CAMP MIAKONDA RESTORATION PROJECT

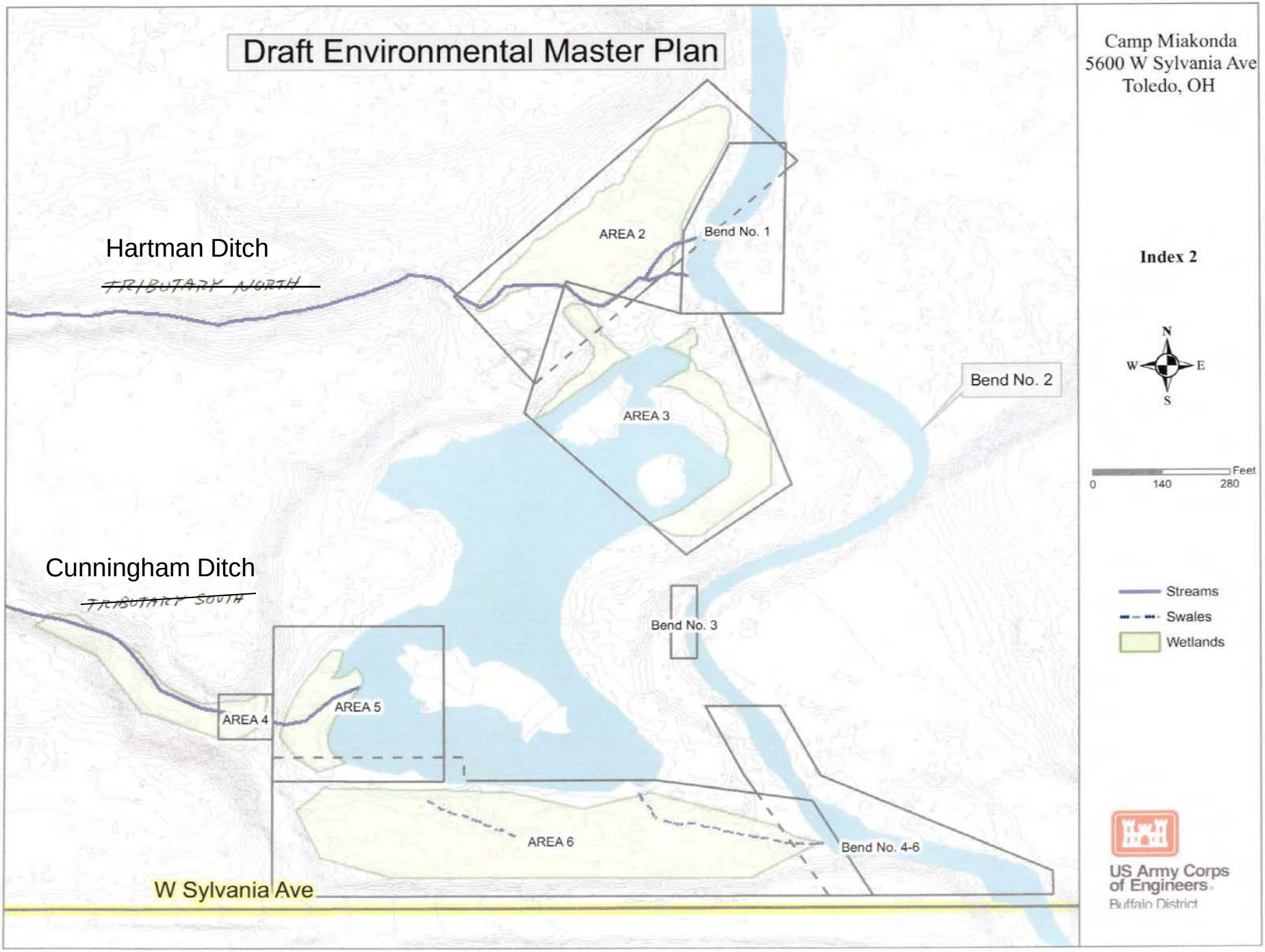
Partners for Clean Streams

Kristina Patterson – Executive Director

Kyle Spicer – Project Coordinator

CAMP MIAKONDA & OTTAWA RIVER RESTORATION

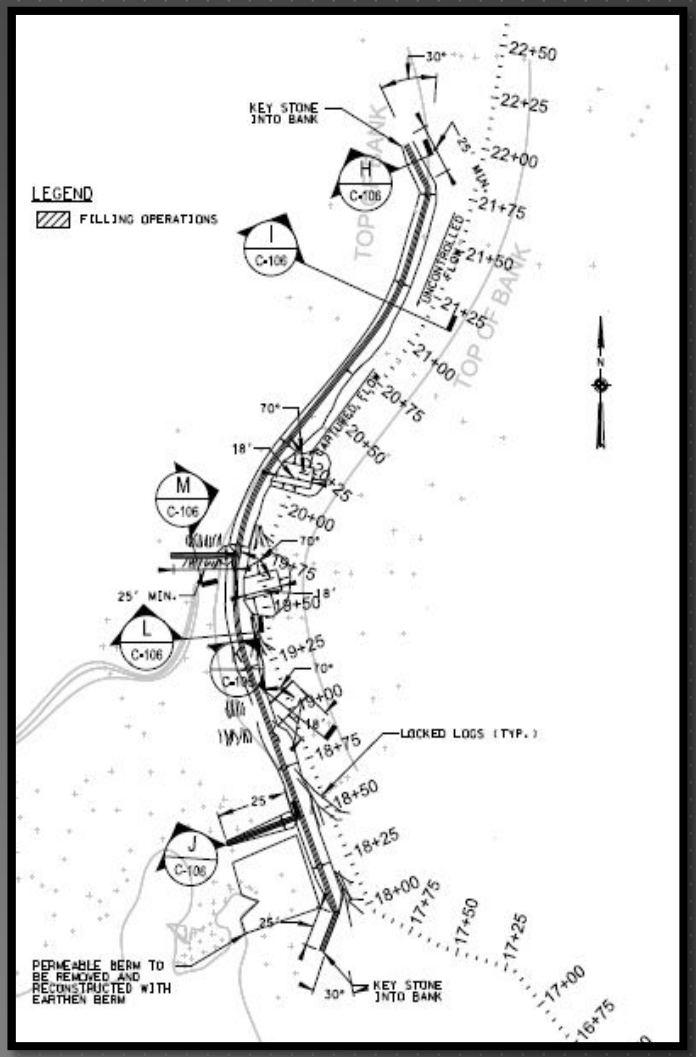
- $1.36 Million GLRI grant from US EPA
  - 3 year duration
- Restore/enhance approx. 10 acres & approx. 30 acres associated wetlands.
- Reduce erosion & stream bank restoration from 1,200' adjacent Ottawa River
- Increase in-stream habitat for fish and macro invertebrates
- Increase diversity of in-water habitat for Lake Sawyer, allowing fish to winter over and encourage more active use of Lake Sawyer by Scouts
- Support educational use of wetland, lake, river, and upland habitat
- Contribute to BUI (Beneficial Use Impairment) goals and improvements for BUI 14 – Loss of Fish and Wildlife & BUI 3 – Degradation of Fish and Wildlife Habitat


Draft Environmental Master Plan
Camp Miakonda
5600 W Sylvania Ave
Toledo, OH
Hartman Ditch
TRIBUTARY NORTH
AREA 2
Bend No. 1
Bend No. 2
AREA 3
Index 2
N
W
E
S
0
140
280
Feet
Cunningham Ditch
TRIBUTARY SOUTH
Bend No. 3
AREA 4
AREA 5
AREA 6
Bend No. 4-6
Streams
Swales
Wetlands
W Sylvania Ave
US Army Corps of Engineers
Buffalo District

OTTAWA RIVER BEND #1 – CAMP MIAKONDA

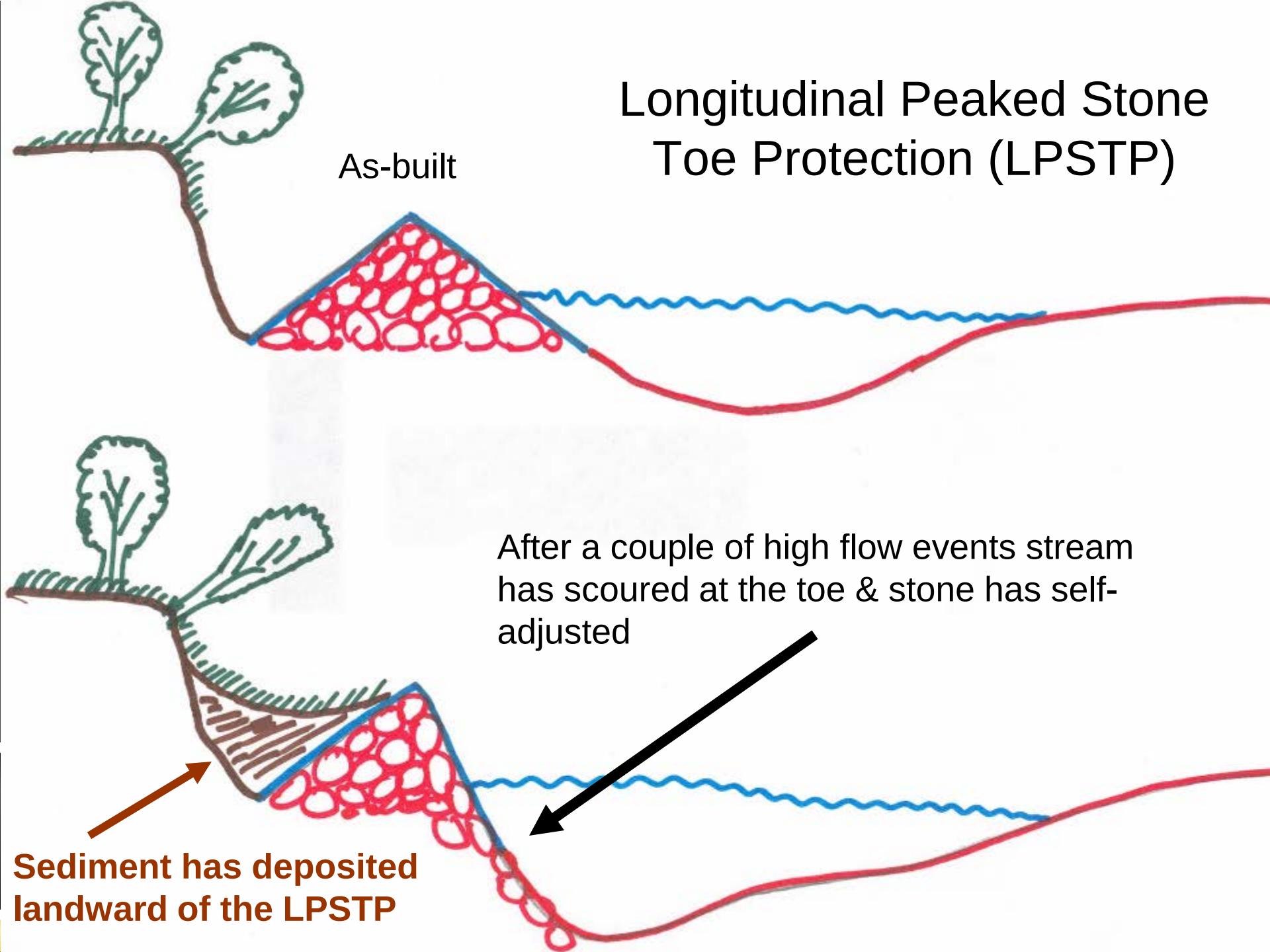
- Identified as a priority item from Inventory Plan.
- Stream bank stabilization & erosion control methods.
  - Bank erosion on Lake Saywer side were rapidly decreasing the amount of land between the two bodies of water.
- Numerous "Derrick" improvements.
  - Longitudinal Peaked Stone Toe Protection (LPSTP)
  - Bendway Weirs
  - Locked Logs
  - Live Siltation & Living Dykes

Ottawa River Draft Plans




Reach #1 – Looking DS
Floodplain bench used as haul road.
Bench did not used to exist.
Notice point bar.
Pipe below is draining Lake Sawyer – shut off valve; silt curtain.

Longitudinal Peaked Stone Toe Protection (LPSTP)



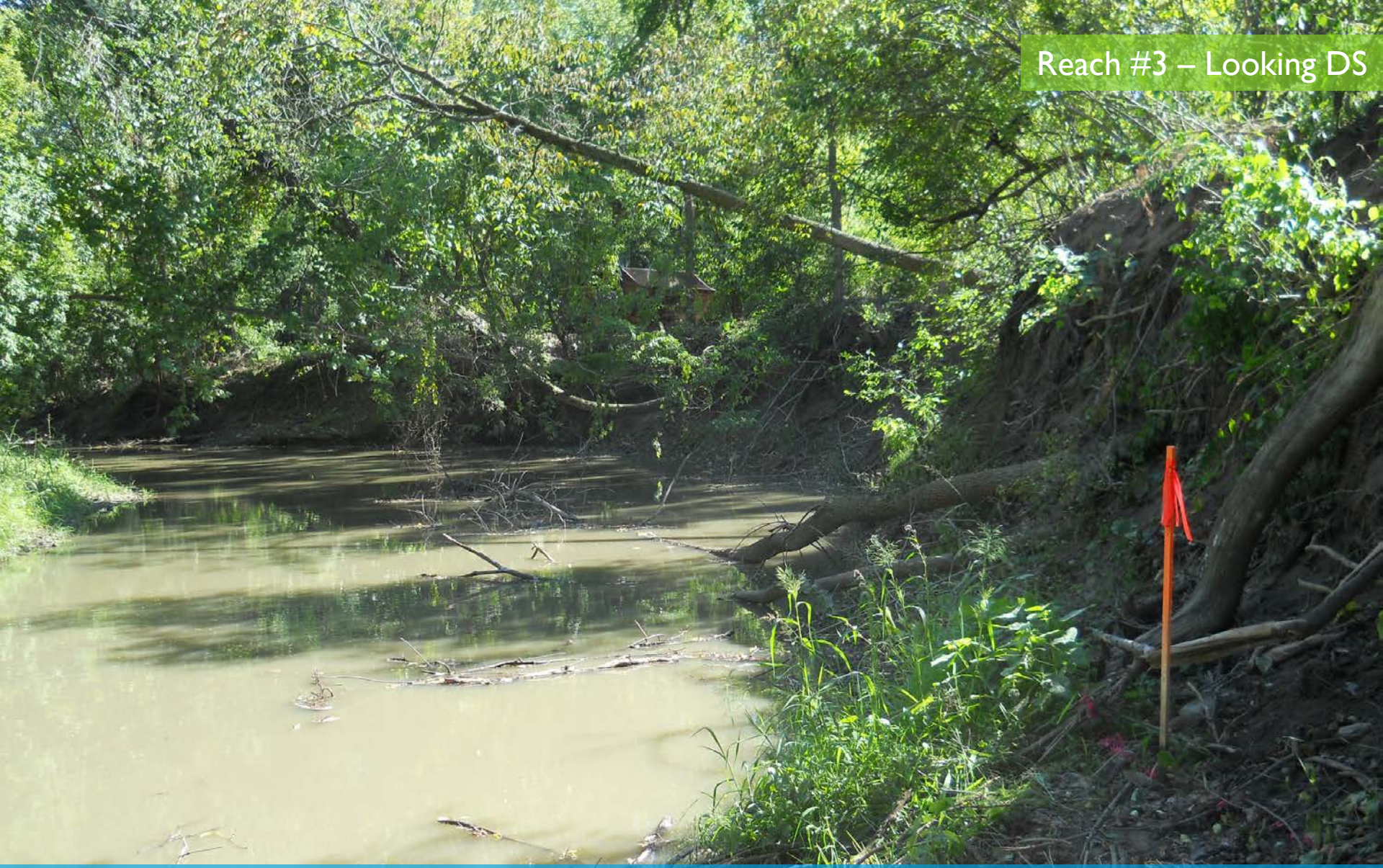

Reach #1 – Looking DS
LPSTP lining bend #1.
Upstream key back-filled.
Live siltation along key, behind LPSTP within the floodplain bench.


Reach #1 – Looking DS
Locked Log
Pointed DS to encourage stream thalweg away from bank.
Habitat creation from low velocity waters.


Reach #1 – Looking DS
Bendway Weirs (3)
Designed to encourage thalweg away from protected bank.
Built into LPSTP for stabilization

Reach #1 – Looking DS

- Multiple rows of live siltation; living dykes. Collect sediment and other materials at high flow.
- Living locked logs provide shade.
  - Various heights enable bank protection at high flow.



OTTAWA RIVER BEND #3 – CAMP MIAKONDA

Reach #3 – Looking DS

- Series of three Bendway Weirs, like bend #1.
- LPSTP lining the Ottawa.
- Note the clear point bar opposite the steep slopes.

Reach #3 – Looking @ BW

- Bendway Weir is "choked" with smaller stones.
  - Give Scouts fishing access for the first time.
  - Steps dug into the bank.
- Thalweg clearly visible.

Reach #3 – Looking US

- DS LPSTP key (40 ft)
- Live siltation.
- Willow and dogwood poles placed in LPSTP.
  - Throughout river work.
  - Helps to lock in the rock.

CUNNINGHAM DITCH – CAMP MIAKONDA

Cunningham – Concrete Removal

- Concrete pad was removed.
- Exposed pipe used to channel stream underground; removed.
- Exposed more of the existing "bowl" to create large pool for overflow.

- Series of "steps" were created; riffle > pool > riffle > pool.
  - Allows water to drop in elevation while slowing velocity.
  - Pools take the hit from water and absorb the energy.
  - Riffles help filter out and collect sediment & small debris.
- Plantings installed on either side.

Cunningham – Looking US


Cunningham – Looking DS
Clear view of the bowl nestled around great looking existing architecture.
Already greening up – Scouts appreciated.
Second pool visible > riffle.

HARTMAN DITCH – CAMP MIAKONDA

- Erosion & sediment control methods.
  - Stone bank protection
  - Rock riffle; note sediment build up behind bridge.
  - Coconut matting – planted.
  - Damn removed.

- V-notch weirs installed.
- Angled downstream; sediment control.
- Keyed into banks -10ft.
- Note additional bank protection – LPSTP.

- Hartman made an “awkward” turn into the existing culvert.
- Bank protection added, and used to help turn the stream.

Hartman – Looking DS


Hartman – Looking DS
Hartman was redirected into Lake Sawyer.
A pre-cast concrete culvert was installed.
Bank protection was added on both US & DS sides.

WETLAND “A” – CAMP MIAKONDA

- Reed canary grass sprayed and then removed along with 1ft of additional sod.
- Floating excavator used extensively – other equipment was positioned using stone pads.

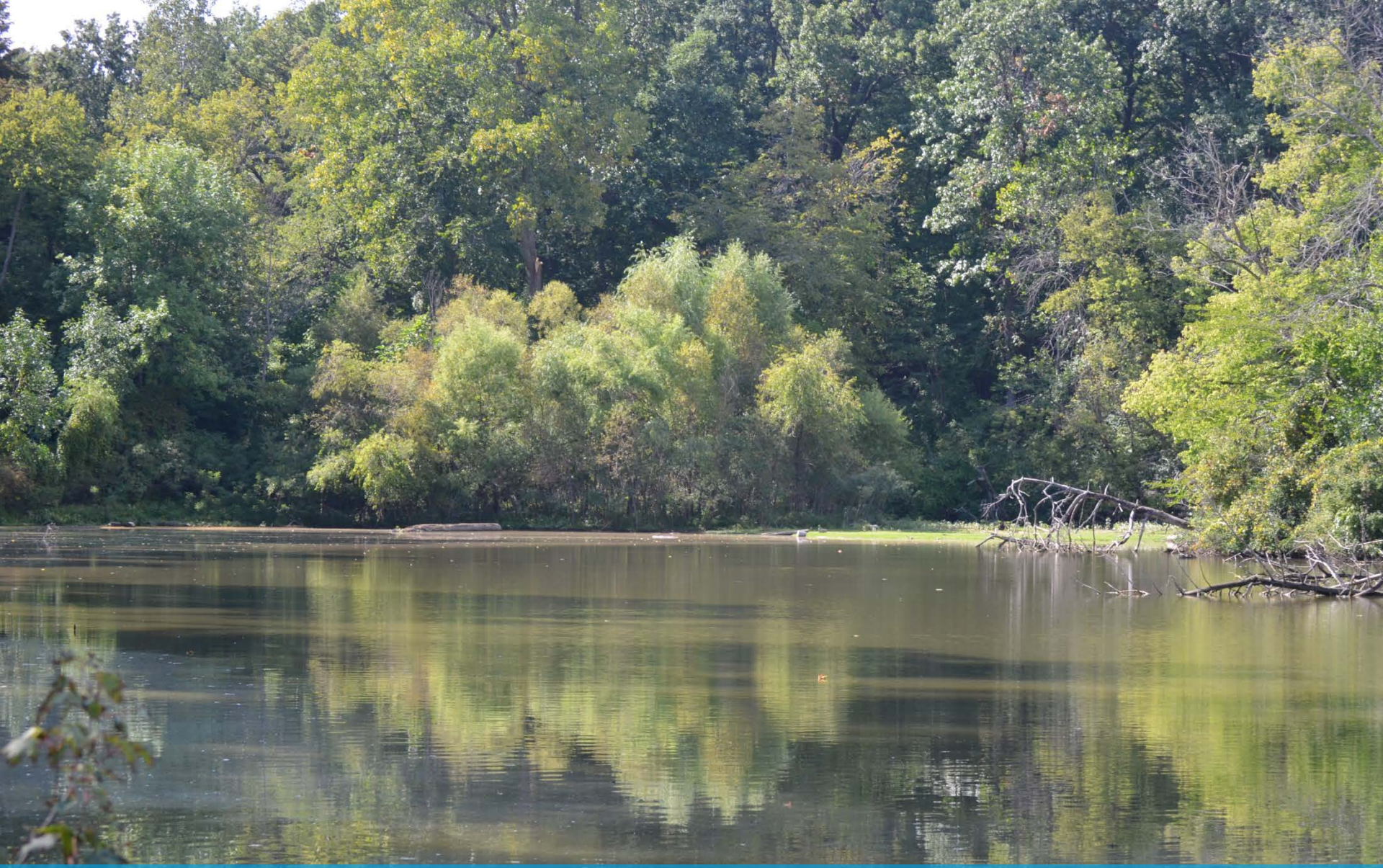
Wetland A

- Note stone pad under standard excavator.
- Many standing dead trees remain due to our Nationwide Permit; potential Indiana Bat habitat.

Wetland A

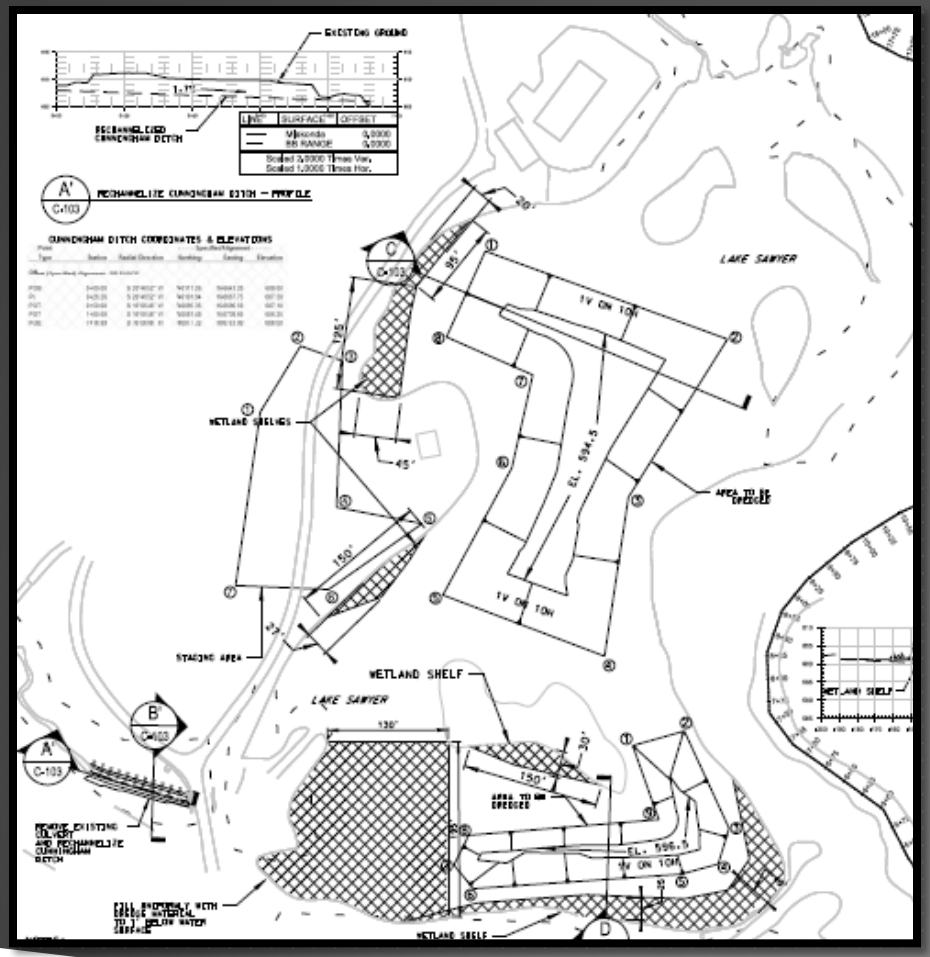
Wetland A

- With sod removed, wetland was significantly planted with high quality species.
- Hartman re-route visible.



LAKE SAWYER – CAMP MIAKONDA

Lake Sawyer Draft Plans



- Hand-dug lake 70 years ago as WPA project.
- Ottawa floods frequently into the lake.
  - 2ft deep across.
  - Cherie walked across it.
- Wetland shelves to be installed.
- Excavated locations determined.

- Excavator with thumb placed concrete debris along excavated area for road stability.
- Fortunately we struck hard ground several thousand cubic yards later.

Lake Sawyer

- Drainage channels were kept lower than road.
  - As water seeped through the muck, pumps removed it.
- Pumps continually worked 24hrs/ day.

Lake Sawyer – The Pit

- The "pit" was dug for excavated materials to de-water.
- Material was then taken off site for disposal.
  - Quarry hole.


Lake Sawyer
Excavated areas were sloped to discourage settling.
Over 10,000 cubic yards of the sediment were removed.
CAT
320C

Lake Sawyer – Outflow Channel

- We wanted a way for Lake Sawyer to empty into the Ottawa at high flow.
- Important piece to get right; multiple iterations.
- Stone riffle > pool > river
- End of riffle angled into pool so water doesn't scour under structure.

Lake Sawyer – Outflow Channel

- 5 large armor stones opposite outflow channel.
- Block large debris from floating into road & channel.
- Note: several wetland benches visible. Small excavated lake area.

Lake Sawyer – Wetland Shelf

- Numerous wetland shelves were created around the lake.
- Shelves act as filters and sediment controls.
- The floating excavator was useful in shelf creation.

Lake Sawyer – Wetland Shelf

- Crews had to get creative for shelf plantings; foam board walkways.
- Nearly 26,000 plants were installed throughout the project.
  - Not including seed!

What's Next?

- Monitoring, assessment, & evaluations continue through next year.
- Expand educational opportunities for Boy Scouts and the public.
    - Informational signage/kiosks.
    - Program expansion & cooperation.
- Create and present the BSA with a management plan.
    - Little time commitment is necessary.
- Adaptive management: plant survivability, structure maintenance, invasive species management.