

Santa Fe National Forest Aquatic Organism Passage Project

Rito Peñas Negras AOP



Rio Cebolla AOP



Fisheries Division



Project Contacts



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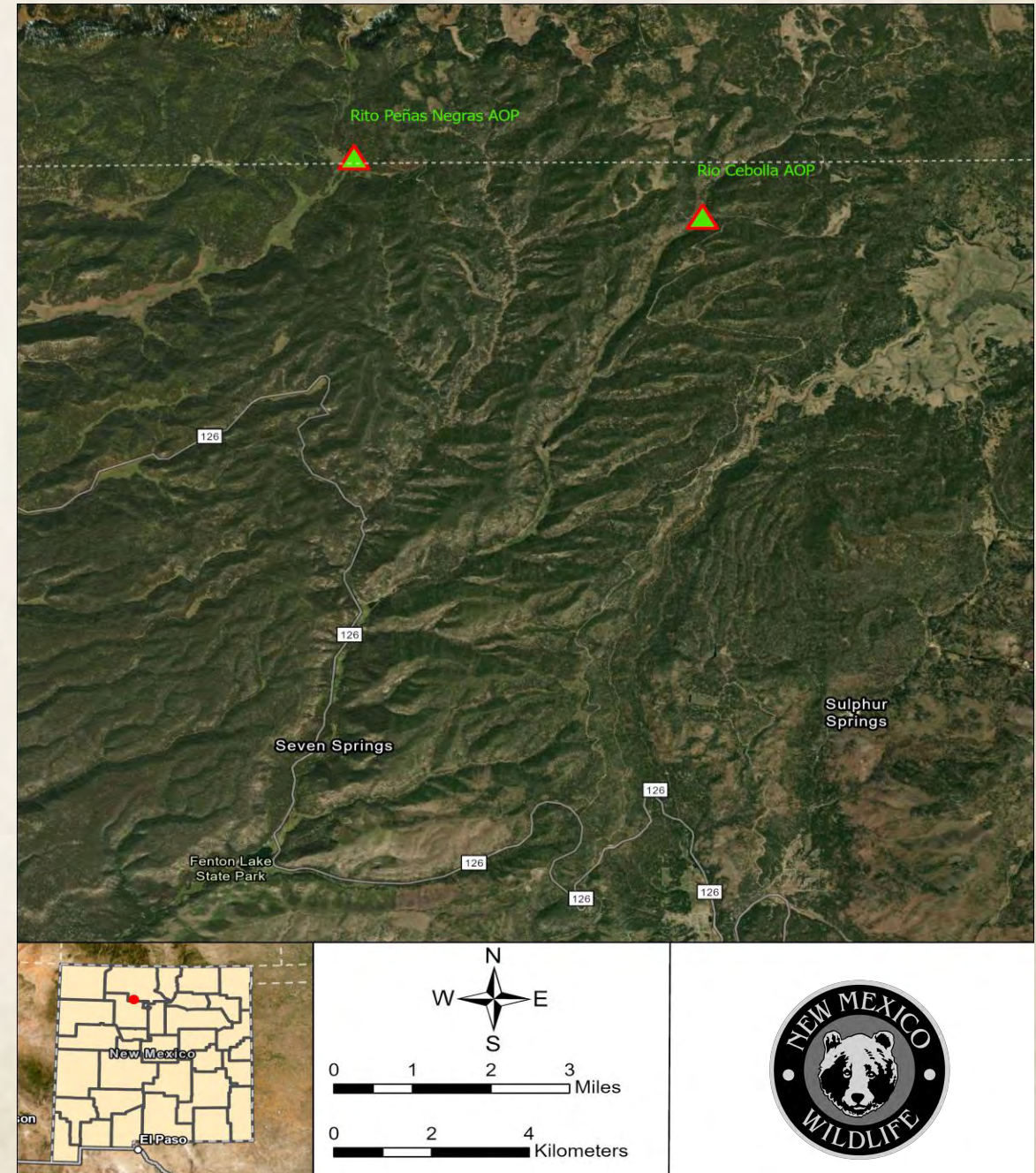
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Project Location

- Santa Fe National Forest, Cuba Ranger District, Jemez Ranger District
- Sandoval and Rio Arriba Counties
- Rito Peñas Negras-(36.00094, -106.70817)
- Rio Cebolla- (35.99102, -106.6442)



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Project Background

Rito Peñas Negras

- Heavy erosion
- Culvert head is separated from body
- Creek runs around and underneath culvert
- Aquatic organisms can't pass through



Project Background Cont.

Rio Cebolla

- Current culverts are dilapidated
- Fish can't pass through due to design
- Core conservation population for Rio Grande Cutthroat Trout with >99% purity
- Popular area for public angling



Project Purpose

- **Mimicking Natural Channels:**
 - Replicate the physical characteristics of the natural stream within the crossing structure, including channel dimensions, substrate, and bed material.
- **Promote fish passage:**
 - By replicating natural stream conditions, stream simulation aims to ensure that fish and other aquatic organisms can easily navigate through the structure.
- **Restoring Ecological Processes:**
 - Stream simulation strives to restore ecological processes, such as sediment transport, debris passage, and hydraulic conditions, within the passage structure.
- **Reducing Maintenance Needs:**
 - Stream simulations are designed to have larger sizes, which decreases the likelihood of plugging and overtopping, ultimately reducing long-term maintenance needs.



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Update!

- 60% designs completed
- 100% designs expected by June 1, 2026
- Implementation anticipated to begin fall 2026



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Preliminary Designs

Rio Cebolla

Stream Simulation Hardened Ford

- **Description:** A reinforced, at-grade crossing using an oversized boulder matrix integrated into a 170-foot stream simulation reach.
- **Logistical Advantage:** This design eliminates the need for structural concrete, which is critical given the impossibility of transporting batched concrete to the project site. It utilizes native alluvium and imported rock, which can be handled by smaller equipment common in remote Forest Service projects.
- **Suitability:** This is the only alternative that honors the existing vertical constraints of the site. It restores AOP and geomorphic sinuosity while allowing Type 6 vehicles to safely cross the stream at a grade that matches the natural floodplain.
- **Conclusion:** Preferred Strategy. The ford provides the optimal balance of aquatic organism passage, hydraulic safety during overtopping events, and long-term durability without the impossible requirement for vertical roadway expansion.



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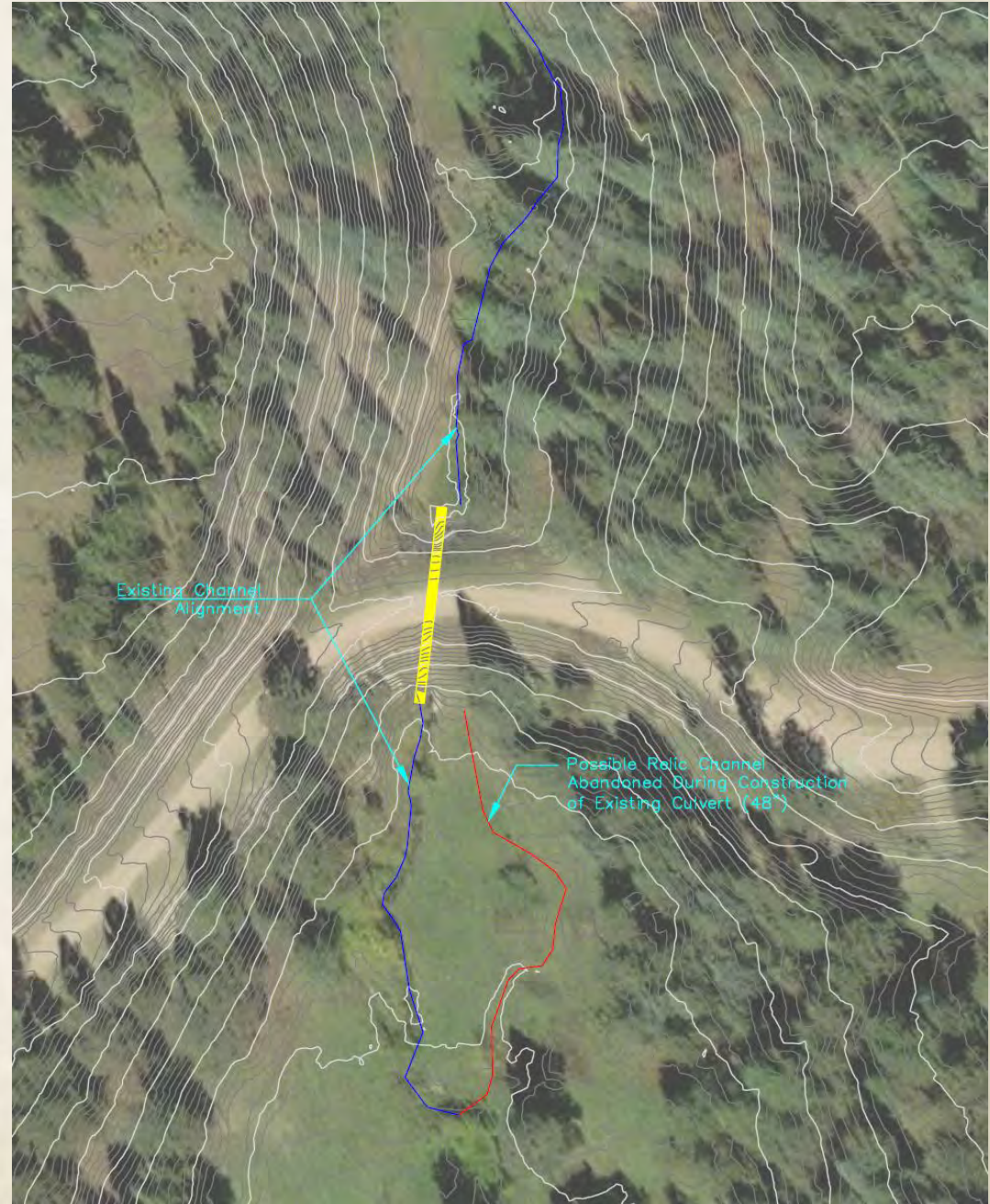


Preliminary Designs

Rito Peñas Negras

Aluminum Structural Plate Arch

- **Description:** This option utilizes an aluminum alloy structural plate arch (e.g., Contech ALSP) with deep 9-inch by 2.5-inch corrugations.
- **Durability & Constructability:** Aluminum naturally forms a hard, inert oxide layer that provides exceptional resistance to corrosion in the soft, acidic water common to the volcanic Jemez terrain. Crucially, the plates are approximately 1/50th the weight of concrete and significantly lighter than steel, allowing for rapid assembly with small equipment.
- **Foundation Strategy:** Like the steel option, this design utilizes precast concrete footings to avoid reliance on distant batch plants.



Estimated Construction Cost

Rito Peñas Negras- \$1,225,000



Rio Cebolla- \$245,000



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