

STEAMBOAT ISLAND HABITAT REHABILITATION AND ENHANCEMENT PROJECT

Project Design Engineer: Max Abbott
Project Manager: Jessie Dunton



U.S. ARMY



US Army Corps
of Engineers®



UMRR – HABITAT REHABILITATION AND ENHANCEMENT PROJECTS (HREP)

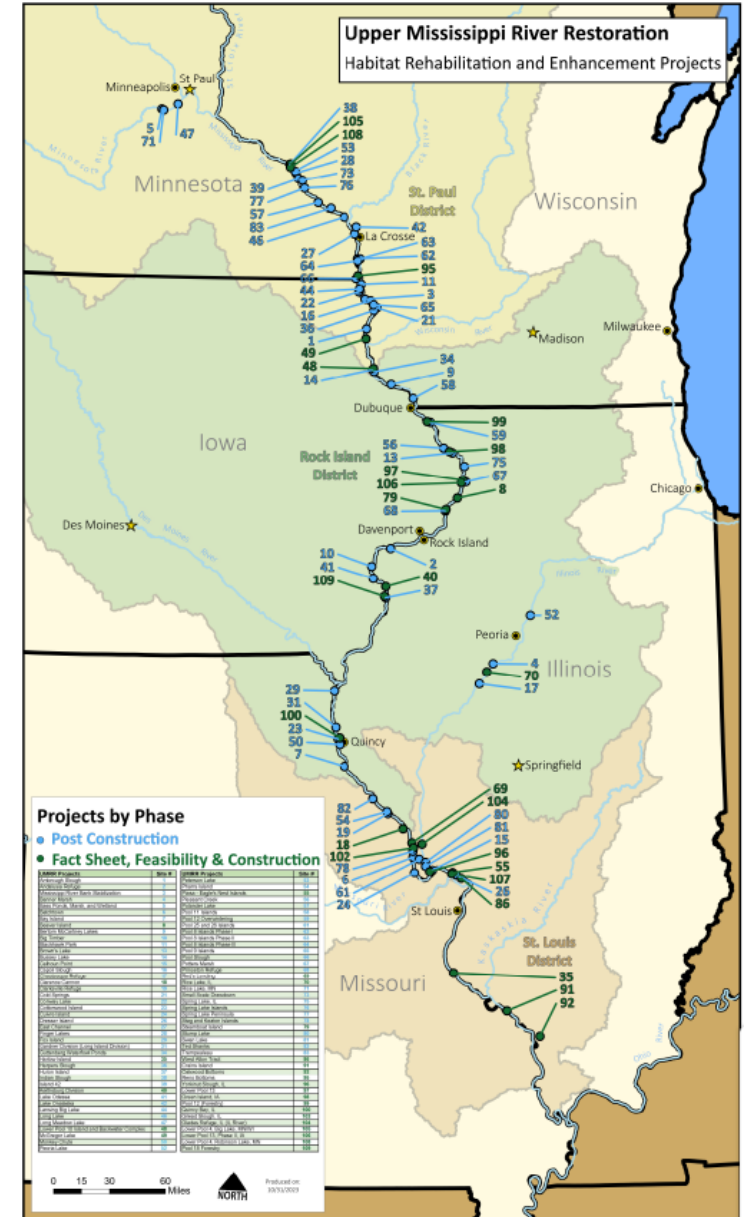


Upper Mississippi River System:

- 63 HREPs Completed
- 121,400 Acres Restored
- 23 HREPs in Planning, Engineering, or Design will result in the benefit of approximately 65,000 acres

Pool 14

- Princeton Refuge HREP – constructed & managed by Iowa DNR
- Beaver Island HREP – Ribbon Cutting Complete



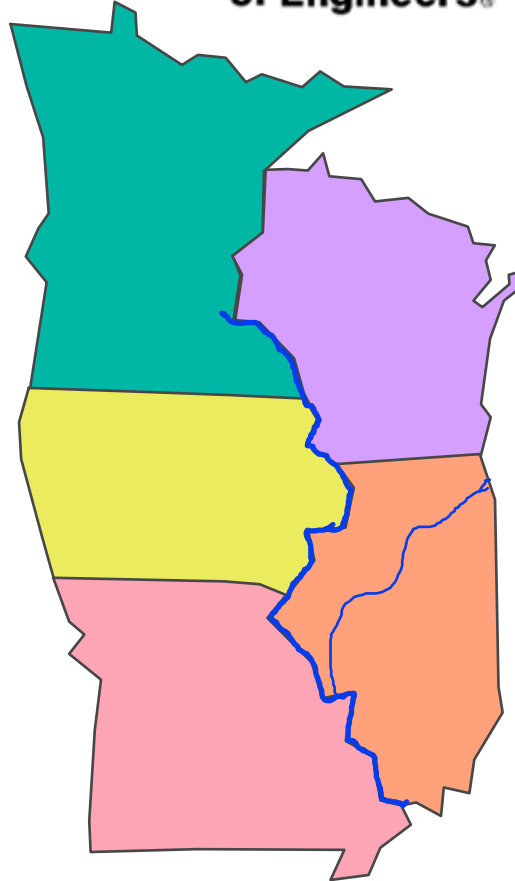


U.S. ARMY

UPPER MISSISSIPPI RIVER RESTORATION (UMRR)



US Army Corps of Engineers®



PUBLIC

NGO's





PROJECT OVERVIEW

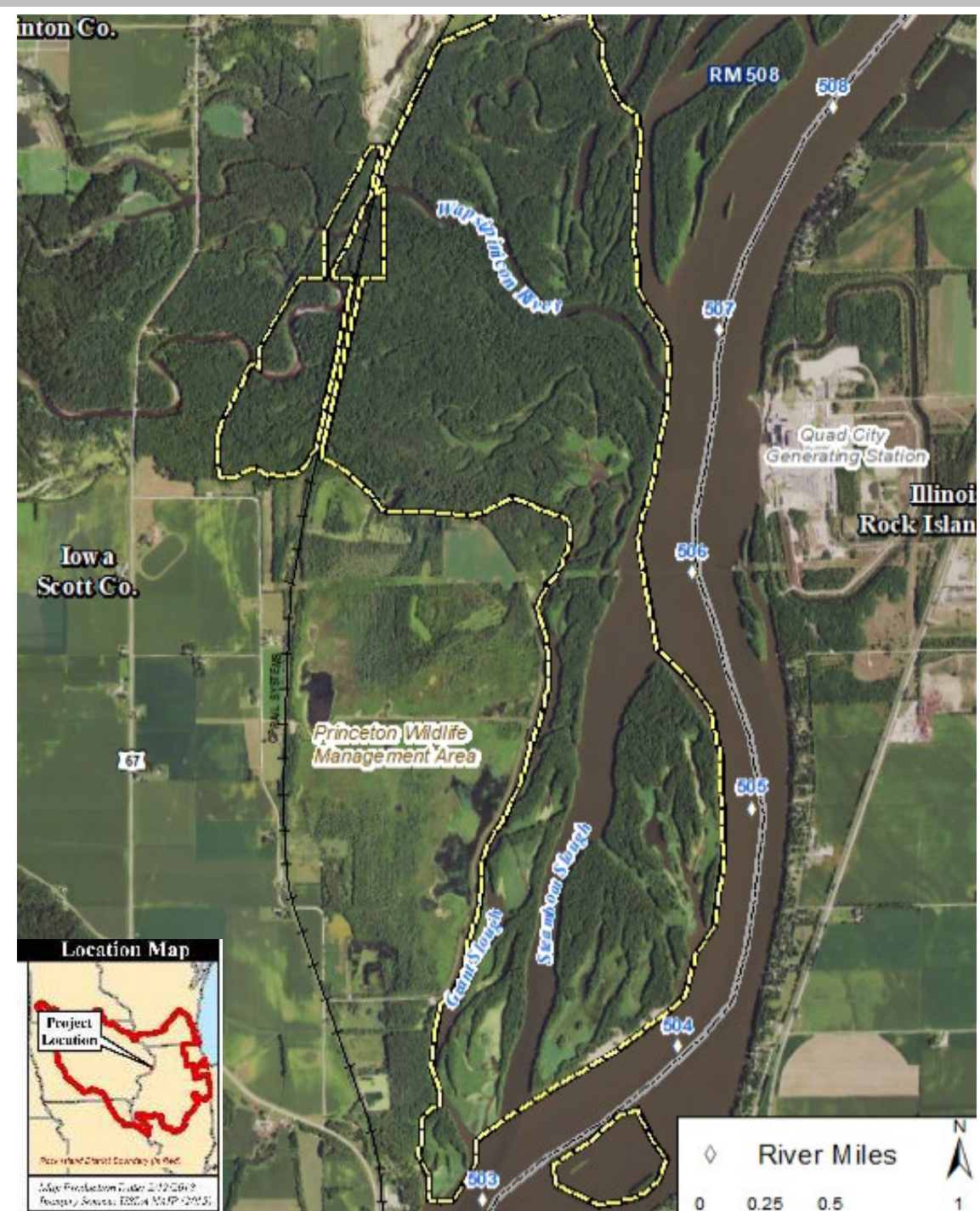
U.S. ARMY



US Army Corps of Engineers®



- Pool 14, River Miles 502.5-508.0
- All Project lands are in Federal ownership; most managed by USFWS, Upper Mississippi River National Wildlife and Fish Refuge, Savanna District
- 2,620 acres of backwaters, flowing channels, wetlands, islands, floodplain, and aquatic habitat
- \$33.60M (Estimated cost, over 8 years)





U.S. ARMY

PROJECT OBJECTIVES

5



Problems:

- Loss of floodplain habitat diversity
 - Hardwood Forest
 - Wetland
 - Back water aquatic
- Loss of island area
- Sediment transportation/deposition



Objectives:

- Restore island acreage and protect against erosion
- Restore coverage and diversity of quality hardwood forest and wetland habitat
- Increase quality aquatic overwintering habitat
- Protect existing habitat from sediment deposition and erosion

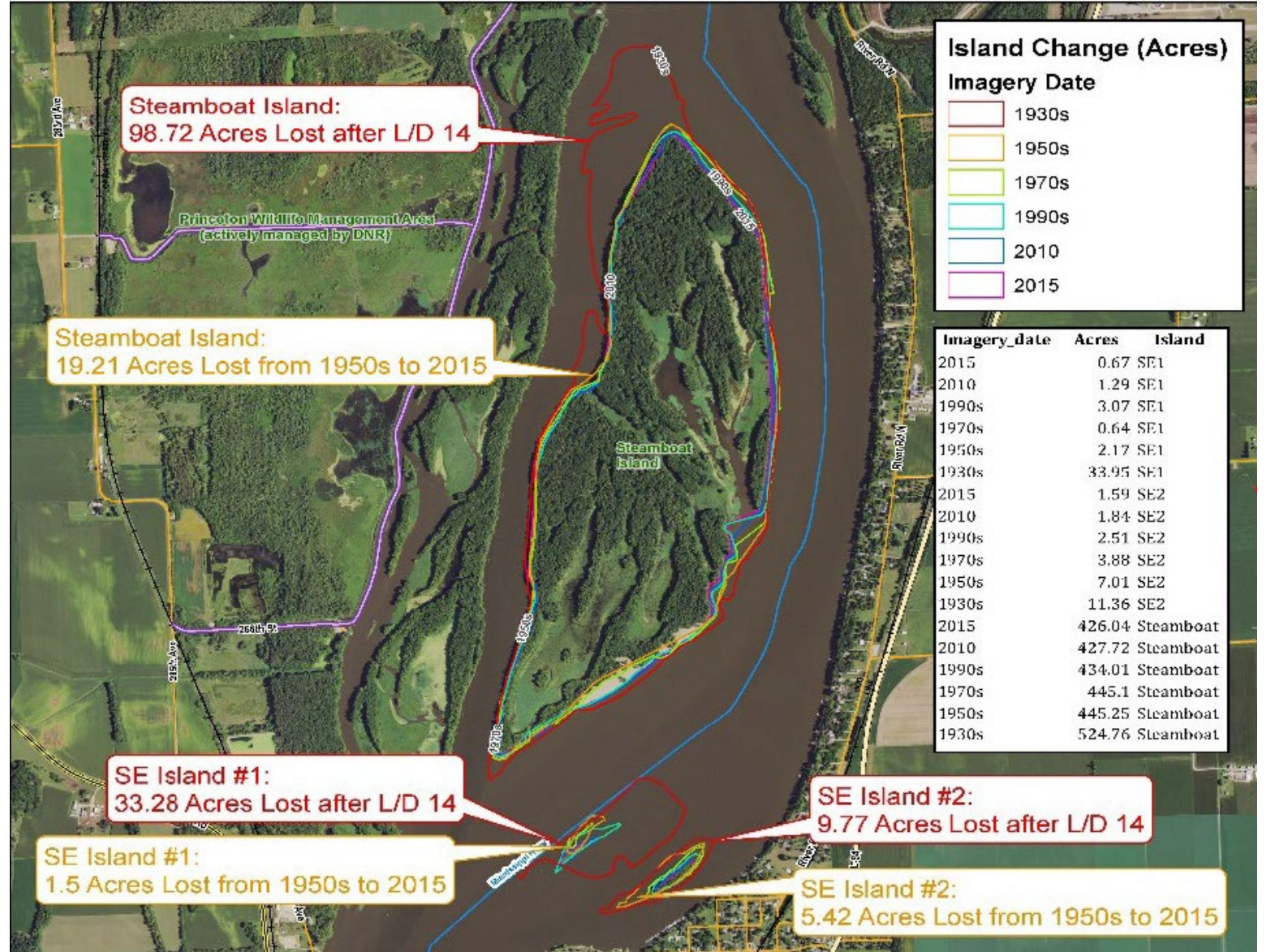
★ ISLAND LOSS

U.S. ARMY

- Roughly 140 acres of island loss within project area since construction of LD 14
- Islands provide crucial habitat for many native species
- Islands protect aquatic vegetation



Lock and Dam 14



Historic Island Lost in Project Area





U.S. ARMY

HIGH FLOW AND HIGH WATER EL.



Consequences

- Reduced topographic diversity (**elevation variation**)
- Poor conditions for Hard Mast trees (Critical food source).
- Once a diverse forest composed of Willow, Cottonwood, Oak-Hickory, and Shrubs now nearly **80% Silver Maple**.
- Take over of invasive species (reed canary grass).
- Lack of diversity and regeneration = monoculture.
- Reduction in quality wetland habitat



Dead Trees in Steamboat Upper Lake



Reed Canary Grass



U.S. ARMY

FLOODPLAIN FOREST AND WETLAND SPECIES

- **Bats**

- Northern Long Eared
- Indiana

- **Pollinators**

- Rusty Patch Bumblebee
- Monarch Butterfly

- **Avian Community**

- Bald Eagle
- Red-Shouldered Hawk
- Heron
- Waterfowl
- Secretive Marsh Birds
- Neotropical Migratory Birds

- **Mammals**

- Deer
- Beaver
- Gray and Red Fox
- Black Bear???



Rusty Patch Bumblebee



Indiana Bat



Bald Eagle



Beaver



U.S. ARMY

BACKWATER AND OVERWINTERING HABITAT

9



Sediment deposition and flow limiting quality backwater and overwintering habitat.

Overwintering Criteria

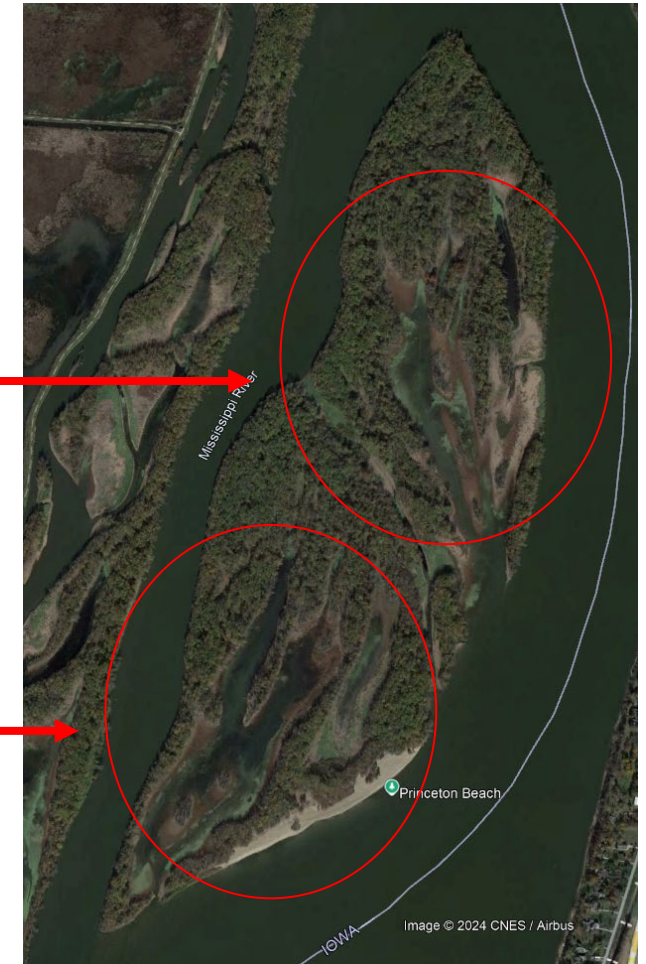
- Depth \geq 4ft
- Low Water Velocity \leq 0.033 ft/sec
- Dissolved Oxygen
- Temperatures \geq 34 °F

Upper/Lower Lakes Pre-Project

- Majority 1-4 ft below flat pool
- **Average deposition rates will result in total elimination of overwintering habitat in next 50 yrs**



1994



2022



U.S. ARMY

BACKWATER SPECIES



- Bluegill
- Largemouth Bass
- Black and White Crappie
- Catfish
- Buffalo
- Yellow Perch
- Grass Pickerel
- Lake Sturgeon
- Banded Killifish
- Western Sand Darter
- Longnose Sucker



Buffalo



Largemouth Bass



Black Crappie



Grass Pickerel

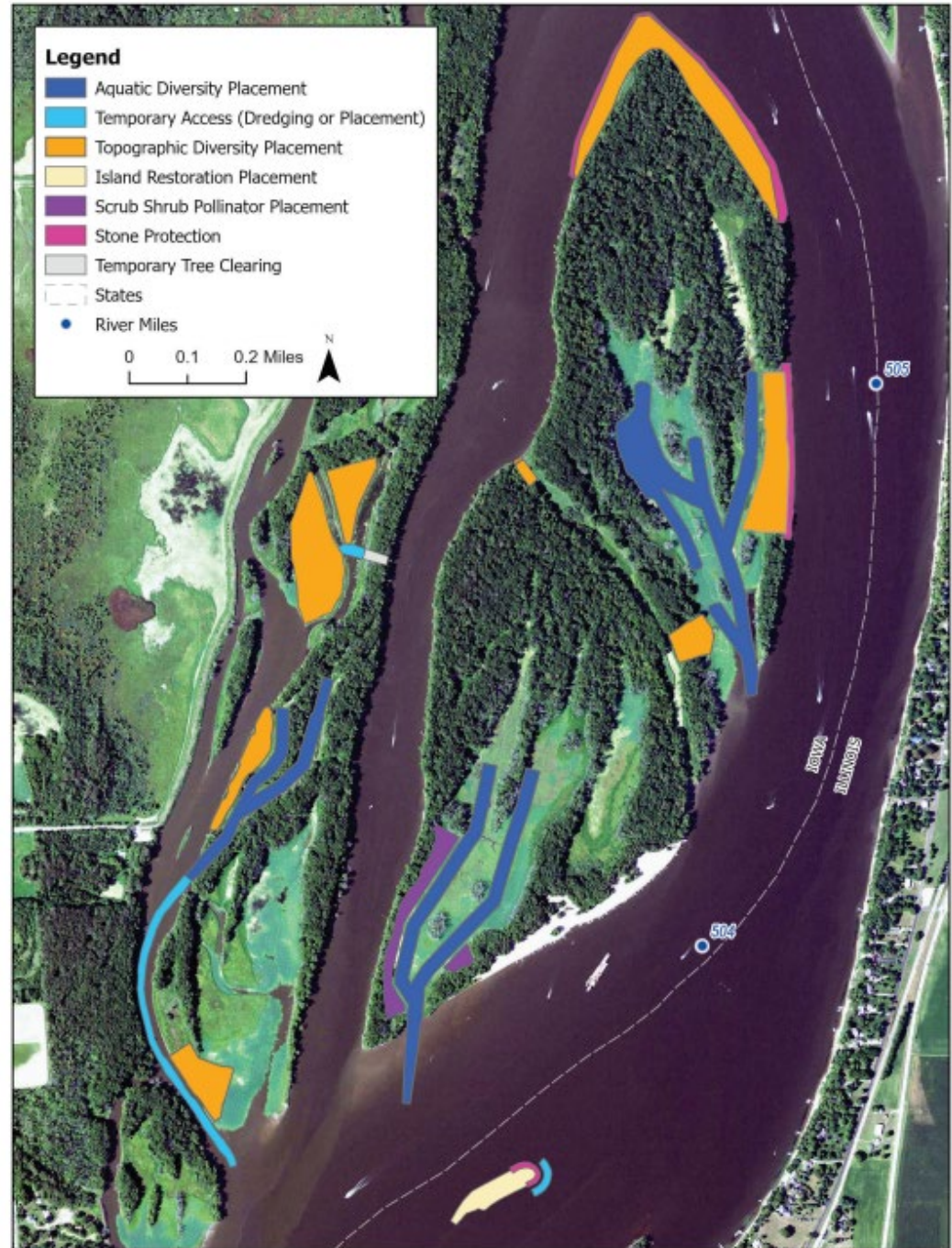


U.S. ARMY

RECOMMEND PLAN

Project Measures:

- Excavate backwater channels
- Install stone protection
- Island restoration
- Restore fisheries habitat (dredging/woody debris placement)
- Placement berms (Creating Variation in Elevation)
- Scrub-shrub pollinator habitat
- Timber Stand Improvements





U.S. ARMY

FORESTRY PLAN










Legend

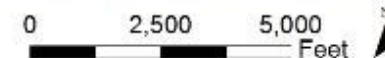
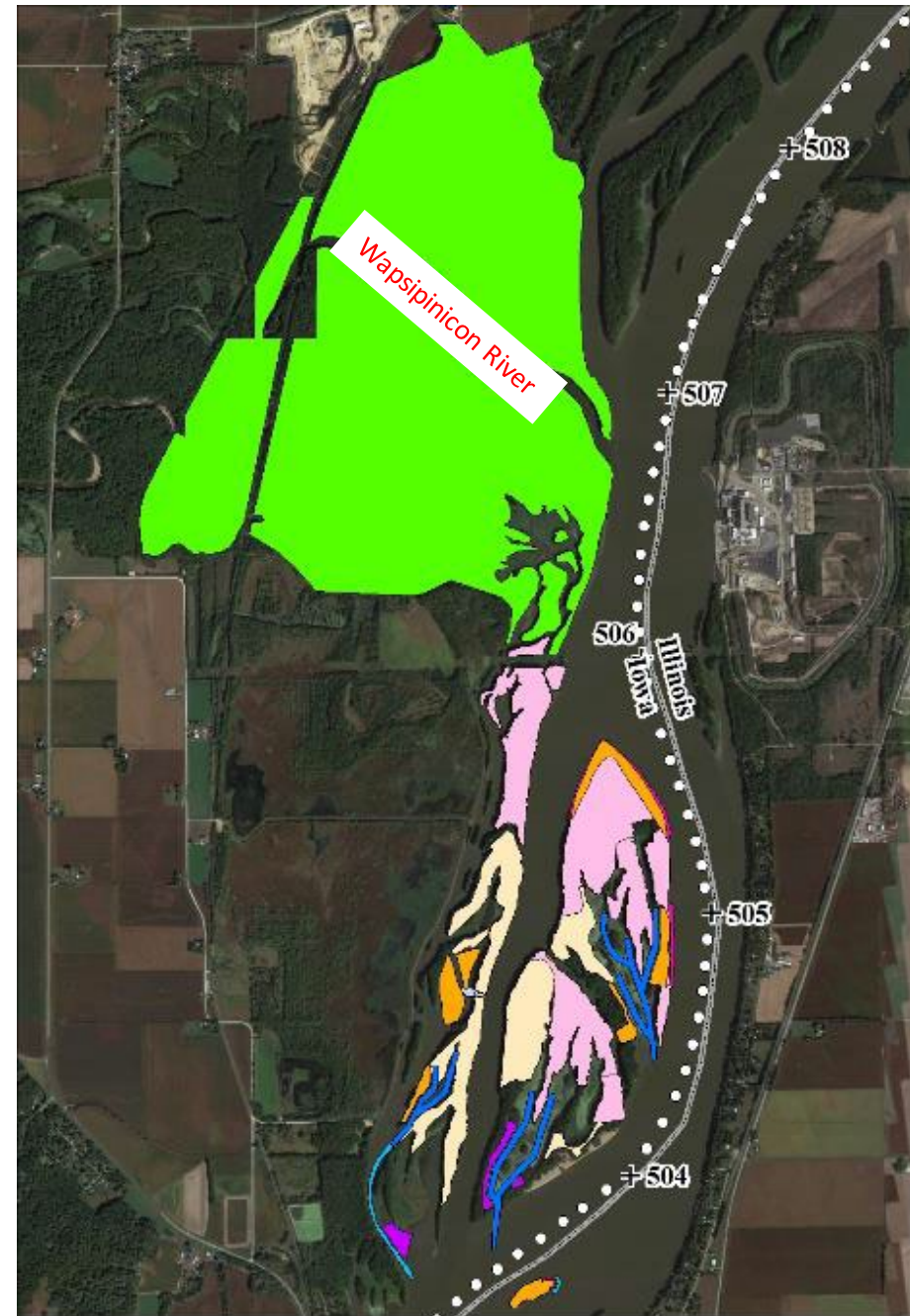
- + River Miles
- River Miles, Tenths



States

Measure

-  Aquatic Diversity Dredging
-  Temporary Access - Dredging
-  Temporary Access - Placement
-  Temporary Tree Clearing
-  Topographic Diversity Placement - Forestry
-  Topographic Diversity Placement - SSP
-  Stone Protection
-  Timber Stand Improvement - Rx Pending
-  Timber Stand Improvement - Rx Thinning
-  Timber Stand Improvement - Rx Thinning & Planting





BENEFITS AND IMPACTS



Project Benefits		
Overwintering Habitat	~30 acres	23 football fields
Island Restoration & Protection	26 acres	20 football fields
Topographic Diversity (Forestry, Scrub-Shrub/Pollinator Habitats)	66 acres	50 football fields
Timber Stand Improvement	~900 acres	680 football fields

Recreational benefits – easier access to lakes, better fishing and boating

PROJECT STAGES

U.S. ARMY

Stage I (Completed April 2024)

- Stone Protection

Stage II (In Construction)

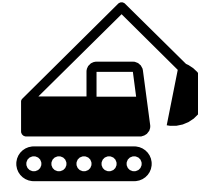
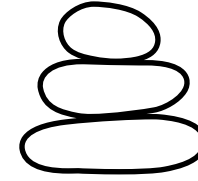
- Dredging
- Material Placement (Topographic Diversity)

Stage III (In Design)

- Dredging
- Material Placement (Topographic Diversity)
- Island Restoration (Southeast Island)

Stage IV (Design to begin after Stage III)

- Plantings
- Timber Stand Improvement
- Dredging for aquatic diversity
- Mussel substrate
- Island Restoration (Southeast Island)



Stage I – Started in spring 2023 - completed in April 2024



**Stage II + III
Dredge Material
Placement**

Head of Steamboat Island



Head of Island Rock Placement

- ### Northeast Bank Stone Protection
- Restore island and prevent further erosion
 - Dredge material placement in Stage II



Northeast Bank Rock Placement



Northeast Bank Protection Location



U.S. ARMY

NORTHEAST BANK STAGE II PROGRESS



Steamboat Island Grade Control

- Prevent further erosion
- Limit flow and sediment transfer into interior lakes
- Dredge material placement during Stage II



Grade Control Structure



Grade Control Structure - Location



U.S. ARMY

GRADE CONTROL STRUCTURE STAGE II PROGRESS



Southeast Island Stone Protection

- Naturally fill in with sediment over time
- Additional material to be placed in Stage's III and IV to fill behind rock.



Southeast Island Rock 10/24/2024



Southeast Island - 1994



2022 Ariel of Southeast Island Area

Stage II – Awarded construction contract in March 2024



Head of Island Placement Progress 10/24/2024

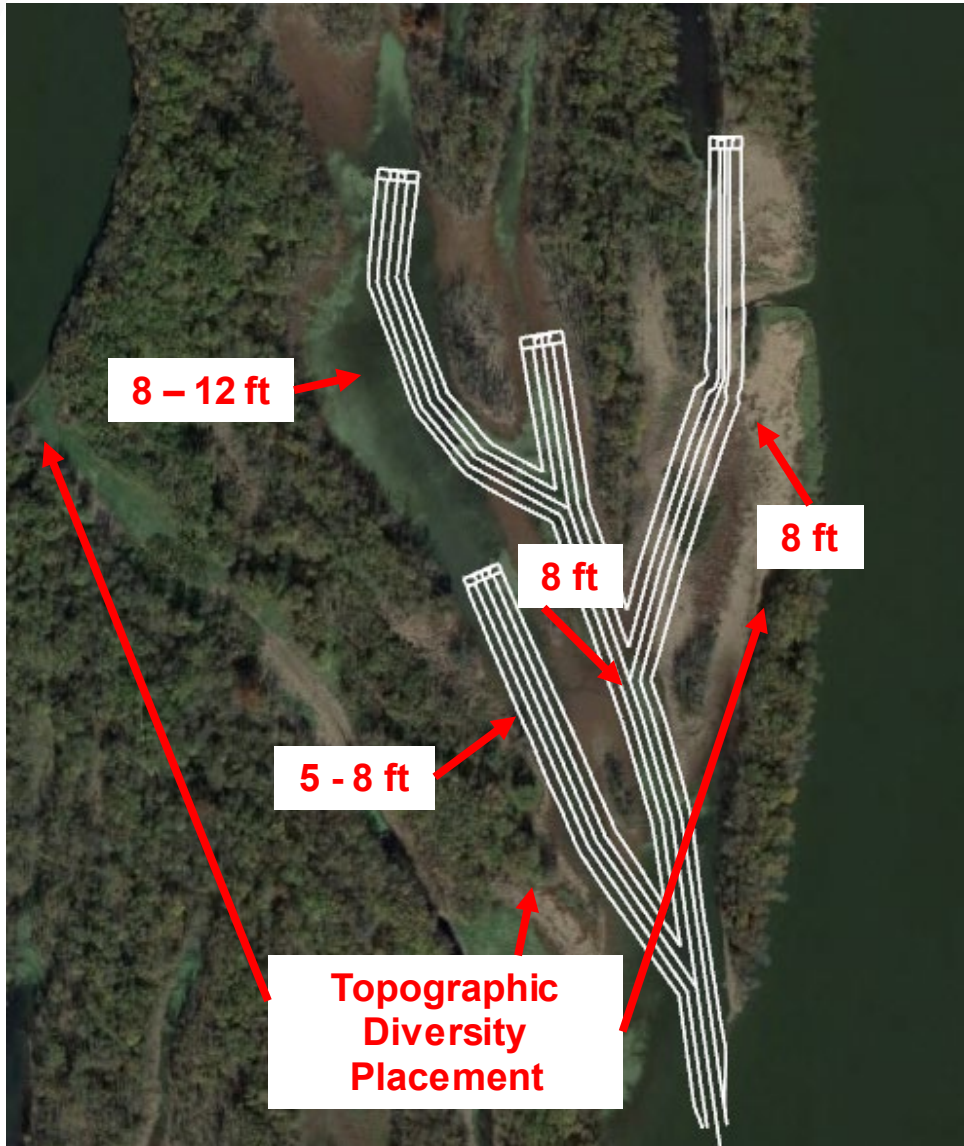


Head of Island Placement 10/24/2024



U.S. ARMY

STAGE II DEPTHS



Upper Lakes 10/24/2024



U.S. ARMY

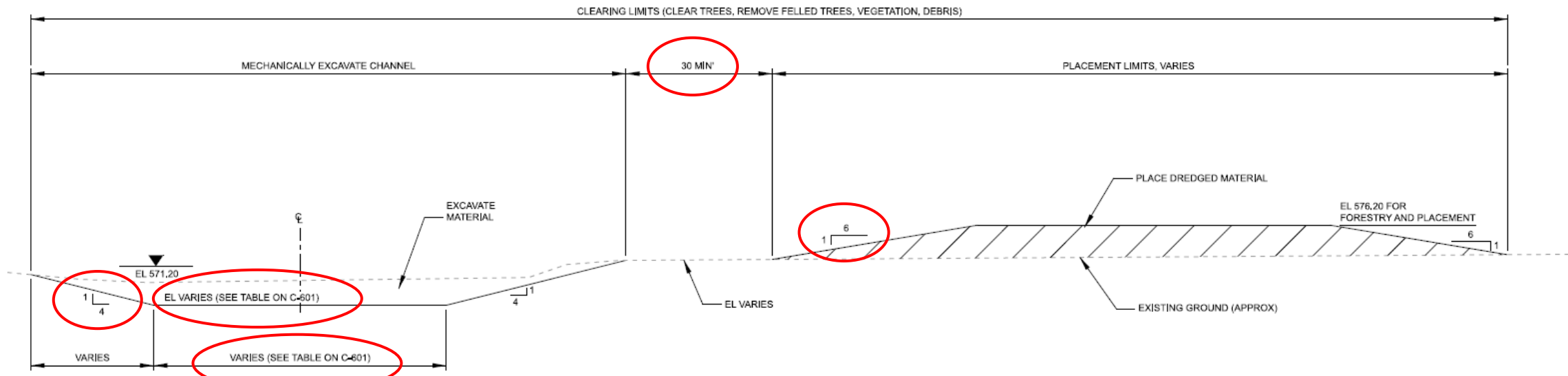
STAGE II DREDGING/PLACEMENT PARAMETERS



- Depth
- Slope Stability
- Bottom Widths
- Buffers
- Shelving
- Variability
- Barge Access/Turning Radius
- Partner/Public Feedback



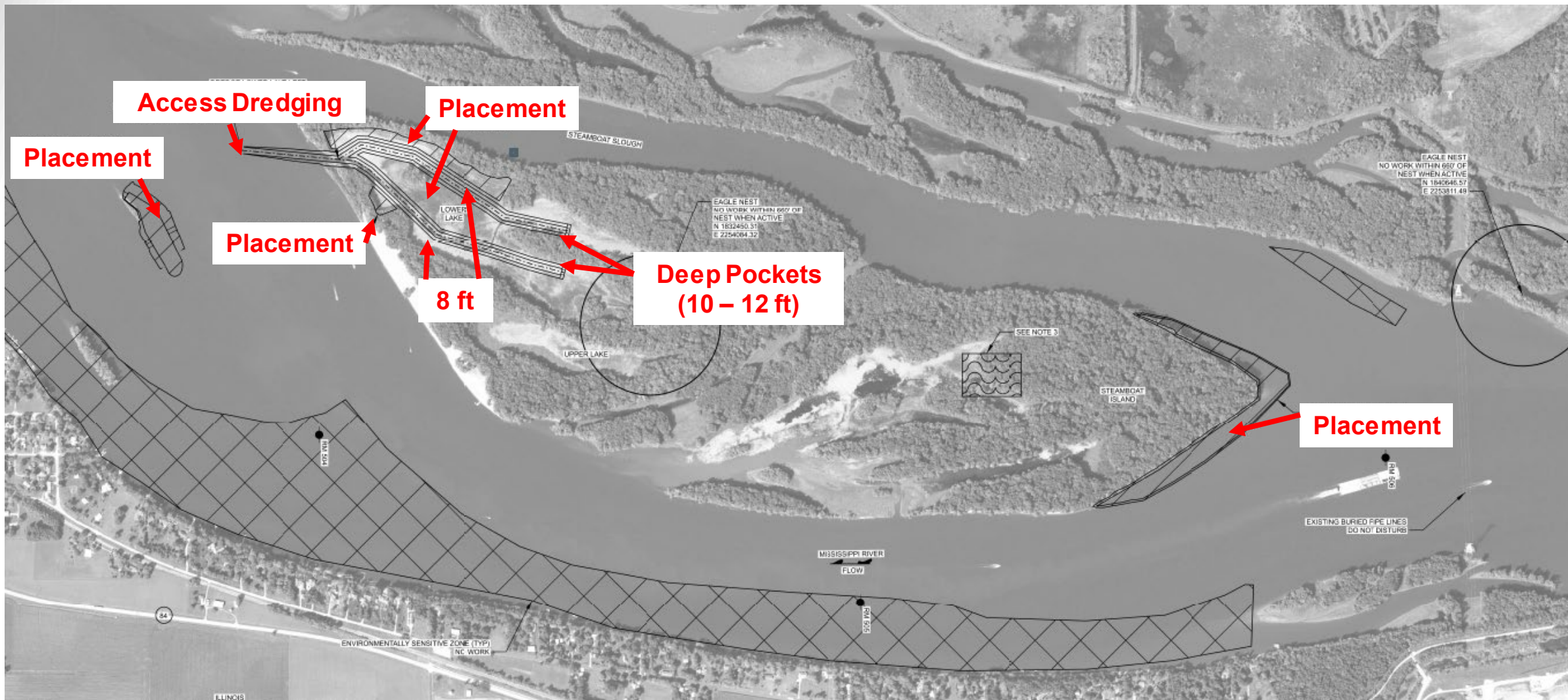
Site Visit with USFWS and DNR





U.S. ARMY

STAGE III – IN DESIGN





U.S. ARMY

STAGE III CURRENT PHOTOS 10/24/2024

25





U.S. ARMY

QUESTIONS



Thank You!



STONE PROTECTION