



— BUREAU OF —
RECLAMATION

Linderman Dam Restoration

Project Manager: Arien Chavez

Teton River, Idaho

Columbia Pacific Northwest Region

Background & History

- Located approx. 7 miles upstream of Teton Dam on the Teton River, just past the Milk Creek confluence
- Initiated and designed by Shayne Linderman
- Built in the late 1950's early 1960's largely by locals
- Original structure included a 10-foot hydraulic drop, water pooled 3,600 ft upstream

Background & History

- Reclamation acquired the dam from Shayne and Bette Linderman
- Largely dismantled to make way for the Teton Dam in 1972
- Surface elevation pre 1972 = 5165
- Surface elevation post Teton Dam failure = 5161
 - Approx. 4-foot drop in upstream pool

Original Construction



P549-100-973 A privately-constructed low dam was put across the Teton River by Mr. Lindermann. The purpose of the dam is to develop hydraulic pumping power for irrigation water to Mr. Lindermann's farmland lying along the south canyon rim. The dam is the north fork of the Teton River. Teton Basin Project, ID. FACI/Other Structures. BR photo by D.L. Crandall. Spring 1961.



Linderman Dam 1970s

A photograph of the Linderman Dam, a concrete structure with a small spillway, situated at the base of a steep, rocky cliff. The water is calm, reflecting the sky and the cliff. The foreground shows a grassy bank with some rocks. The sky is blue with some clouds.

Linderman Dam Prior to Riffle Construction

Linderman Dam Prior to Riffle Construction



Linderman Dam Post Riffle Construction



Linderman Dam Post Riffle Construction



Project Drivers

1. SAFETY, SAFETY, SAFETY ...

- The remaining structure causes significant undercurrents and can be dangerous to recreators/public
- Multiple events in the last couple years have highlighted the need to modify and or remove the existing structure

2. Habitat, river and canyon restoration

3. Maintain pool elevation for irrigation pumps onsite

Scope of Work

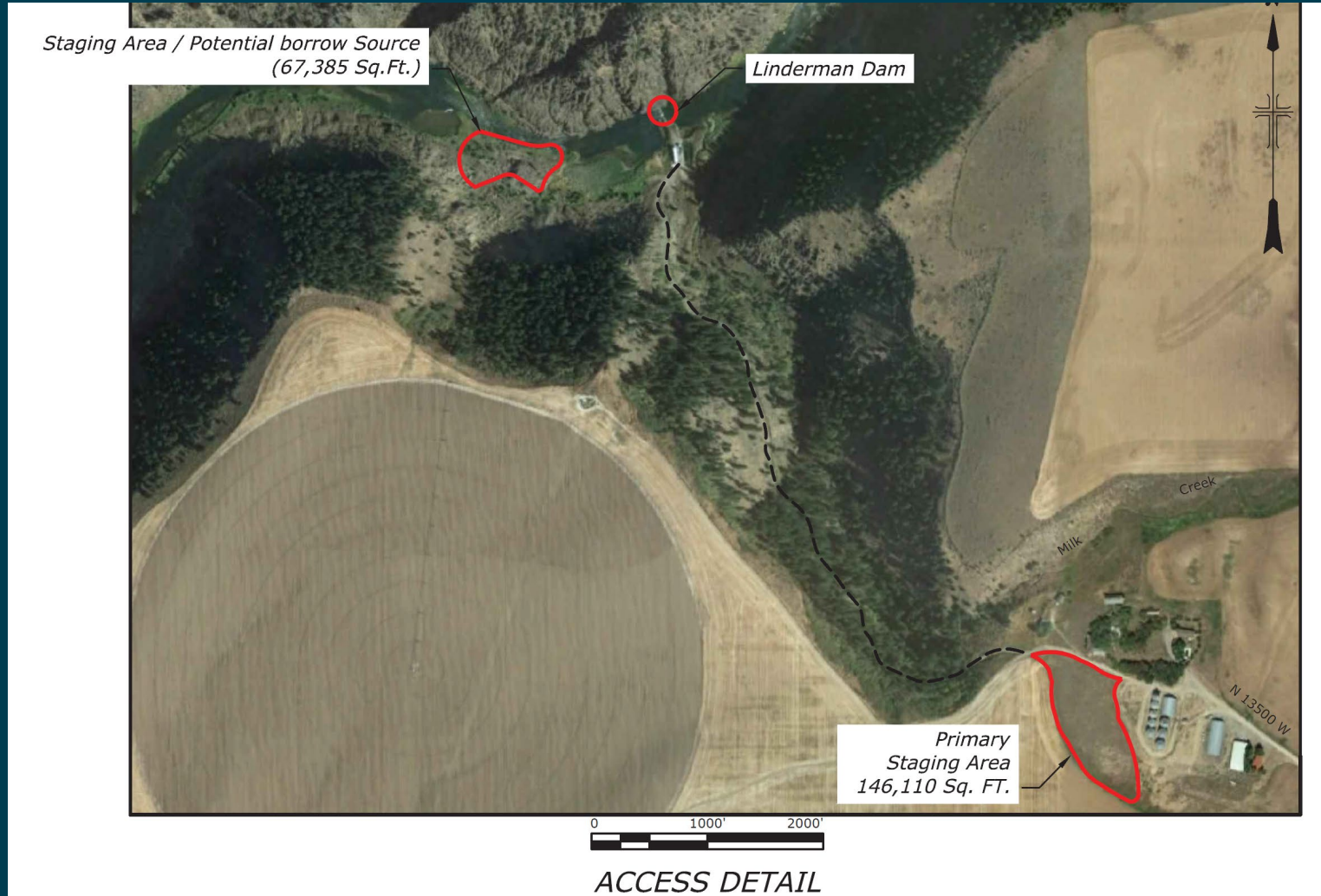
- Construct a natural riffle downstream of the current dam location
 - Improve boater access/safety
 - Improve fish habitat
 - Maintain upstream pool elevation for irrigation pumps
- Modify and/or remove portions of the remaining structure

Construction began by Reclamation forces fall 2021; follow up construction to occur in 2022 or 2023 after high flows

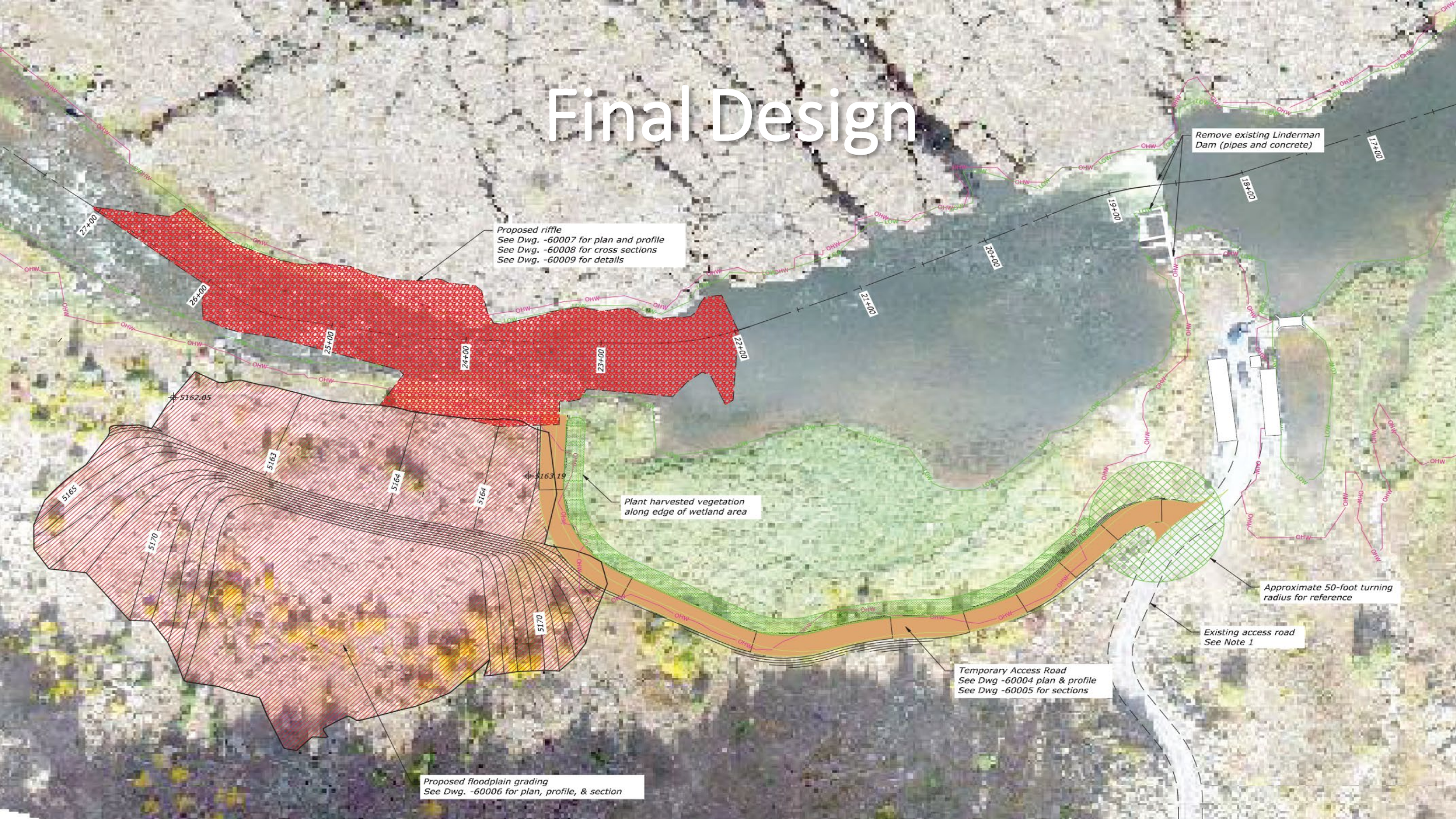
Scope of Work

- Construction will occur in the “wet”
 - Cofferdams can not be used due to depth and flows
- Materials/Riprap (contract) completed in 2020
 - Approx. 5400 tons (all materials)
 - As needed repairs to private road from highway to staging location
 - Dust prevention 1000 ft near residence
 - Coordinate with Teton County and residents
- Access road maintenance and repairs
 - Completed prior to in waterway construction 2021, completed by Reclamation forces

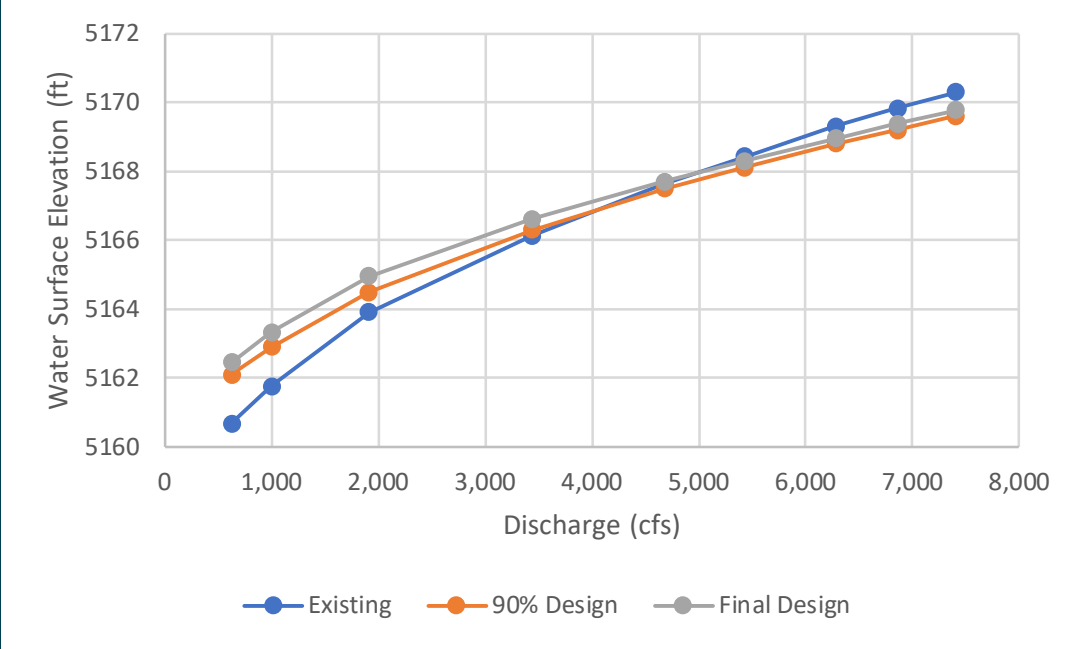
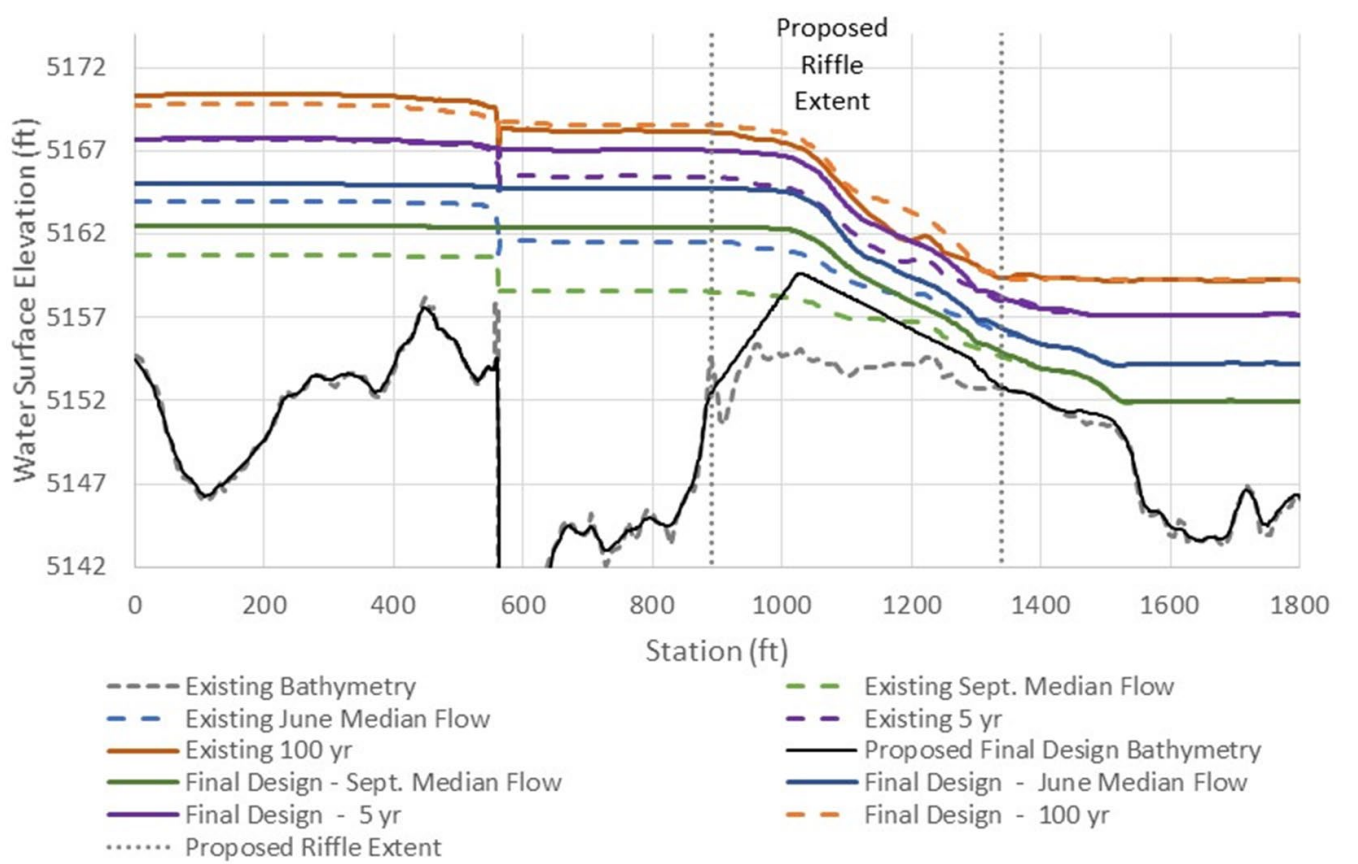
Rip Rap Staging Locations



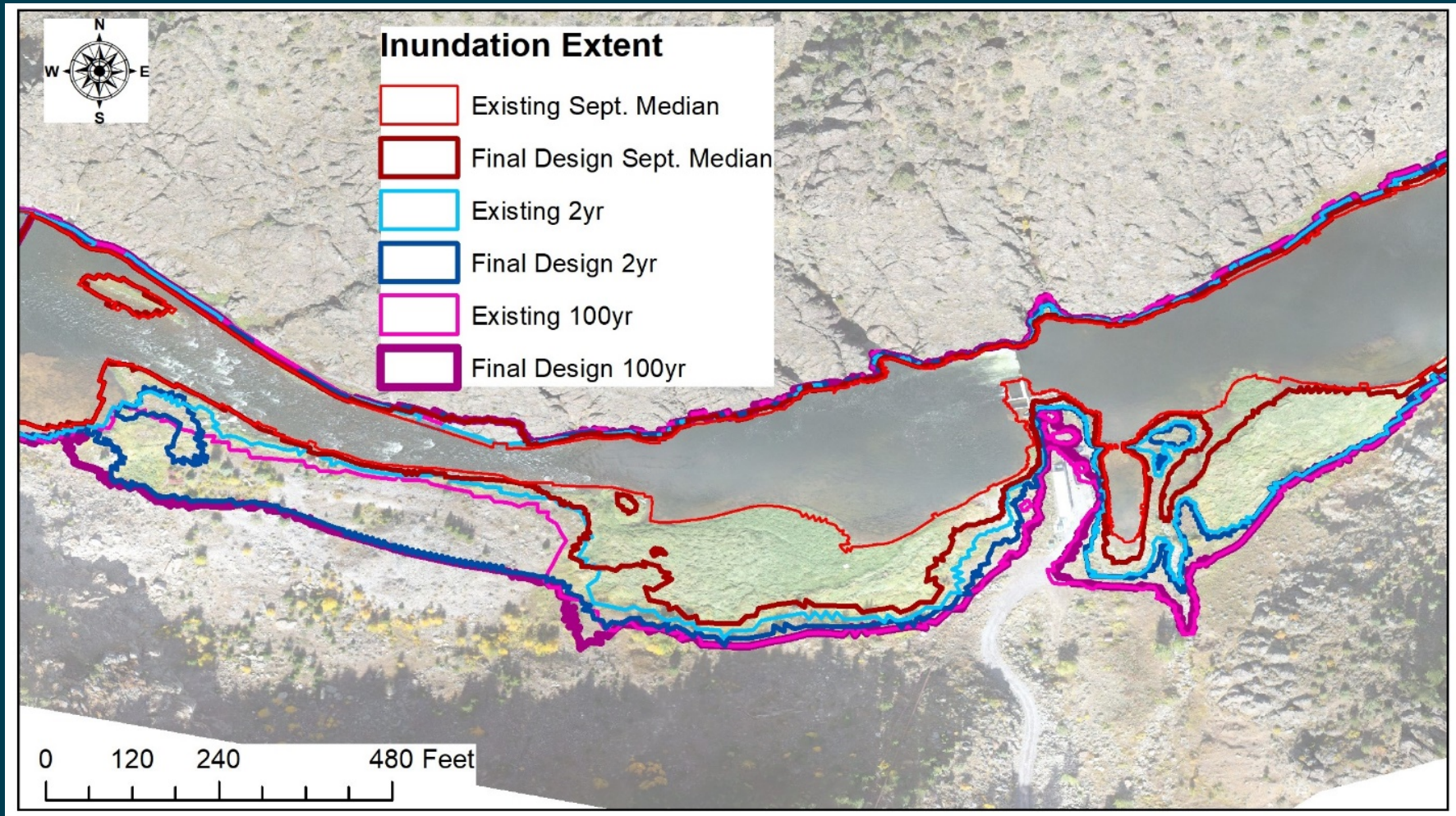
Final Design



Final Design Water Surface Elevation Results



Final Design Inundation Extent Results



Schedule

Completed

- July 2019 – Original 60% design complete
- September 2019 – Cooperator meeting
- October 2019 – Begin NEPA (EA), 401/404 permitting
- October 2019 – Dive (Reclamation) & design walk through
- Oct 2019-Jan 2020– Value Engineering Study (VE Study)
- February 2020 – 2nd Cooperator Meeting
- Mar 2020 – Revised 60% design complete
- May 8, 2020 - Additional topographic survey
- July 15, 2020 – 90% design and spec complete
- October 22, 2020 – Review C complete
- Nov/Dec 2020 – Rip rap delivered to site
- February 1, 2021– Final design and hydraulic model

Schedule

Completed

- April 2021 – 3rd Cooperator Meeting
- Spring 2021 - North Canyon rim access
- May 2021- Set control points
- June 2021 - Geology test pits of earth mound
- July 20, 2021 – Construction start date (Reclamation forces)
- September 23, 2021 – Year 1 construction complete

Upcoming

- Spring/June 2022 – Site visit, monitoring riffle performance, post high-flow
- Aug/Sept 2023 – Year 2 construction
- March 2024 – Closeout complete

Constraints

- Construction occurs in the “wet”, coffer dams can not be used with the flows through Linderman Dam site
 - Coordination with licensed outfitters and public
- Environmental requirements
 - EA (NEPA) process
 - 401/404/IDWR permitting
- Compressed construction schedule due to water flows (spring/summer) and inclement weather (fall/winter)
- Maintaining upstream pool elevation through irrigation season

Constraints

- Access road into Teton Canyon was modified prior to construction beginning
 - Rock trucks
 - Large equipment
- Materials/rip rap was staged prior to construction beginning
- Nematode exposure risk and work processes to avoid
 - All heavy equipment used during construction was cleaned, sanitized, and inspected prior to arriving at the work site

Considerations During Construction

- Recreators/outfitters/river access during construction
 - In-water construction posed minimal disturbance for recreators
 - Only a few boaters passed by during the construction
- Location of staging area for materials (rip rap)
 - Material was staged up top of the canyon as well as down at the project site for retrieval during construction
- Maintain Teton County road and private road into Linderman during and after construction
 - Worked w/Teton County on rip rap SOW, partnered in pre and post work site visits
 - Dust prevention near residences (1000 ft approx.) – dust abatement applied twice during 2021

Construction

- Phase 1 construction began in July 2021 and completed late September 2021
 - First few weeks focused on the haul road and grading the floodplain
 - This phase focused on construction a natural riffle downstream of the existing structure.
 - Water surface elevation at the pumping station met design elevation for September of 5162 feet.
- Additional construction on the existing structure is planned for August through September 2023, to allow for monitoring of the riffle performance post high-flows over 2022 and Spring 2023.
- Reclamation construction staff (Provo Construction Group, UC Region) is completing the construction.









Coordination/Cooperators

- Corp of Engineers (USACE) – 401/404 permitting
- IDWR – stream channel permitting *if required
- IDEQ – Water Quality
- BLM – Project coordination, outfitter notification/meetings, possible lands nearby
- IDFG – Fisheries and wildlife considerations

Coordination/Cooperators

- Local government agencies
- Local interest groups, entities and individuals
 - Friend of the Teton River, Teton River outfitters, recreators, local government, irrigation districts
- Onsite irrigation pumps and adjacent landowner
 - Skyline Farms (Conn Crapo)
 - Coordination w/Fremont Madison Irrigation District (FMID)

Communications - Public

- Dedicated Project Webpage:
 - [Linderman Dam Restoration Project, PN Region | Bureau of Reclamation \(usbr.gov\)](https://www.usbr.gov/lr/np/programs/projects/linderman/index.html)
- Project Overview Sheet at local locations
 - Madison County
 - Fremont County
 - Teton County
 - Outfitters
 - BYU Idaho

Communications - Public

- May 2021 - News Release/Paid Ad
- July 2021 - Follow-up News Release/Paid Ad (reduced version)
- Updated Signage
 - Upstream entry points
 - Upstream on Teton River

Reclamation Point of Contacts

- Arien Chavez, Project Manager ***Primary POC***
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- Nicole Carson, Project Manager (Backup)
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Questions ?

