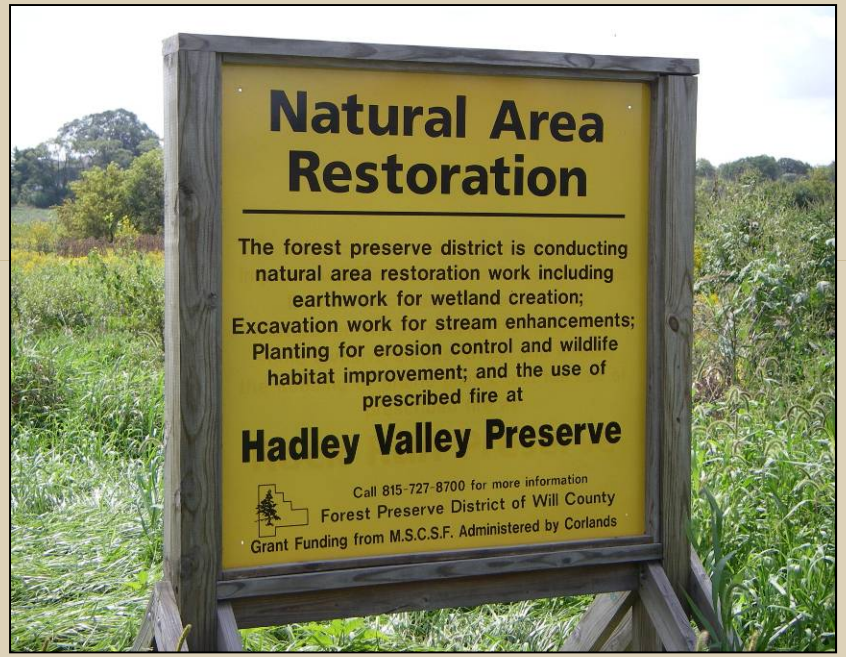
Adaptive Design, Construction and Management: Using a Design-Build-Manage Approach for the Successful Ecological Restoration of the Spring Creek Greenway



Presented by:
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V3 Companies

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What is Adaptive Management?

- US Army Corps of Engineers Definition (2008 Final Mitigation Rule):
  - management strategy that anticipates challenges with compensatory wetland mitigation
  - provides implementation of actions to address challenges and other unforeseen changes
  - requires consideration of risk, uncertainty, and dynamic nature of compensatory wetland mitigation
  - guides modification of projects to optimize performance
  - select appropriate measures based on analysis of monitoring results to ensure aquatic resource functions are provided

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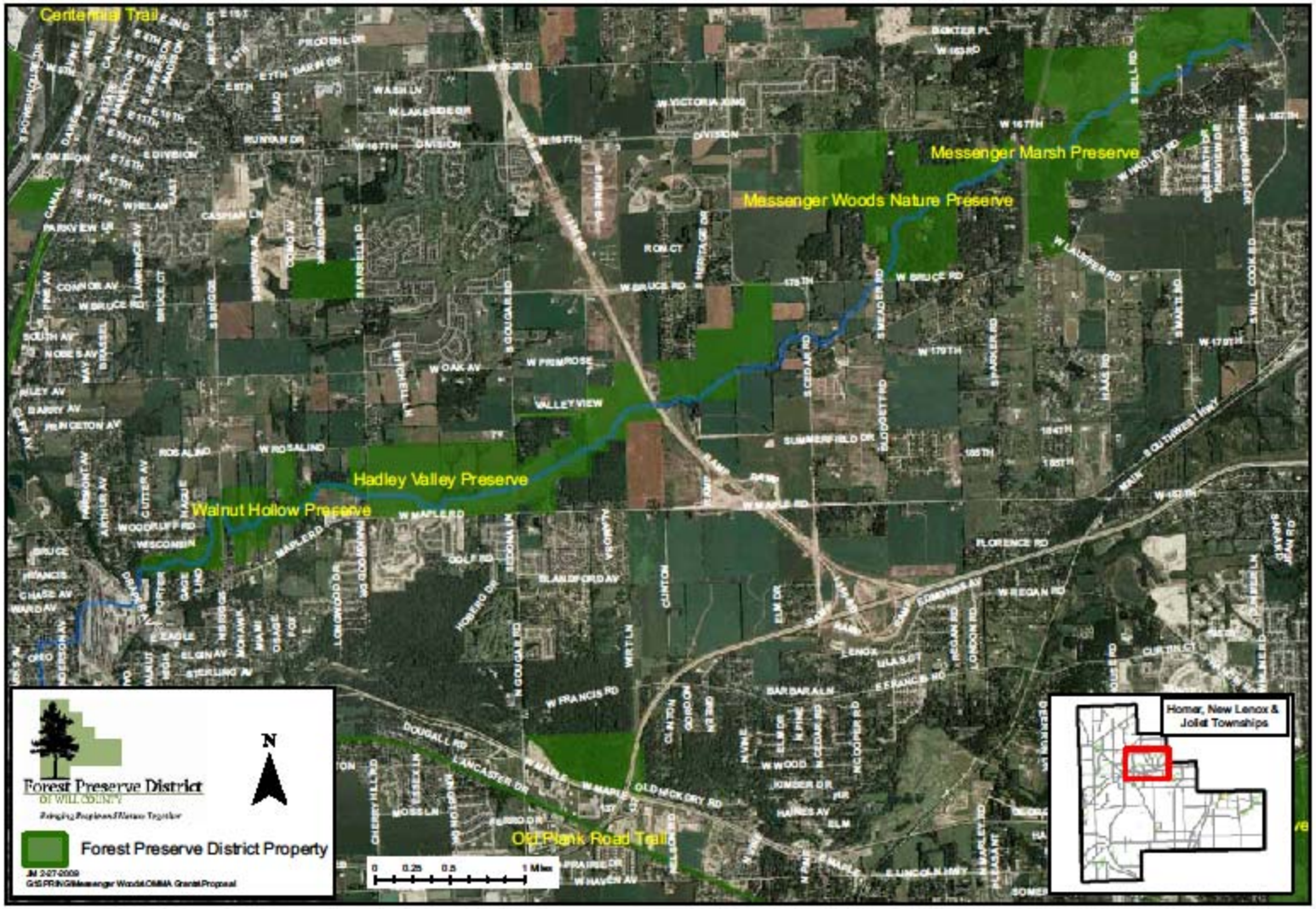
Spring Creek Greenway

Spring Creek Greenway Map



Channelized Spring Creek

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Adaptive Design

- 1939 aerial photographs used to locate historic stream channel
- Adjusted historic channel to accommodate urbanized stream flows
- Restore wetland and upland plant communities based on current hydrology
- Modified typical prairie seed mixes to accommodate intensive weed control needs

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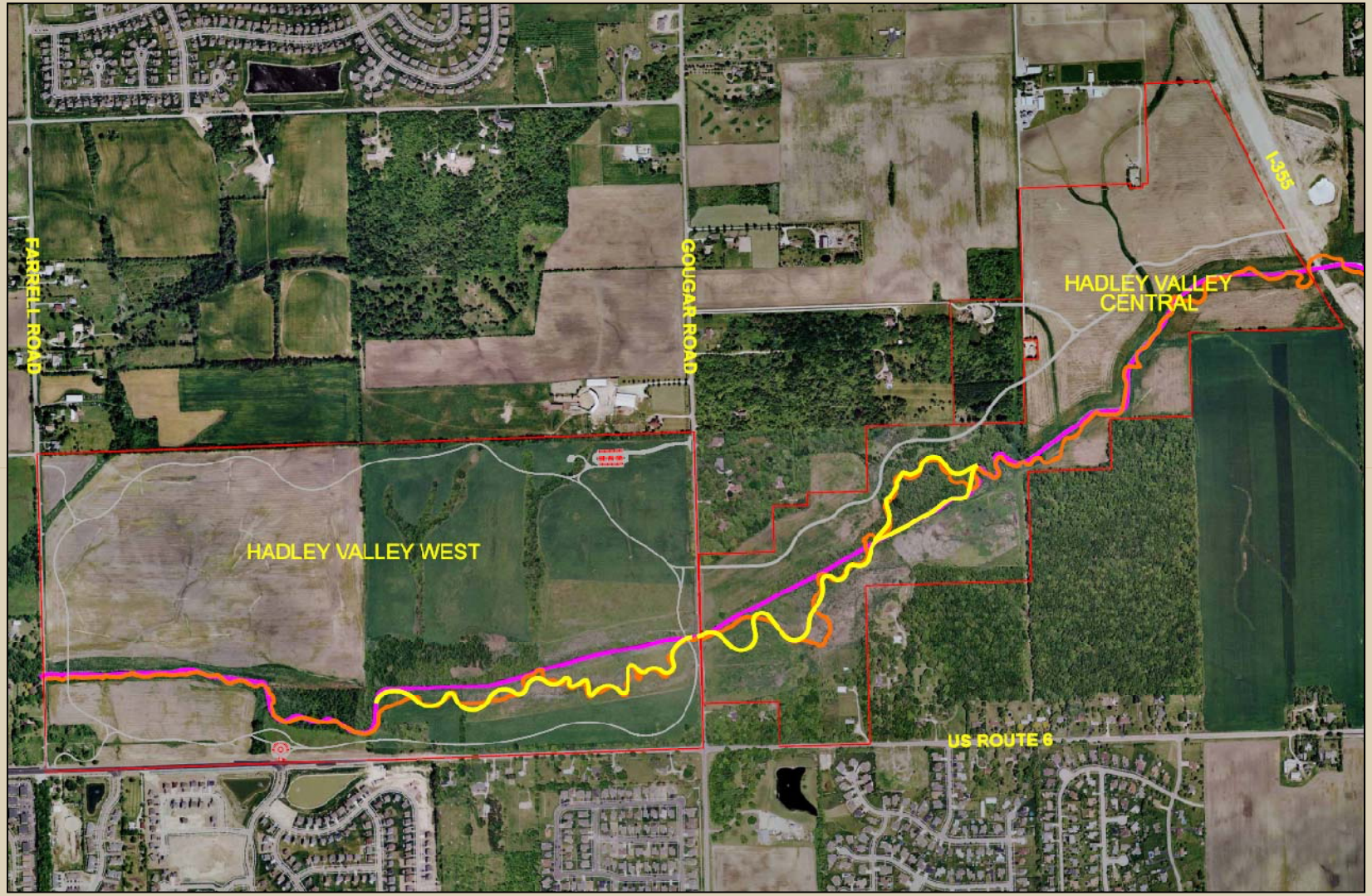
Creek Remeandering



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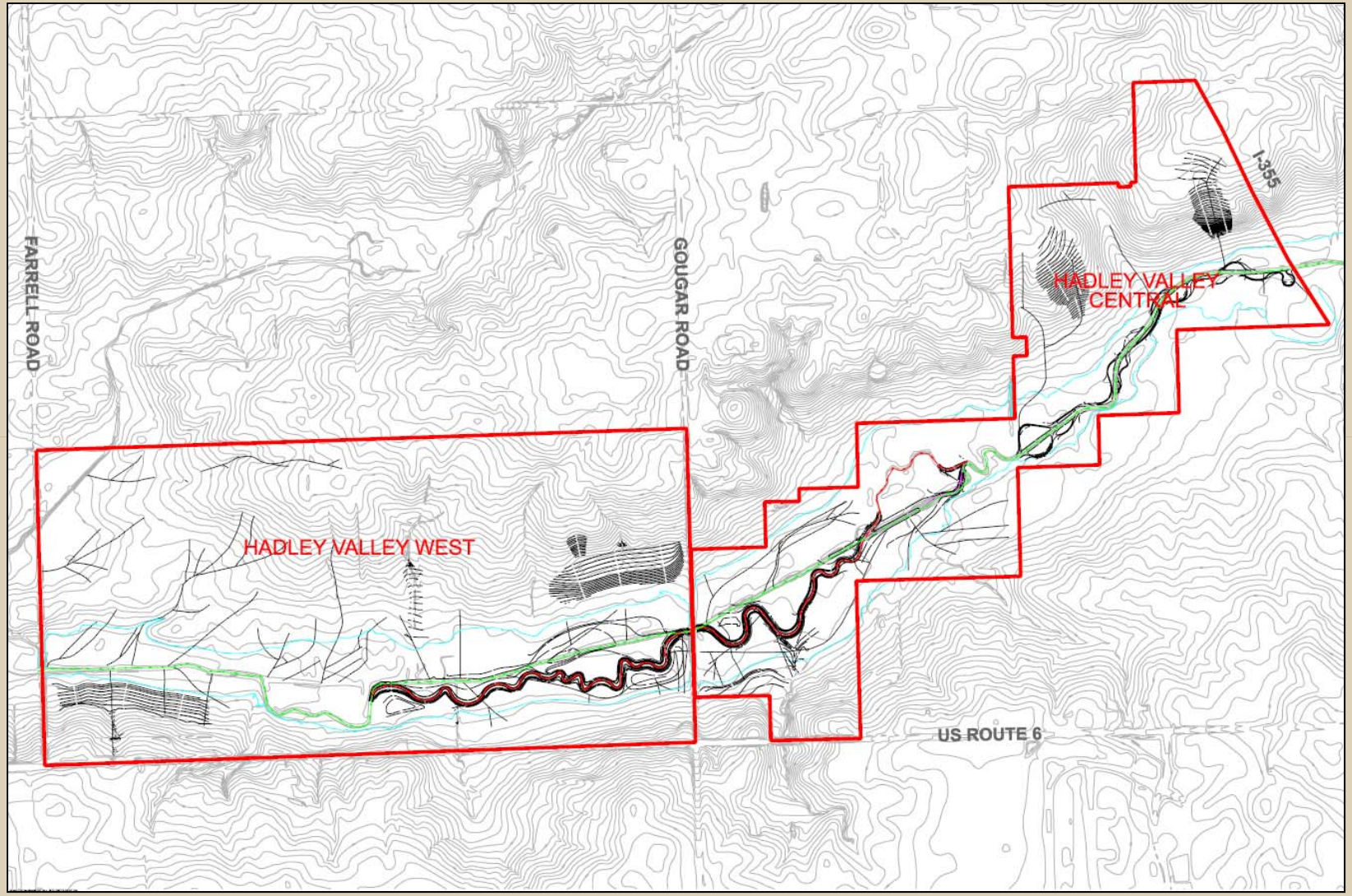
Grading Plan



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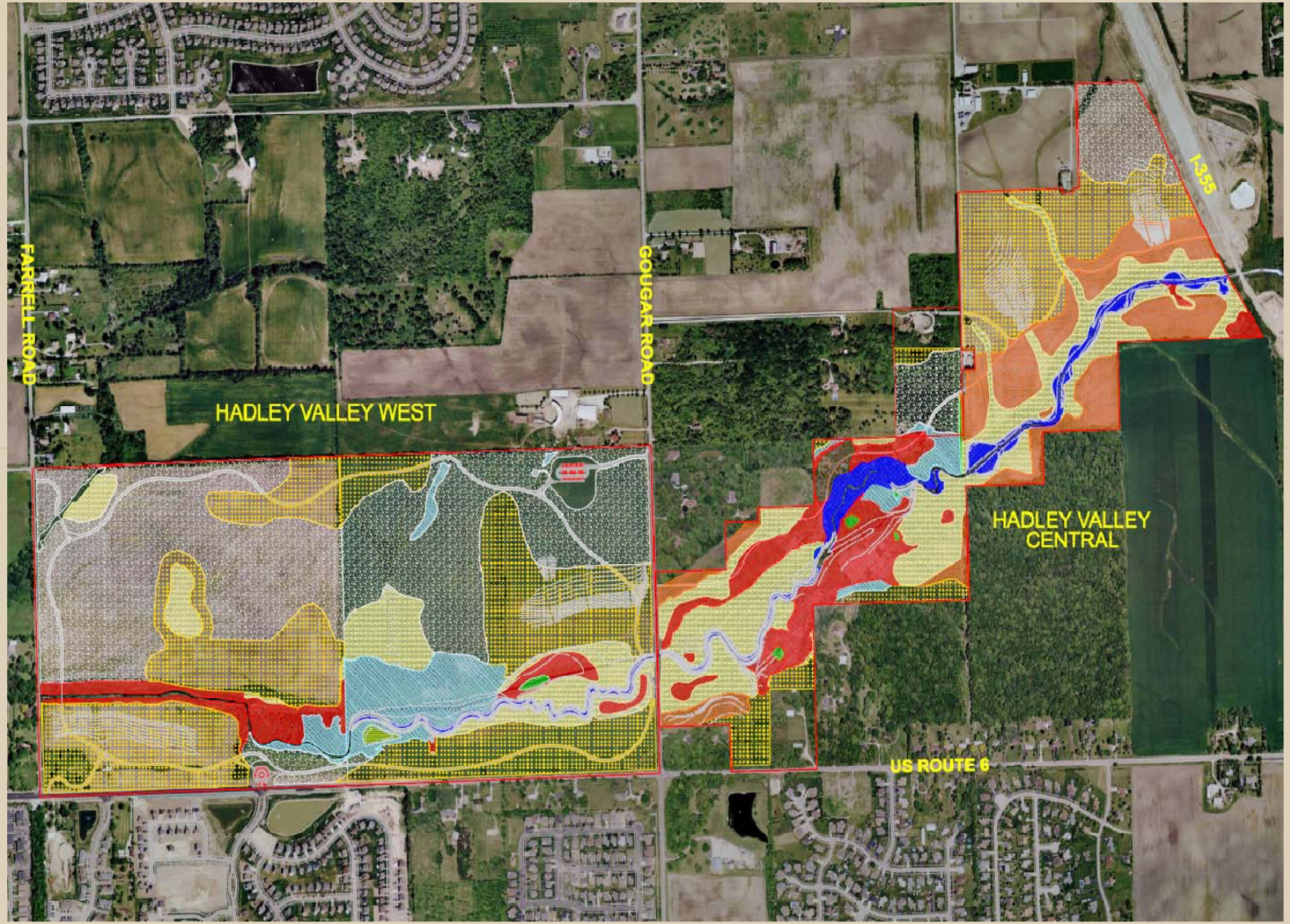
Native Plant Community Design



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Adaptive Construction

- Creek construction sequenced to:
  - Facilitate access and movement of equipment
  - Deal with potential storm events and flooding
  - Maintain soil erosion and sediment control
- Adjusted riffle placement and transitions between constructed stream sections based on field conditions
- Coordinated construction and planting scheduling to ensure dormant and growing season seeding occurred at optimal times
- Shoreline toe protection installed based on actual normal water level
- Oversight and management of native vegetation by experienced ecologists to make field changes based on actual site conditions

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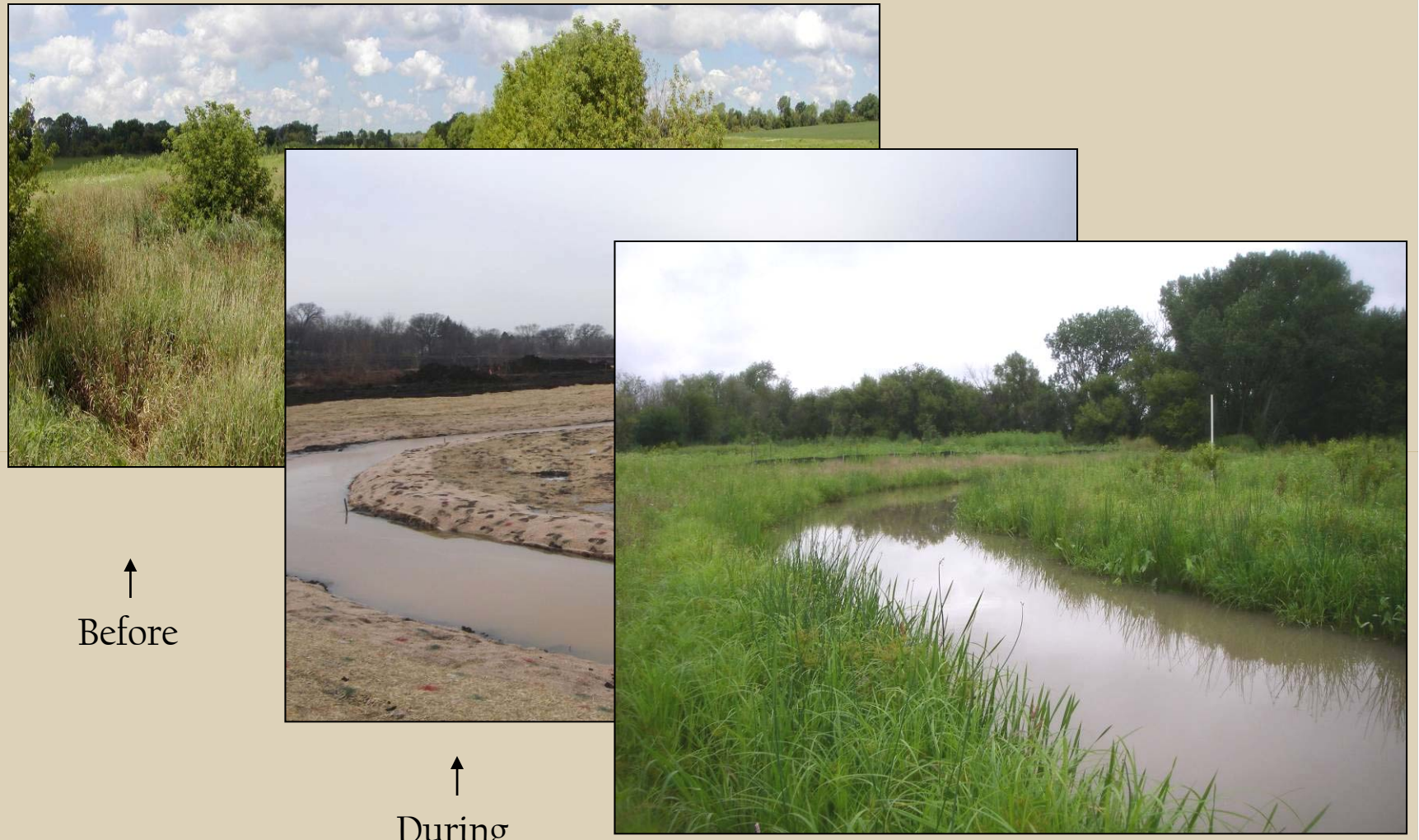
Restored Creek Channel



Before

During

After

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Creek Construction

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Riffle Placement

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Erosion Control

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Wetland and Prairie Seeding

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Planting of Trees and Shrubs

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Coir Log Installation

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Wetland Plug Establishment

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Adaptive Management

- Intensive multiple season pre-seeding weed control program of herbicide, mowing, and prescribed burn management
- Invasive species management strategy
  - Invasive species monitoring
  - Phased seeding of species tolerant of particular herbicides
  - Boom spraying of selective herbicides
  - Timed mowing
  - Prescribed burn management

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Pre-Seeding Weed Control

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Follow-Up Vegetation Management

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Restored Spring Creek-West

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Restored Spring Creek-Central

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Restored Spring Creek-Central

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Restored Creek & Wetlands

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Restored Creek & Wetlands

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Restored Upland

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Permit Compliance-West

- 2009 Monitoring-Wetland Creation & Restoration Areas
  - 139 Native Species (78%)
  - Native FQI = 43.9
  - Native Mean C = 3.7
  - Meets all 7 wetland mitigation performance standards

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Messenger Woods Nature Preserve

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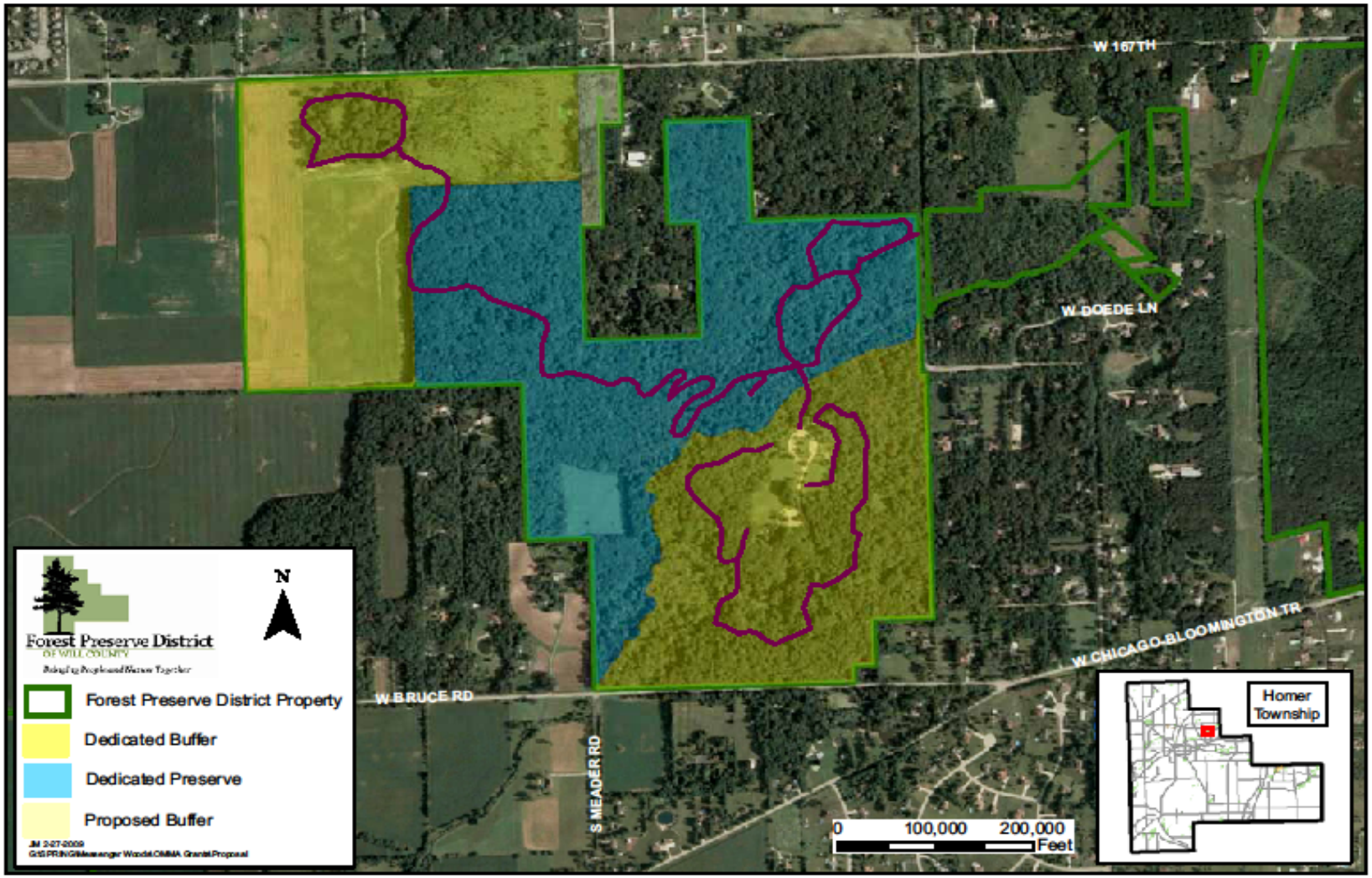
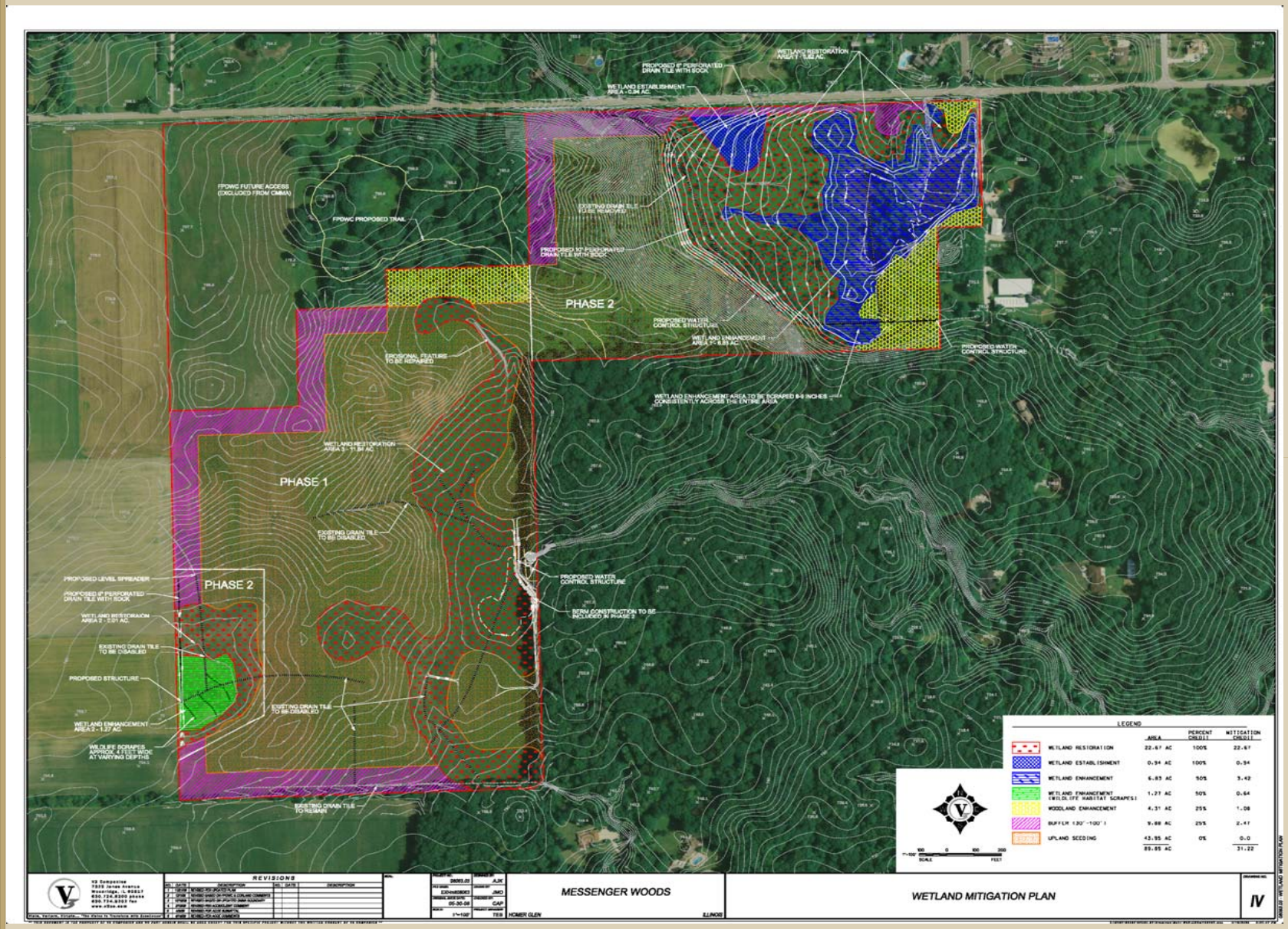
Messenger Woods
Illinois State Nature Preserve Status



Wetland Restoration Plan



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Questions?

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