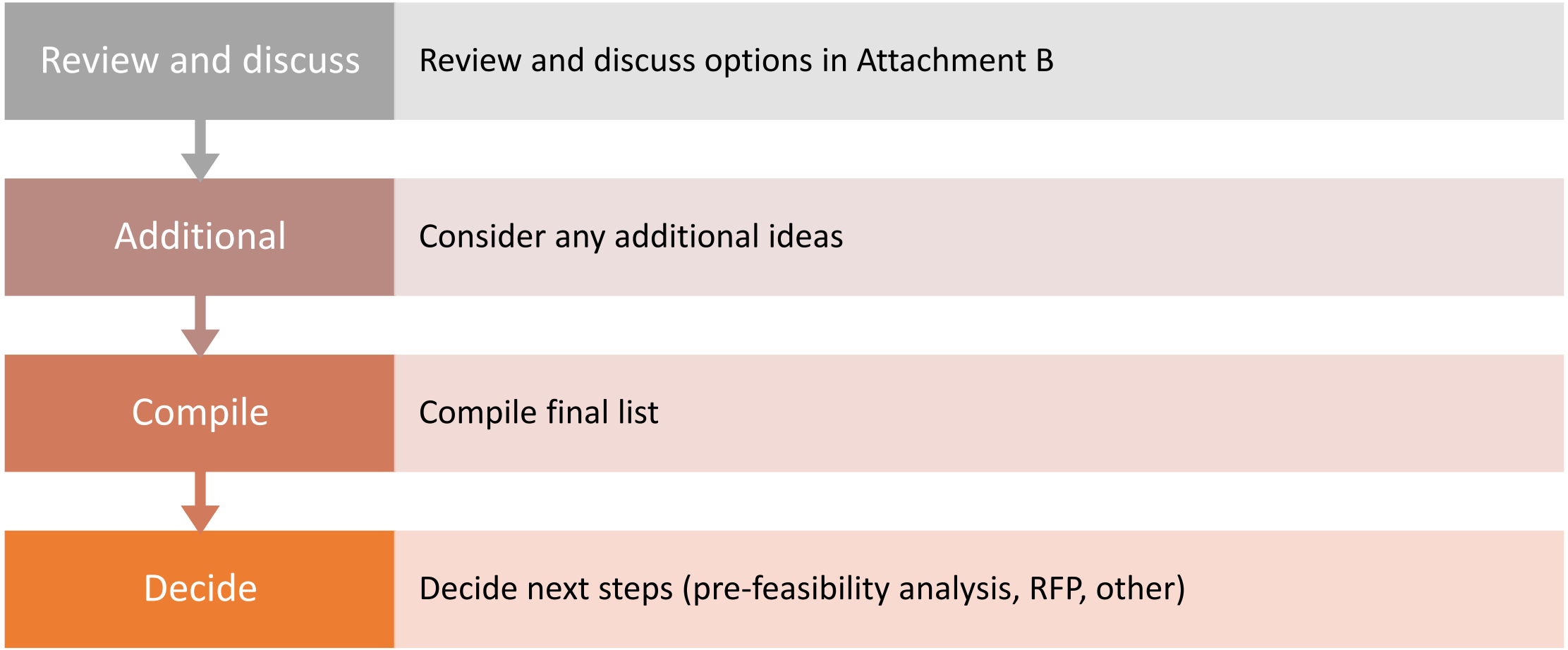
Sediment Augmentation Post-2024

Libby Casavant, P.E.



Goal: Tell me what ideas you want me to investigate **or** include in an RFP for the April TAC meeting

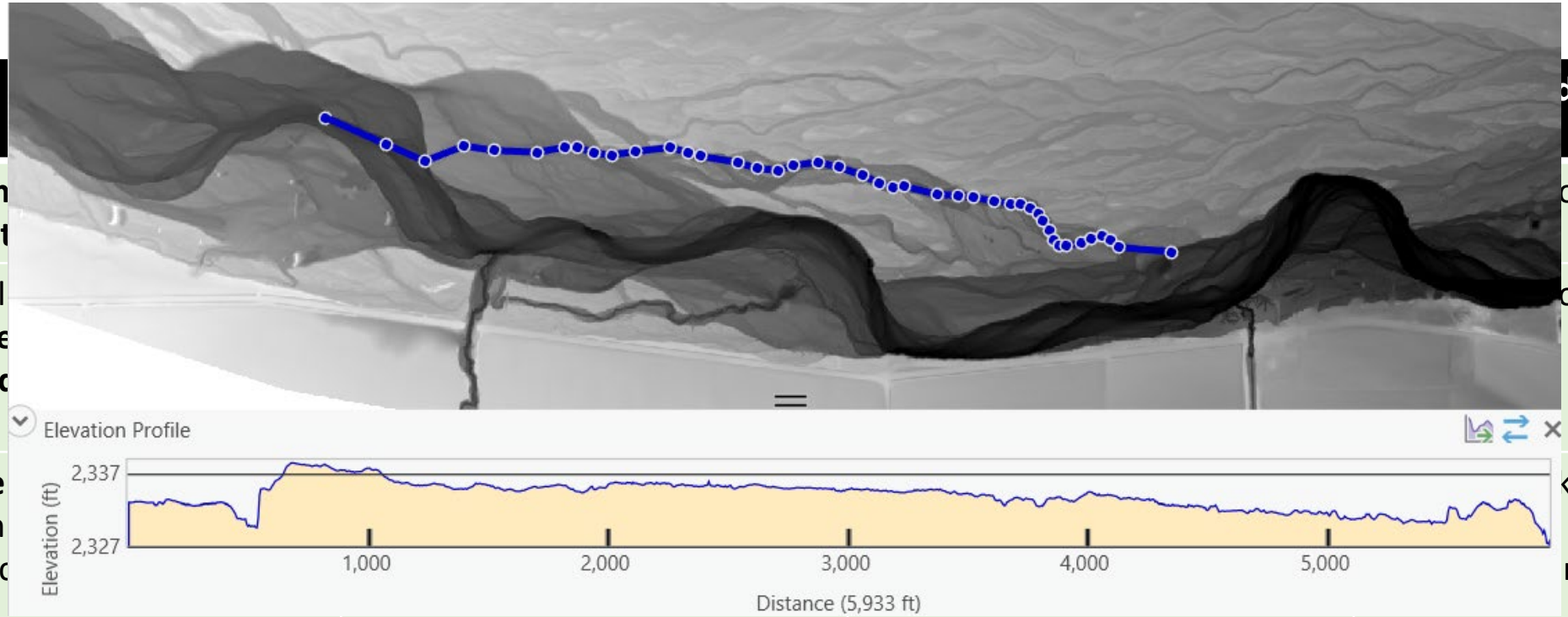
Attachment B: Possible Actions for post-2024 Augmentation

No outside tech support recommended

Outside tech support recommended

#	Action	Pro	Con	Analysis needed
1	Continue **mechanical augmentation**	Has been shown to decrease bed erosion on J2 channel.	Annual project.	Continued monitoring.
2	Use lateral erosion volumes to **predict the J2 channel sediment deficit** on a yearly basis	Helpful in dialing in necessary volume. Save money in years when deficit is lower.	Estimate would be 1 year delayed due to LiDAR availability.	Continued monitoring.
3	**Encourage lateral erosion** via vegetation management, disking, etc. on north and south channels	May reduce the amount of mechanical earthwork required to add sediment to the channel.	Uncertain yield.	Create a work plan or experimental setup. Conduct and monitor.
4	Reconnect the north channel to its upstream sediment supply. (Diversion modification at Dawson Cozad, or others, **transport of dredge material with EA water**)	Reduce north channel and AHR sediment deficit at source. No annual project.	No reduction to J2 channel deficit. Effects would be gradual, long-term.	**Pre-feasibility analysis** Review of current structures and operating practices, data collection and possible sediment modeling. **RFP if feasible**
5	Recruit sediment and flow from the north channel to the J2 channel via the **sand dam or breakthrough channel**	Hydraulic rather than mechanical conveyance. No annual project.	High up-front cost, potential for an overall decrease to sediment load at CWR or other negative geomorphic affects, structural stability concerns, unknown yield.	**Pre-feasibility analysis** 2 or 3D sediment model. Structural analysis. **RFP if feasible**
6	**Reconnect side channels** in the J2 reach	May reduce the amount of mechanical earthwork required to add sediment to the channel.	Uncertain yield.	Further analysis/ design Incorporate into future sediment augmentation designs and monitor.

Continue refining and observing effects of current mechanical technique.



#	Action			ded
1	Continue **n** **augmentat**			onitoring.
2	Use lateral **predict the** **sediment c** basis			onitoring.
3	**Encourage** vegetation disking, etc channels			k plan or setup. monitor.
6	**Reconnect side channels** in the J2 reach	May reduce the amount of mechanical earthwork required to add sediment to the channel.	Uncertain yield.	Further analysis/ design Incorporate into future sediment augmentation designs and monitor.

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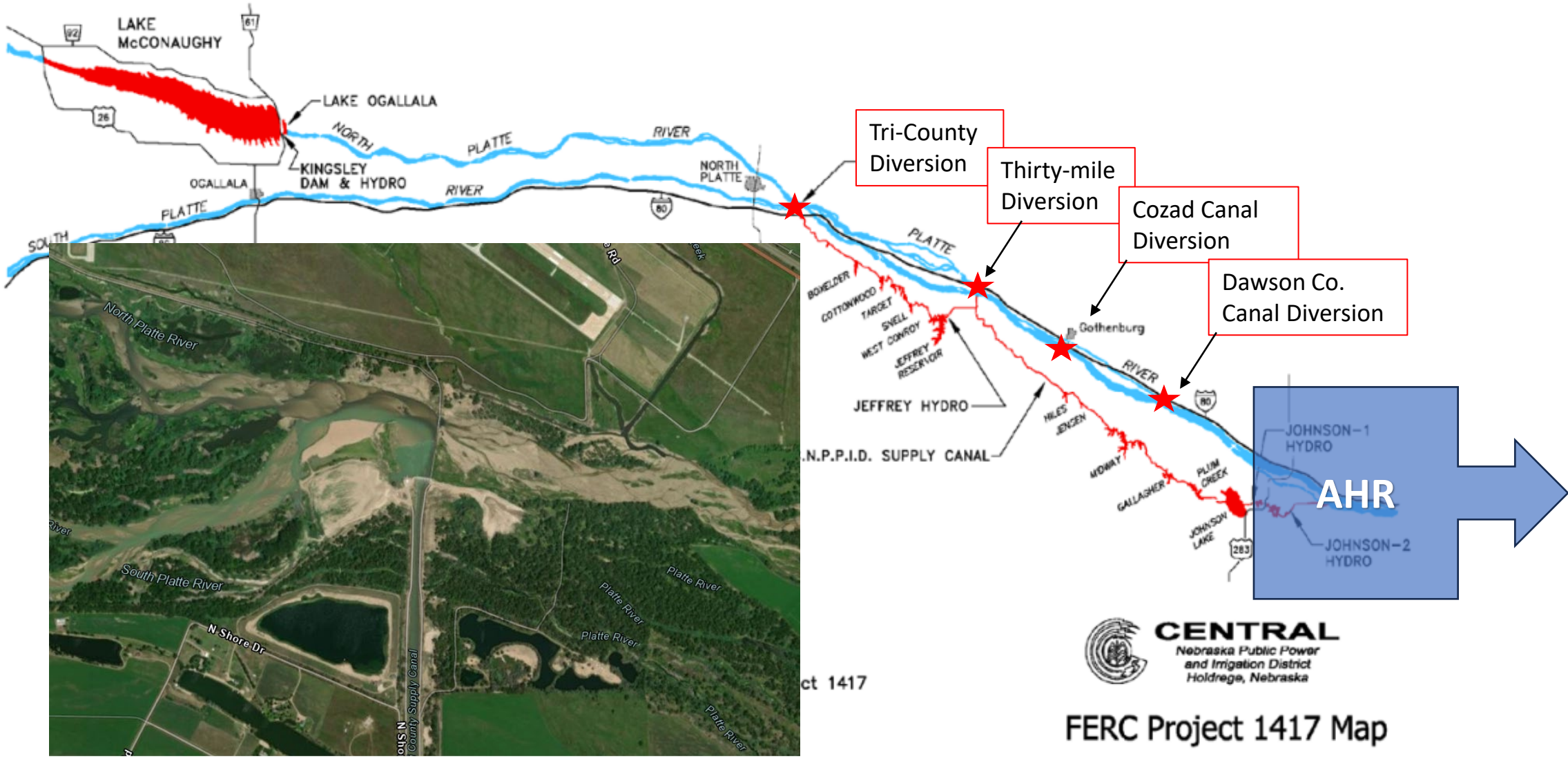
Interruptions to North Channel Sediment Supply



Looking upstream of the AHR (north channel)

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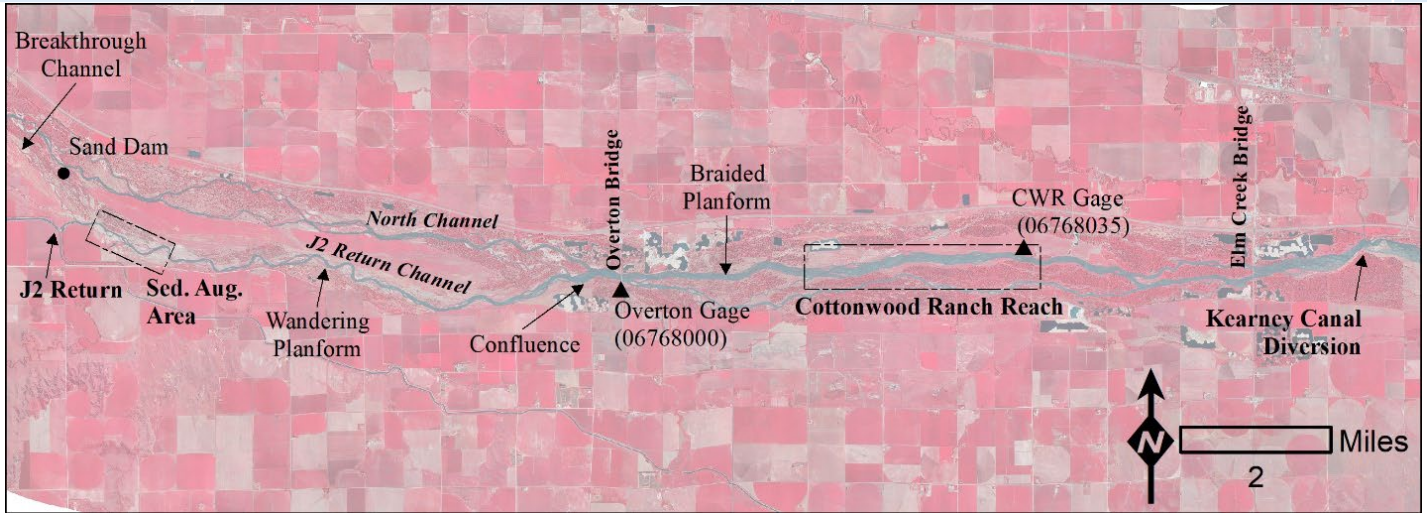

Recommendation Today

No Pre-feasibility Analysis

Yes Pre-feasibility Analysis

April TAC Meeting

Review Draft RFP

Hear Pre-feasibility Results

Review Draft RFP in Virtual Meeting

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Outside tech support recommended

#	Action	Analysis needed	Continue or Drop? Continue how?
1	Continue **mechanical augmentation**	Continued monitoring.	
2	Use lateral erosion volumes to **predict the J2 channel sediment deficit** on a yearly basis	Continued monitoring.	
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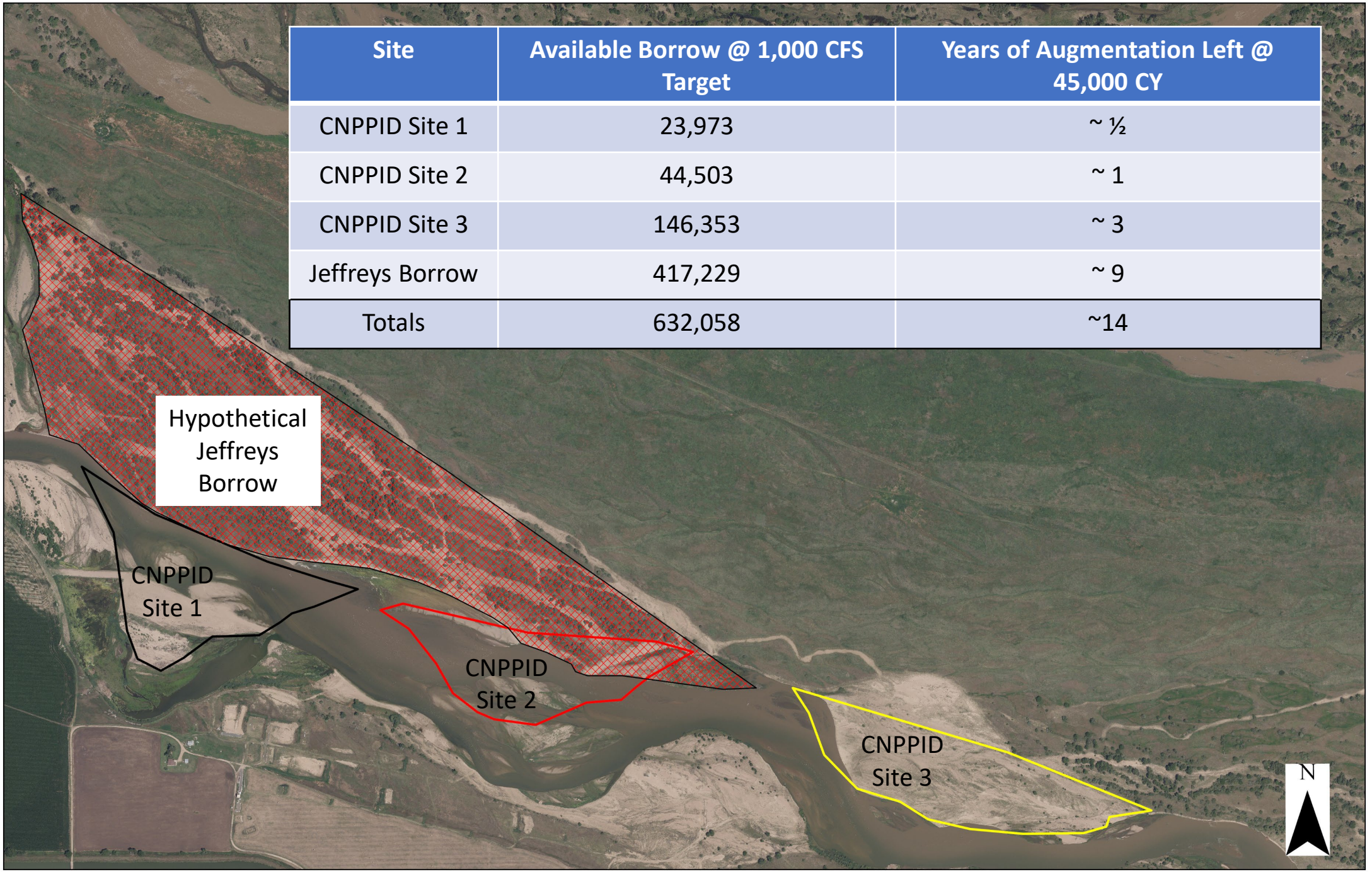
Site	Available Borrow @ 1,000 CFS Target	Years of Augmentation Left @ 45,000 CY
CNPPID Site 1	23,973	~ ½
CNPPID Site 2	44,503	~ 1
CNPPID Site 3	146,353	~ 3
Jeffreys Borrow	417,229	~ 9
Totals	632,058	~14



Site	Available Borrow @ 1,000 CFS Target	Years of Augmentation Left @ 45,000 CY
Plum Creek Site 4	66,002	~1 ½
Plum Creek Site 5	40,586	~ 1
Plum Creek Site 6	120,330	~ 3
Plum Creek Site 7	85,618	~2
Cook Borrow	2,338,244	~ 52
Dyer Borrow	2,117,743	~47
Totals	4,768,523	~106