PLATTE RIVER
RECOVERY IMPLEMENTATION PROGRAM

Water Action Plan Projects Update

PRRIP Governance Committee Meeting

September 13 - 14, 2016

Presentation Outline

- Overview of WAP Projects
- Broad-scale recharge
  - General concept refresher
  - New developments
  - Next steps
- Slurry wall storage facilities
  - General concept refresher
  - New developments
  - Next steps
- Questions/Discussions

Overview

WAP Projects – Plan B

Portfolio - Water Action Plan B

Category	Score (AF/yr)	PRRIP or non-PRRIP Land?	Score (AF/yr)
Acquire and Retire	1,459	Non-PRRIP	1,459
Broad-scale Recharge	12,038	PRRIP	3,744
		Non-PRRIP	8,294
Slurry Wall Pits	12,243	PRRIP	5,948
		Non-PRRIP (Existing Pit)	6,295
Slurry Wall Aquifer	7,259	PRRIP	1,452
		Non-PRRIP	5,807

Gets us to estimated
132,119 AF/yr

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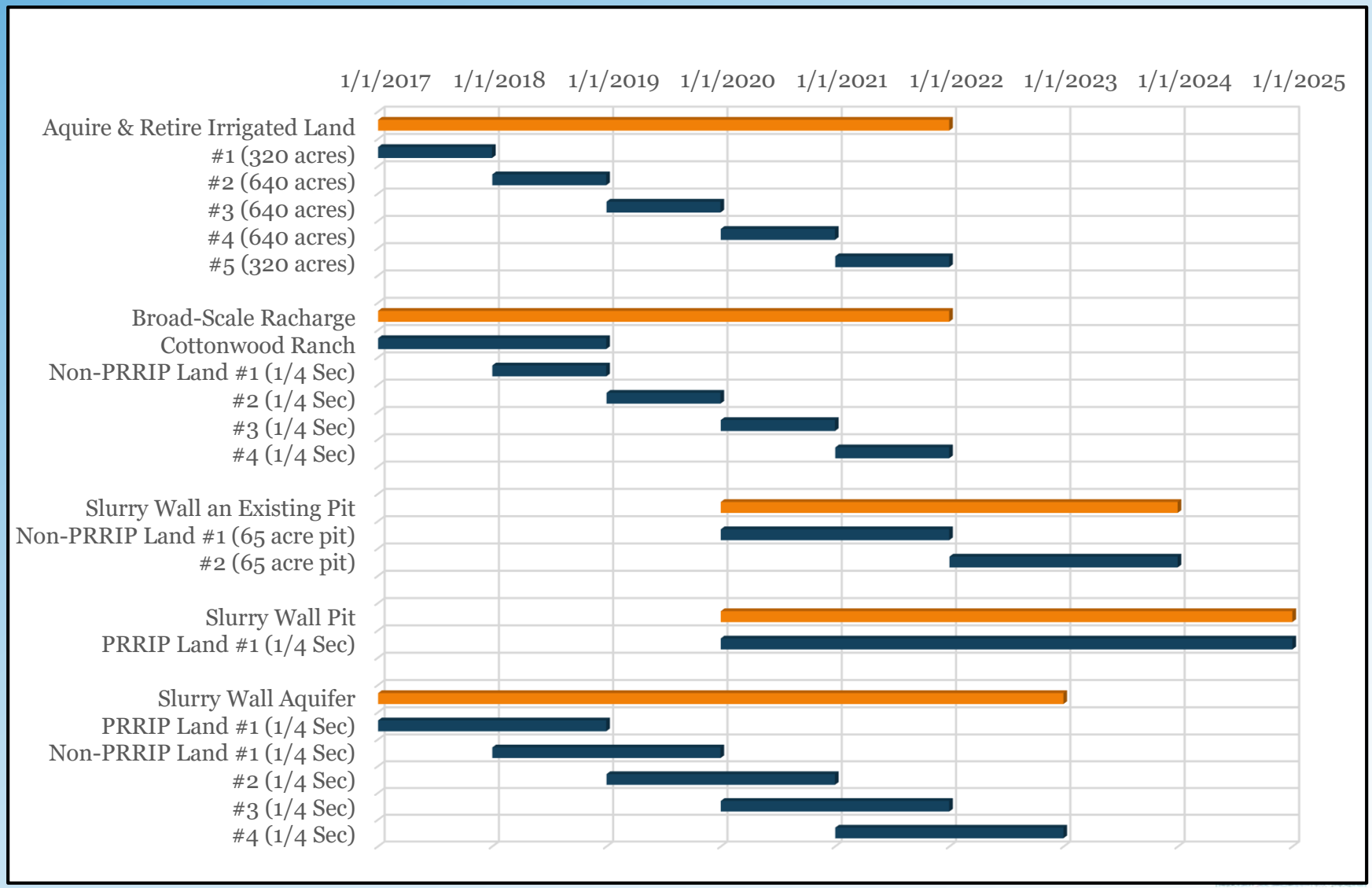
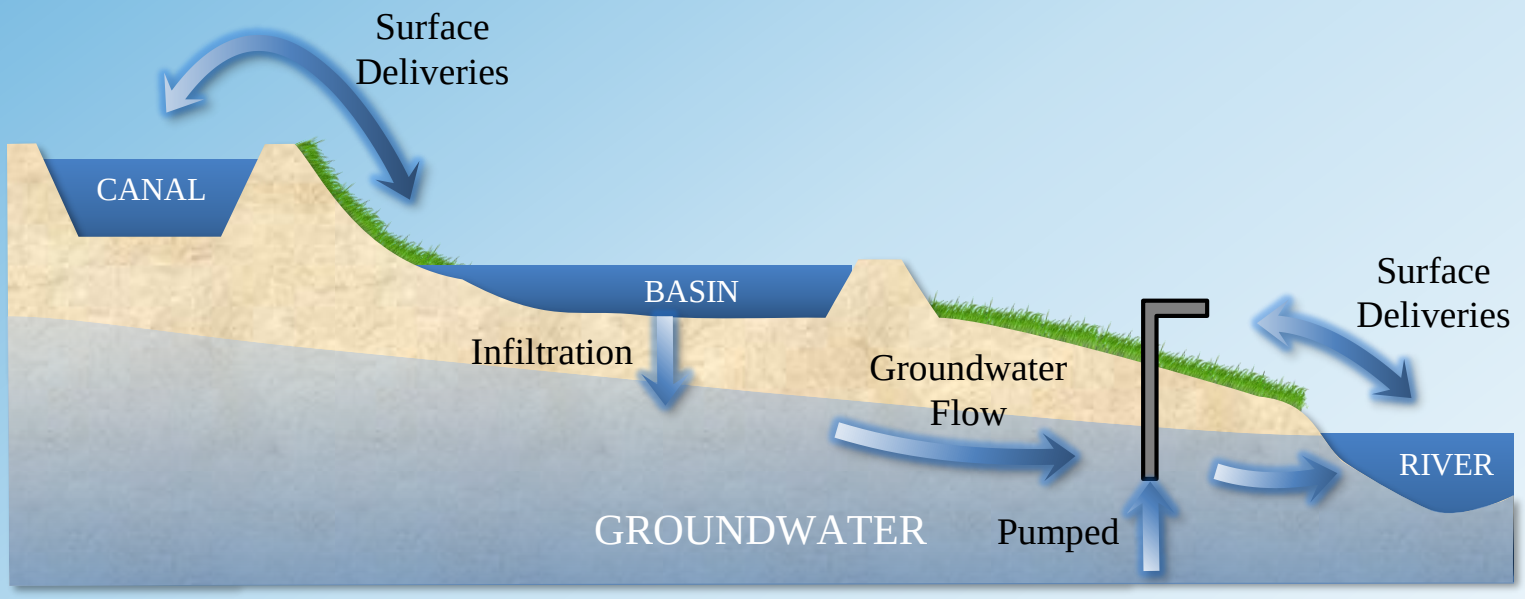
Timeline – Water Action Plan B



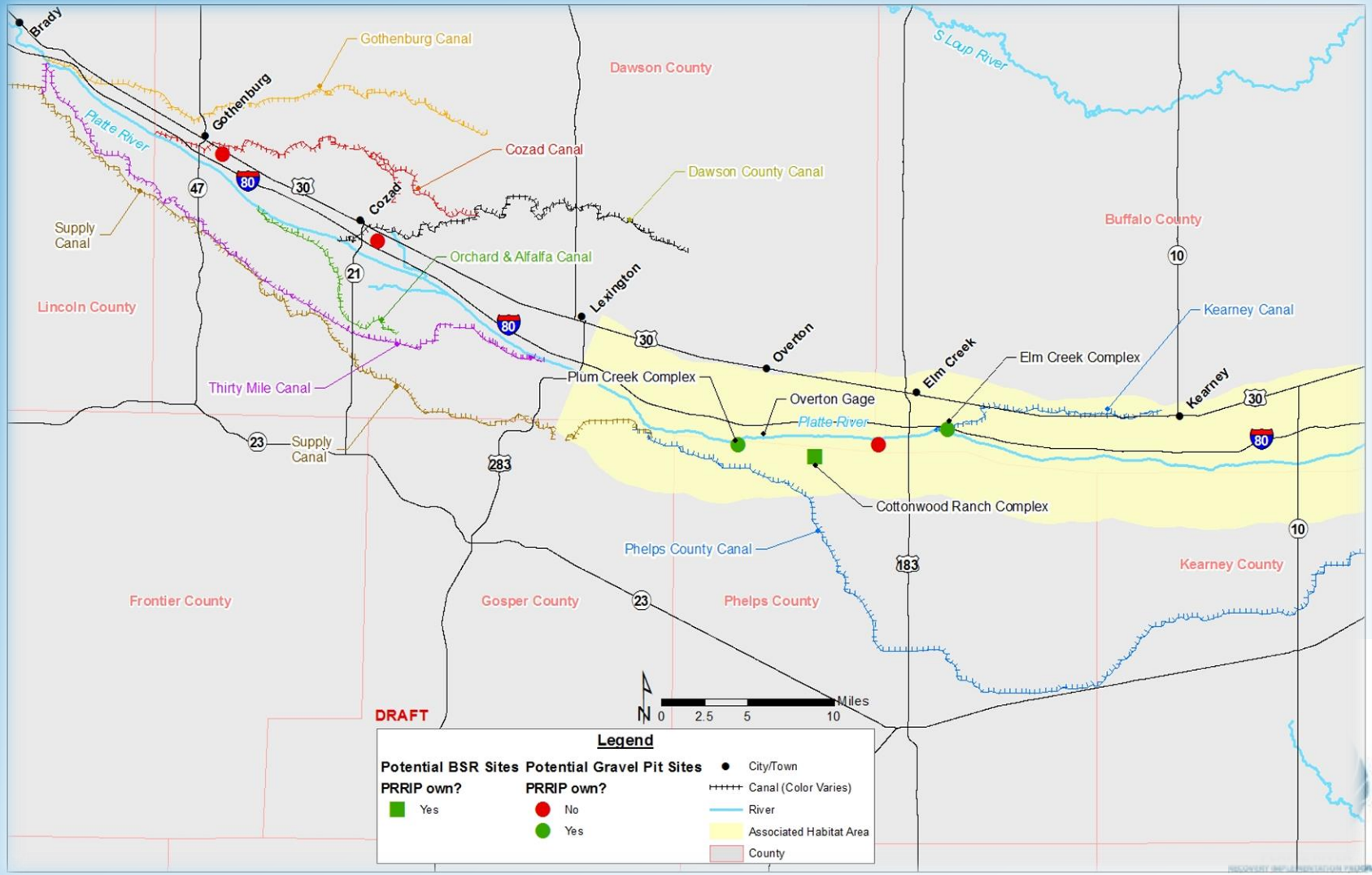
Broad-Scale Recharge

Concept Refresher, Updates & Next Steps

General Concept Refresher

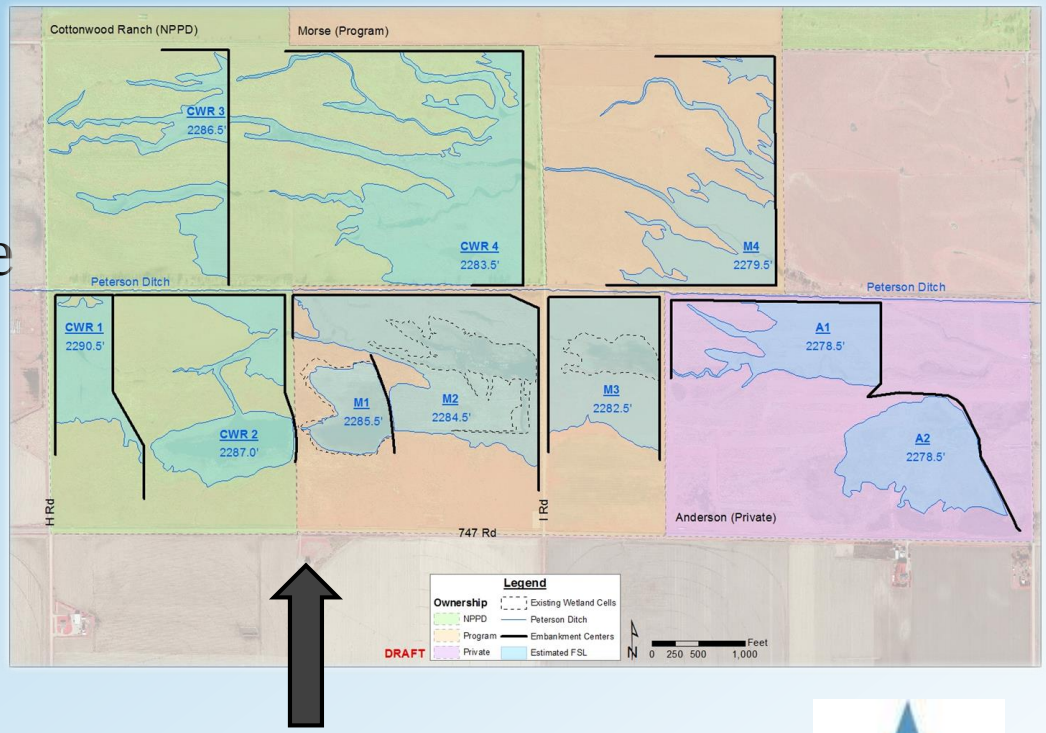


Locations – BSR Projects



BSR on PRRIP Lands

- Focus given to CWR:
  - PRRIP owned
  - Habitat & recharge
  - Close to water source (Phelps Co. Canal)
  - Close to the river
- Score goal = 3,744 AF/yr
  - Deliveries ≈ 65 cfs
  - Ponded Area ≈ 400 ac



Design will likely change… but this is the general concept

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Updates – Infiltration Testing

Infiltration Pits

Excavated

Bermed

Preliminary Results

Pit	Dates	Avg. Inf (ft/d)
Bermed	3/22 – 3/30/16	0.34
Bermed	4/4 – 4/11/16	0.28
Bermed	6/29 – 7/12/16	0.24
Bermed	8/26 – 9/09/16	??
Excavated	3/22 – 4/11/16	0.12
Excavated	6/29 – 7/12/16	0.09
Excavated	7/28 – 8/13/16	??

Assumed Rates:
Bermed = 0.3 ft/d
Excavated = 0.1 ft/d

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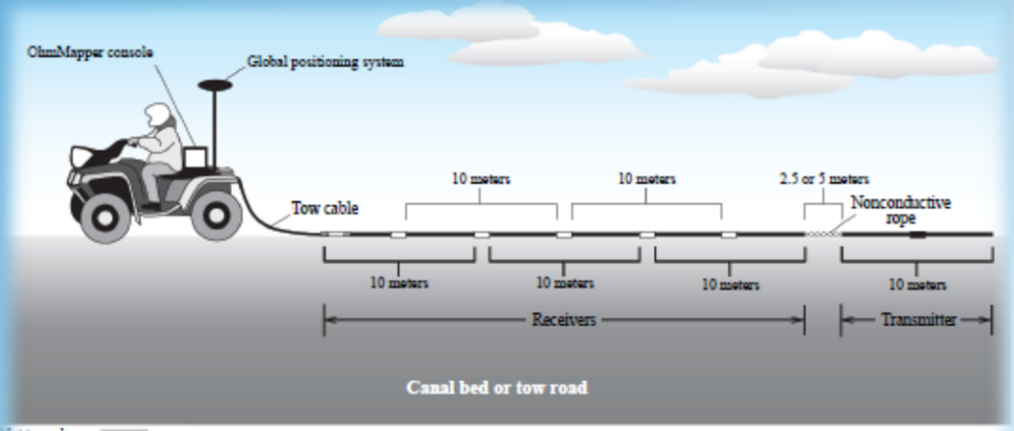
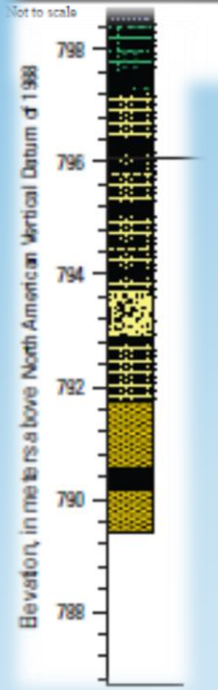
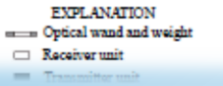
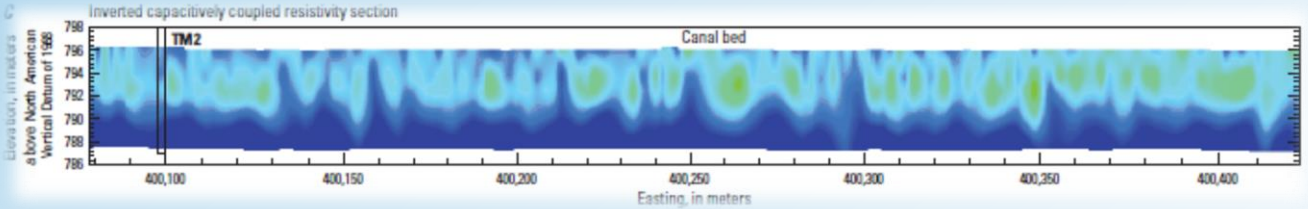
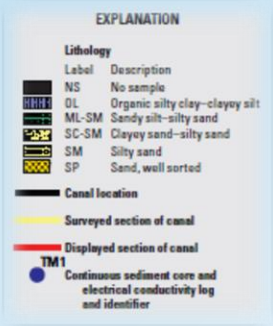
Updates – Subsurface Investigation











Happening this week…
started this morning!

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Updates – Groundwater Model

- Model recently completed by EDO
  - Need to run scenarios
  - Will help determine influence of ditch, where recharge water goes, etc.

BSR on non-PRRIP Lands

- Investigating other potential recharge sites below Phelps Co. Canal:
  - Same reasons as CWR
- Looking into sites below other canals:
  - Orchard Alfalfa, 30-Mile, Cozad, etc.
- Estimate that we'll need about 4 separate ¼ section sites (or equivalent) to reach score goal of 8,294 AF/yr

Next Steps

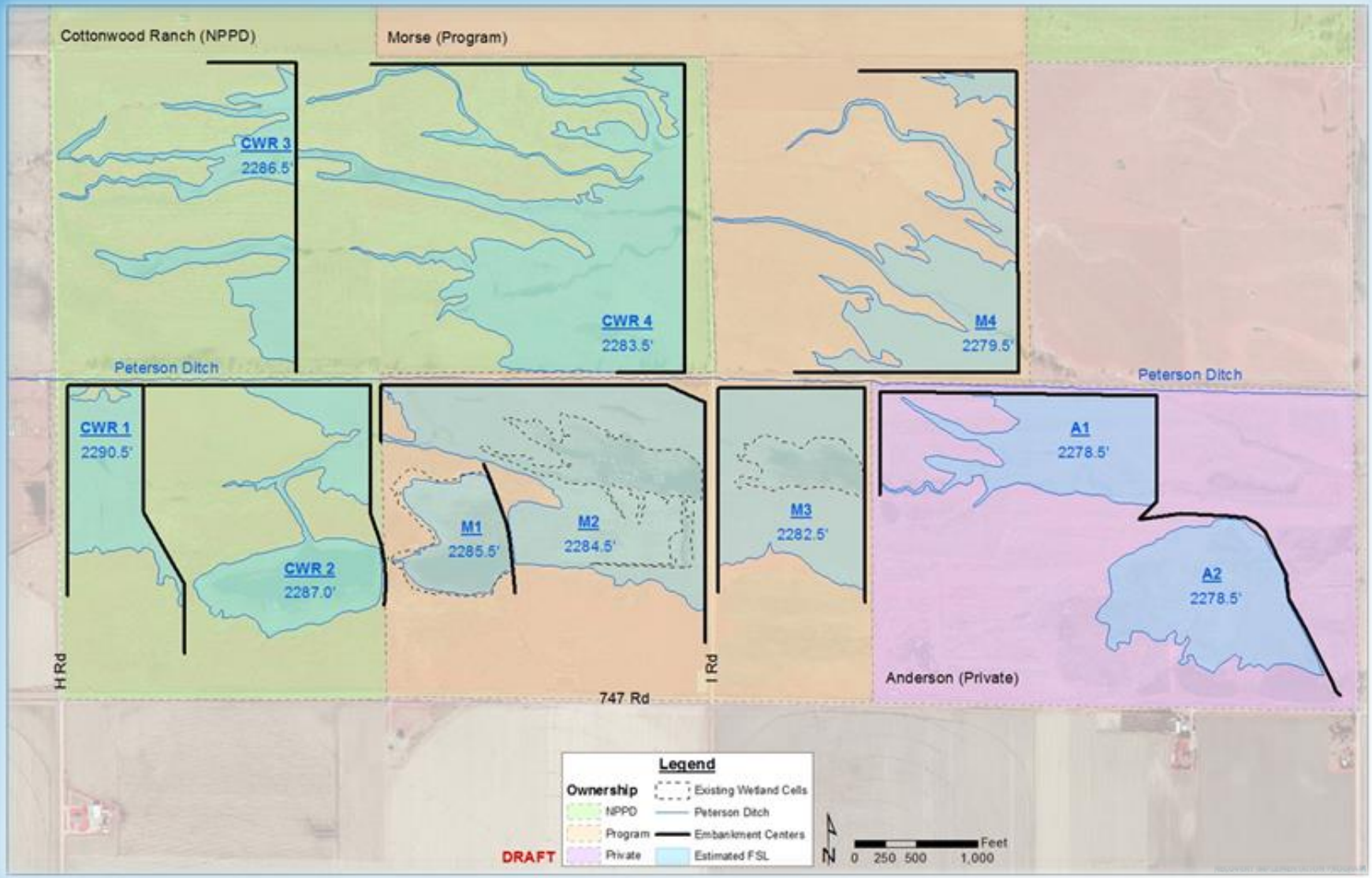
BSR on CWR

- Engineering design RFP
  - Finalize soon to select firm & start process by 1/1/17
- Pipeline
  - Preliminary discussions w/ CNNPID
  - Deliveries of about 80 – 100 cfs
  - Pipeline in this winter?
- Permits?
  - Working w/ HDR
- Leasing & management agreements?
  - Working internally

BSR on non-PRRIP Lands

- Need to identify potential lands and assess feasibility

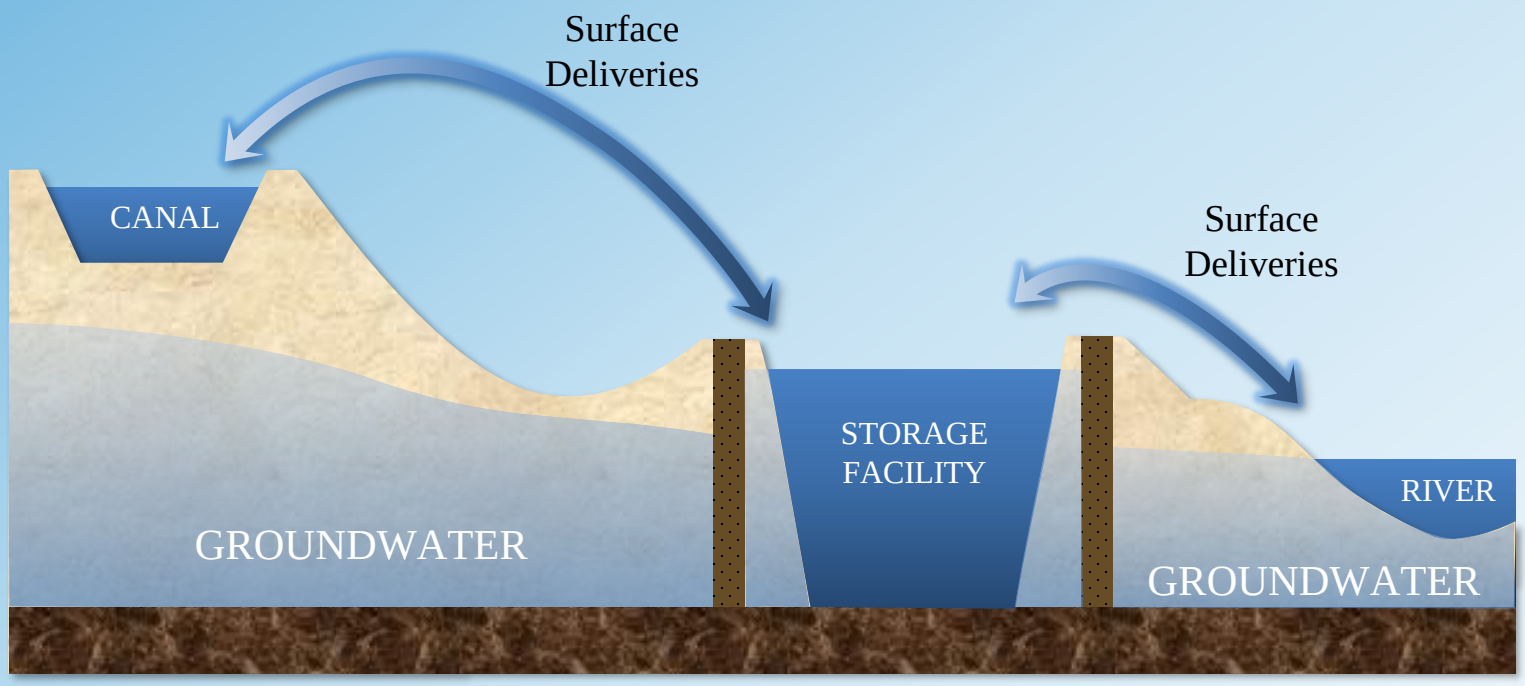
Next Steps – Refine Design



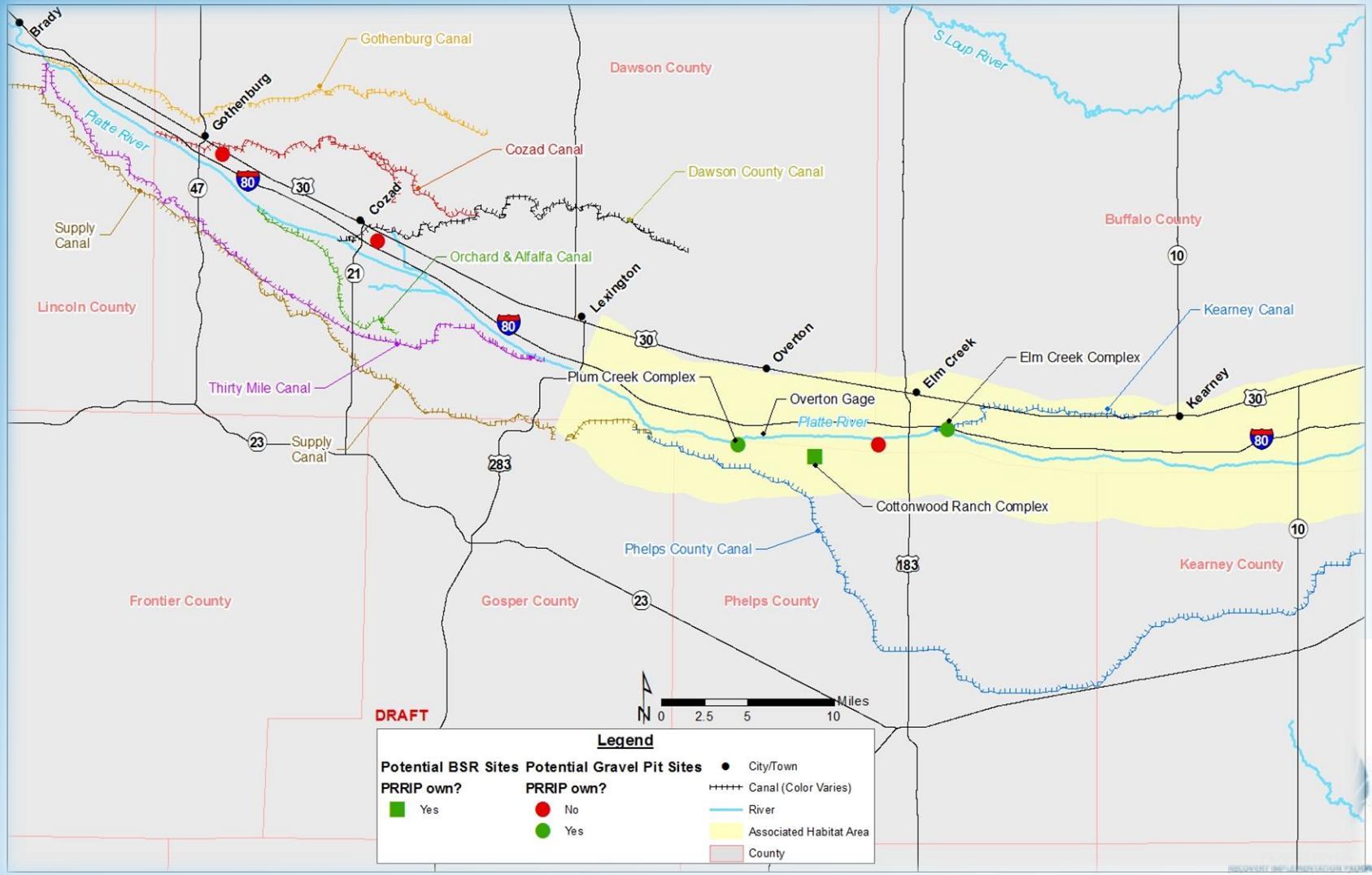
Slurry Wall Storage Facilities

Concept Refresher, Updates & Next Steps

General Concept Refresher



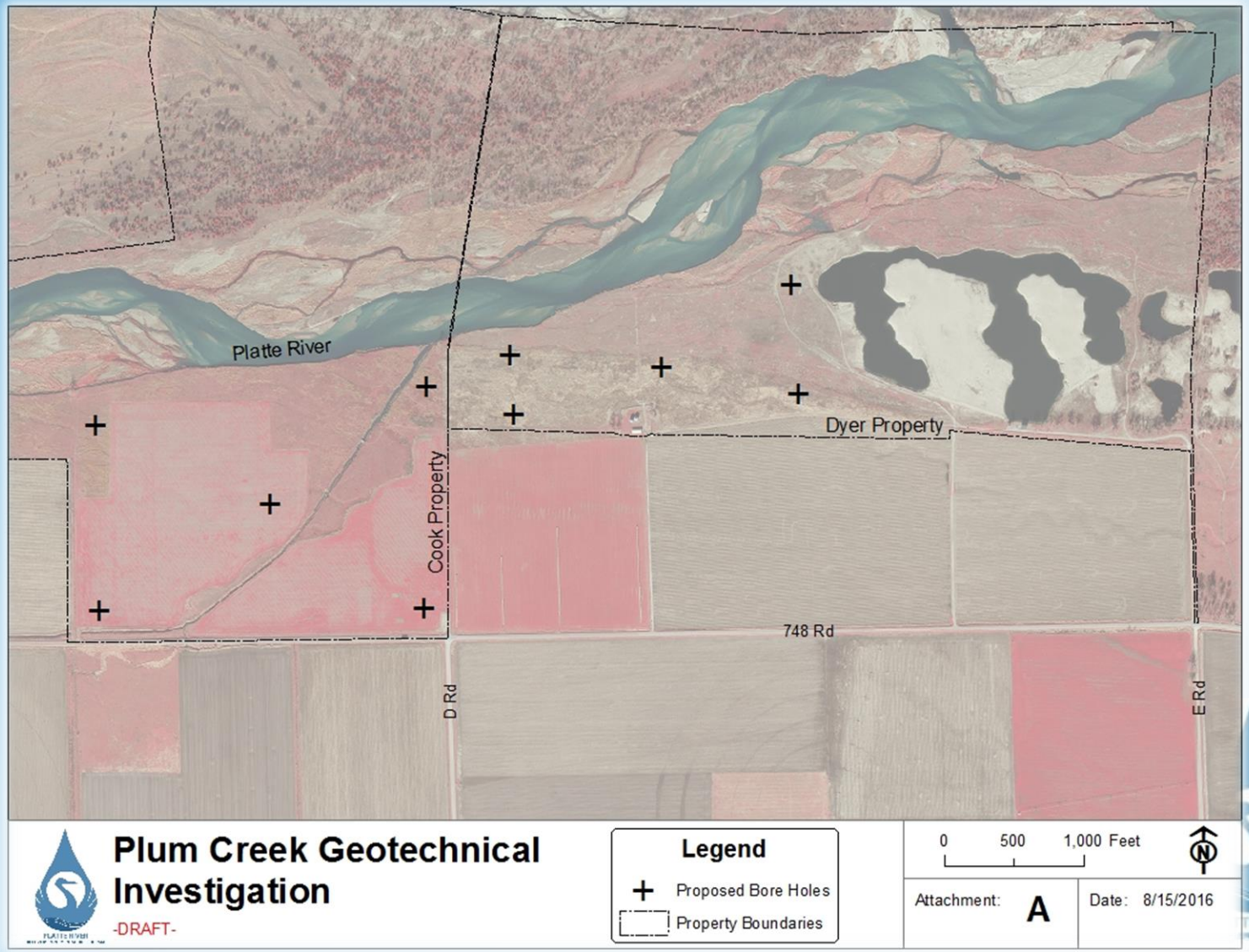
Locations – BSR Projects



Slurry Wall Storage on PRRIP Lands

- Goal (7,400 AF/yr):
  - 1 pit
  - 1 aquifer storage site
- Focused on identifying properties that could be potential sites and assessing feasibility of each:
  - Plum Creek Complex
  - Elm Creek Complex
- Can these sites work?

Updates – Plum Creek Complex



Updates – Plum Creek Complex

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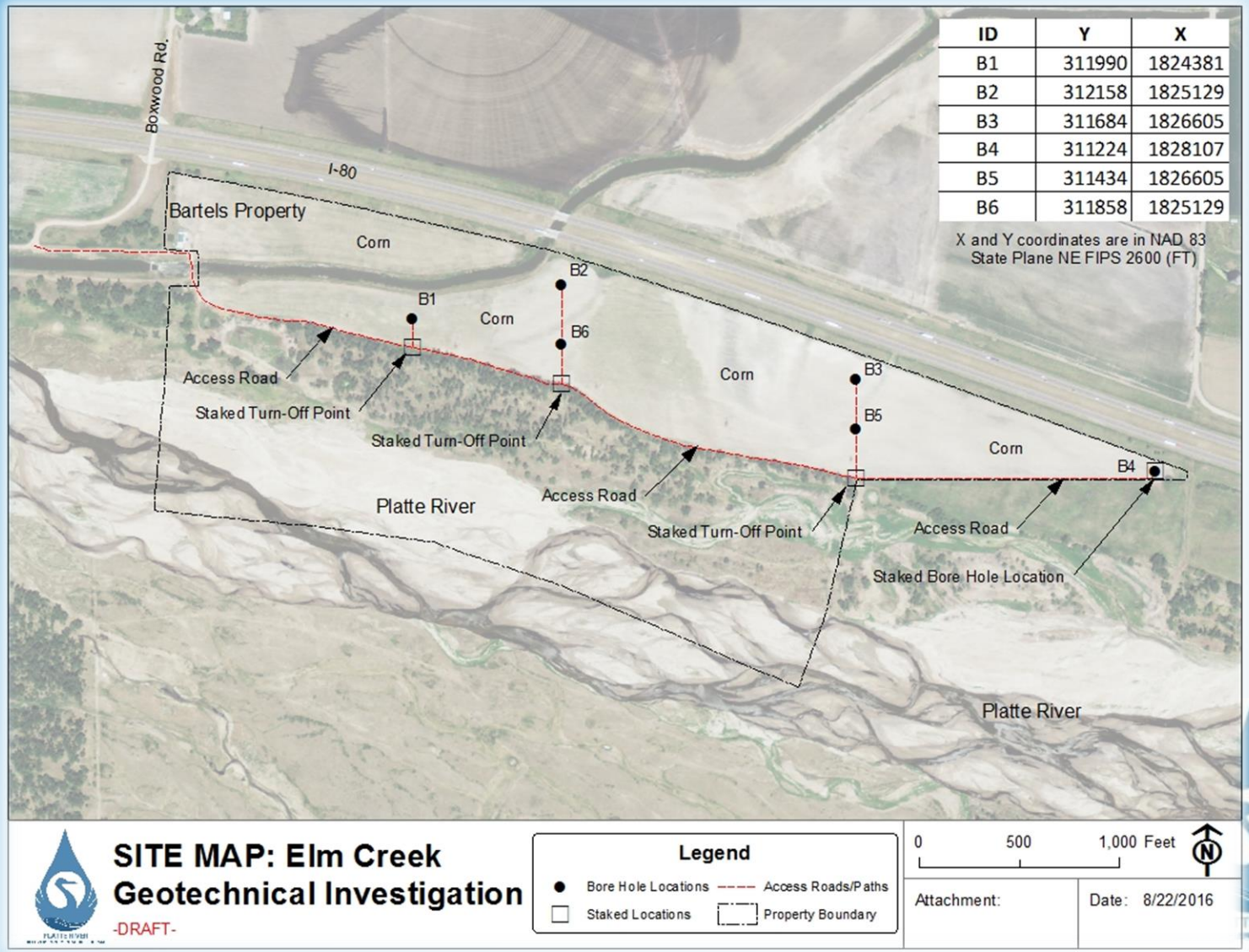
- Preliminary results:
  - Uniform confining layer between alluvium and Ogallala formation
    - Depth to: ~40’ – 35’
    - Thickness of: +10’
  - Lab tests:
    - Grain Size Analysis
    - Permeability
    - Porosity

Updates – Elm Creek Complex



Updates – Elm Creek Complex

Updates – Elm Creek Complex

- Preliminary results:
  - Confining layer less persistent and uniform than at Plum Creek (layer is still quite sandy)
    - Depth to: ~20’ below subsurface
    - Thickness of: +10’
  - Lab tests:
    - Grain Size Analysis
    - Permeability
    - Porosity

Slurry Wall Storage on non-PRRIP Lands

- Goal (12,102 AF/yr)
  - 2 existing pits
  - 4 aquifer storage sites
- Focused on identifying lands that could be potential sites… mostly focused on feasibility of purchasing sites.

Questions/Discussion