



**Santa Felicia Dam Safety
Improvement Project –
Public Safety and Regulations**
Where Do We Draw the Line?

October 26, 2023

A wide-angle photograph of the Santa Felicia Dam Facility. The dam is a concrete structure with two main spillways, situated in a deep, rocky gorge. Water is cascading over the spillways, creating a large amount of white foam and spray. The surrounding cliffs are steep and covered with green vegetation. In the background, a power line tower is visible on the right cliff. The sky is overcast with grey clouds. The image has a decorative graphic at the bottom consisting of overlapping curved shapes in orange, green, and blue.

Santa Felicia Dam Facility

Why SFD Safety Improvement Project?



- **Deficiencies:**
 - Seismic Deficiency of Intake Tower and Penstock
 - Ongoing Siltation in the Reservoir
 - Insufficient Spillway Capacity to Safely Pass Inflow Design Flood (IDF)
- **Improvements under design:**
 - New Outlet Works
 - Spillway Improvements
 - New Release Channel

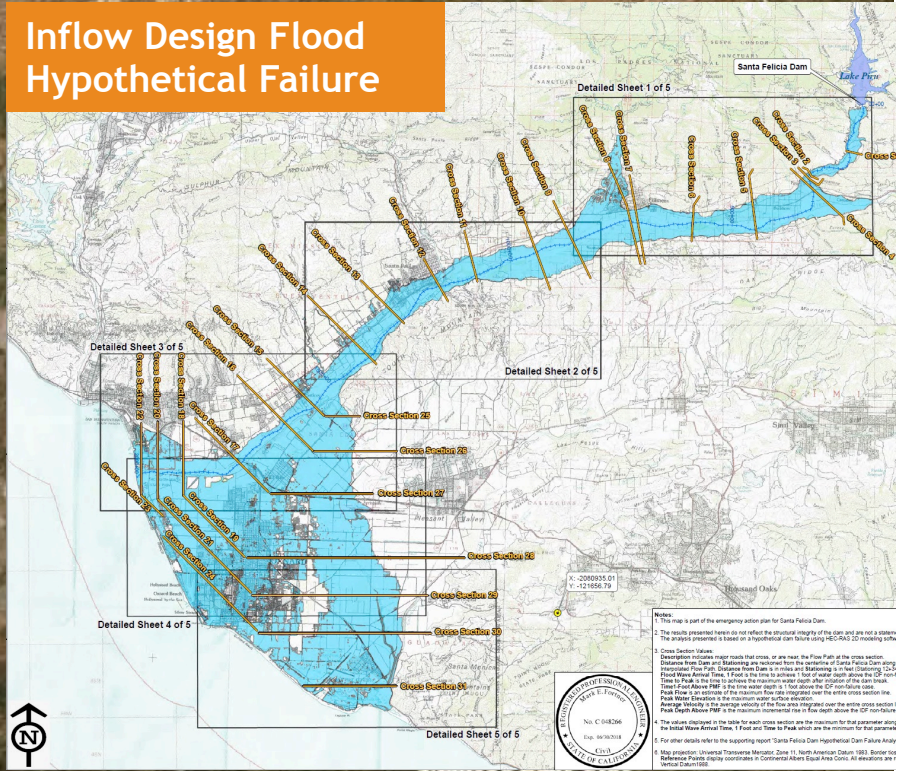
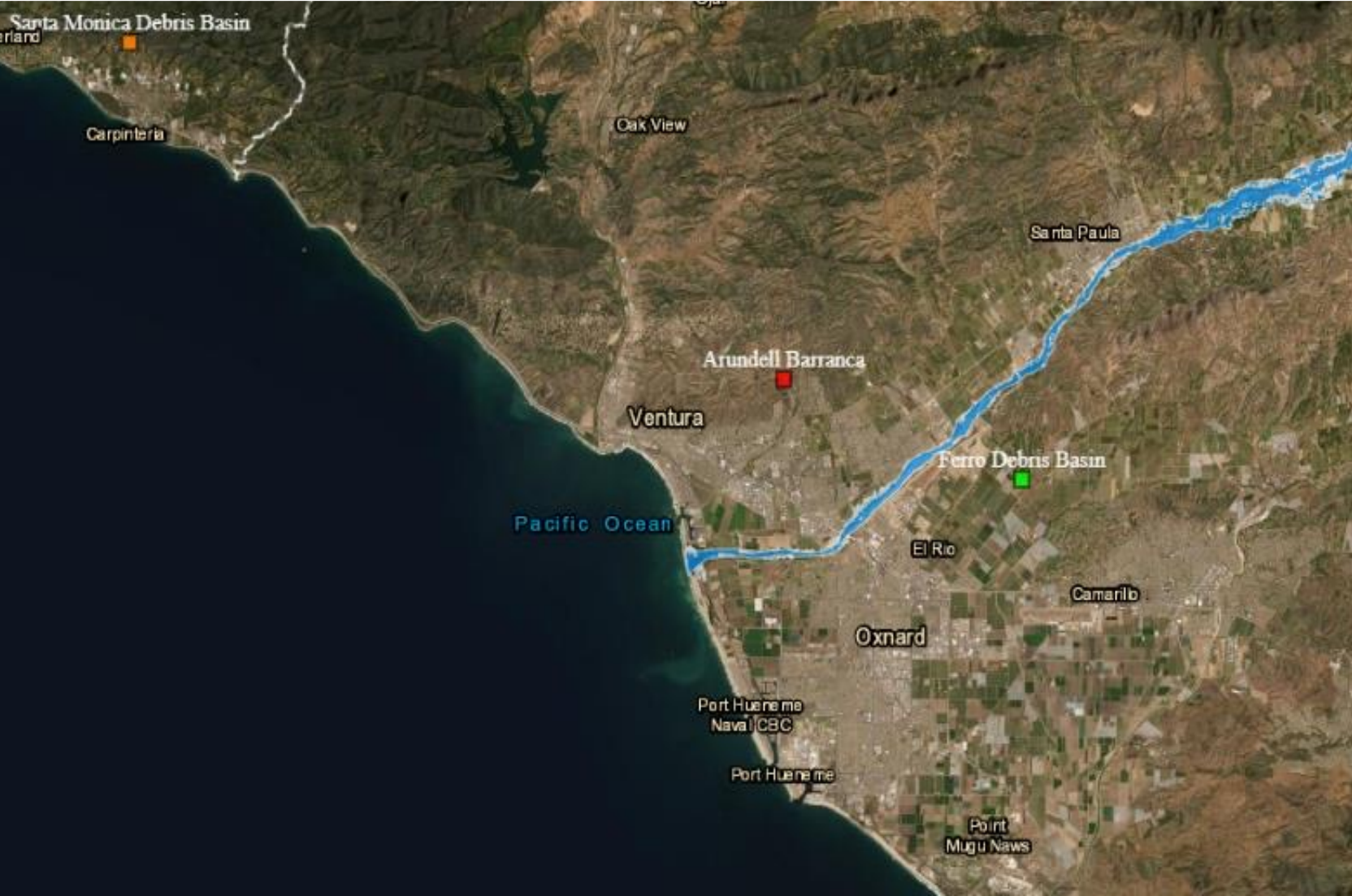
Dam Failure rated No. 1 Risk in Ventura Co.

2022 Ventura Co. Multi-Jurisdiction HMP -Risk Assessment

City/County	Structures	Population in Risk	Structure Replacement Costs
Unincorporated County	9,000	17,000	\$6B
Thousand Oaks	1,000	4,000	\$764M
Simi Valley	5,000	15,000	\$3.1B
Santa Paula	4,000	12,000	\$2.6B
San Buenaventura	2,000	5,000	\$1.6B
Port Hueneme	6,000	19,000	\$3.8B
Oxnard	38,000	169,000	\$26B
Ojai	315	730	\$167M
Moorpark	2,000	7,000	\$2.6B
Fillmore	2,000	8,000	\$1B
Camarillo	3,000	10,000	\$3.5B
Estimated Total Damages	72,000	270,000	\$52B



Inundation Zone	Structures	Structure Replacement Cost	Population Impacted	Population Impacted (Socially Vulnerable Area)
SFD to Pacific Ocean	13,795	\$7 Billion	34,237	18,970



Santa Felicia Dam

Inflow Design Flood Hypothetical Failure

Notes:
 1. This map is part of the emergency action plan for Santa Felicia Dam.
 2. The results presented herein do not reflect the structural integrity of the dam and are not a statement of the engineer's approval or disapproval of the dam.
 3. Cross Section Values: Elevations indicate major roads that cross, or are near, the Flow Path at the cross section. Distances from Dam and Stationing are measured from the upstream of Santa Felicia Dam along the Flow Path. Cross Section Values are in feet and Stationing is in feet above the datum of Mean Sea Level. Time to Peak is the time to achieve the maximum water depth after initiation of the dam break. Peak Flow Above PWF is the flow over the spillway. Peak Flow Above PWF is the maximum water depth. Peak Water Elevation is the maximum water elevation. Average Velocity is the average velocity of the flow area measured over the entire cross section. Peak Depth Above PWF is the maximum incremental rise in flow depth above the PWF nonflooded. The values presented on this map are for each cross section on the upstream for flow propagation along the initial wave arrival time, 1 Foot and Time to Peak which are the maximum for the parameters. For other arrival times to the maximum of the Santa Felicia Dam hypothetical Dam Break, please refer to the map. Map projection: Universal Transverse Mercator, Zone 10, North American Datum, 1983. Border file Reference: Pacific states coordinates in Commercially Equal Area Units. All elevations in feet above datum 1985.

Outlet Works Improvement

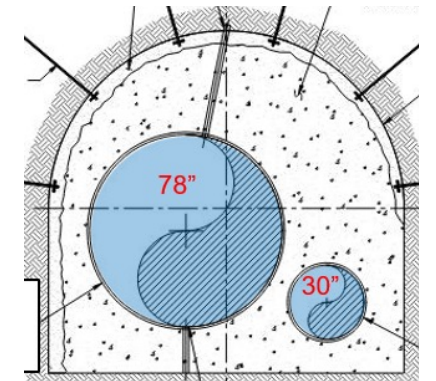
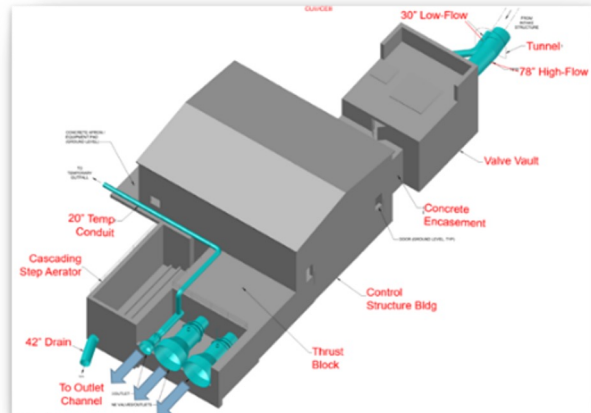
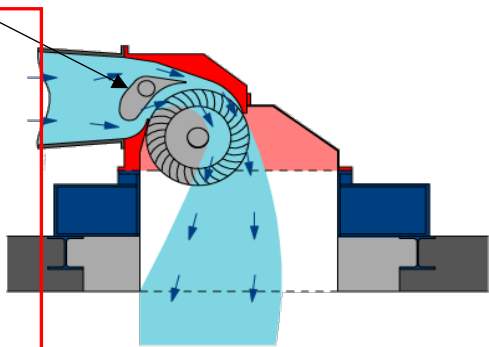
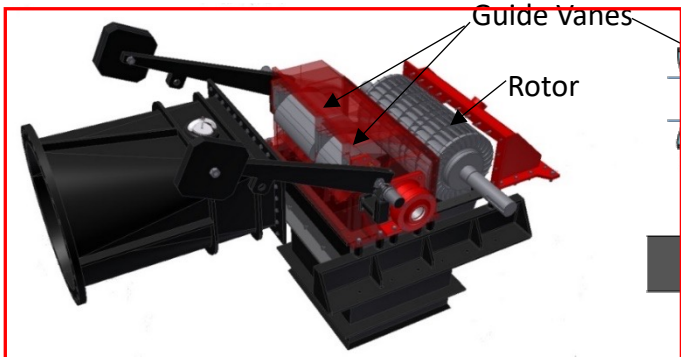
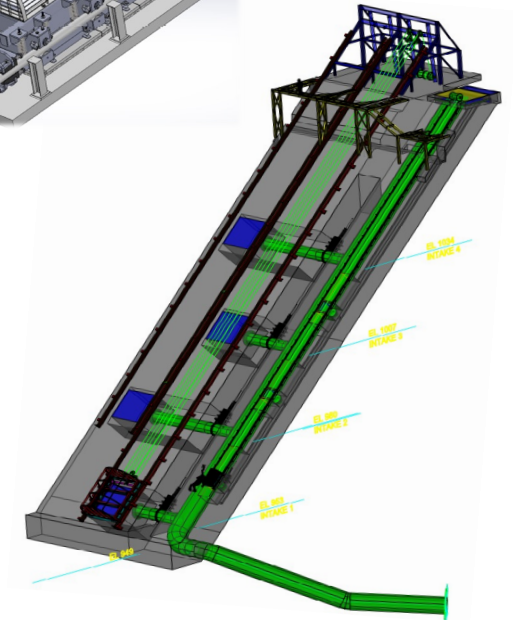
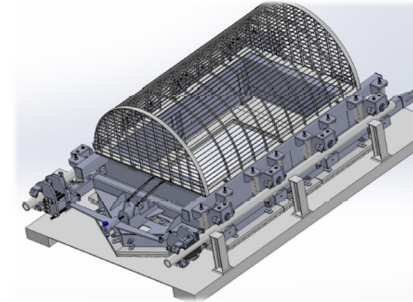


Existing Outlet Works

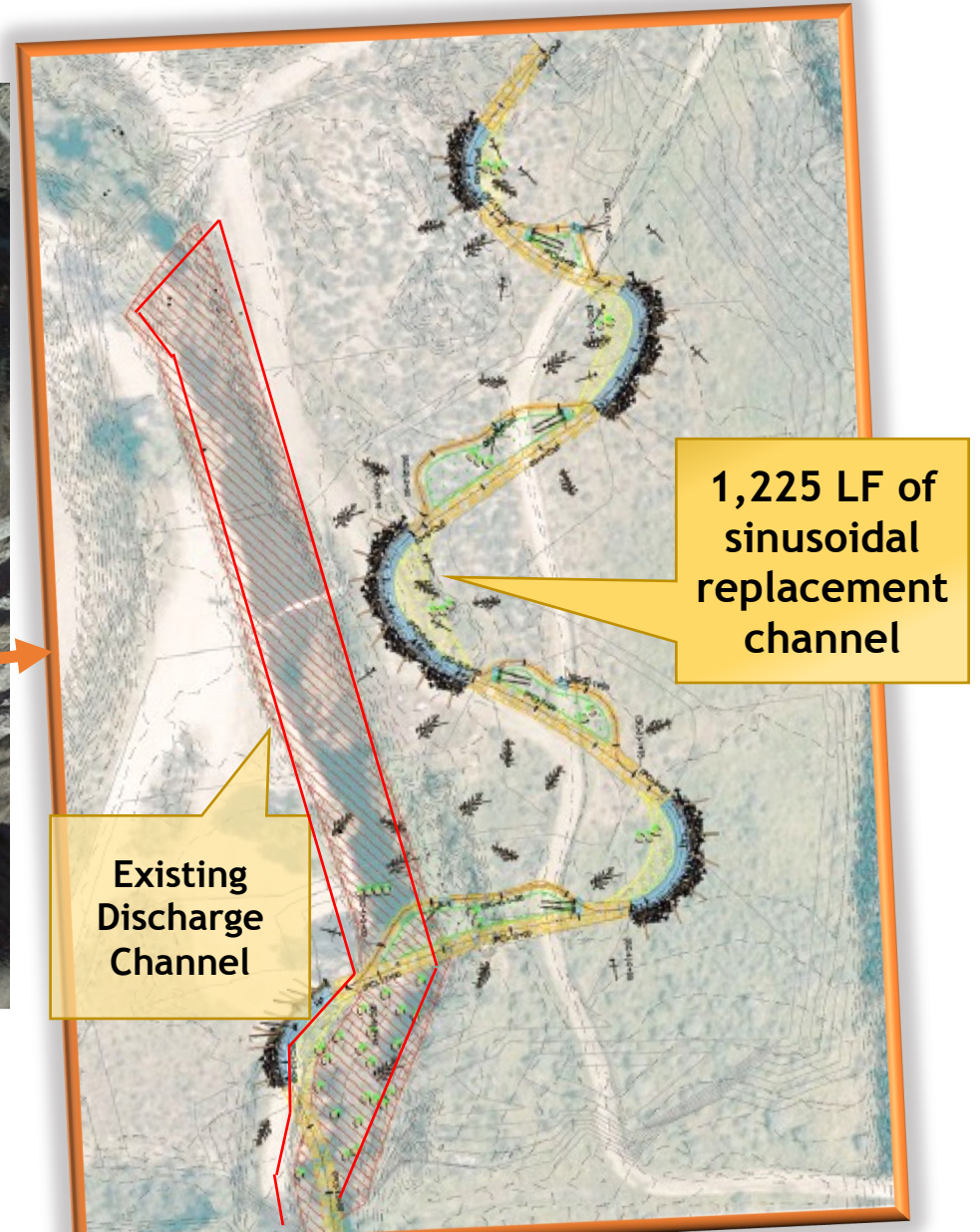
New Slopped Intake Control Facility

New Conduits in New Tunnel

New Downstream Control Facility



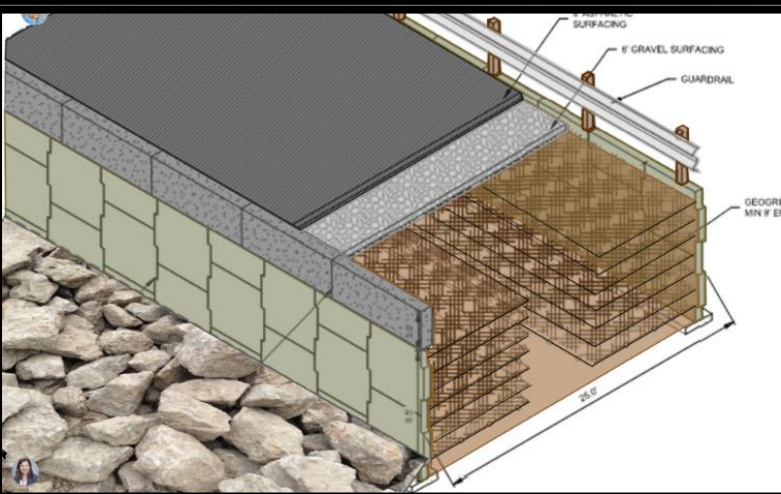
New Release Channel



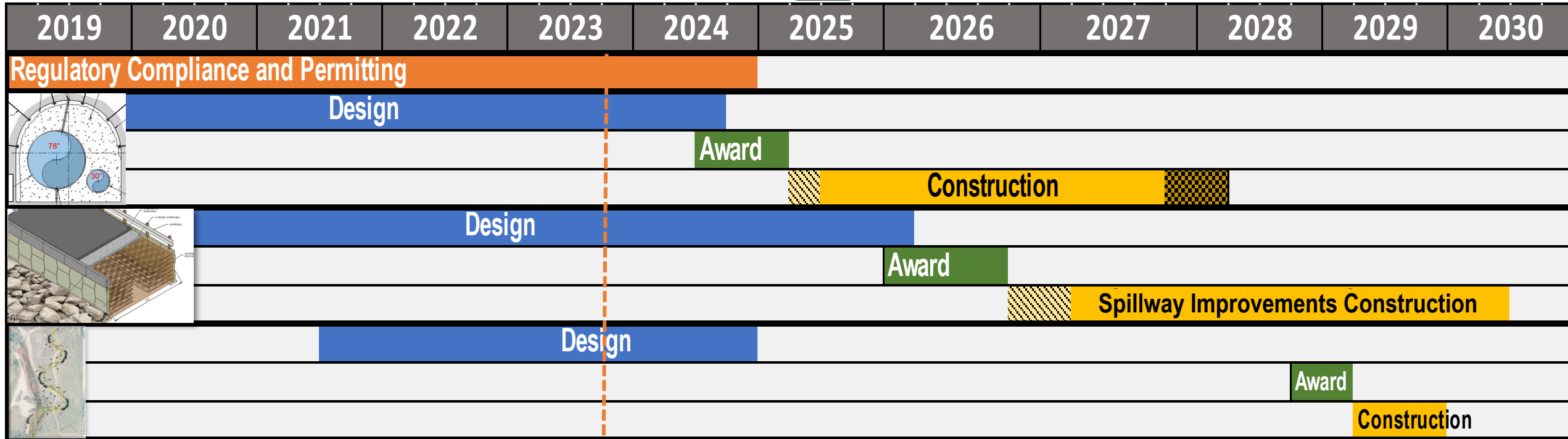
- High-quality spawning and rearing habitat
- Rich aquatic and riparian habitat

Spillway Improvements

- New Slab downstream of Ex. Ogee
- New Underdrain System
- Lowering chute downstream end of Chute by 18.5 ft
- Raising Dam Crest by 6.5 feet



Project Timeline

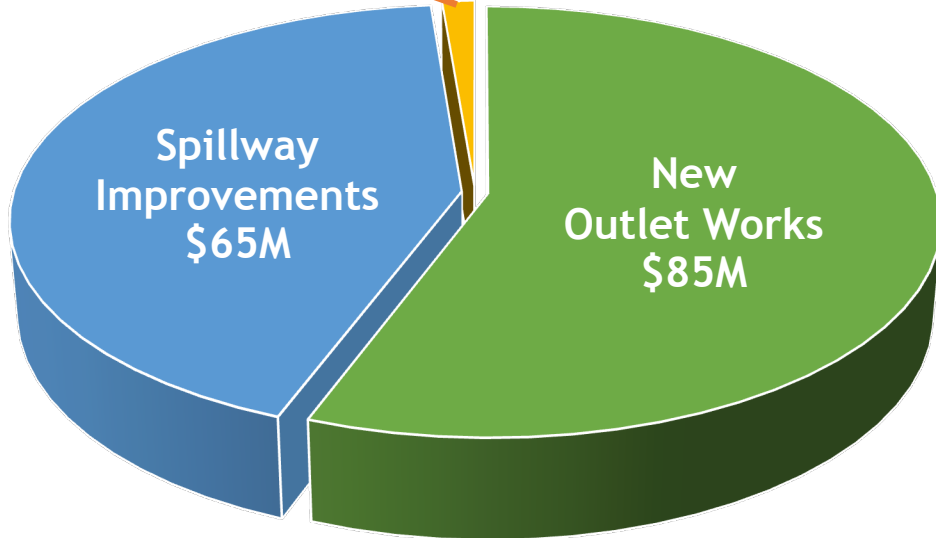


Today

A FERC approved Board of Consultants provides oversight of the design development

Project Cost and Funding Opportunities

Environmental Mitigations \$2M



**Total Cost: \$198M
(incl. 30% Contingency)**



EPA WIFIA LOAN (4.4%, 37 yrs)

2021 - Project approved for \$93M

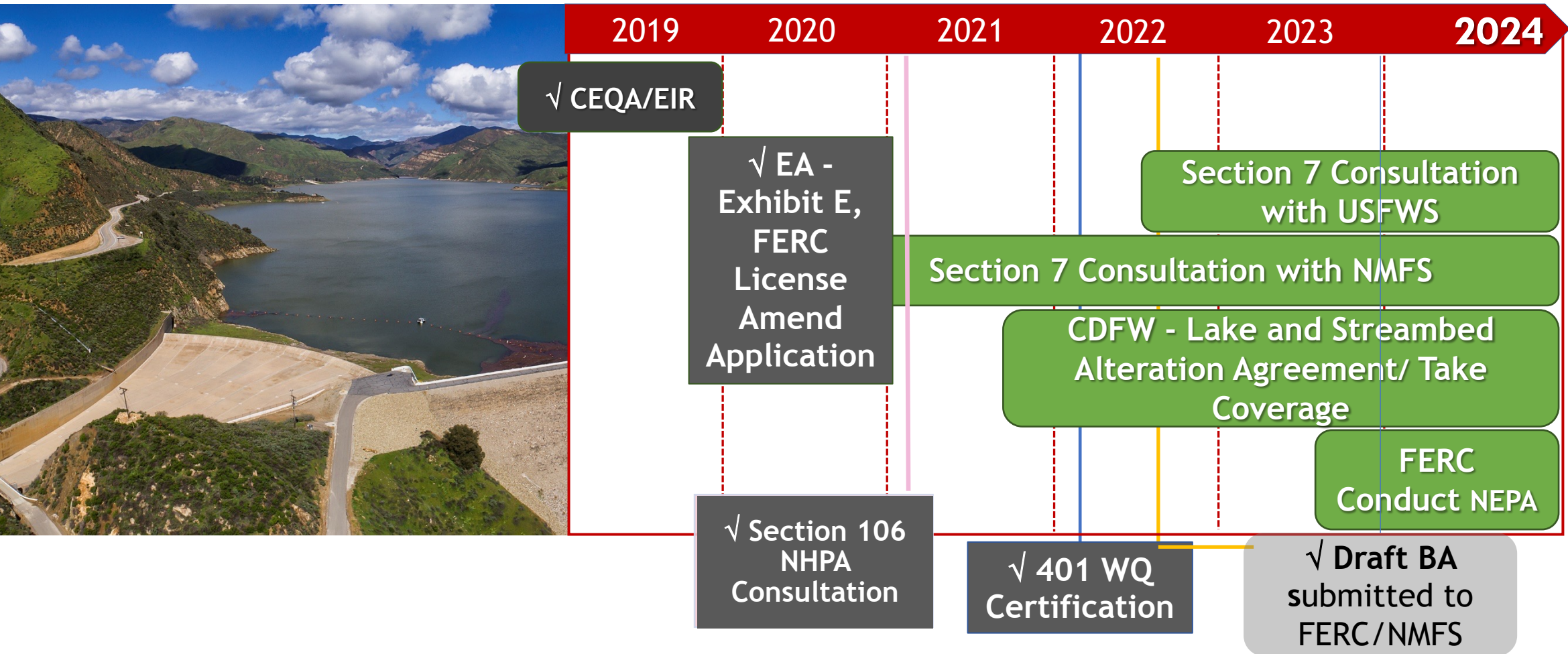
2023 - 1st Loan Agreement closed for \$13.5M



Potential Funding Resources/ Status

2021 HMGP	Wait Listed
2022 HHPD	\$113K Design Fee - Award Pending
2023 DOE Sec 247	Applied for \$5M Construction Fee

Regulatory Compliance and Permitting Timeline



Questions?

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United Water Conservation District