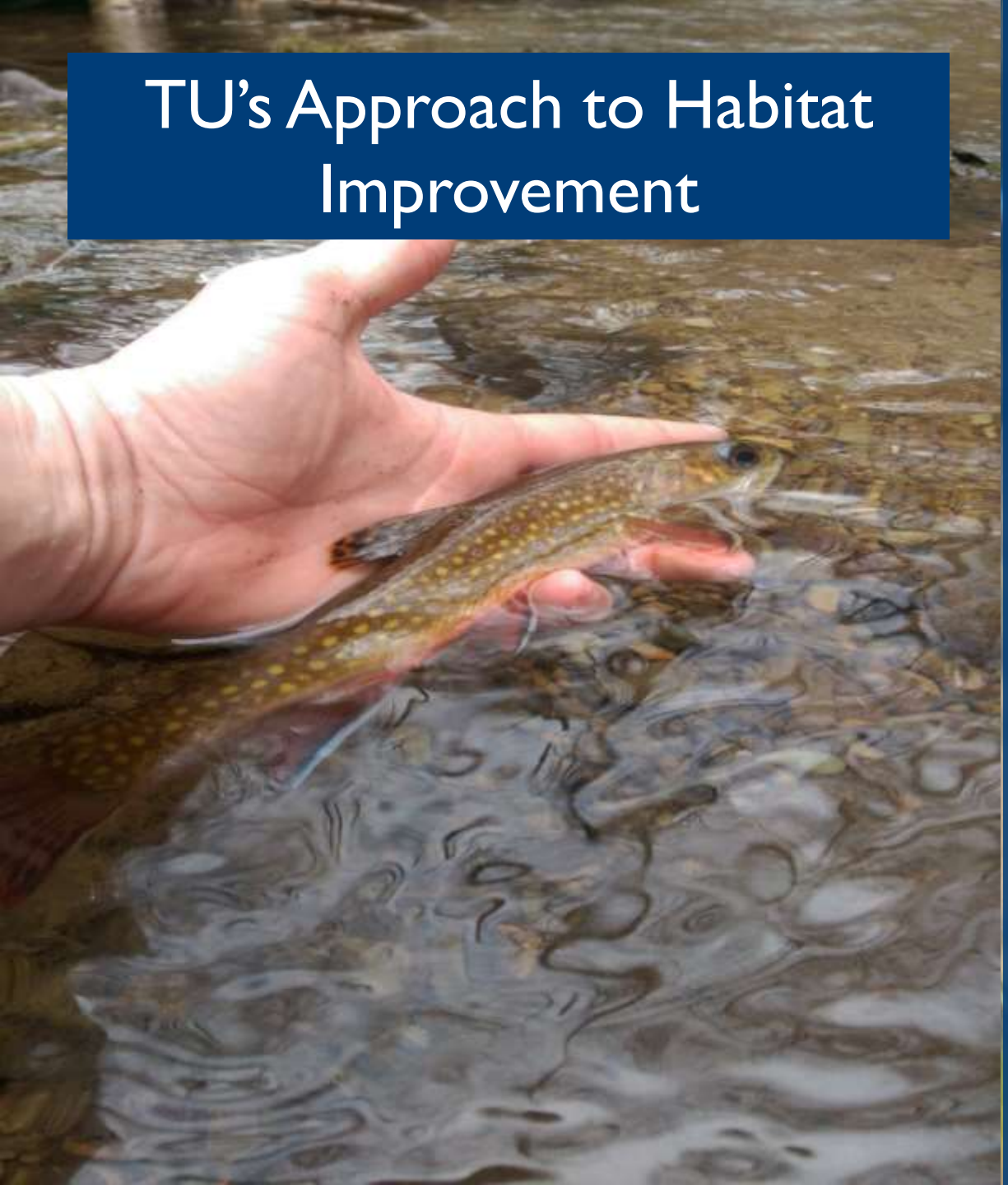
TU's Approach to Habitat Improvement



TROUT UNLIMITED

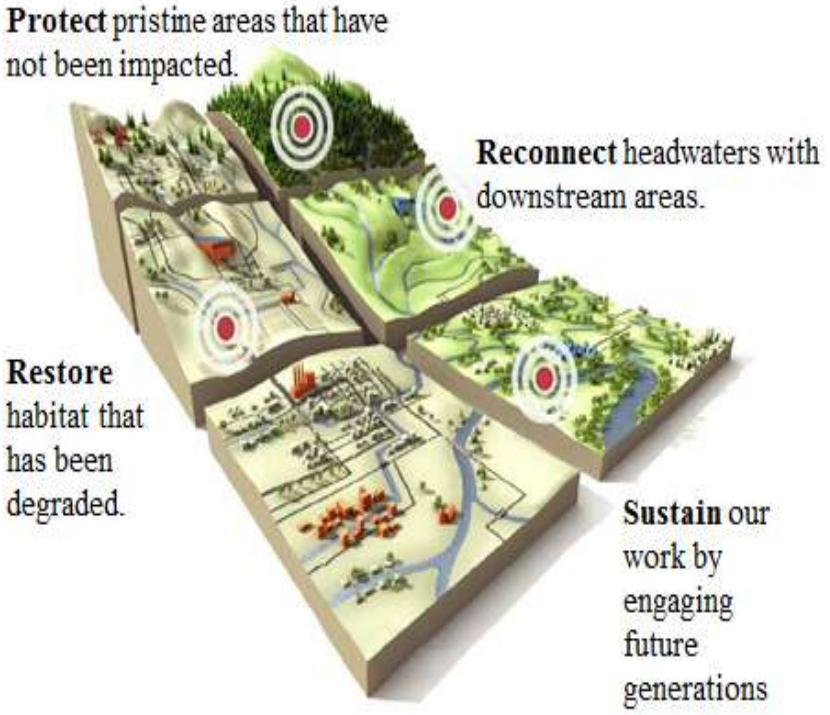
Phil Thomas

Pennsylvania Coldwater Habitat Restoration Program

Habitat Project Coordinator

pthomas@tu.org

Trout Unlimited overview in Pennsylvania



Mission – To conserve, protect, and restore North America's coldwater fisheries and their watersheds

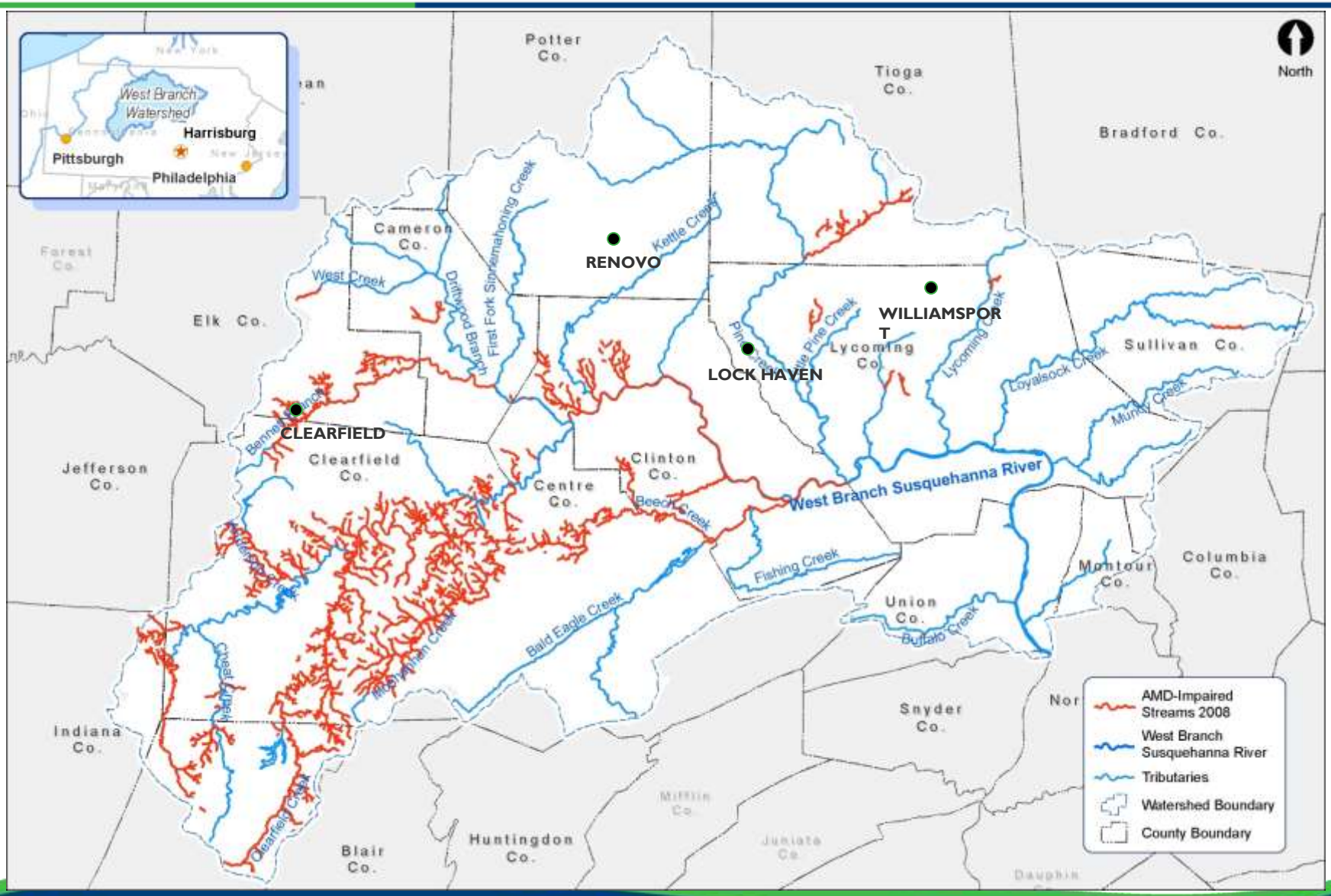
Abandoned Mine Drainage

- AMD Technical Assistance Program
- On-the-ground AMD remediation
- Biological surveys
- Recovery research and monitoring

Coldwater Habitat

- Design and permitting assistance
- Instream habitat improvement
- Dirt and gravel road improvement
- Riparian reforestation
- Aquatic organism passage (AOP) assessment
- Culvert replacement

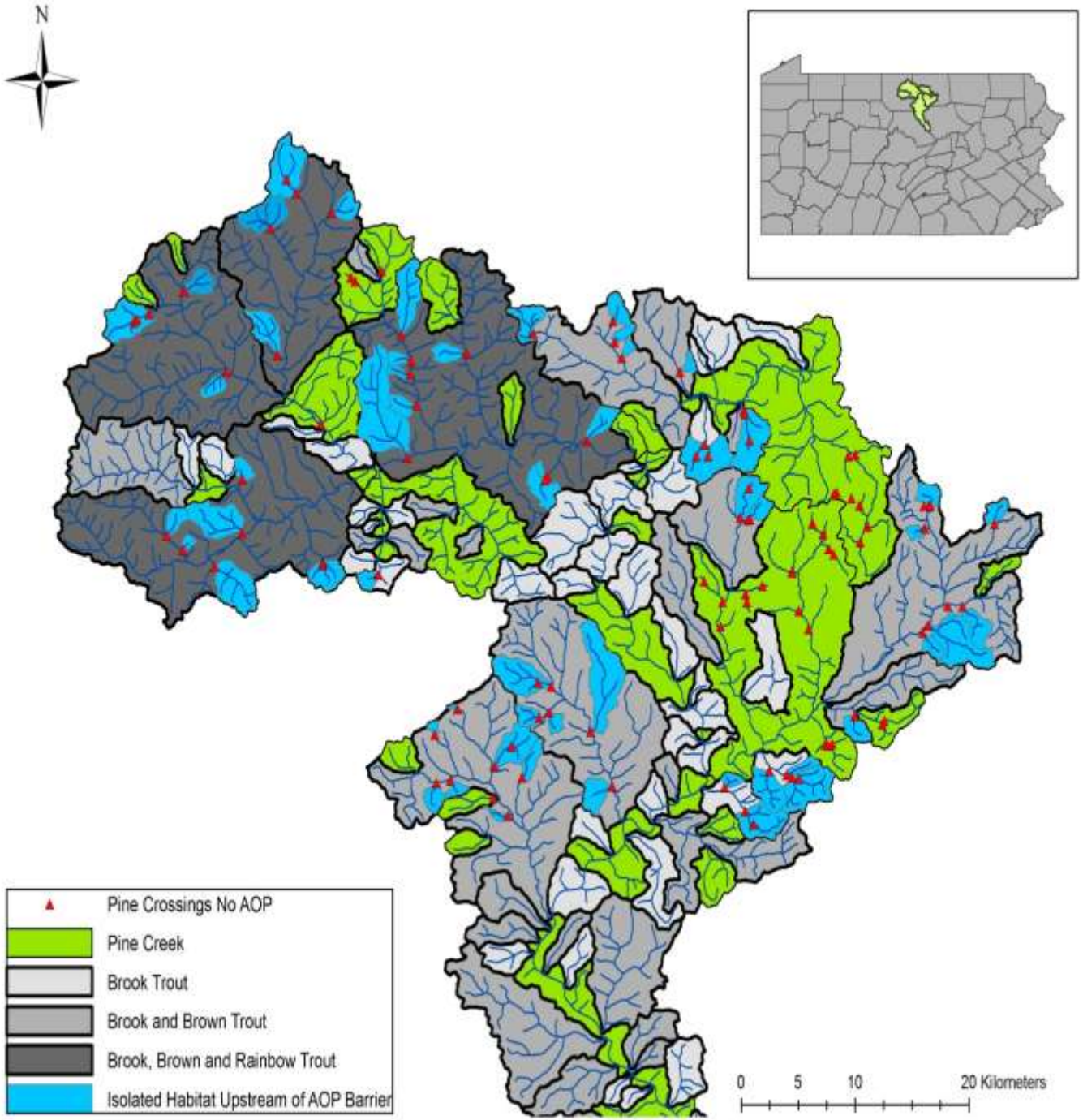
Focus Area


West Branch Watershed
Harrisburg
Pittsburgh
Philadelphia
North
Potter Co.
Tioga Co.
Bradford Co.
Cameron Co.
Forest Co.
Elk Co.
Jefferson Co.
Clearfield Co.
Centre Co.
Clinton Co.
Sullivan Co.
Lycoming Co.
Columbia Co.
Montour Co.
Union Co.
Snyder Co.
Indiana Co.
Blair Co.
Huntingdon Co.
Mifflin Co.
Juniata Co.
Dauphin Co.
RENOVO
WILLIAMSPORT
LOCK HAVEN
CLEARFIELD
West Branch Susquehanna River
Kettle Creek
First Fork Sinnemahoning Creek
West Creek
Pine Creek
Lycoming Creek
Loyalsock Creek
Muncy Creek
Beech Creek
Fishing Creek
Bald Eagle Creek
Buffalo Creek
Clearfield Creek
AMD-Impaired Streams 2008
West Branch Susquehanna River
Tributaries
Watershed Boundary
County Boundary

Habitat Improvement

Aquatic organism passage (AOP)

Aquatic organism passage (AOP) is the ability of aquatic and semi aquatic organisms to utilize upstream and downstream habitat through or beneath human infrastructure such as culverts, bridges, diversions, and dams.


N
Pine Crossings No AOP
Pine Creek
Brook Trout
Brook and Brown Trout
Brook, Brown and Rainbow Trout
Isolated Habitat Upstream of AOP Barrier
0
5
10
20 Kilometers


Lecks Road

Dirt and Gravel Road Improvements

Riparian Buffer plantings

Approximately 0.9 acres

What's needed for a Instream Structure Project

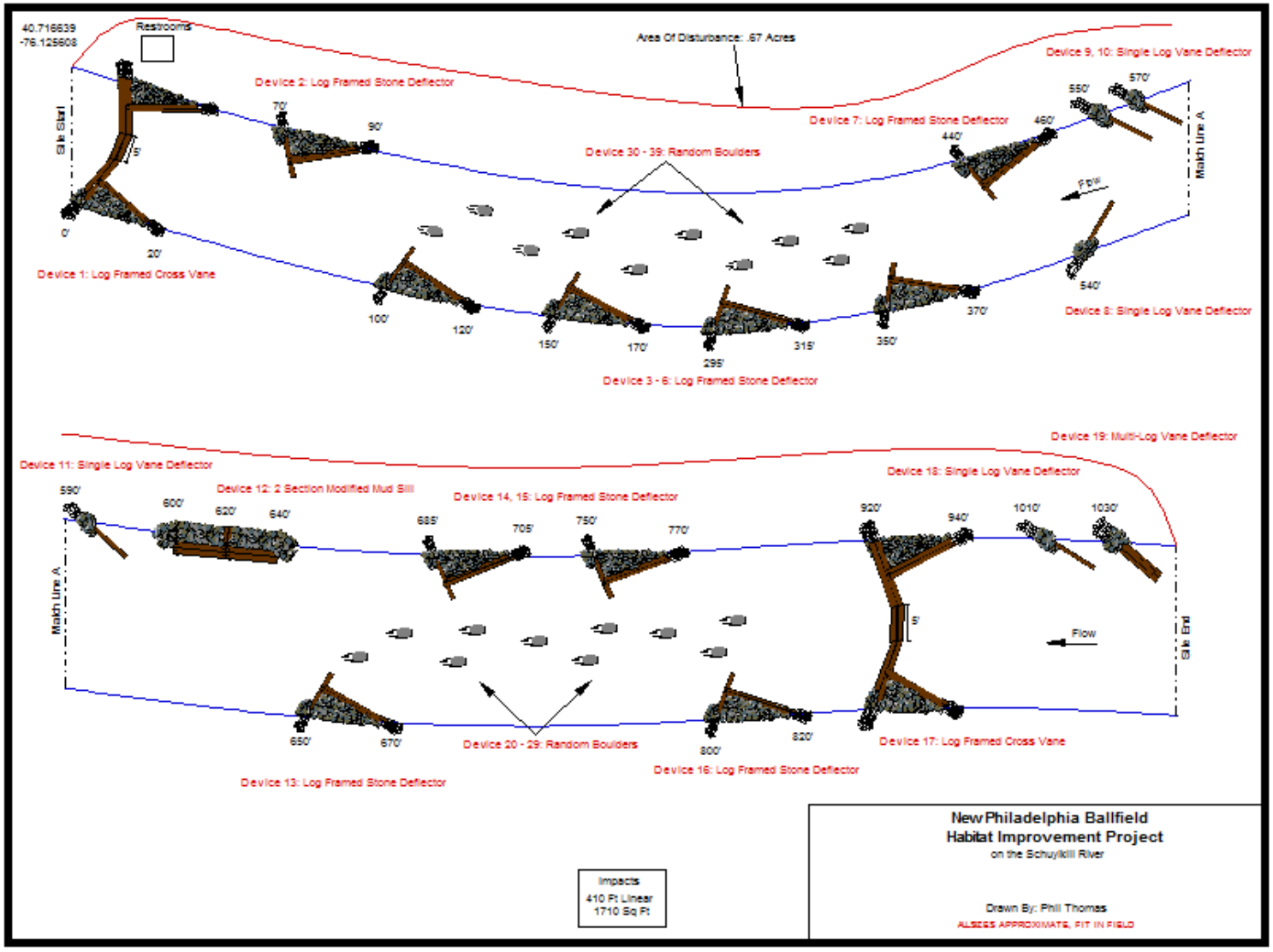
Machine Access, People, and Tools

What's Goal of the Project???

- Streambank Stabilization???
- Improve Fish Habitat???

- You can accomplish BOTH!!!

You need a Plan/Design



You need a Materials List

Project Materials List

Howells Run, Cambria County

Device: Log Framed Stone Deflector				
Device#: 1-2, 6-7				
Materials				Total For 4 Devices
Logs: 10'x 8-10" D				4
Logs: 20'x 8-10" D				8
Rebar Pins (5/8"): 2				8
Rebar Pins (5/8"): 4				24
Stone (12-18" Dia.)				20
Other: Seed & Mulc				

Device: Modified				
Device#: 3				
Materials	Quantity Per One Device		Total Devices	Total For 1 Devices
Face Logs: 20'x 8-10" Dia.	3			3
Sill Logs: 10'x 8-10" Dia.	3			3
Rebar Pins (5/8"): 2'	5		1	5
Rebar Pins (5/8"): 4'	6			6
Stone (12-18" Dia.) tons	6			6
Other: Seed & Mulch				

You need a General Permit –1 (GP-1)

3150-PM-BWEW0500 Rev. 2/2014
Form

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WATERWAYS ENGINEERING AND WETLANDS

CHAPTER 105
GENERAL PERMIT REGISTRATION

TYPE OF GENERAL PERMIT: ☐ New Permit
PLEASE MARK ("X") ONE: ☐ Transfer of Existing Permit *(Complete Section A, C & H below and all of form 3150-PM-BWEW0016)*

PLEASE MARK ("X") ALL THAT APPLY:

- ☒ GP- 1 Fish Habitat Enhancement Structures
- ☐ GP- 2 Small Docks & Boat Launching Ramps
  - **Please mark ("X") the specific type of project:**
    - ☐ private recreational dock
    - ☐ public access facility
    - ☐ public service facility
    - ☐ other private or commercial facility
- ☐ GP- 3 Bank Rehabilitation, Bank Protection and Gravel Bar Removal
- ☐ GP- 4 Intake and Outfall Structures
- ☐ GP- 5 Utility Line Stream Crossing
- ☐ GP- 6 Agricultural Crossings & Ramps
- ☐ GP- 7 Minor Road Crossings
- ☐ GP- 8 Temporary Road Crossings
- ☐ GP- 9 Agricultural Activities
- ☐ GP-10 Abandoned Mine Reclamation
- ☐ GP-11 Maintenance, Testing, Repair, Rehabilitation, or Replacement of Water Obstructions and Encroachments (reviewed by DEP Regional Office only)
- ☐ GP-15 Private Residential Construction in Wetlands

☐ Activity Related to Oil and Gas Exploration, Production or Transmission

☐ Activity Subject to FERC approval (Docket number _____) ☐ FERC Natural Gas Act Facility

SECTION A. APPLICANT INFORMATION

Applicant's Name / Client	DEP Client ID# (if known)	Employer ID# (EIN)

Client Information - Please select Client Type / Code from drop down box under the correct entity shown to the right (or may be written in) →	Government	Non-Government	Individual

Mailing Address	City	State	ZIP + 4

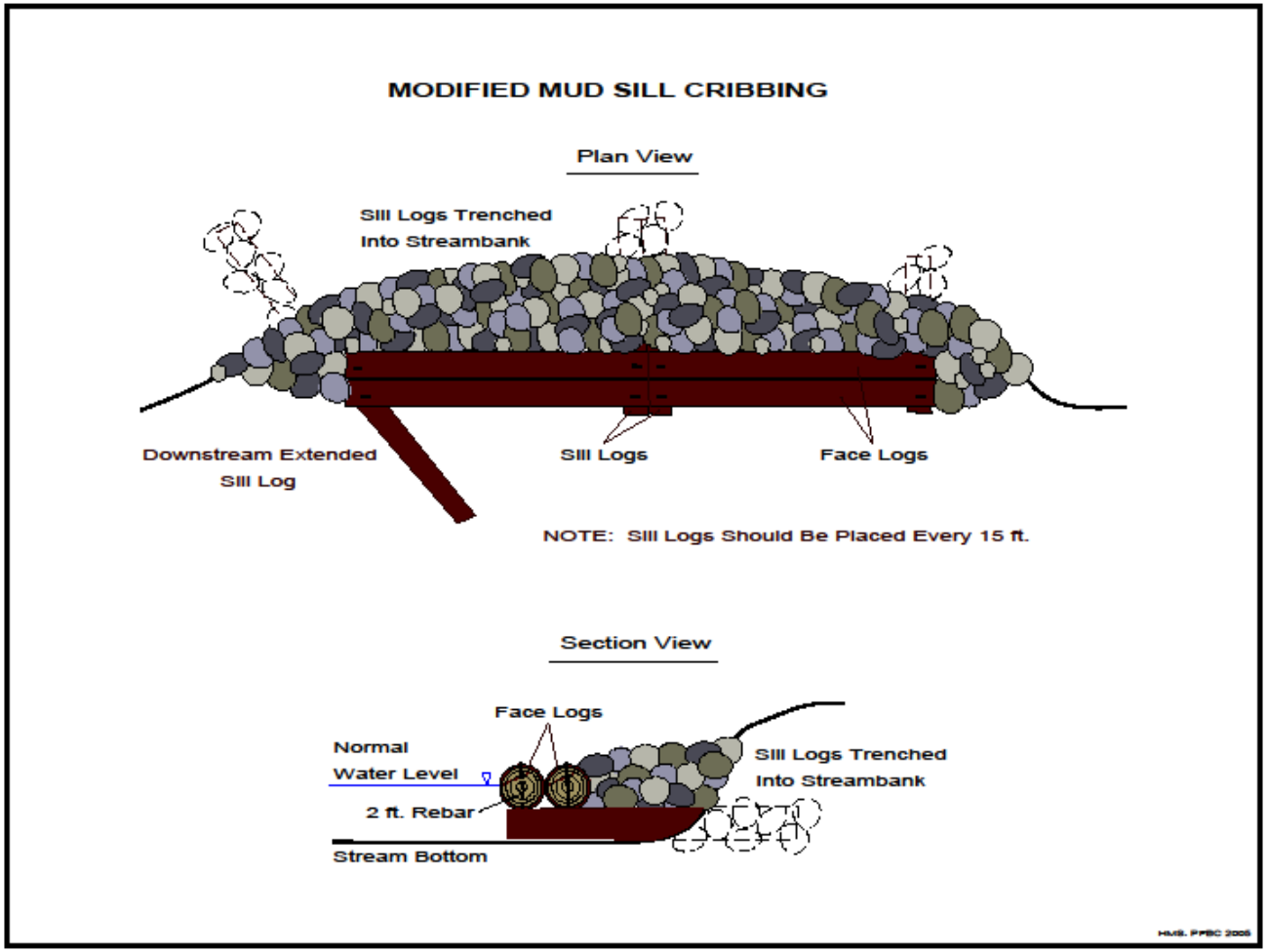
Contact Person – Last Name First MI Suffix	Telephone ( )	Email Address

Construction Oversight

Commonly used Structures

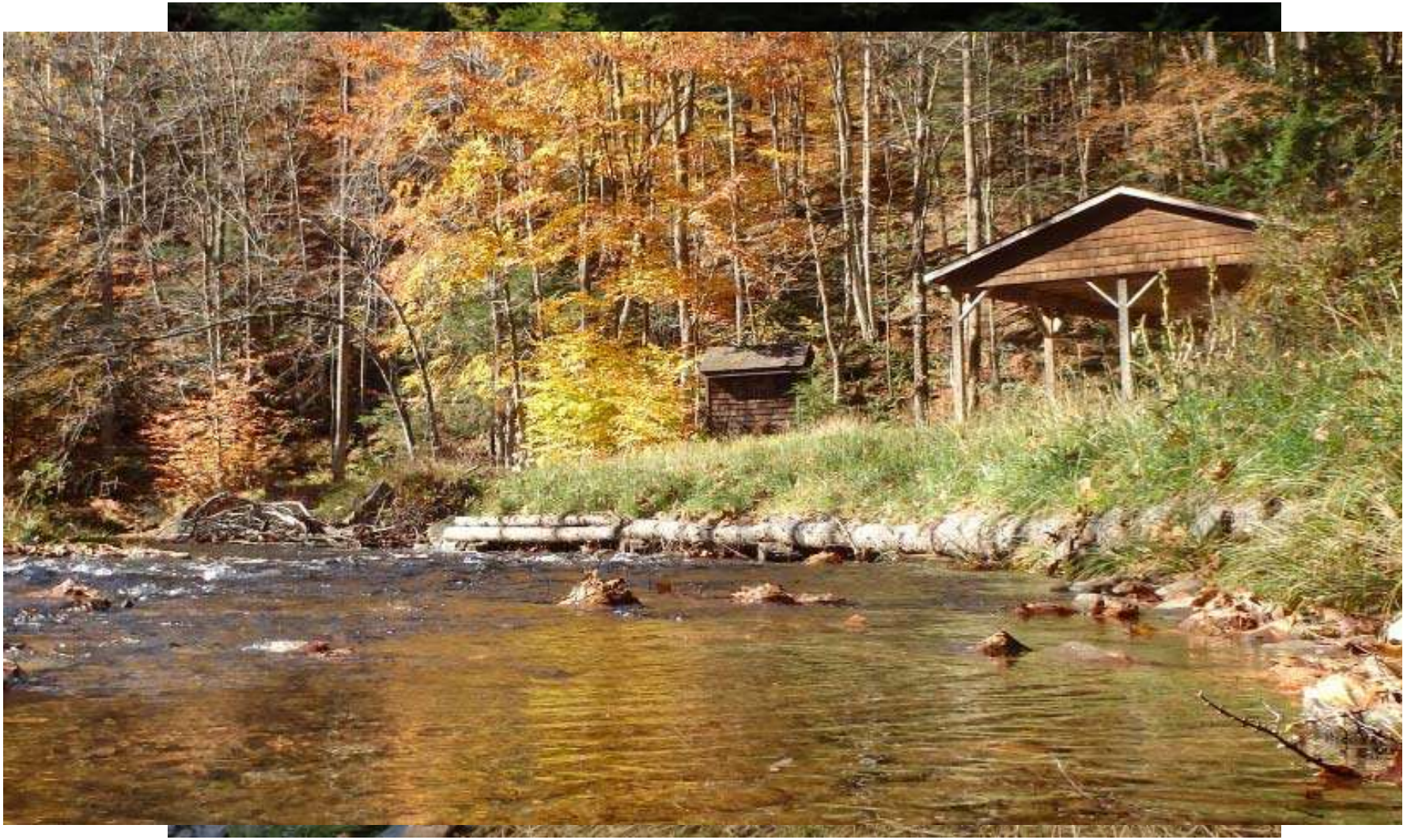
- **Modified Mud Sill**
- Random Boulder
- Saw-tooth Deflectors
- Stone Deflector
- **Log Framed Deflector**
- **Single / Multi Log Vane deflectors**
- Rock Vane
- **Log or Rock Cross Vane**
- Bank Cover Crib
- **Root Wad Deflector**

Modified Mud Sill



Modified Mud Sill
Before

Modified Mud Sill
After

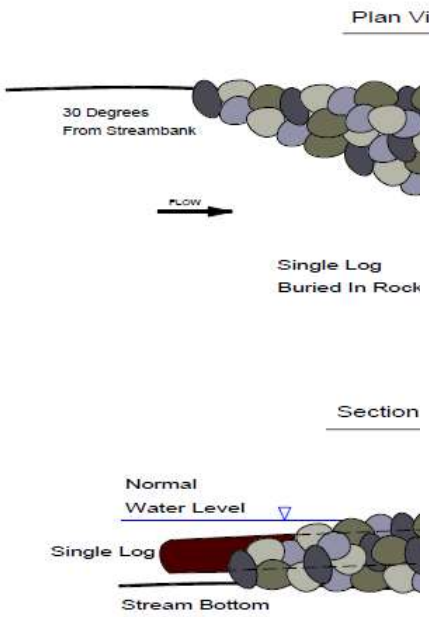


Modified Mud Sill

Construction

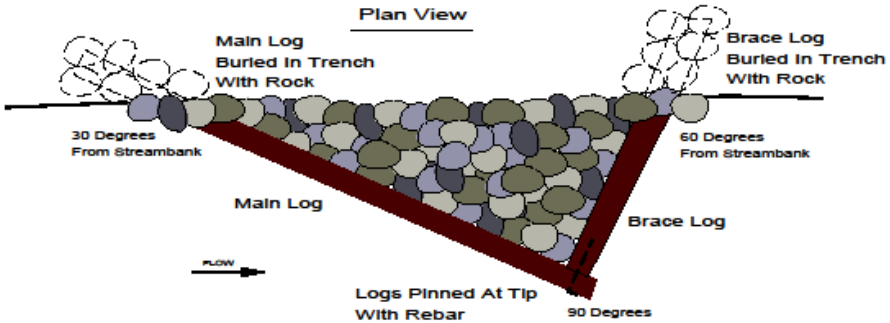
Stone Deflector

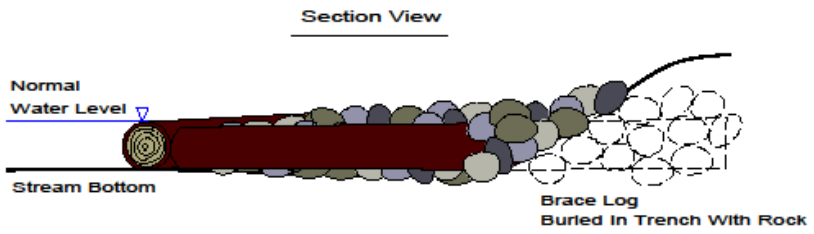
STONE DEFLECTOR WITH SINGLE LOG

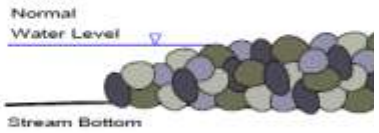


LOG FACED STONE DEFLECTOR

LOG FRAMED STONE DEFLECTOR



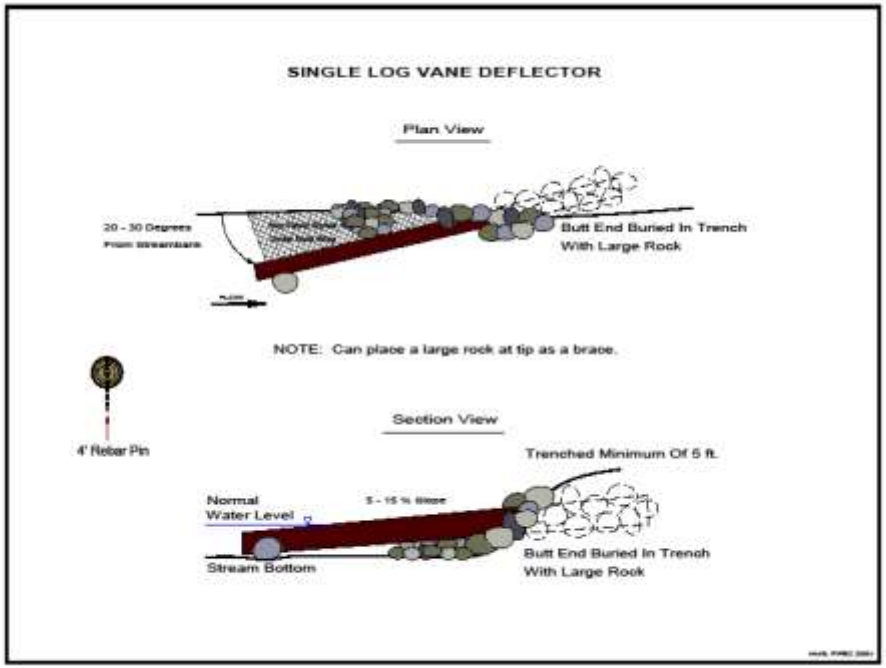


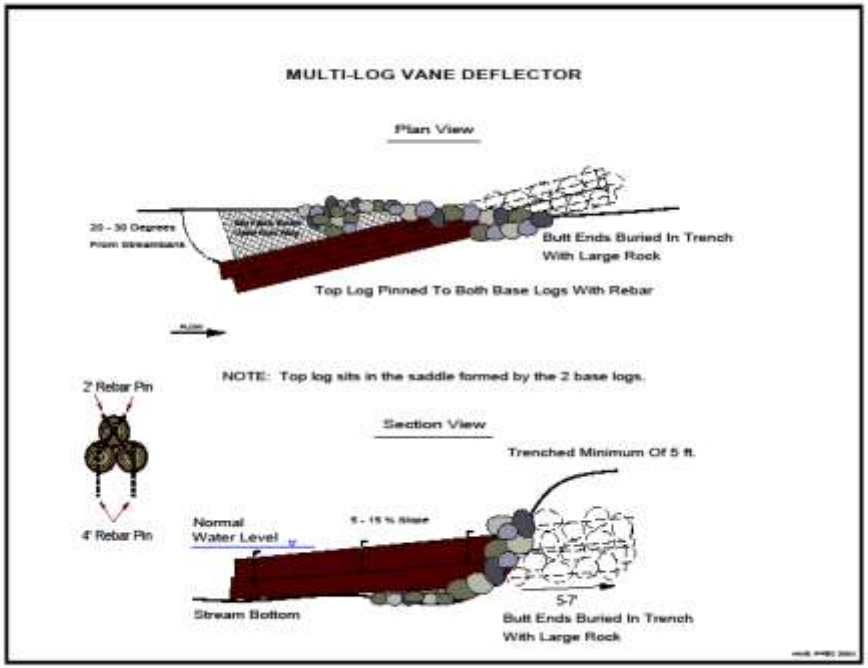


Log Framed Stone Deflector

Log Framed Stone Deflector

Single or Multi Log Vane



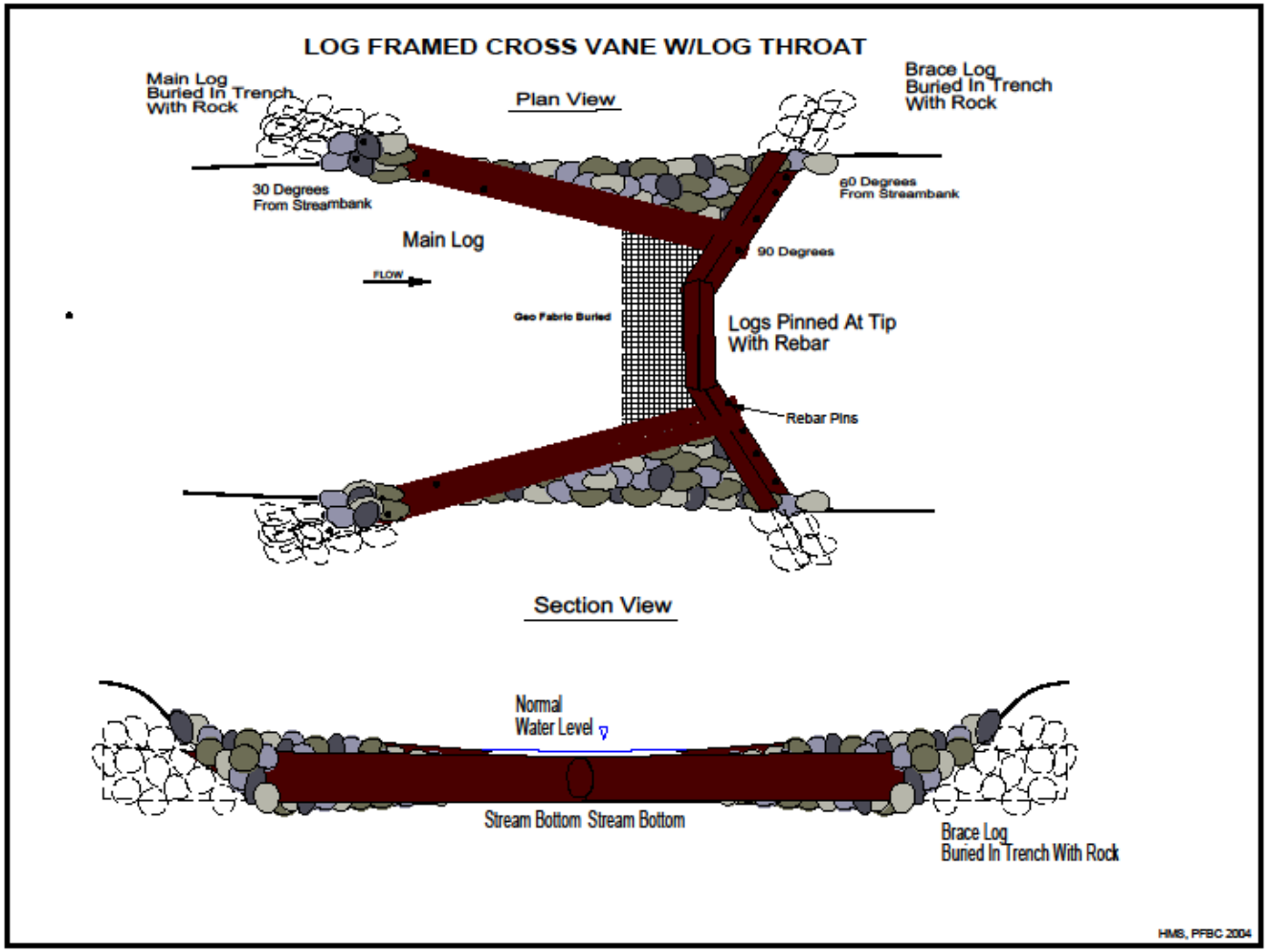


Single Vane

Multi Log Vane

Multi Log Vane

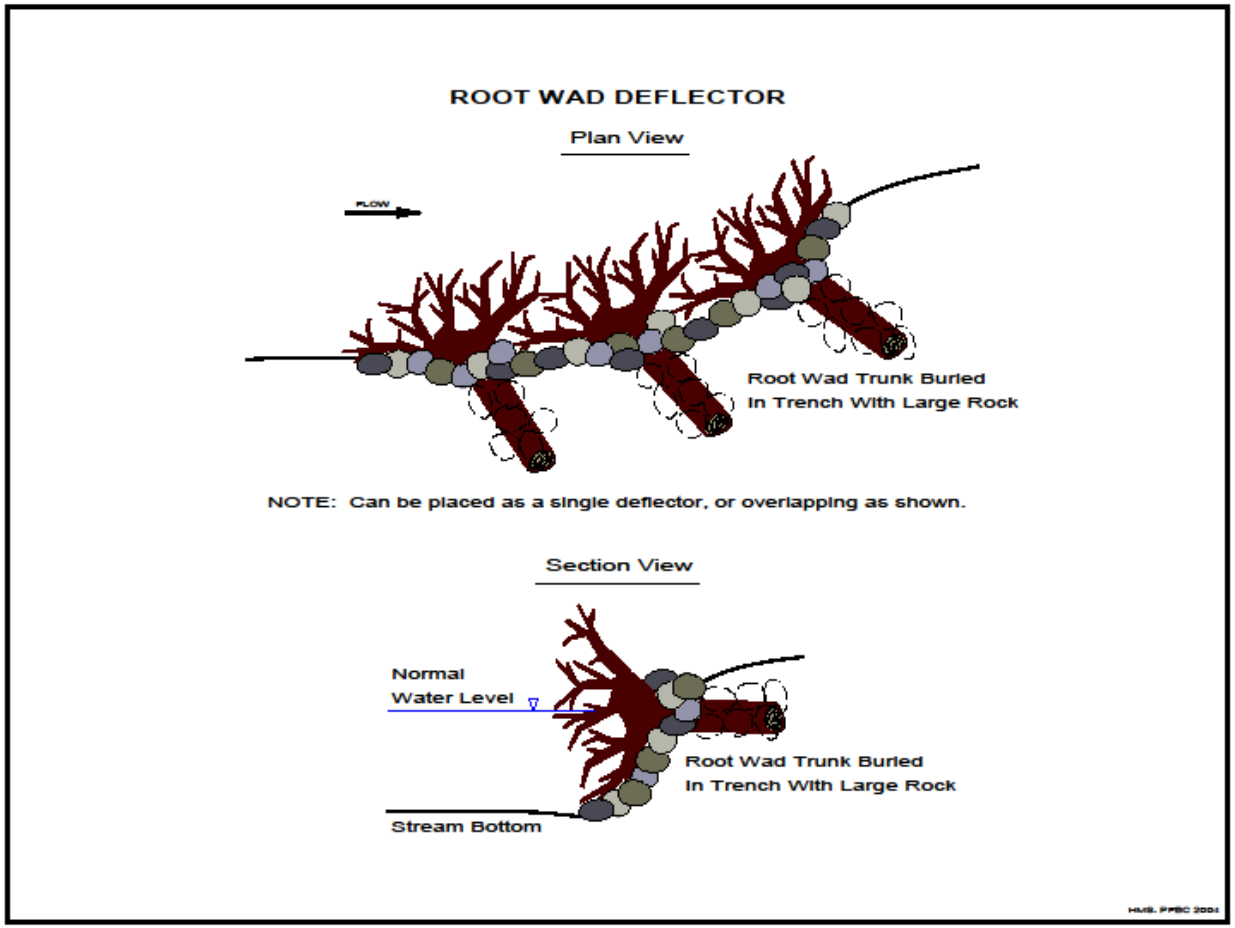
Cross Vane Structures



Cross Stream Structures

Cross Stream Structures

Root-Wad Deflector



Root-Wad Deflector

Answer E; All of the above

What's Goal of the Project???

- Streambank Stabilization???
- Improve Fish Habitat???

- Or BOTH!!!

Questions??

Phil Thomas

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