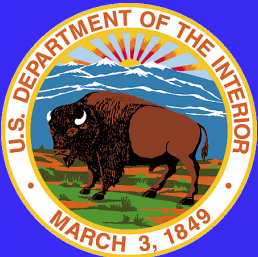


# Environmental Account Update

Water Advisory Committee  
February 4, 2020



U.S. Fish and Wildlife Service  
Region 6 Water Resources



# Presentation Topics

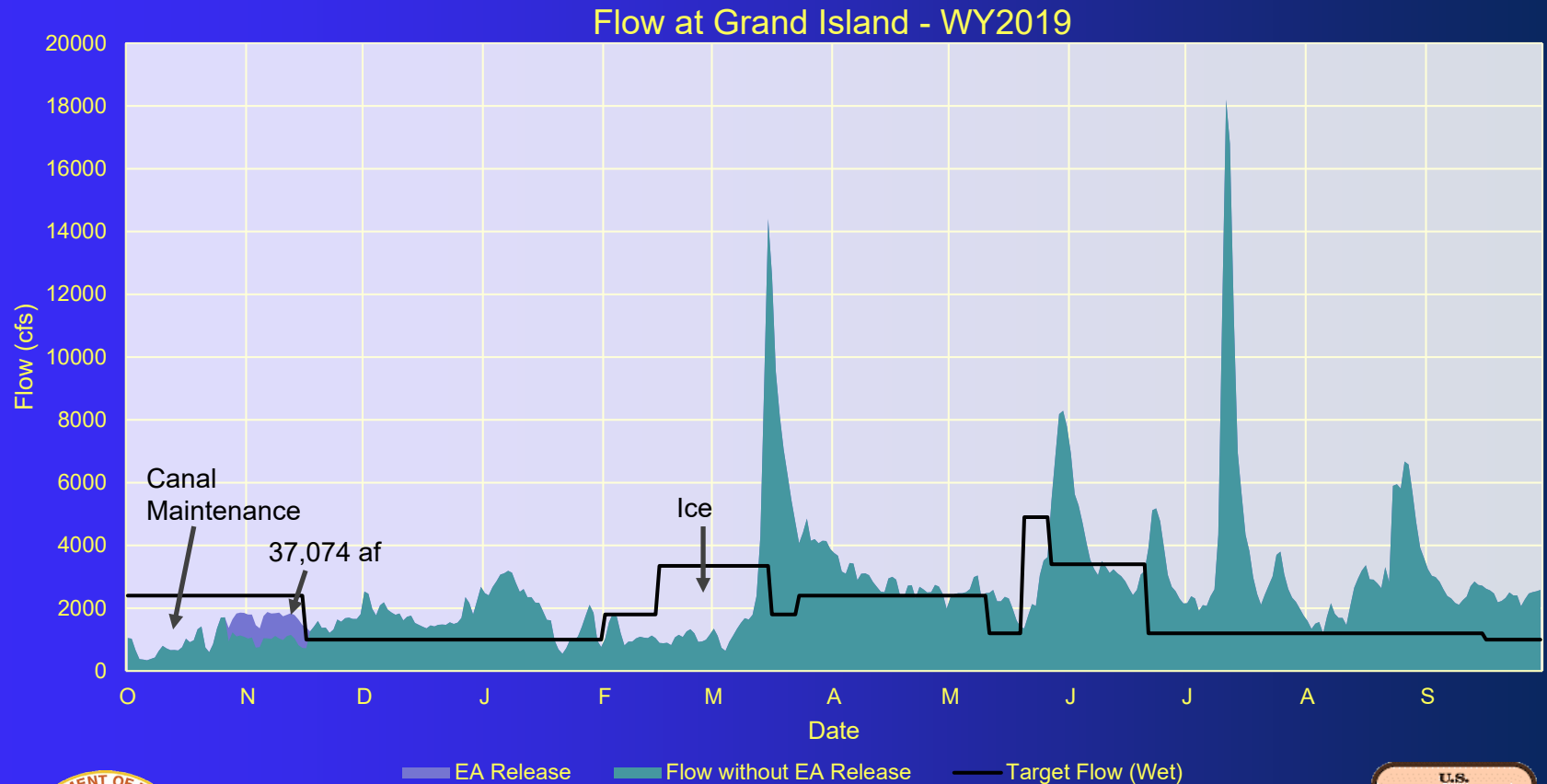
- Plenty of EA water available
- If no release:
  - ~190 kaf by September 30, 2020
  - ~50 kaf delivered near or after Sep 30, 2020
- Average wet year shortage (1942-2017)  
~ 280,000 af
- Non-target flow releases ~ 70,000 af



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Region 6 Water Resources**



# WY2019 EA Releases and Grand Island Flow



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Region 6 Water Resources**



# EA Volume Summary

Table 2: EA carryover accounting for WY2020

Source	Volume (acre feet)
WY2019 Carry Over <sup>1</sup>	126,037
CPNRD Lease (Delivered 10/1/2019)	14,096
NCCW (Delivered 10/1/2019)	314
CNPPID Lease (Delivered 10/1/2019)	2,201
NPPD Leasing (Delivered 10/1/2019)	3,121
10% Storable Natural Inflows (estimated CNPPID)	56,700
WY2020 Autumn Whooping Crane Release	-2,083
Evaporation & Seepage Loss (Oct – Sep) (median 2000-2019)	-9,034
Estimated WY20 EA Carryover(without releases)	191,268

<sup>1</sup>Includes Water Year 2019 deliveries from Pathfinder EA and Municipal accounts, but not the 2020 deliveries.



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# WY 2020 EA Priority Releases

**Table 1: Priority EA target flow releases for WY2020**

Date	Target Flow (cubic feet/sec [cfs])		Purpose	Priority
	Normal	Wet		
Oct 1-Nov 15 <sup>1</sup>	1,800	2,400	Whooping crane, waterfowl	High
Feb 15-Mar 15	3,350	3,350	Channel maintenance, wet meadow recharge	Medium
Mar 23-May 10	2,400	2,400	Whooping crane	High
May 11-Sept 15	1,200	1,200	Terns and plovers, aquatic community	Medium
May 20- June 20	3,400	3,400	Channel maintenance, test chokepoint	High

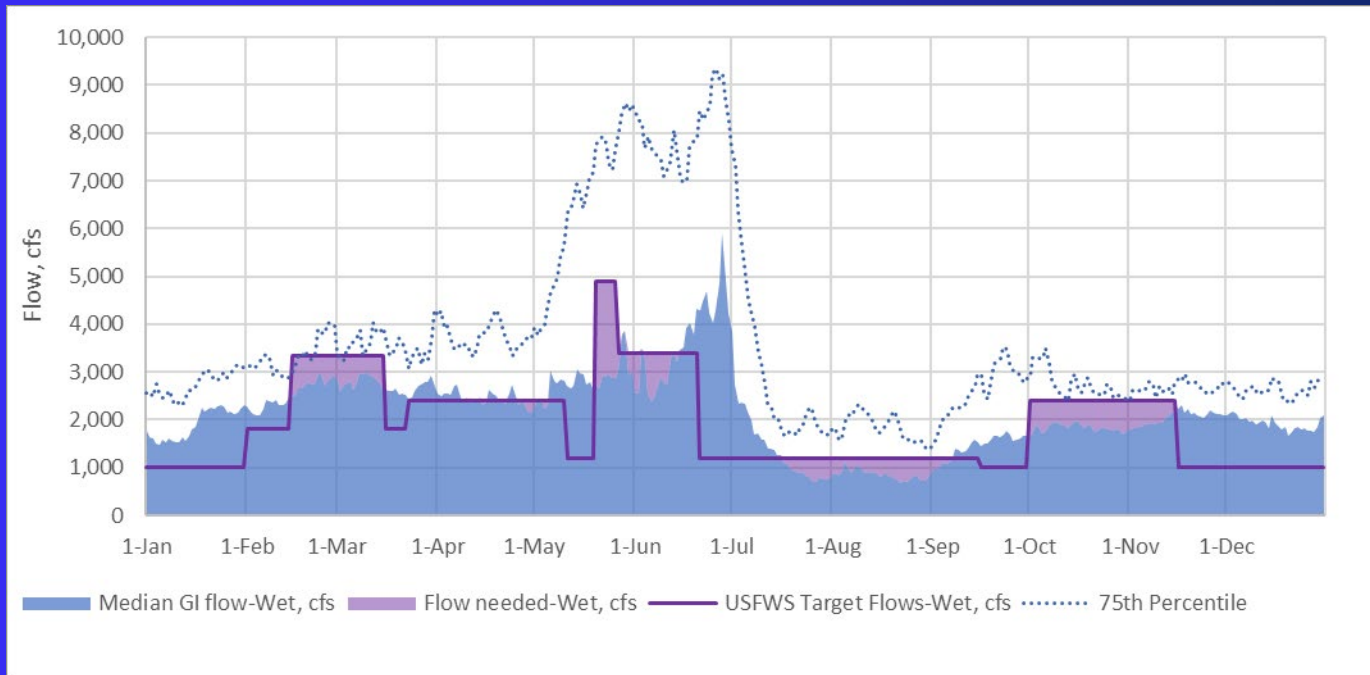
<sup>1</sup>This release was terminated early, with a total release of 5,655 acre feet.



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# Wet Year Flows



- Median and 75 percent flows during a wet year
- May be a challenge to make a release



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# Possible Additional EA Releases

- North Platte Chokepoint Test
  - Estimated volume 60 to 70 kaf
- Initial Fill of Cottonwood Ranch
  - Estimate volume 1,000 af



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# Late Winter Pulse (Feb 15- Mar 15; 3350 cfs) Release

- Week to week decision
- Looks open (due to warm weekend)

## Looking Ahead Recap

- **This Week: February 3-8**
  - No major storm systems/precipitation, cool start, seasonal
  - New ice formation possible
- **Next Week: February 9-15**
  - Mix of above/below normal temps
  - Winter system possible around the 13th?
- **Week 3: February 16-23**
  - Below normal temps, no strong precip signal
  - New ice growth likely



National Weather Service - Hastings, NE



**U.S. Fish and Wildlife Service  
Region 6 Water Resources**





# Summary

- Abundance of EA volume
  - Near ~190 kaf on Sep 30,2020
    - May exceed cap on Oct 1, 2020
- Average wet year shortage
  - ~280,000 af
- Additional non-target flows ~70,000 af
- Late Winter pulse flow – week to week



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# Full-Scale Sediment Augmentation

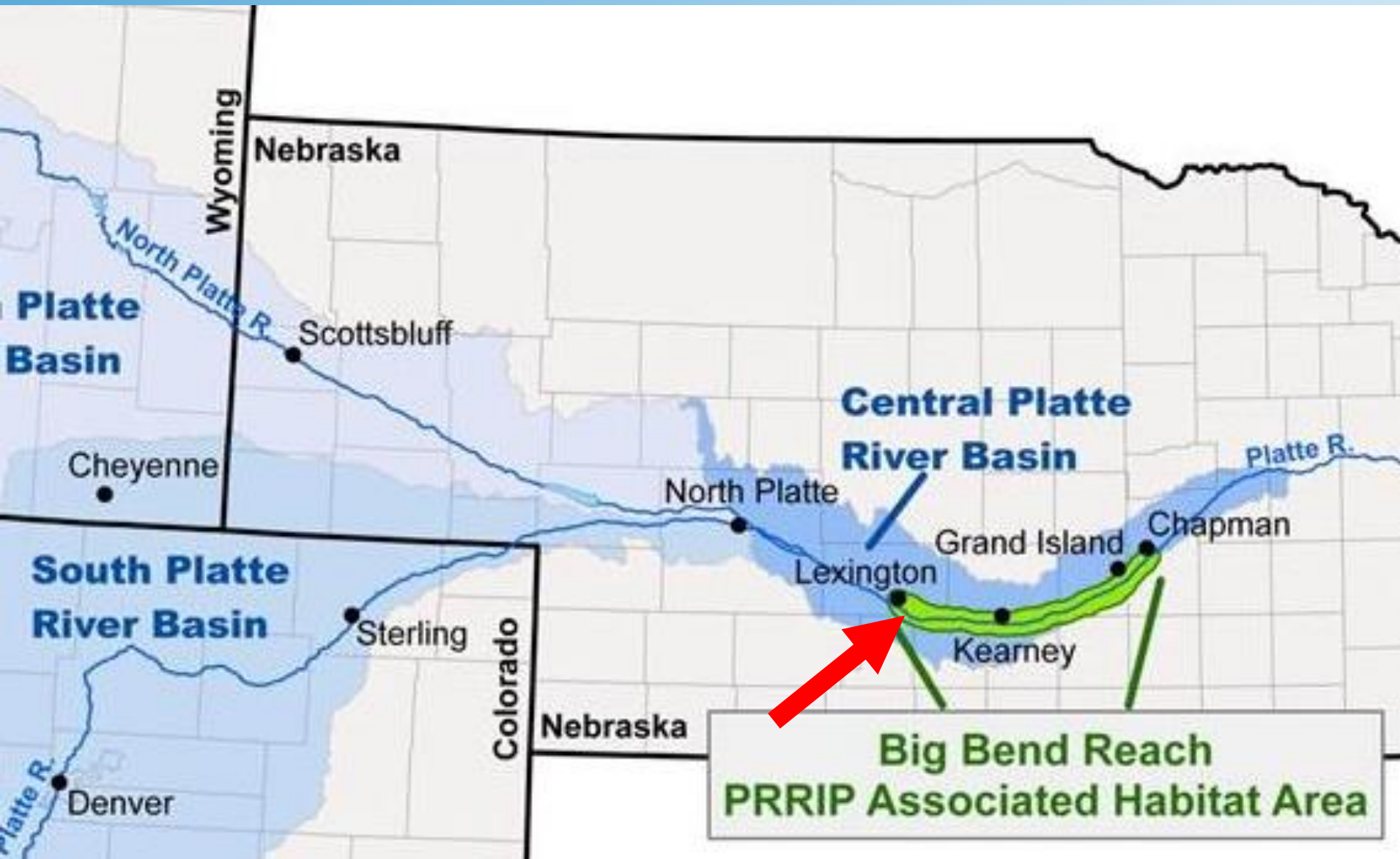
Water Advisory Committee Meeting  
February 4, 2020



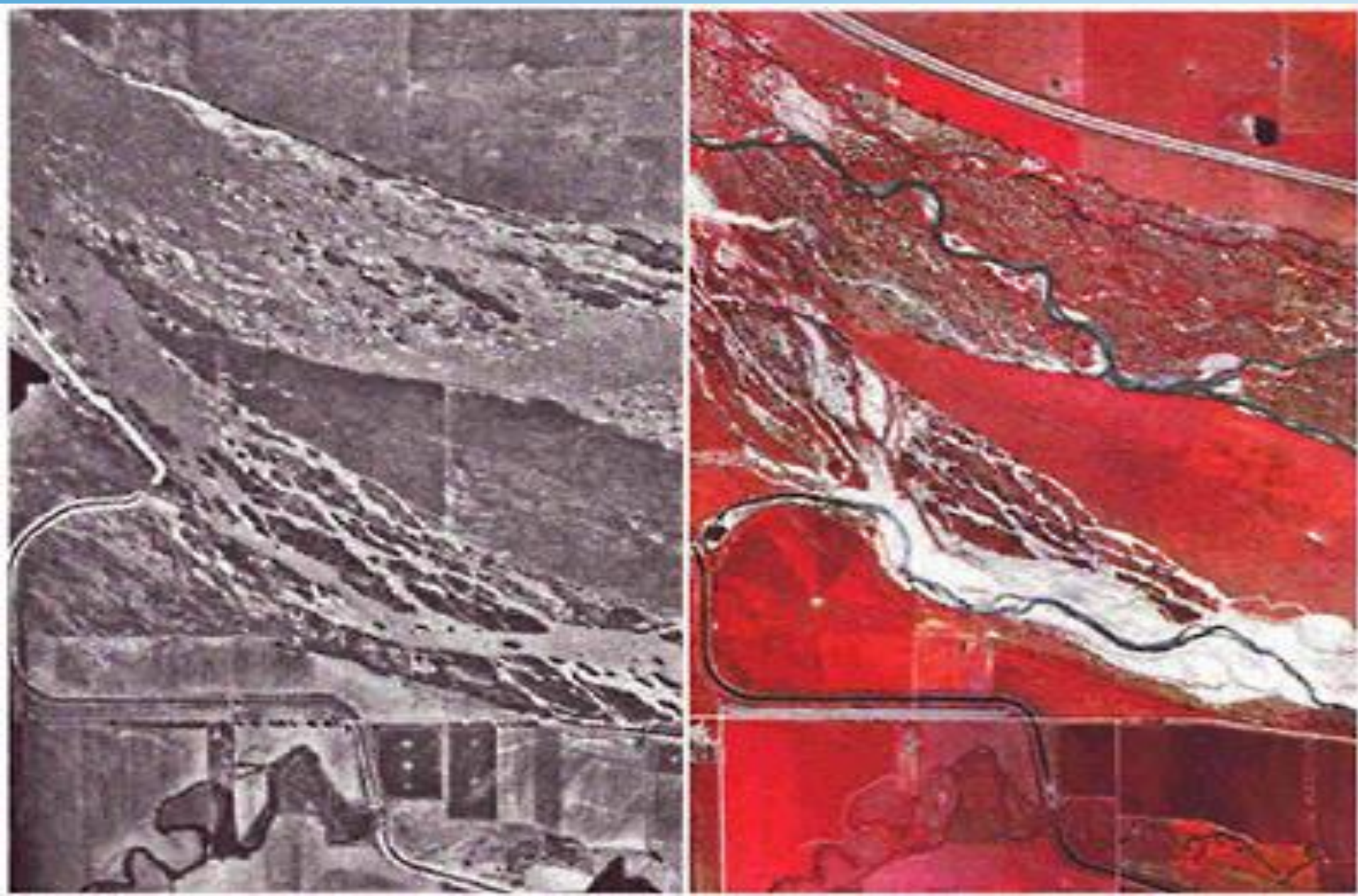
PLATTE RIVER  
RECOVERY IMPLEMENTATION PROGRAM



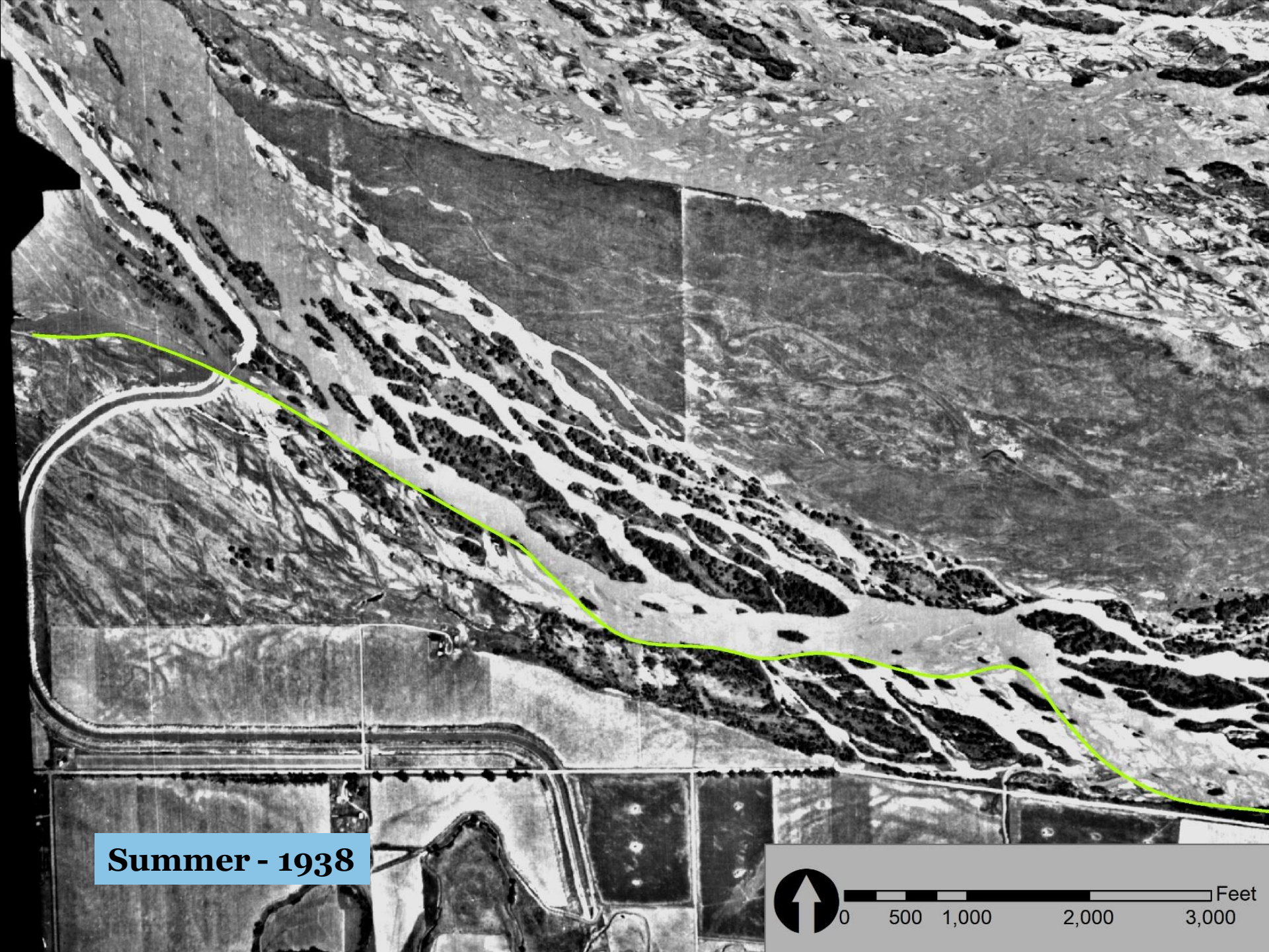
# Why augment sediment?



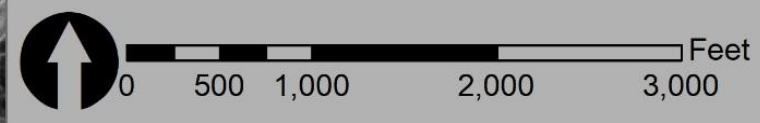
# Why augment sediment?



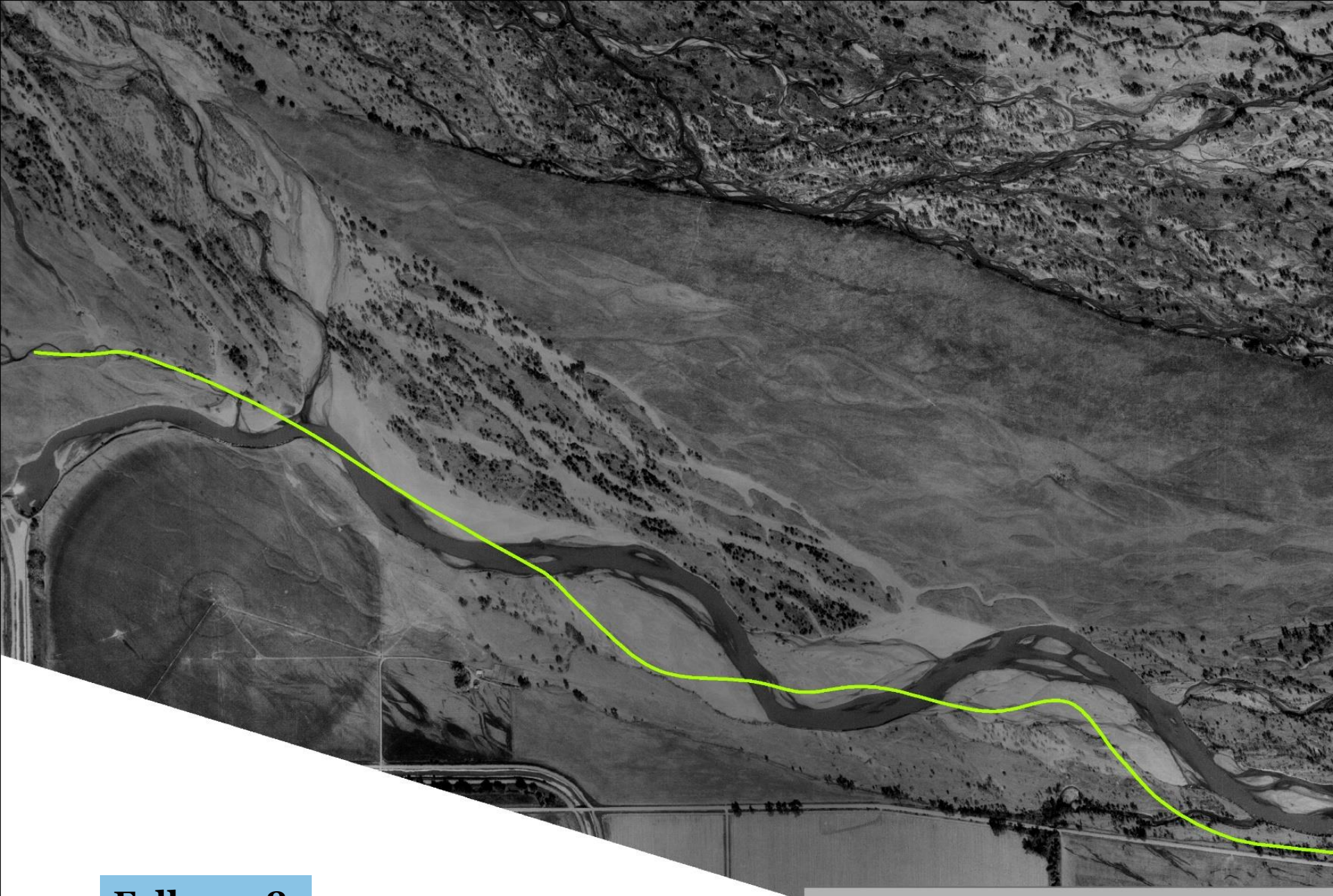




Summer - 1938





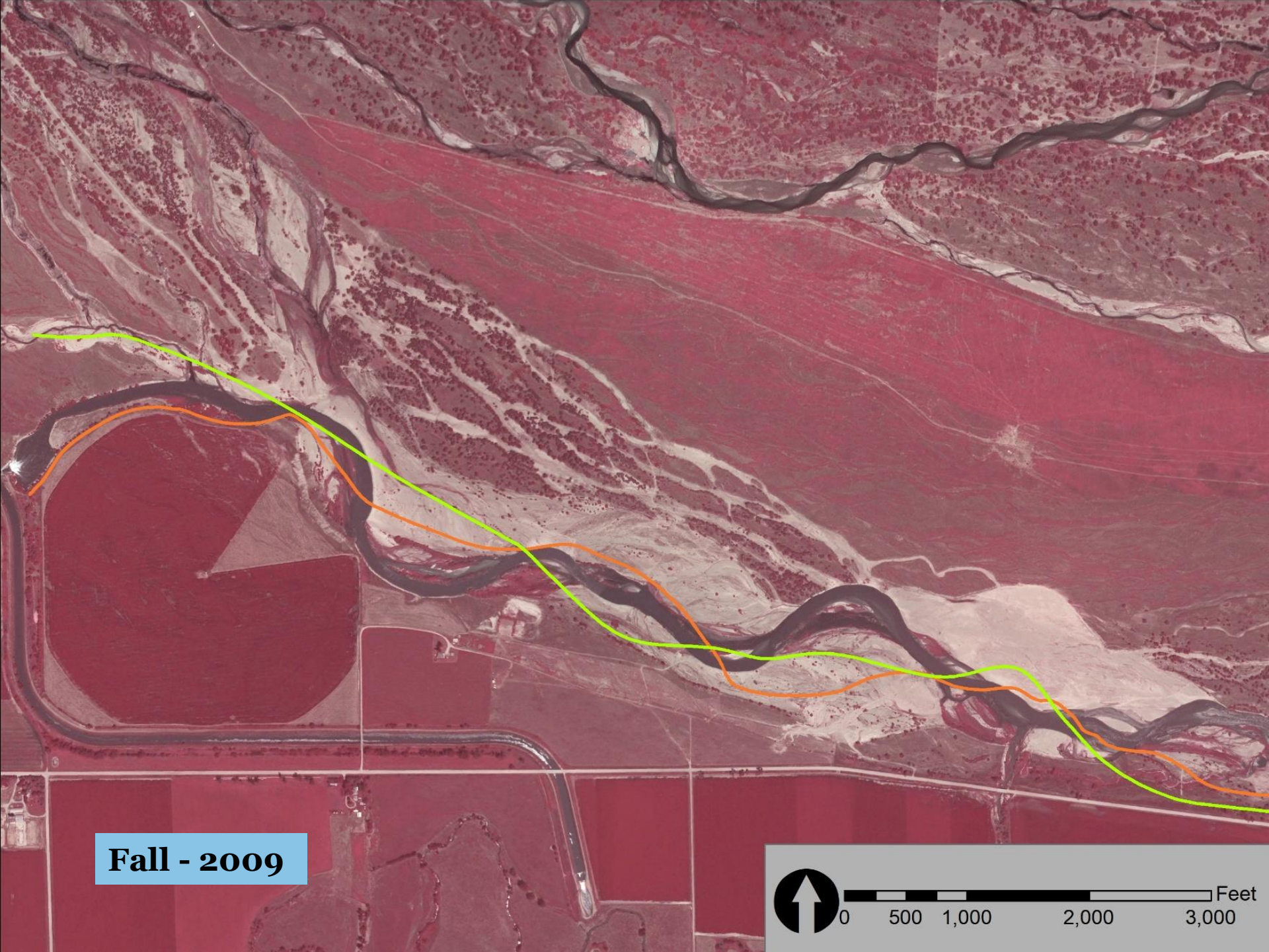


**Fall - 1978**

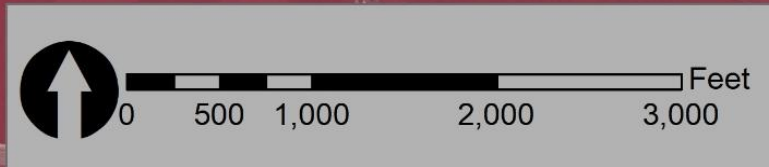


0 500 1,000 2,000 3,000 Feet





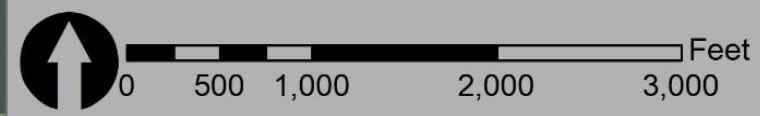
Fall - 2009







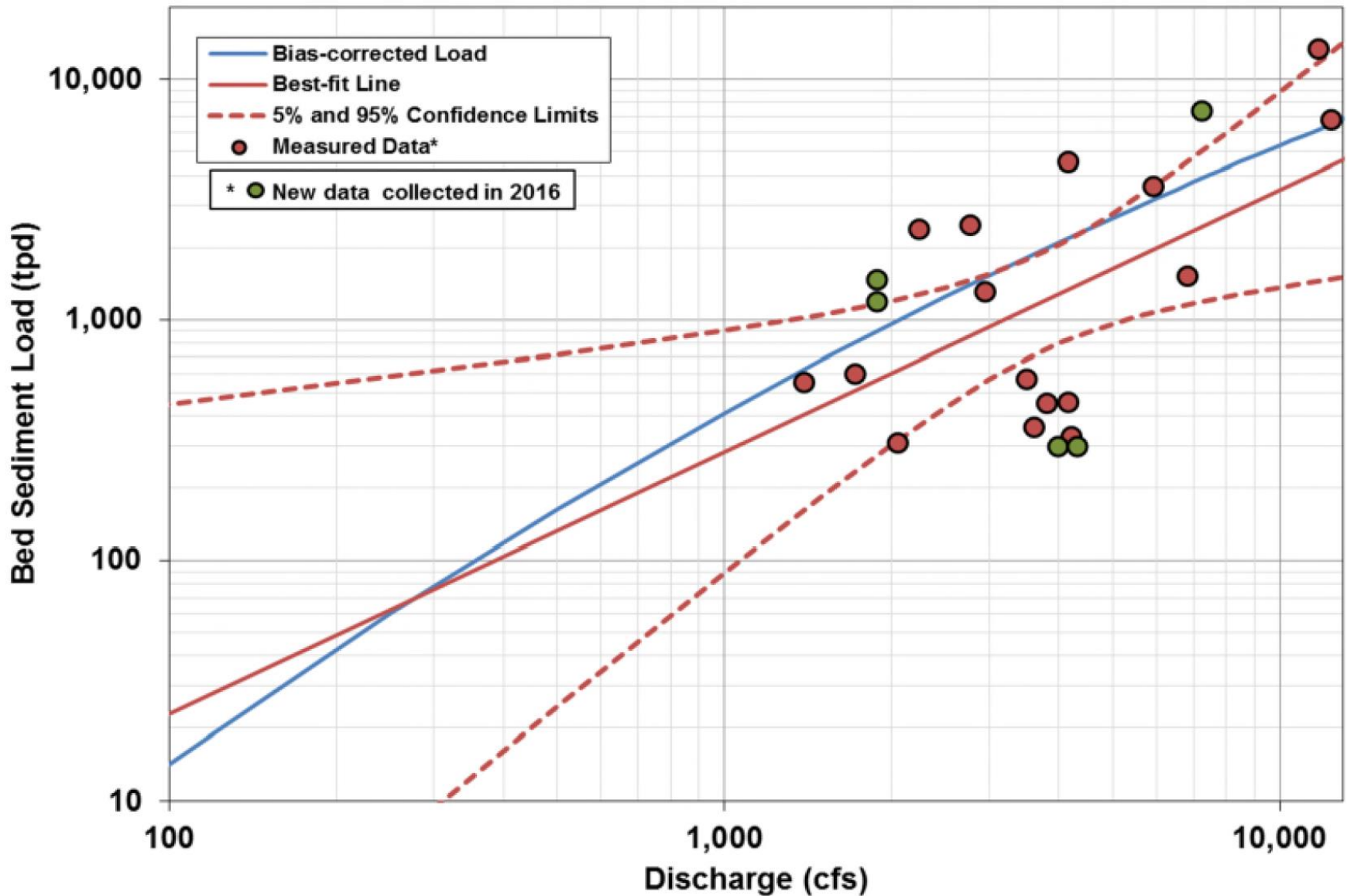
Fall - 2016





# What has been done?

100,000 ton/yr deficit – annual variability of 25,000 to 250,000 tons.



# What has been done?



# Full Scale Augmentation - 2016

- Approved for 60,000-80,000 tons annually (revised sediment transport modeling for the south channel)
- Identified an 18-year supply in the South Channel
- 404 permit and land agreements



**SITE PLAN**  
SCALE: 1 IN = 200 FT

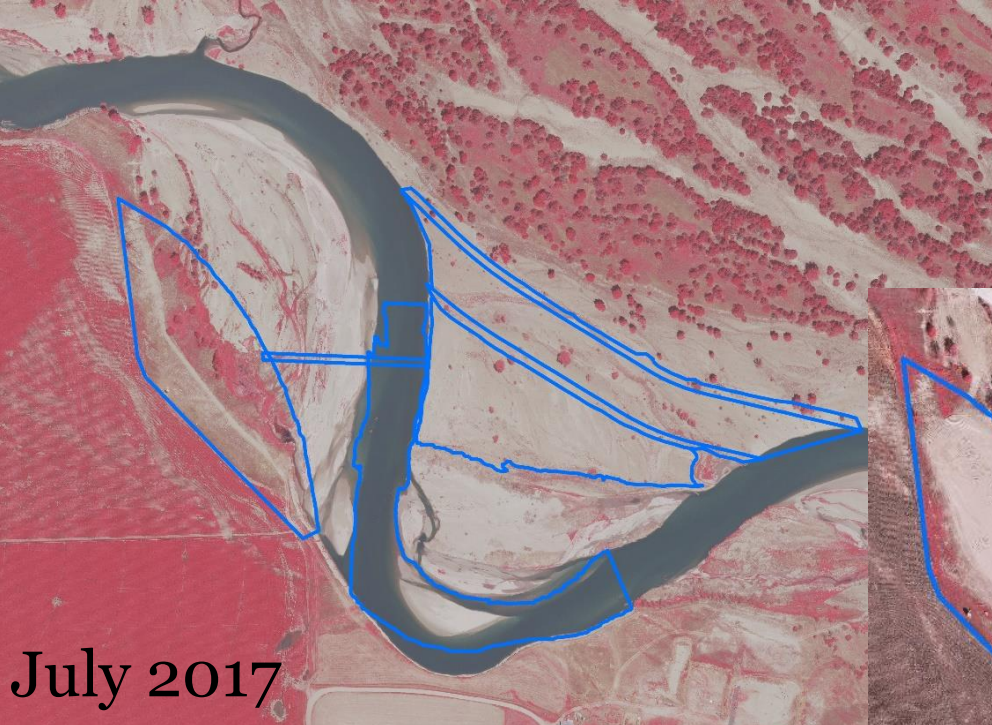


1. BEGIN EXCAVATION ON DOWNSTREAM HALF OF PILOT CHANNEL AND DIRECTLY AUGMENT EXCAVATED MATERIAL INTO SOUTH CHANNEL WHEN SUPPLY CANAL FLOWS ARE BEING RETURNED UPSTREAM.
2. CONTINUE EXCAVATION OF PILOT CHANNEL, HARVEST TREES AND LWD AND STAGE MATERIAL FOR TEMPORARY BERM CONSTRUCTION AND SAND STOCKPILE.
3. WHEN SUPPLY CANAL IS RUNNING BUT NOT RETURNING WATER, COMPLETE PILOT CHANNEL AND GRADE OUT SAND BERM.
4. ONCE BERM IS COMPLETE, HAUL AND GRADE MATERIAL FOR SAND STOCKPILE.
5. SIMULTANEOUSLY, OR AFTER STOCKPILE IS COMPLETE, GRADE MATERIAL FROM BAR INTO SOUTH CHANNEL TO NEAR TARGET ELEVATION AND INSTALL TREE PILES (OPTIONAL) FOR BANK PROTECTION.
6. UPON COMPLETION OF EXCAVATION AND GRADING, DEMOLISH BERM IN PLACE AND/OR Haul MATERIAL TO SOUTH BANK, IF NECESSARY.

SHEET NO.	13	OF	13
SHEET IDENTIFICATION:			
C-09			
PROJECT NO. P17-212			
 HEADWATERS CORPORATION			
2017 J2 SEDIMENT AUGMENTATION PROJECT  SITE CLOSURE PLAN  LEXINGTON, NEBRASKA			
 HEADWATERS CORPORATION		4111 4th Avenue, Suite 6 Kearney, NE 68946 (P) 308-237-5728 (F) 308-237-4651	
TAB DESIGNED	MAY 2017	DATE	
TAB DRAWN	MAY 2017	DATE	
TAB CHECKED	MAY 2017	DATE	
TAB APPROVED		DATE	



# Before & After





# 2017 Design Summary

- 55,200 tons directly augmented to the main channel with more coming in laterally
- 18,500 tons augmented to the cutoff meander
- 43,000 tons hauled to repair center pivot as part of the access agreement
- Total Construction Cost \$172,400



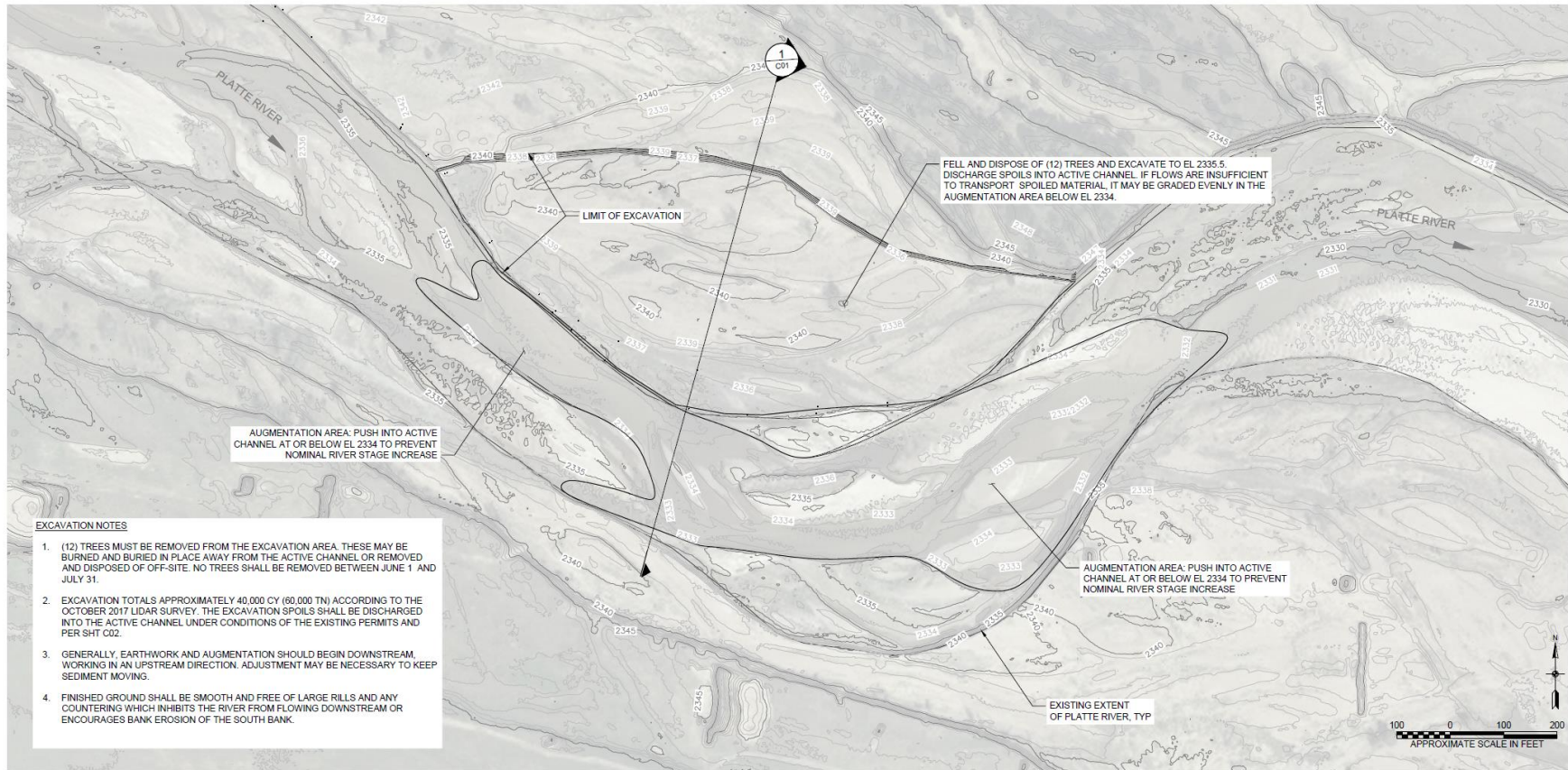


# 2018 Approach

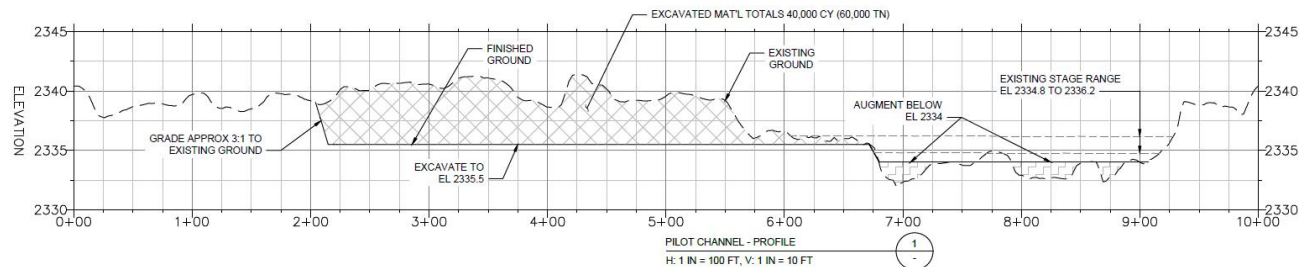




# 2018 Design



PILOT CHANNEL - PLAN



DATE	DESCRIPTION
MAY 2018	TAS DESIGNED
MAY 2018	TAS DRAWN
MAY 2018	JB CHECKED
	APPROVED



2018 J2 SEDIMENT AUGMENTATION PROJECT  
EXCAVATION PLAN AND PROFILE  
LEXINGTON, NEBRASKA

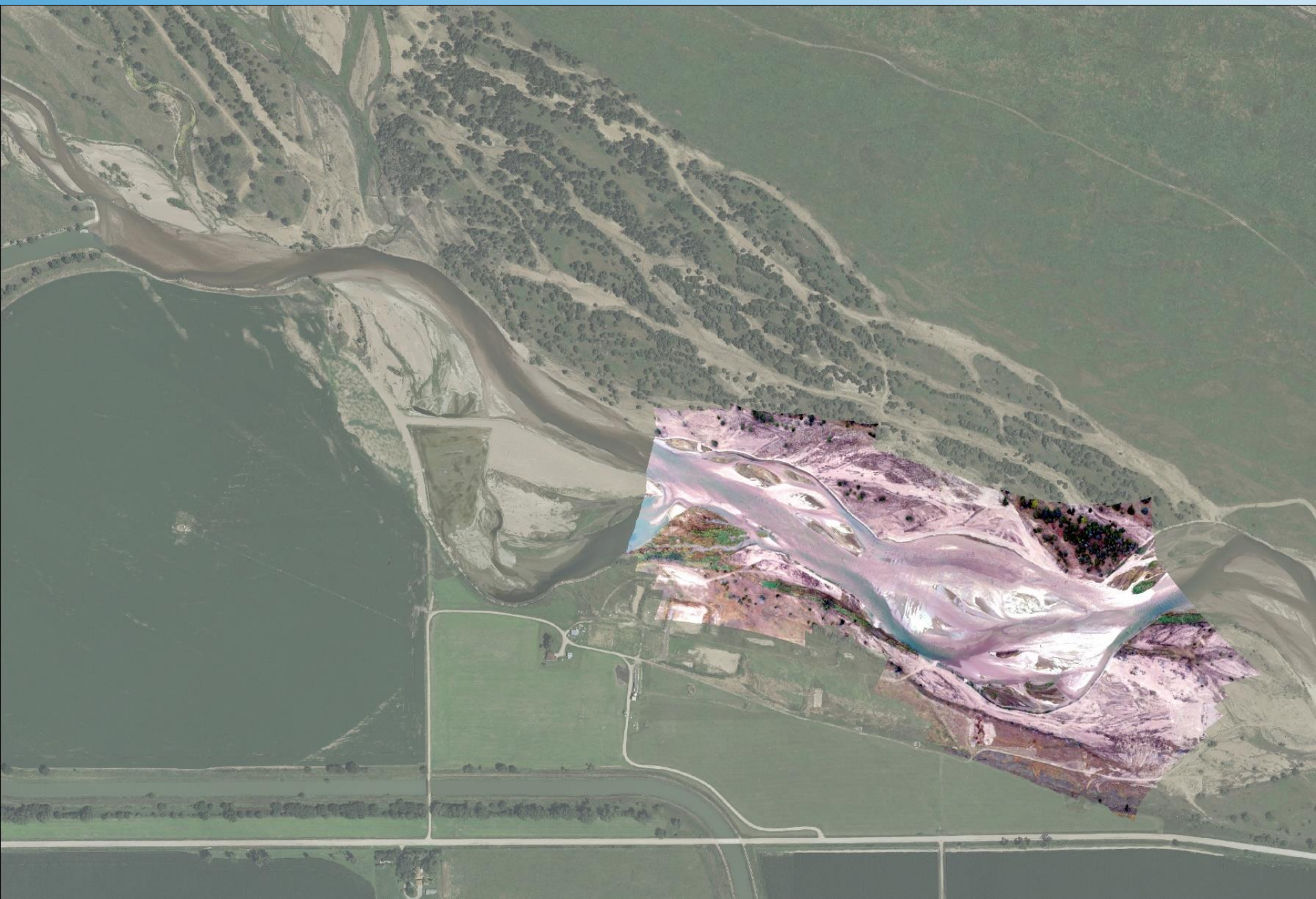
PROJECT NO. P18-006
SHEET IDENTIFICATION: C-01

FINAL DESIGN

SHT NO. 05 OF 06



# 2018 Results



# 2018 Design Summary

- 60,000 tons augmented to the main channel
- Total Construction Cost \$66,800
- Monitoring Fall/Spring with Remote Sensing and quarterly with drone and ground surveys.

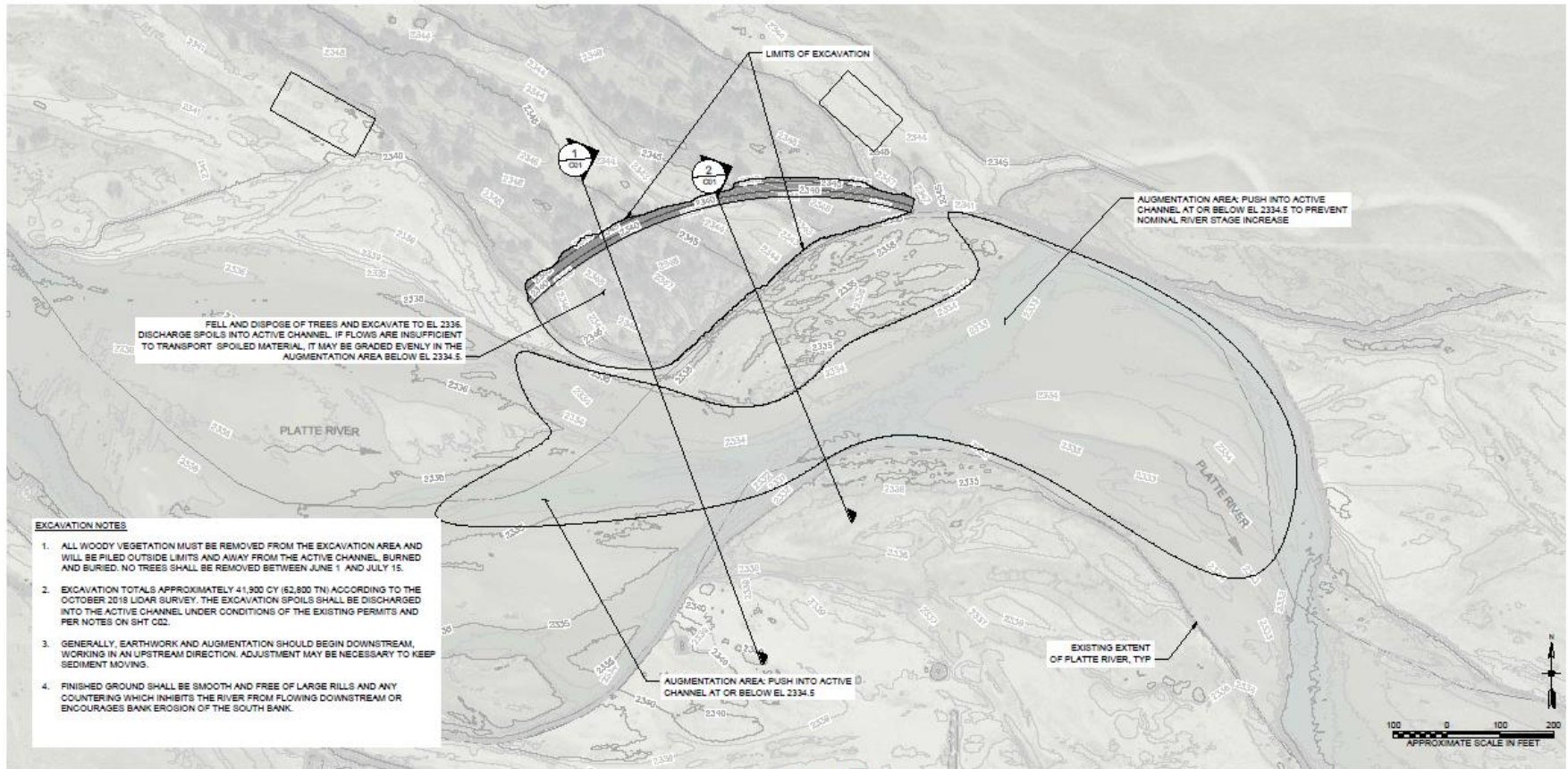


# 2019 Approach



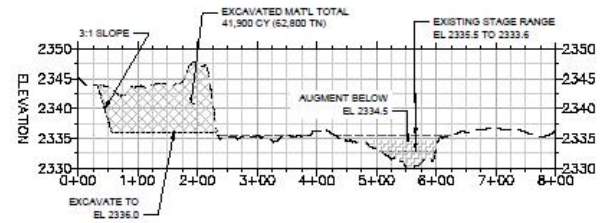
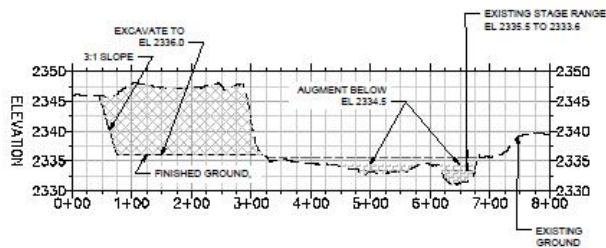


# 2018 Design



## EXCAVATION NOTES

1. ALL WOODY VEGETATION MUST BE REMOVED FROM THE EXCAVATION AREA AND WILL BE PILED OUTSIDE LIMITS AND AWAY FROM THE ACTIVE CHANNEL, BURNED AND BURIED. NO TREES SHALL BE REMOVED BETWEEN JUNE 1 AND JULY 15.
2. EXCAVATION TOTALS APPROXIMATELY 41,900 CY (62,800 TN) ACCORDING TO THE OCTOBER 2018 LIDAR SURVEY. THE EXCAVATION SPOILS SHALL BE DISCHARGED INTO THE ACTIVE CHANNEL UNDER CONDITIONS OF THE EXISTING PERMITS AND PER NOTES ON SHT C02.
3. GENERALLY, EARTHWORK AND AUGMENTATION SHOULD BEGIN DOWNSTREAM, WORKING IN AN UPSTREAM DIRECTION. ADJUSTMENT MAY BE NECESSARY TO KEEP SEDIMENT MOVING.
4. FINISHED GROUND SHALL BE SMOOTH AND FREE OF LARGE RILLS AND ANY COUNTERING WHICH INHIBITS THE RIVER FROM FLOWING DOWNSTREAM OR ENCOURAGES BANK EROSION OF THE SOUTH BANK.



DATE	DESCRIPTION	DATE	DESCRIPTION	DATE	DESCRIPTION
JUNE 2018		JUNE 2018		JUNE 2018	
JUNE 2018		JUNE 2018		JUNE 2018	
JUNE 2018		JUNE 2018		JUNE 2018	
JUNE 2018		JUNE 2018		JUNE 2018	
JUNE 2018		JUNE 2018		JUNE 2018	

DATE	DESCRIPTION	DATE	DESCRIPTION	DATE	DESCRIPTION
JUNE 2018		JUNE 2018		JUNE 2018	
JUNE 2018		JUNE 2018		JUNE 2018	
JUNE 2018		JUNE 2018		JUNE 2018	
JUNE 2018		JUNE 2018		JUNE 2018	
JUNE 2018		JUNE 2018		JUNE 2018	



2018 J2 BEDIMENT AUGMENTATION PROJECT

EXCAVATION PLAN AND PROFILE

LEHIGH, NEBRASKA



PROJECT NO.  
P19-008  
SHEET IDENTIFICATION

C-01

FINAL DESIGN

SHT NO. 06 OF 06



# 2019 Results

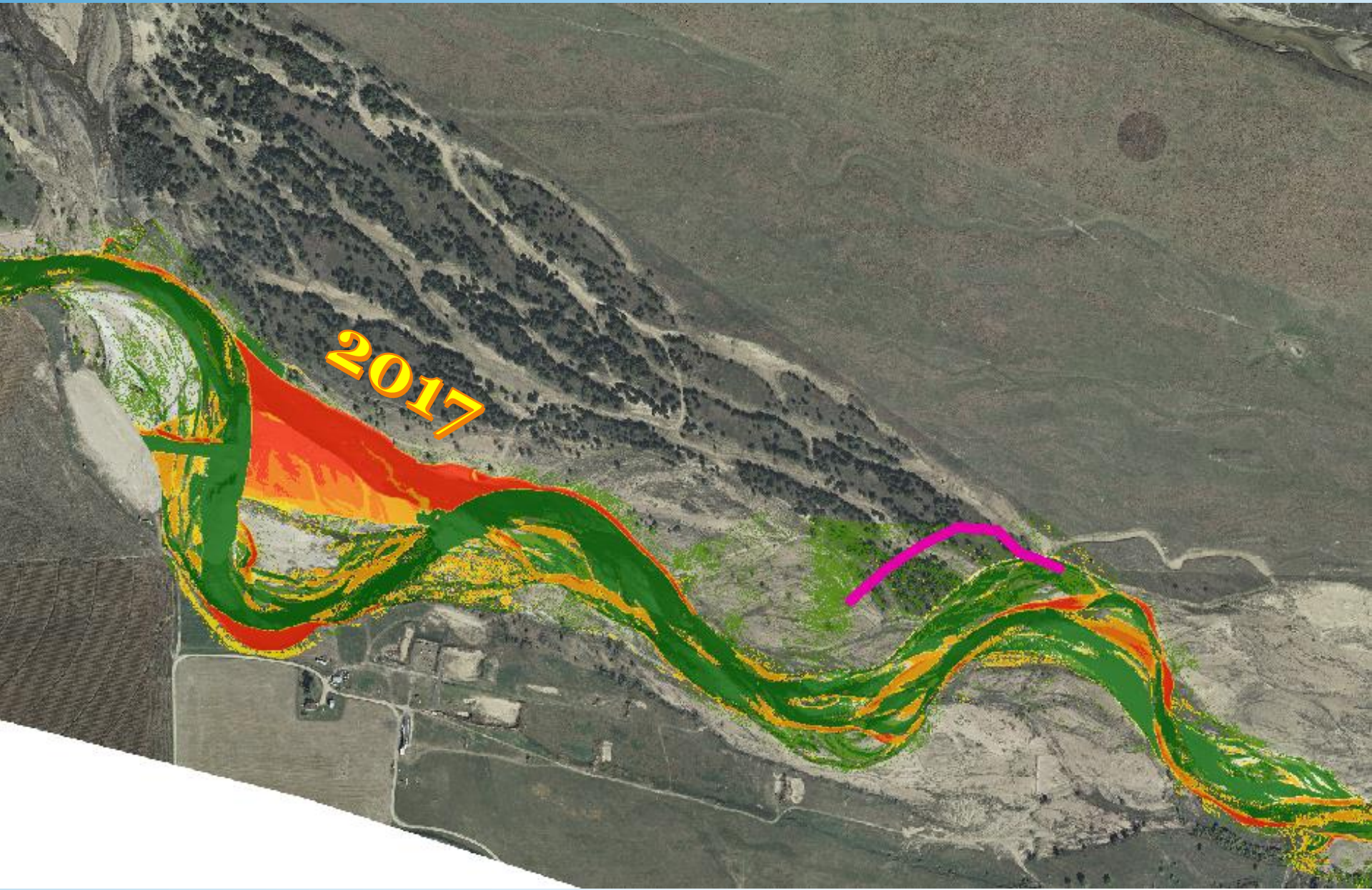


# 2019 Design Summary

- 63,500 tons augmented to the main channel
- Total Construction Cost \$109,560
- Increased cost for tree clearing and contractor pressure
- Plan to keep monitoring and augmenting downstream

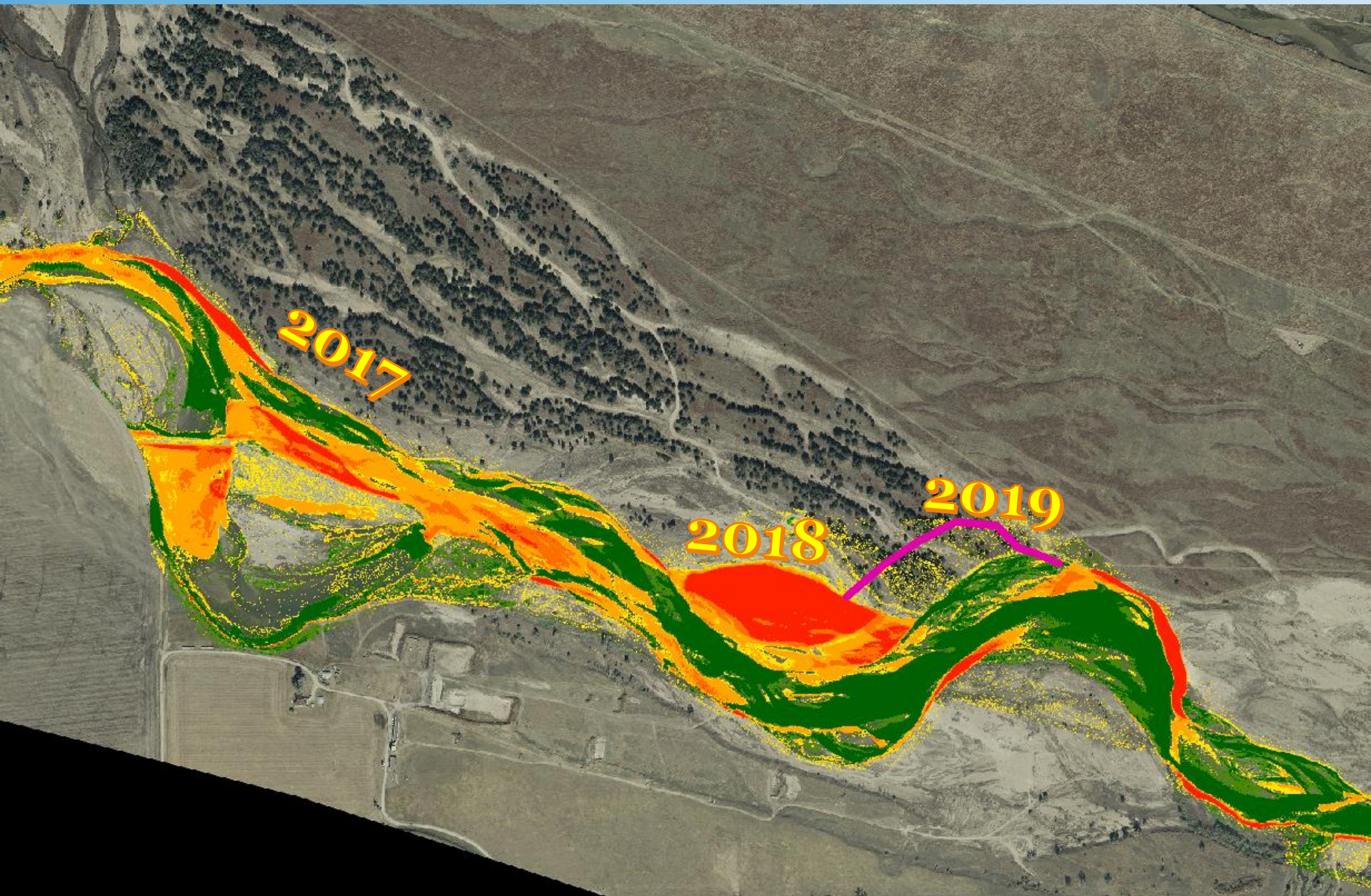


2017 minus 2016





2018 minus 2017





# 2020 approach







**Tom Smrdel 970-775-3355**  
**[smrdelt@headwaterscorp.com](mailto:smrdelt@headwaterscorp.com)**