve aquatic habitat by enhancing pool and riffle fish habitat and creating overhead cover for fish | Benthic and Fish Sampling; Rapid Habitat Assessments, and Physical Chemistry Measurements |
| Stabilize eroding streambanks to reduce sediment entering the 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

Batchellors Run Stream Restoration Monitoring Sites



Woodlawn Stream Restoration Monitoring



Restoration Monitoring

Benthic Macroinvertebrates

| Site Location | Sample Date | Percent Score | Condition |
|--|-------------|---------------|-------------|
| Batchellors Run, West of Layhill Rd | 4/23/2009 | 45 | Fair |
| Batchellors Run, East of Layhill Rd | 4/22/2009 | 60 | Fair |
| Woodlawn, just north of Ednor Rd | 4/22/2009 | 73 | Good |



Restoration Monitoring

Benthic Macroinvertebrates

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Fish

| Site Location | Sample Date | Percent Score | Condition |
|-------------------------------------|-------------|---------------|-----------|
| Batchellors Run, West of Layhill Rd | 8/4/2009 | 60 | Fair |
| Batchellors Run, East of Layhill Rd | 8/25/2009 | 64 | Fair |
| Woodlawn, just north of Ednor Rd | 6/24/2009 | 68 | Fair |



rest

h Day 08

Office

1 2 3

30 Time



| | |
|-----|--|
| 42 | |
| 127 | |
| 20 | |
| 3 | |

Restoration Monitoring

| Woodlawn - Fish Found in 2009 | |
|-------------------------------|--------------|
| Species | Tolerance |
| Blacknose dace | Tolerant |
| Bluntnose minnow | Tolerant |
| Creek chub | Tolerant |
| Cutlips minnow | Intermediate |
| E. silvery minnow | Intermediate |
| Fantail darter | Intermediate |
| Largemouth bass | Tolerant |
| Longnose dace | Intermediate |
| Redbreast sunfish | Tolerant |
| Rosyside dace | Intermediate |
| Silverjaw minnow | Intermediate |
| Spottail shiner | Intermediate |
| Swallowtail shiner | Tolerant |
| Tessellated darter | Tolerant |
| White sucker | Tolerant |



| Batchellors Run - Fish Found in 2009 | | | |
|--------------------------------------|--------------|---------------------------------|--------------|
| West of Layhill Rd (Upstream) | | East of Layhill Rd (Downstream) | |
| Species | Tolerance | Species | Tolerance |
| American eel | Intermediate | American eel | Intermediate |
| Blacknose dace | Tolerant | Blacknose dace | Tolerant |
| Bluegill | Tolerant | Bluegill | Tolerant |
| Bluntnose minnow | Tolerant | Bluntnose minnow | Tolerant |
| Creek chub | Tolerant | Common shiner | Intermediate |
| Cutlips minnow | Intermediate | Cutlips minnow | Intermediate |
| Fantail darter | Intermediate | Fantail darter | Intermediate |
| Green sunfish | Tolerant | Green sunfish | Tolerant |
| Largemouth bass | Tolerant | Largemouth bass | Tolerant |
| Longnose dace | Intermediate | Longnose dace | Intermediate |
| Redbreast sunfish | Tolerant | Pumpkinseed | Tolerant |
| Rosyside dace | Intermediate | Redbreast sunfish | Tolerant |
| Silverjaw minnow | Intermediate | Rosyside dace | Intermediate |
| Spottail shiner | Intermediate | Silverjaw minnow | Intermediate |
| Swallowtail shiner | Tolerant | Spotfin shiner | Intermediate |
| Tessellated darter | Tolerant | Spottail shiner | Intermediate |
| White sucker | Tolerant | Swallowtail shiner | Tolerant |
| | | Tessellated darter | Tolerant |
| | | White sucker | Tolerant |



Schedule

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

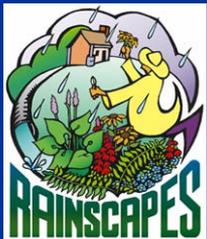
RainScapes Rebate Program

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



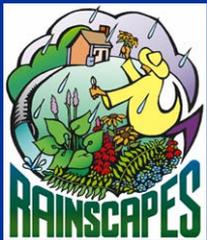
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Questions?

