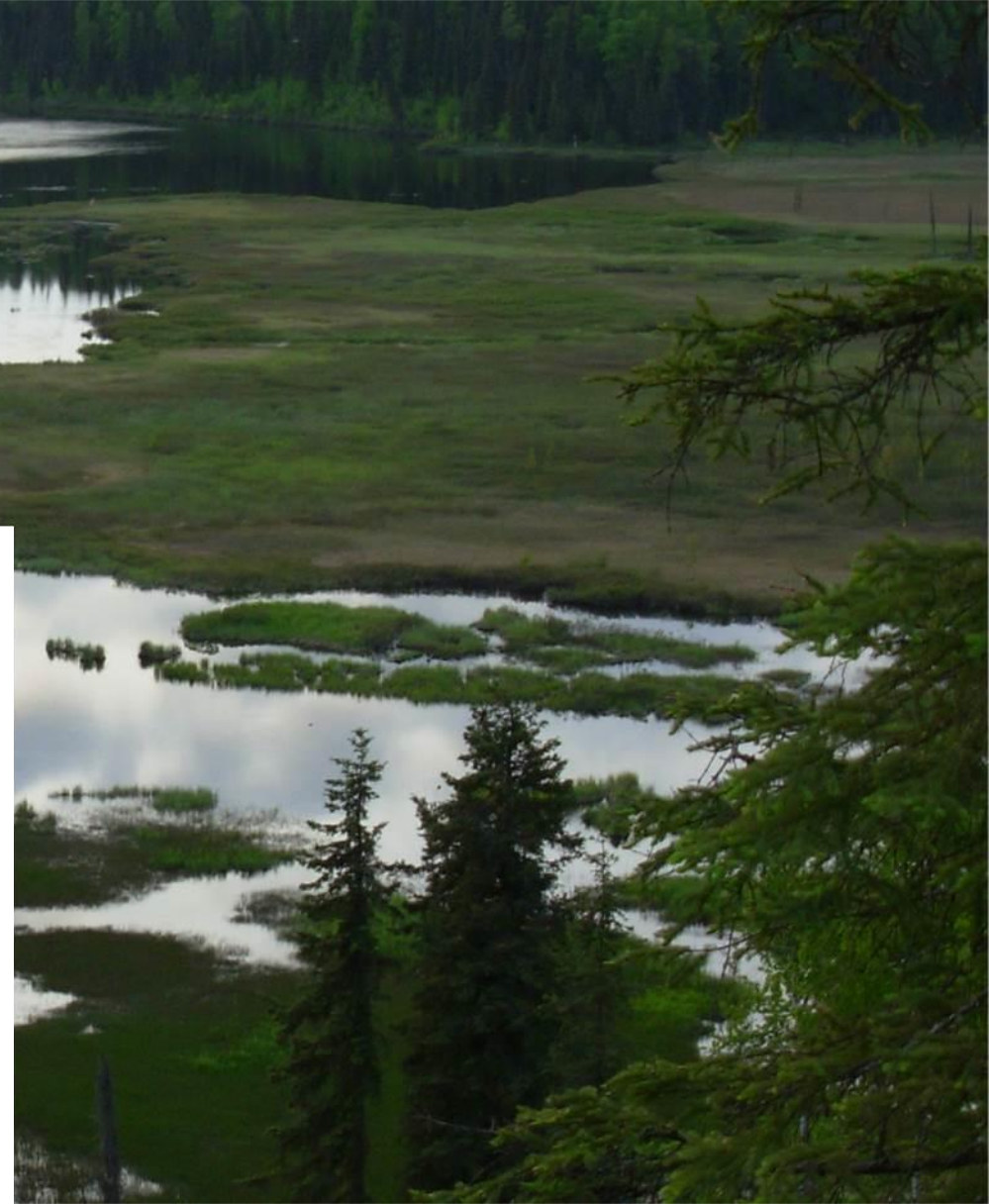




Wasilla Creek Headwaters Trail Improvements & Habitat Restoration

Matanuska-Susitna Borough
& USFWS





It's about Salmon & Sustainable Recreation

Project Goals:

- Restore Wildlife habitat for moose fish and other species.
- Build sustainable multi-use trail to allow continued recreation activities



Partnership MSB, ADNR & ADF&G

To better manage the shared community resources in the Matanuska Valley Moose Range to support habitat restoration and sustainable recreation. ADNR and ADF&G Co-manage the Moose Range.

Acknowledgments

- **Mat-Su Voters:** who approved the recreation bond package in 2016 that included this project
- **Mat-Su Borough Parks & Rec Division:** identified project need and added it to the rec bond list
- **ADF&G:** fish and wildlife habitat managers
- **DNR:** land managers
- **Mat-Su Salmon Habitat Partnership:** provided \$30k grant for habitat restoration
- **USFWS:** restoration partners providing design of fords
- **Mat-Su Trails & Parks Foundation:** provided \$10k grant for public involvement including this meeting



Project Funding

MSB Bond Project Funds:

- \$150,000 from 2016 Recreation Bonds

USFWC Funds:

- \$120,00 from NFHAP grant (USFWS) and MSB match

MSTPF Funds:

- \$10,000 from Mat-Su Trails and Parks for Public Involvement



A photograph showing a red and black ATV parked on a wooden boardwalk. The boardwalk is built over a grassy area. In the background, there are dense evergreen trees and a range of mountains under a cloudy sky. Another person is visible in the distance near another ATV.

What's the problem?

As population increases and more recreational users are enjoying the Moose Range, streambank erosion and wetlands damage have occurred.

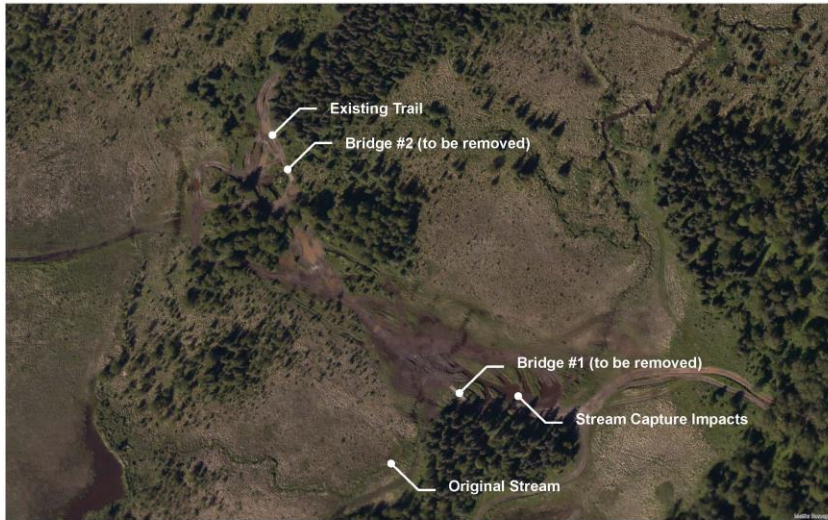
The MSB is working to maintain sustainable access in the Moose Range and to restore sensitive habitat



Wasilla Creek Wetland - 2011



Wasilla Creek Wetland - 2019



Wasilla Creek Wetland - 2016

Area of Disturbance Summary

2011: Approximately 105,000 sf* of disturbed area

2016: Approximately 152,000 sf* of disturbed area
- 44% more disturbed area compared to 2011

2019: Approximately 272,000 sf* of disturbed area
- 79% more disturbed area compared to 2016
- 259% more disturbed area compared to 2011

* Areas are as calculated within the vicinity of the proposed project area.

WETLAND IMPACTS OVER THE PAST 10 YEARS





**So many
crossings!**



**Existing bridges are undersized
and deteriorating**

Stream Crossings

- Trails become impassable
- Vehicles can become stuck
- Crossings multiply in soft sediment
- Salmon and their habitat injured or damaged
- Sediment pollution
- Channel over widened and shallow
- Impaired stream function



History of Wasilla Creek Investments by the MSB

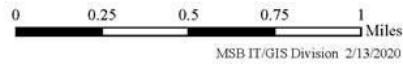
Culvert replacements and shoreline restoration.

- How many?
- Where are they located?
- How much have we spent?
- Why do we care?

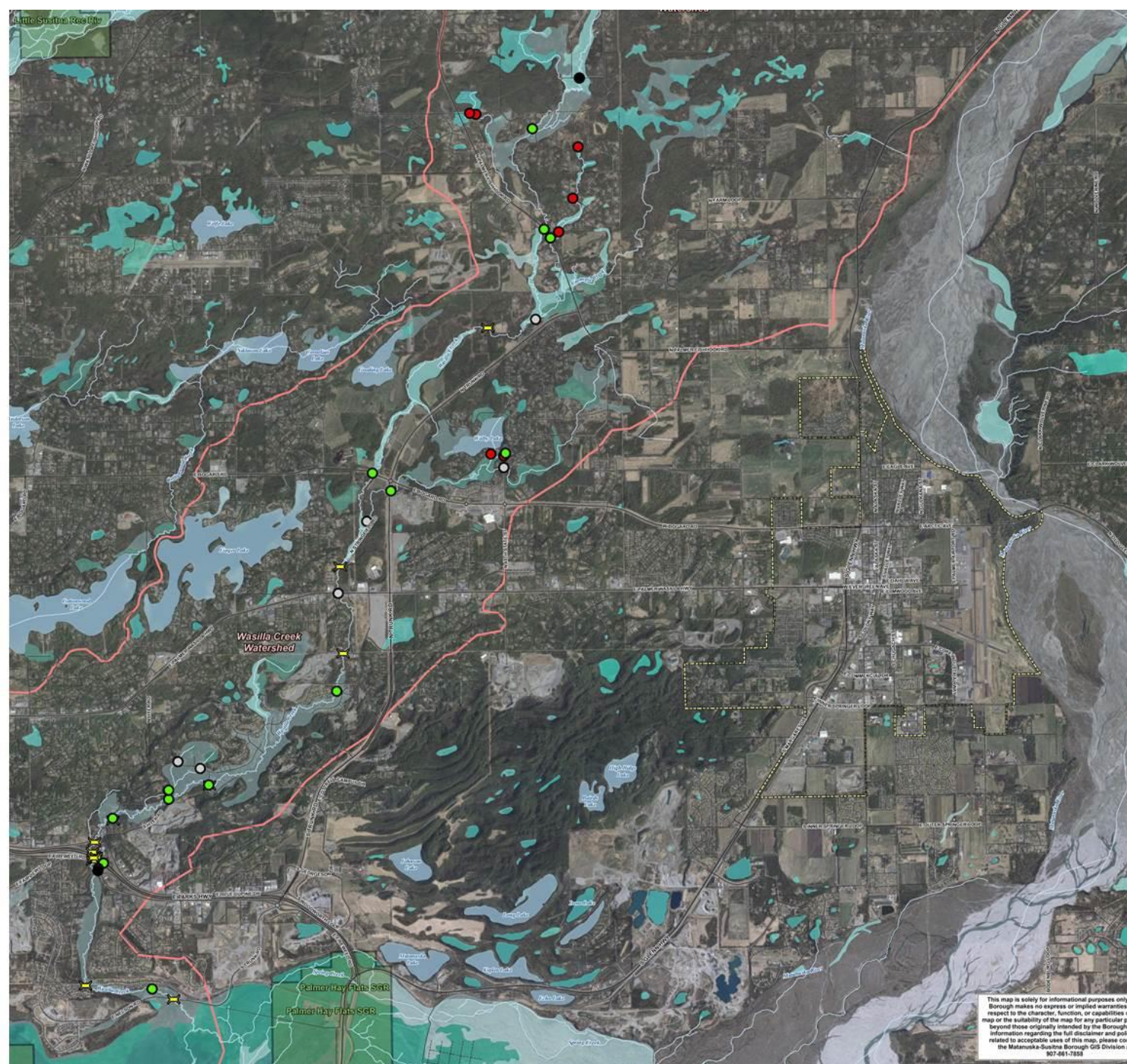


OVERVIEW OF WASILLA CREEK FISH HABITAT IMPROVEMENTS

Wasilla Creek Headwaters Trail and Stream Restoration Project



- The southern reaches of Wasilla Creek are a Popular sport fishing location for red and silver salmon. ADF&G reports an annual harvest averaging around 1000 fish per year From Wasilla Creek.
- Salmon spawn in the northern reaches of the watershed, and juveniles live primarily in the Moose Range streams and wetlands. ADF&G, USFWS, DOT&PF and private Developers have worked and spent over \$4 million to replace undersized or damaged fish passage culverts in the Wasilla Creek Watershed downstream of the Moose Range.



Managing the Moose Range for Habitat and Recreation

Moose Range Management Plan:

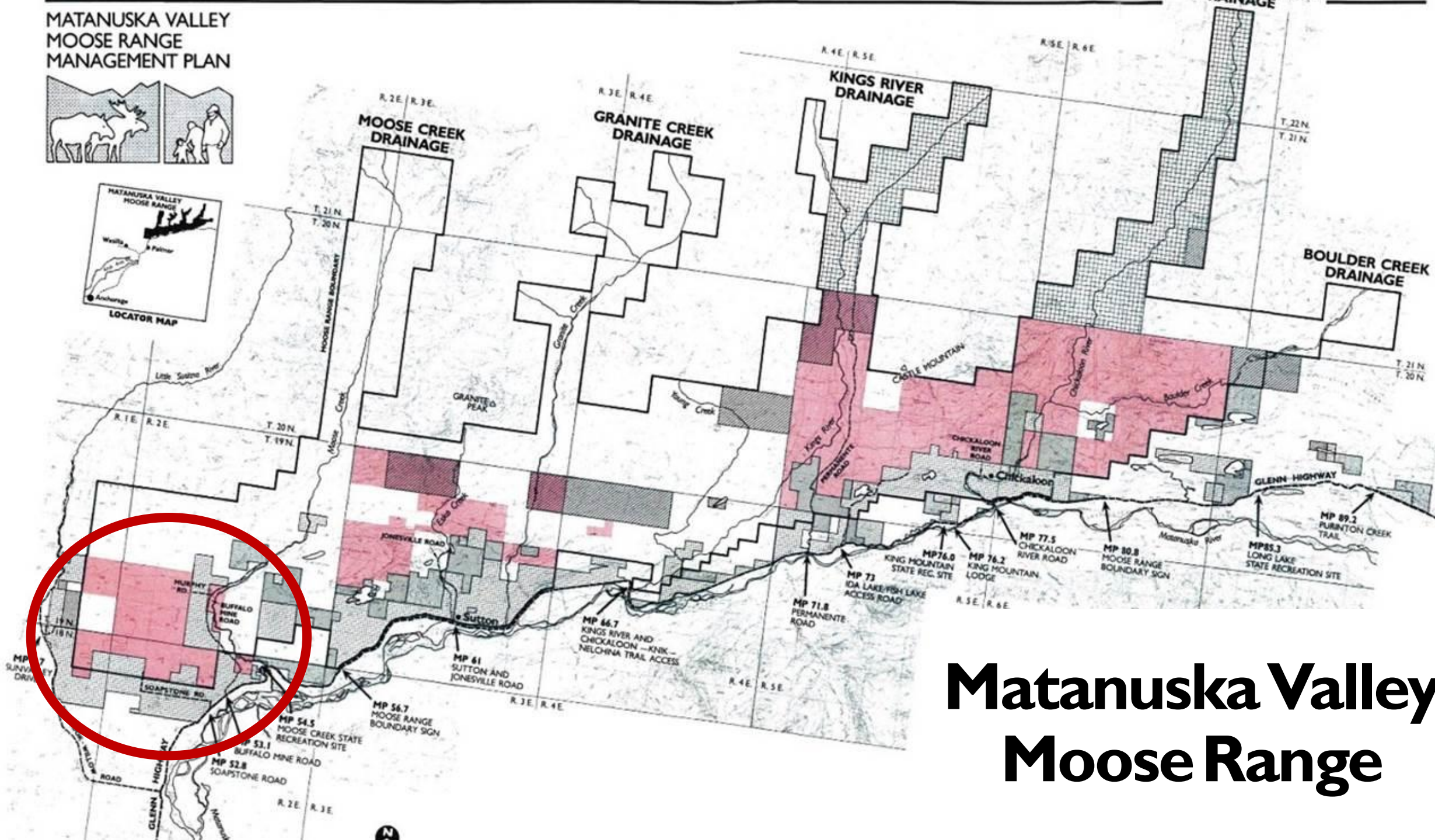
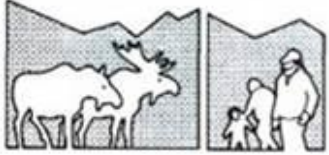
The Moose Range is on State land co-managed by the Alaska Department of Natural Resources (DNR) and the Alaska Department of Fish & Game (ADF&G) in accordance with the Management Plan adopted by DNR and ADF&G in 1986.

The MSB, because of the significant growth in Fishhook and the impacts to the land and fish habitat from recreational usage of the Moose Range, identified this project as a priority in the 2016 Recreation Bond Package.

The Moose Range Management plan allows for the MSB to construct community recreation facilities within the Range with a permit.



MATANUSKA VALLEY MOOSE RANGE MANAGEMENT PLAN



Matanuska Valley Moose Range

MOOSE RANGE PLAN EXCEPTS

- DNR & ADF&G Moose Range Plan Goals:
“Improve and enhance moose habitat and populations and other wildlife resources in the area, and provide opportunities for related public uses, including hunting, trapping, fishing, and wildlife viewing.”
- DNR & ADF&G Moose Range Plan prohibits trail users from travelling or recreating within wetlands or within 100 feet of wetlands except during the winter when the ground is frozen and covered in snow.
- Stream crossings at locations approved by ADF&G

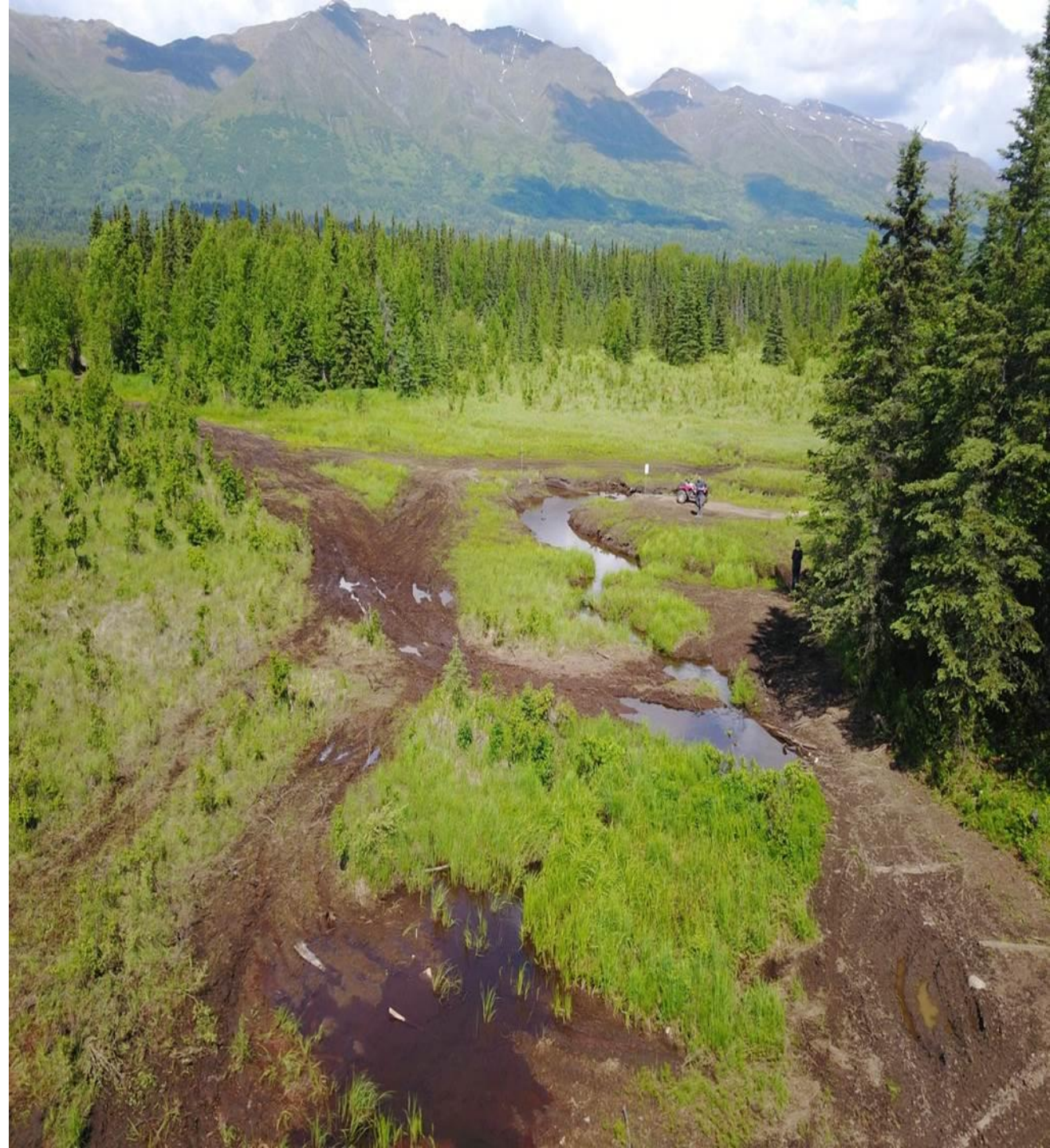


The Trail Project

To protect sustainable recreational opportunities in the Moose Range, restore habitat damage, and prevent future degradation.

The MSB proposes to:

- Relocate a portion of the main trail that leads to the Wasilla Creek Wetlands Complex
- Create 4 appropriate stream crossings at key trail/creek channel locations, and to
- Restore damaged stream and riparian habitats along Wasilla Creek and its adjacent wetlands



Project Details

Crossing 1 & 2:

- Remove existing small bridges (#1 and #2)
- Streambank, channel and wetland restoration with bioengineering in subsequent years

Crossing 3:

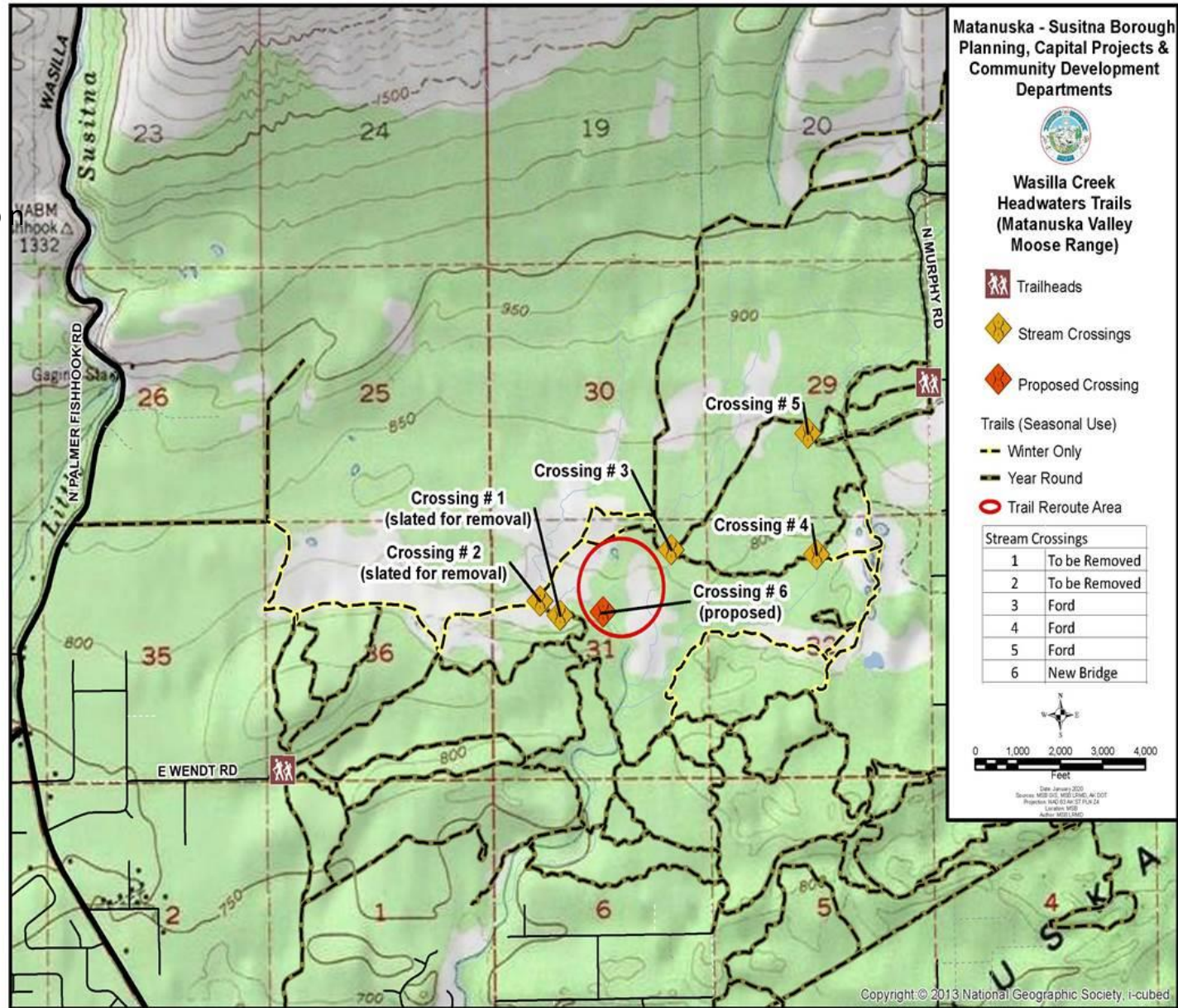
- Install low water crossing (ford)
- Restore streambank and channel with bioengineering

Crossing 4:

- Install low water crossing
- Restore streambank with bioengineering

Crossing 5:

- Install low water crossing
- Restore streambank with bioengineering



NEW STEEL BRIDGE

Crossing #1 on rerouted trail

- Design-build with following specifications:
- Galvanized steel bridge
- Vehicle Load: H-5 Truck rating (10,000 lbs.)
- Andrew Adams P.E. and Ficklin Construction, partially assembled in shop in Wasilla before transporting to site
- Helical piles used for foundation
- Dimensions:
 - Length = 24 ft, Width = 10 ft, Railing Height = 4.5 ft

STRUCTURAL NOTES

1. ALL DIMENSIONS UNLESS OTHERWISE NOTED ARE IN FEET AND INCHES.
2. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE NOTED.
3. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE NOTED.
4. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE NOTED.

GENERAL NOTES

1. THE BRIDGE SHALL BE DESIGNED AND CONSTRUCTED TO CARRY A H-5 TRUCK LOAD.
2. THE BRIDGE SHALL BE GALVANIZED STEEL.
3. THE BRIDGE SHALL BE DESIGNED AND CONSTRUCTED TO CARRY A H-5 TRUCK LOAD.
4. THE BRIDGE SHALL BE DESIGNED AND CONSTRUCTED TO CARRY A H-5 TRUCK LOAD.

LEGEND

1	HEAVY METAL
2	STEEL
3	WOOD
4	CONCRETE
5	ASPHALT

The drawing set includes several views of the bridge structure:

- RIGHT SIDE ELEVATION** (Scale: 1/4" = 1'-0")
- LEFT SIDE ELEVATION** (Scale: 1/4" = 1'-0")
- FRONT VIEW** (Scale: 1/4" = 1'-0")
- BACK VIEW** (Scale: 1/4" = 1'-0")
- RIGHT SIDE ELEVATION (Alternate)** (Scale: 1/4" = 1'-0")
- LEFT SIDE ELEVATION (Alternate)** (Scale: 1/4" = 1'-0")
- FRONT VIEW (Alternate)** (Scale: 1/4" = 1'-0")
- BACK VIEW (Alternate)** (Scale: 1/4" = 1'-0")
- FRONT SECTION** (Scale: 1/4" = 1'-0")
- DECK SYSTEM PLAN** (Scale: 1/4" = 1'-0")
- FOUNDATION CONNECTION** (Scale: 1/4" = 1'-0")

DETAILS:

- DECK SYSTEM PLAN** shows a grid of 1" x 4" steel bar grating supported by a steel beam.
- FOUNDATION CONNECTION** shows a bolted connection between a steel beam and a foundation pile.

SCALE	1/4" = 1'-0"		
DATE	2018	NOV	21
PROJECT	NEW STEEL BRIDGE		
CHECKED	ANDREW ADAMS, P.E.		
DRAWN	FICKLIN CONSTRUCTION		
BY	ANDREW ADAMS, P.E.		
CHECKED BY	ANDREW ADAMS, P.E.		
DATE	2018		
SCALE	1/4" = 1'-0"		

MSA ENGINEERING, PLLC
 1000 N. W. 11th St., Suite 100
 Jensen Beach, FL 34957
 Phone: 772-335-1111
 Fax: 772-335-1112

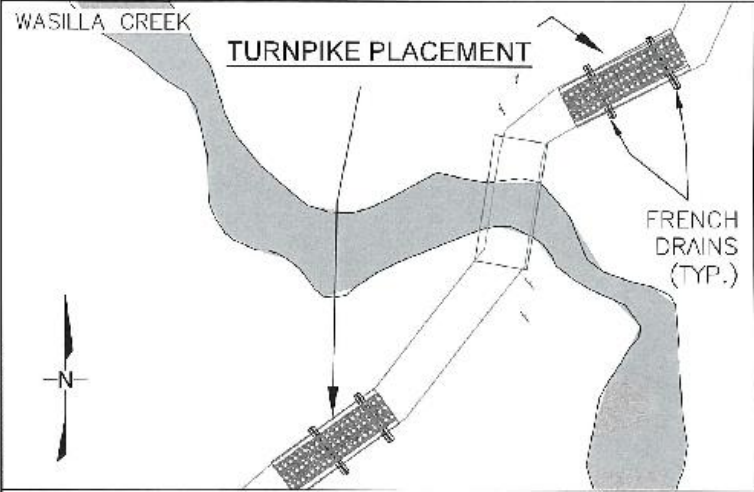
MSA ENGINEERING, PLLC
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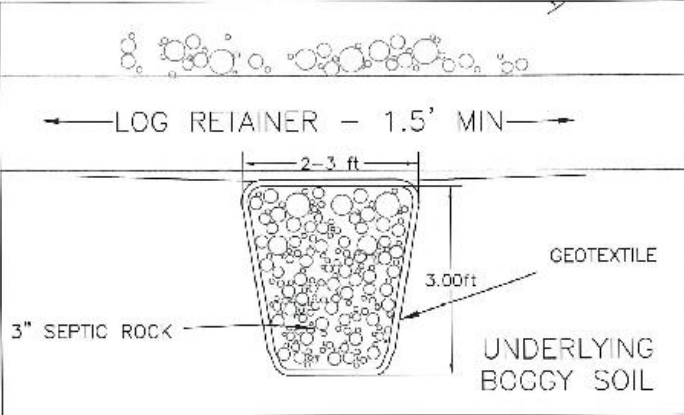
DATE: 11/21/18
 BY: ANDREW ADAMS
 CHECKED BY: ANDREW ADAMS
 SCALE: 1/4" = 1'-0"

1.0

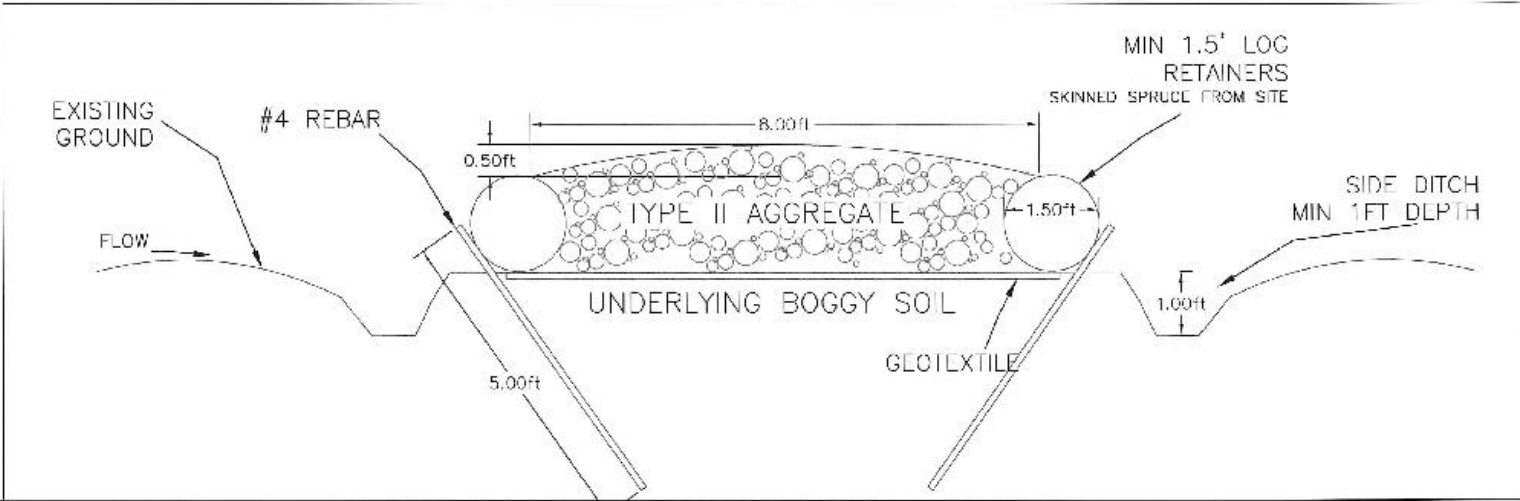
TURNPIKE & FRENCH DRAINS



FRENCH DRAIN DETAIL SECTION



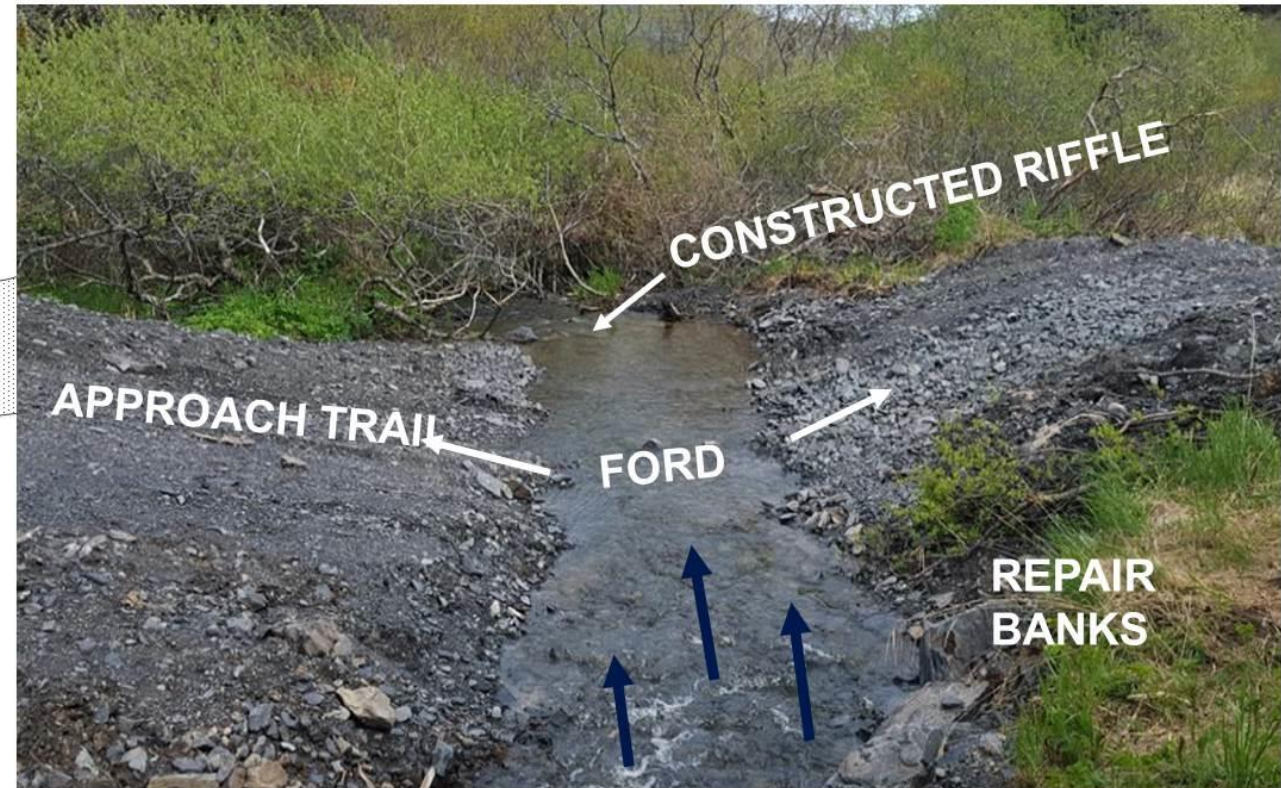
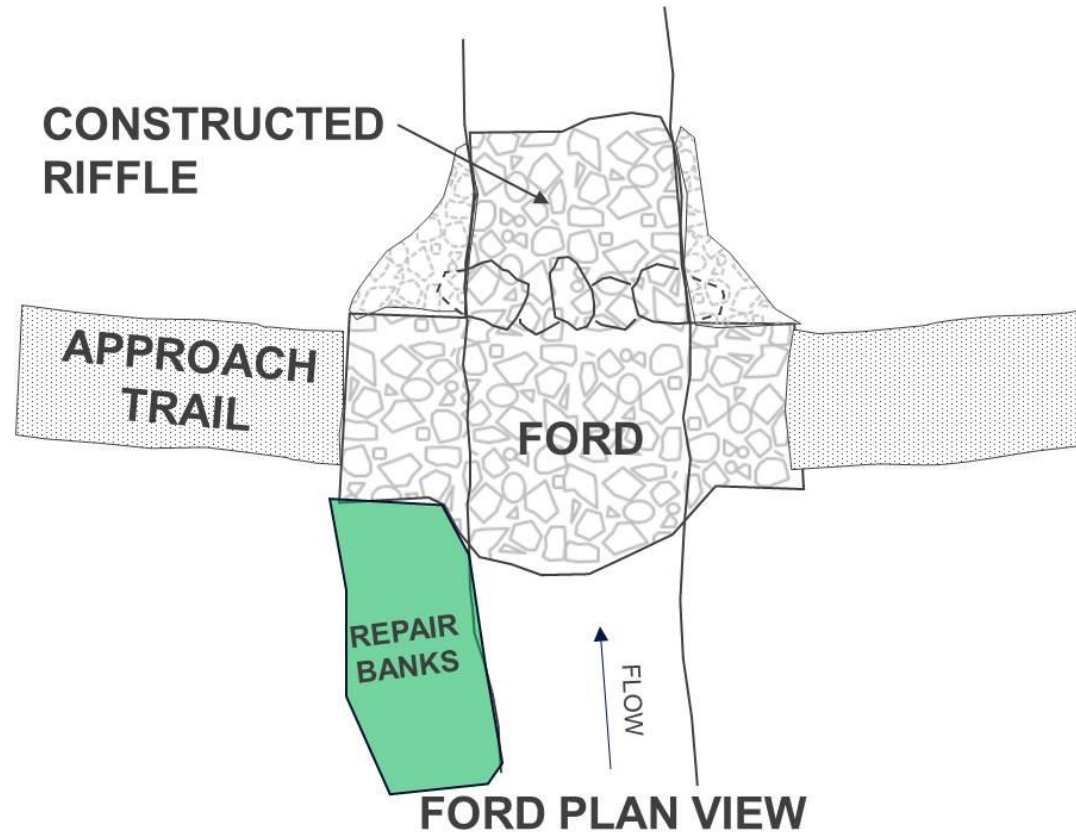
TURNPIKE DETAIL SECTION

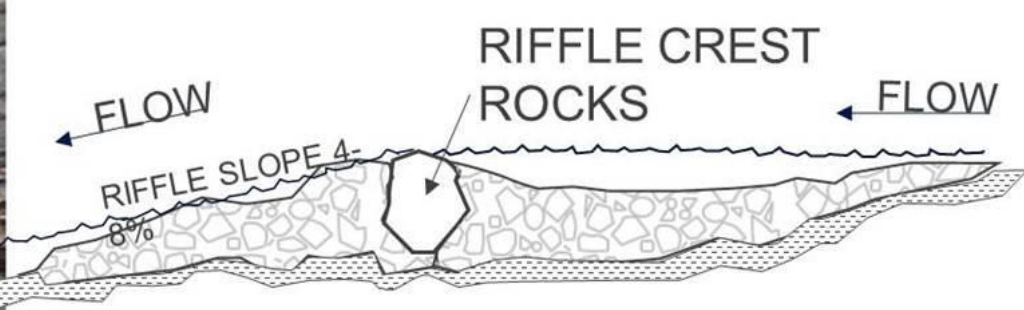


DATE: 04/21/2021	SCALE: AS SHOWN
DRAWN BY: J. B. BROWN	CHECKED BY: J. B. BROWN
PROJECT: WASILLA CREEK HEADWATERS TRAIL TURNPIKE DETAILS	SHEET: C-005
APRIL 2021	
C-005	
1/4" = 1'	

Low Water Crossings (Fords) are the answer

- Reinforced crossings
- Maintain stream shape
- Minimize erosion
- Easier and safer for trail users





FORD PROFILE VIEW



Improve Riding and Trail Use!

2011 MSB LIDAR Project Imagery



Single thread wetland type channel
– New bridge in 2009, trail tread and bioengineered streambank restoration
- Almost immediately had in channel damage from vehicles

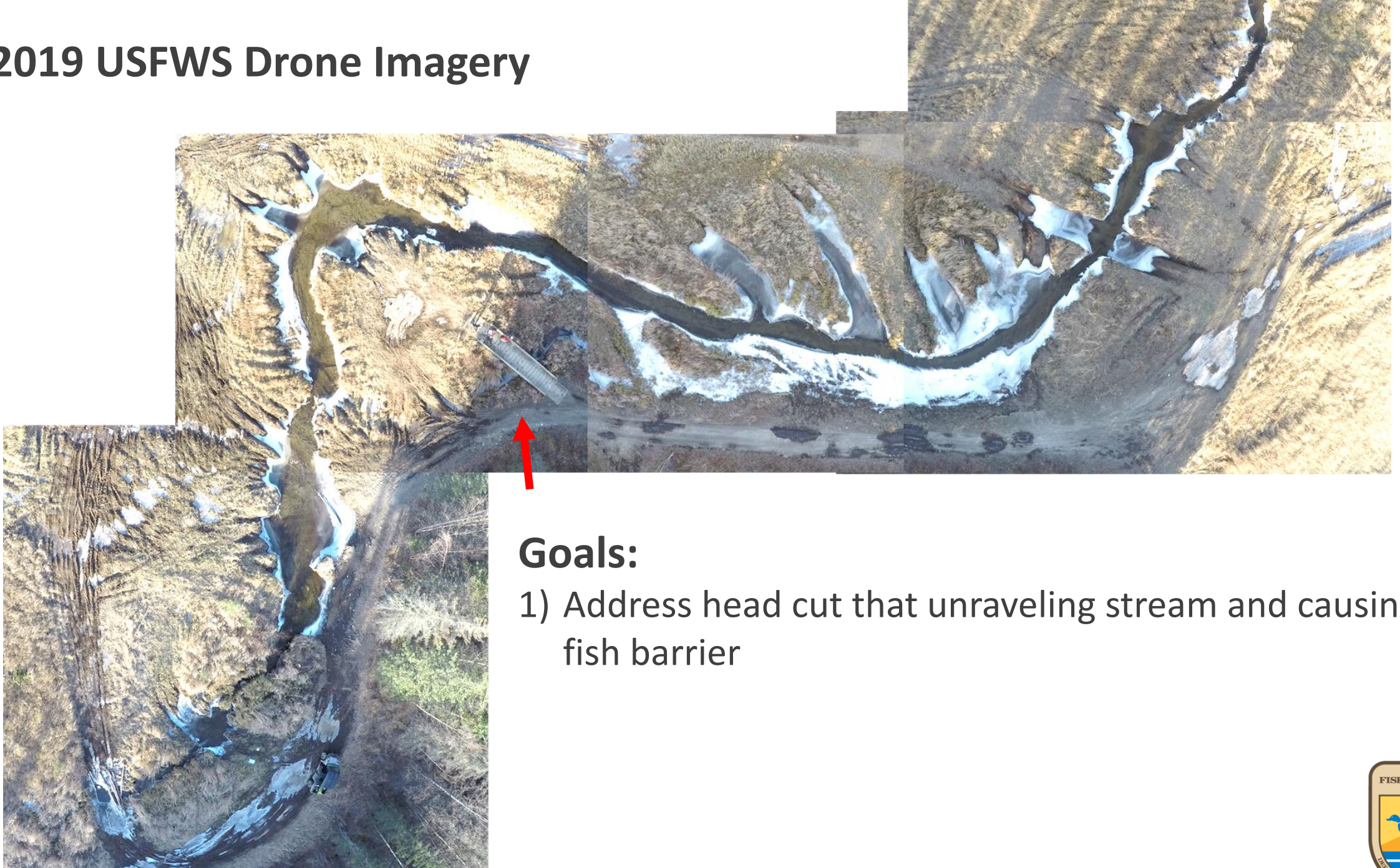


2022 MSB Imagery



Entrenched and overwidened channel
– Channel captured by vehicle track

2019 USFWS Drone Imagery



Goals:

- 1) Address head cut that unraveling stream and causing a fish barrier

Salmon Symposium, meet the Head Cut:



Photo by MSB



2019 USFWS Drone Imagery



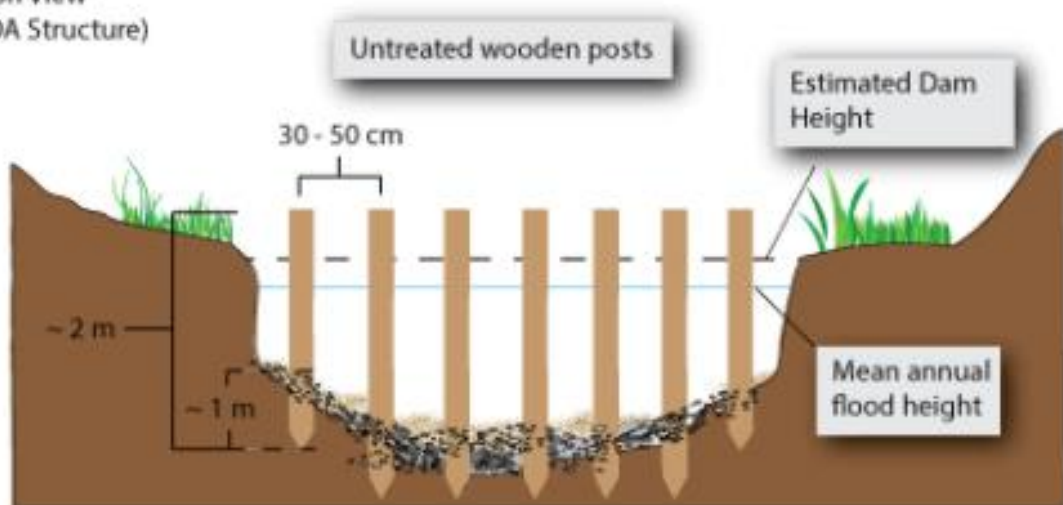
Goals:

- 1) Address head cut that unraveling stream and causing a fish barrier
- 2) Improve habitat in the degraded reach
- 3) Minimize cost due to risk of damage

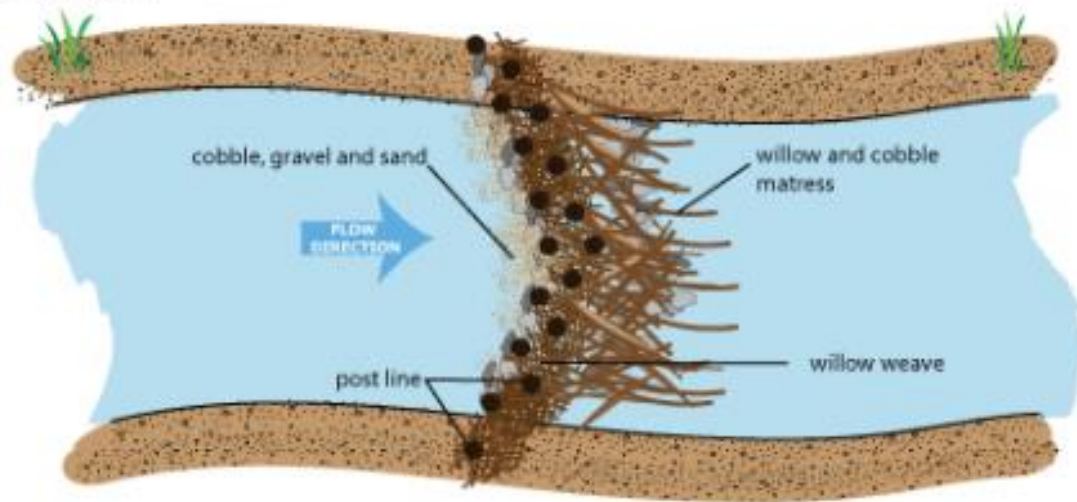
Beaver Dam Analogs (BDAs) Post Assisted Woody Debris (PAWD) Dams



Cross Section View
(Generic BDA Structure)



Plan View
(Convex Primary Dam)



The Beaver Restoration Guidebook

Working with Beaver to Restore Streams, Wetlands, and Floodplains

Version 2.02, March 23, 2023



Photo credit: Worth A Dam Foundation (martinezbeavers.org)

Prepared by

US Fish and Wildlife Service
National Oceanic and Atmospheric Administration
University of Saskatchewan
US Forest Service
Woodruff

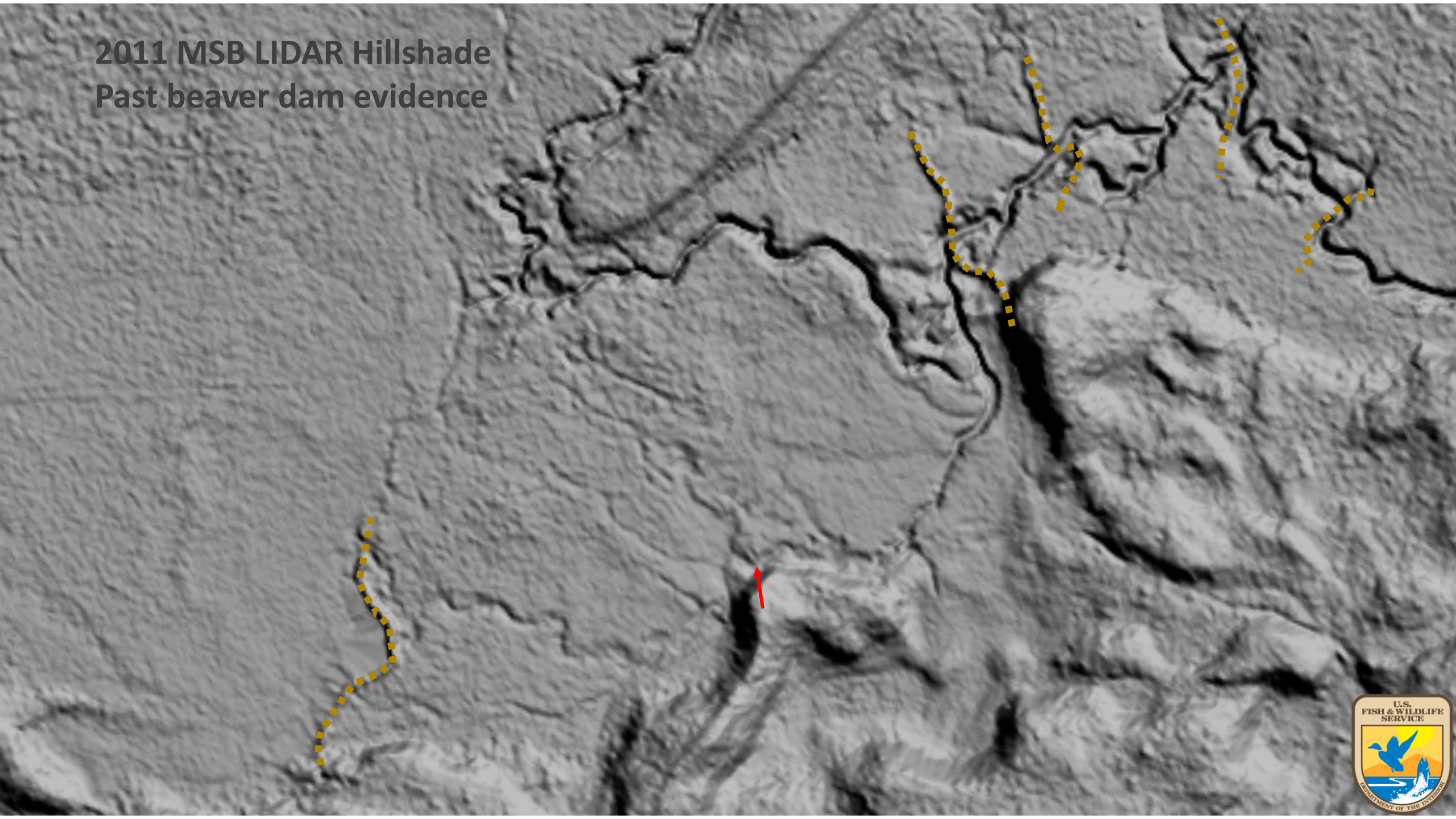
Janine Castro
Michael Pollock and Chris Jordan
Gregory Lewallen
Kent

Funded by

North Pacific Landscape Conservation Cooperative

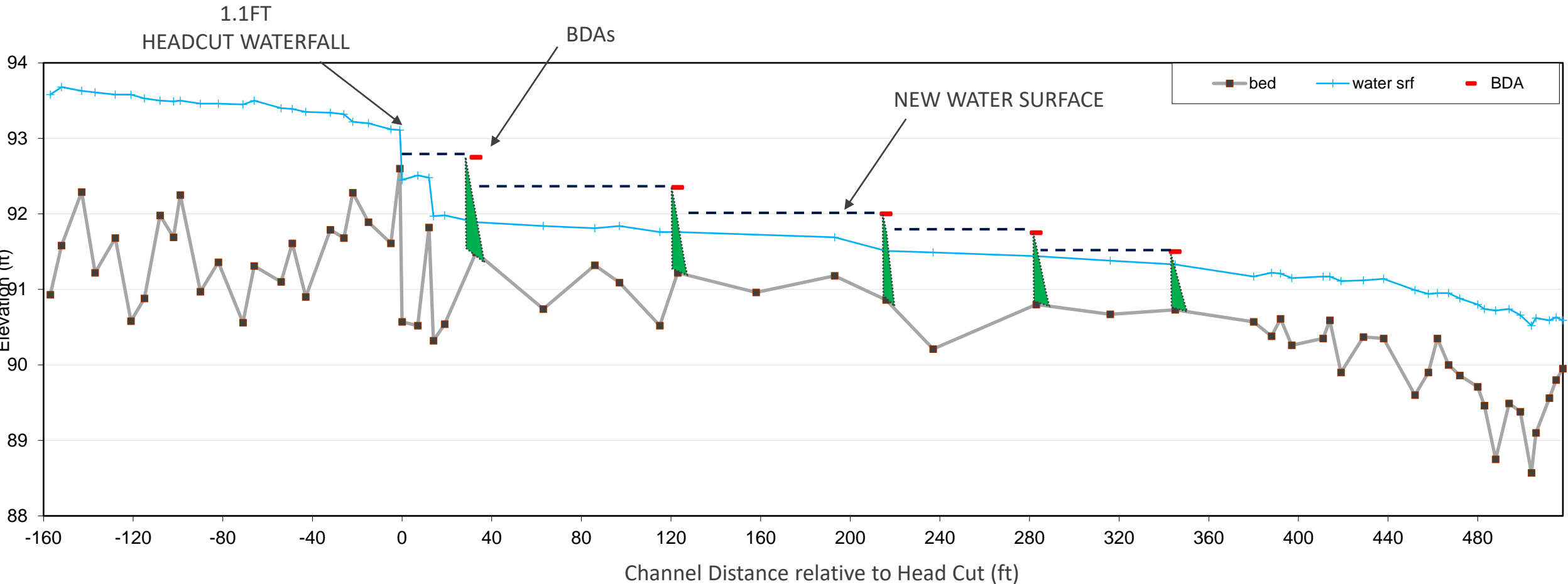


2011 MSB LIDAR Hillshade
Past beaver dam evidence

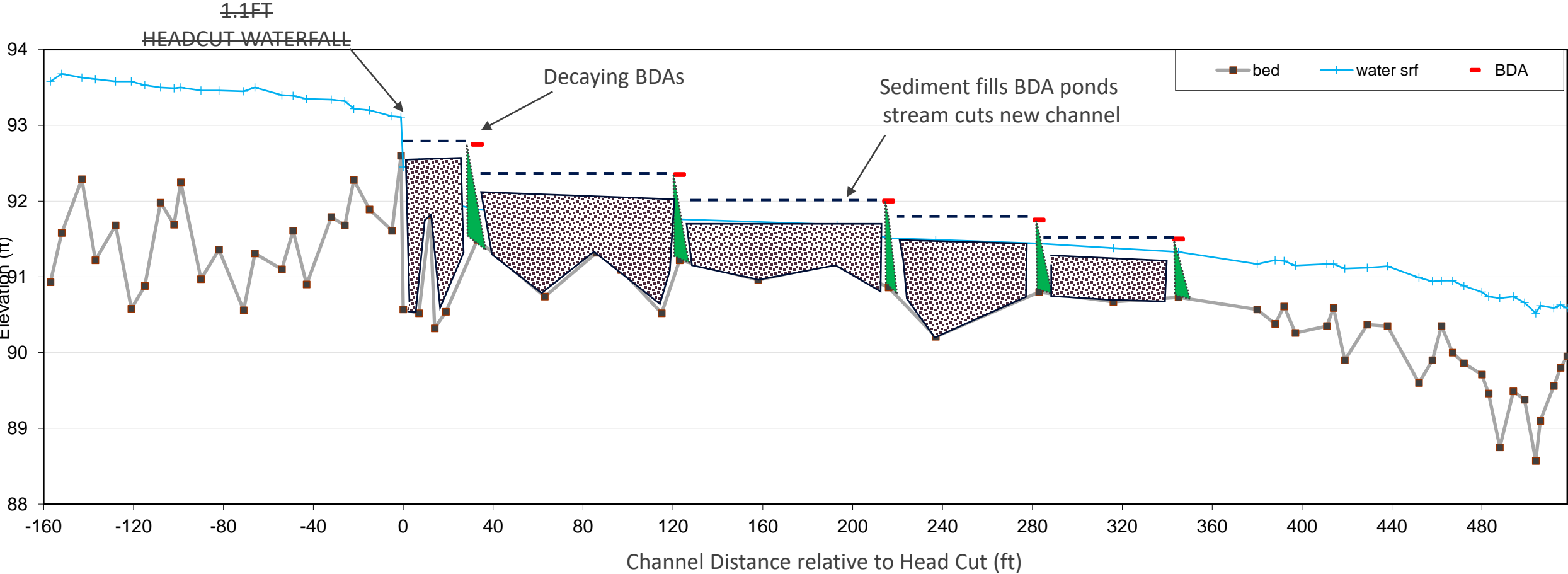




Long Profile view today



Long Profile View Future





CONSTRUCTION

Ficklin Construction – total cost ~\$250k

2022-2023 Seasons



Construction

Turnpike w/ French drain and crossing #5 ford (right)





Streambank Stabilization

Willows installed by various agencies and volunteers in 2023



Streambank Stabilization





Photos

Post-Construction



Photos

Post-Construction



Closure and Restoration

- Full recovery will take several years combined with active management by ADF&G and DNR and cooperation from the public trail users
- MSB, ADF&G and USFWS conducted 2 visits to the site in 2023 and made some repairs to damaged stream restoration structures
- Evidence indicates that the old trail is still in use and motorized vehicles are crossing the creek in the same location
- ADF&G Habitat working on a general permit for stream crossings in the area, pending on the Moose Range Plan revision
- ADF&G plans to close the impacted area on the old trail, currently pending DNR approval.
- An update to the Moose Range Plan by DNR and ADF&G is in progress and the public comment period is open on the draft plan.





Questions