



MARLETTE LAKE DAM REHABILITATION PROJECT

PRESENTATION TO THE CARSON WATER SUBCONSERVANCY DISTRICT

INTRODUCTION

State Public Works Division – Owner

Lumos & Associates – Engineer

Granite Construction – Construction Manager at Risk (CMAR)



PROJECT SCOPE

PRE-DISASTER MITIGATION GRANT (PDMG) APPLICATION SCOPE:

- DAM STABILIZATION
- PROTECTION AND MODIFICATION OF SPILLWAY
- OUTLET PIPES & SEEPAGE
- OUTLET CONTROL OPERATIONS
- ROAD IMPROVEMENTS

FIELD INVESTIGATIONS:

- DIVE RECONNAISSANCE
- MULTI-BEAM SONAR BATHYMETRIC
- CONDUIT CCTV INSPECTION ON PRIMARY OUTLETS
- ENVIRONMENTAL RESOURCE SURVEYS
 - NESTING BIRDS, RAPTORS, TES, FISHERY, WETLANDS DELINEATION
- HISTORICAL AND ARCHAEOLOGICAL RESOURCES



MARLETTE WATER SYSTEM MAJOR COMPONENTS (WESTERN SIDE)



EXISTING CONDITIONS

- PIPES CORRODED AND CRACKED, SEEPAGE
- CONTROLS OUTDATED
- STRUCTURE SEISMIC STABILITY
- SPILLWAY UNDERSIZED
- **DAM AT RISK FOR CATASTROPHIC FAILURE**



EXISTING CONTROLS



EXISTING HISTORIC DAM WALL



SEISMIC STRUCTURAL STABILITY



EXISTING UNDERSIZED SPILLWAY



EXISTING OUTLET & SEEPAGE

OPERATIONAL CHALLENGES

- SNOW & ICE REMOVAL IN EMERGENCY
SPILLWAY REQUIRED FOR PROPER OPERATION
OF DAM
- OUTLET MANUALLY CONTROLLED BY HAND-
WHEELS THAT ICE-OVER IN WINTER
- ORIGINAL EQUIPMENT & CONCERN OF NOT
BEING ABLE TO CLOSE THE VALVE(S) ONCE
OPEN
- DAM ONLY ACCESSIBLE BY HELICOPTER OR
SNOW CAT DURING WINTER MONTHS



SITE CONSTRAINTS

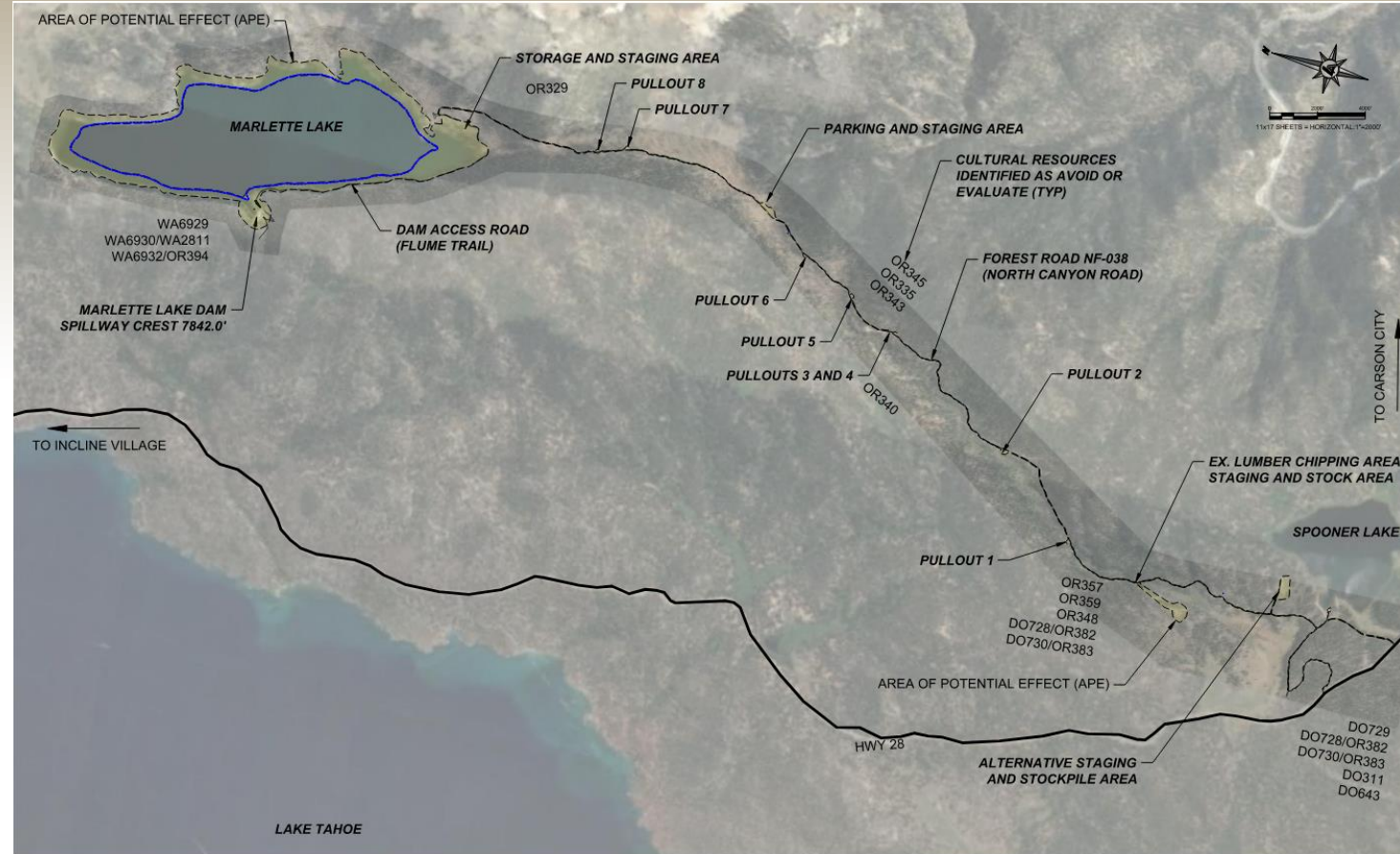
1. ENVIRONMENTAL CONSIDERATIONS

- BROOD STOCK AND RECREATIONAL FISHERY
 - LAHONTAN CUTTHROAT TROUT
 - RAINBOW TROUT
- BALD EAGLE
- MIGRATORY BIRDS
- WETLANDS

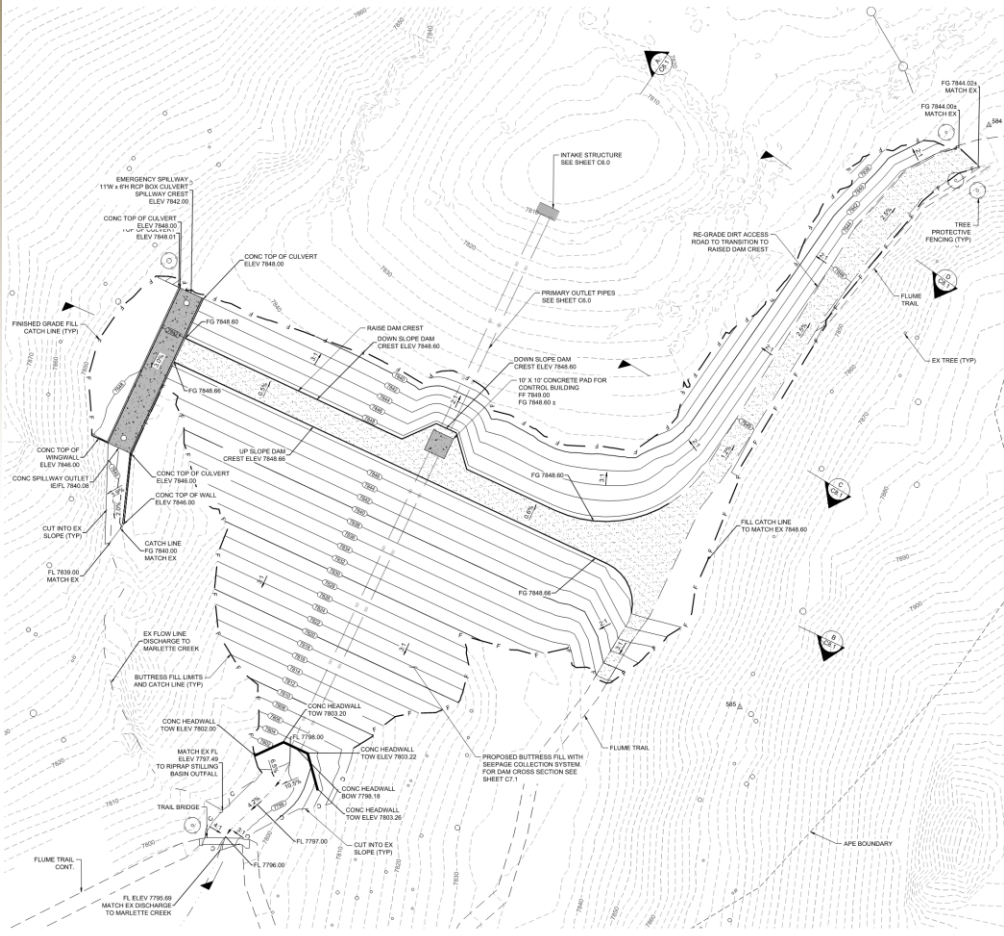
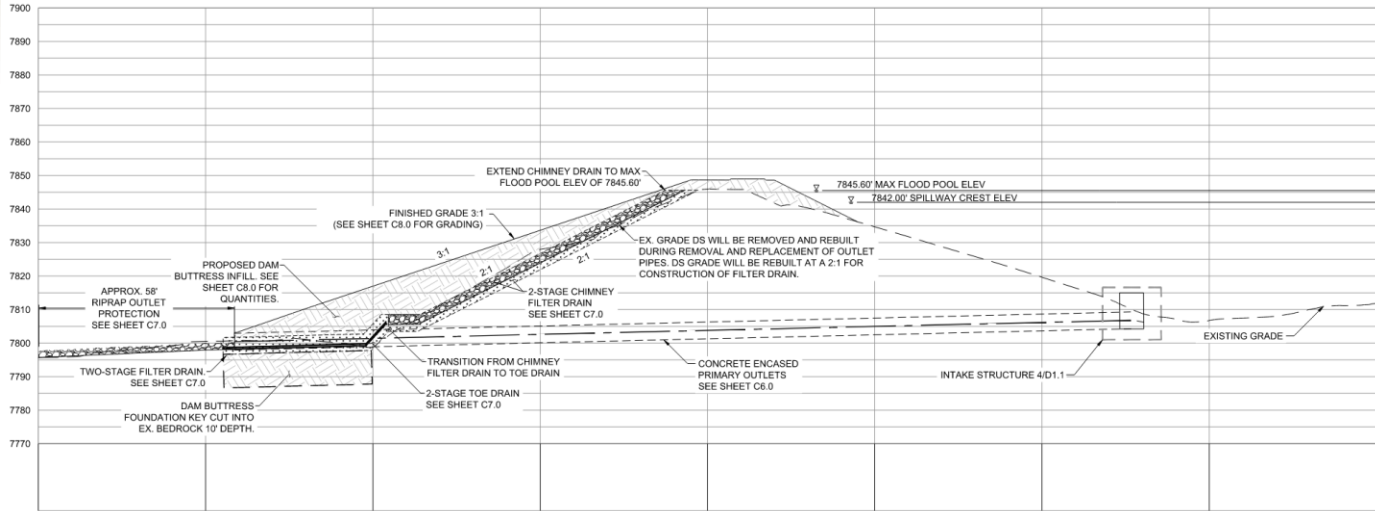
2. CULTURAL AND HISTORIC CONSIDERATIONS

- MARLETTE DAM
- ACCESS ROAD
- MULTIPLE OTHER CULTURAL SITES

3. CONSTRUCTION ACCESSIBILITY AND LIMITED CONSTRUCTION SEASON

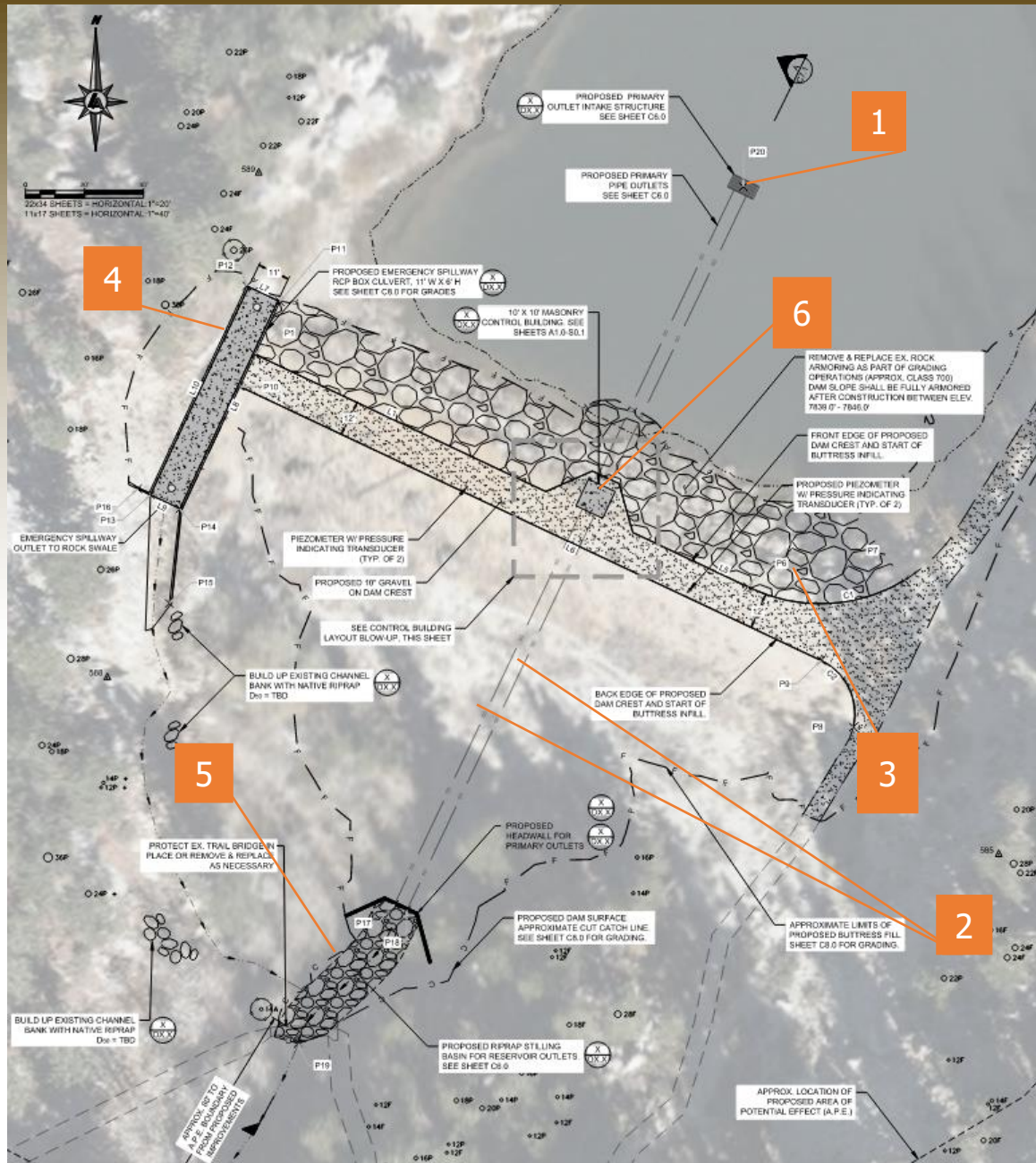


PROPOSED DAM SECTION A - C7.0 - STA:0+00 TO STA:4+00



60 % UTILITY REHABILITATION PLAN

1. INTAKE STRUCTURE FOR PRIMARY OUTLET PIPES
2. OUTLET PIPES
3. RIP RAP
4. EMERGENCY SPILLWAY
5. STILLING BASIN FOR OUTLETS
6. CONTROL BUILDING



CONTROLS AND MONITORING

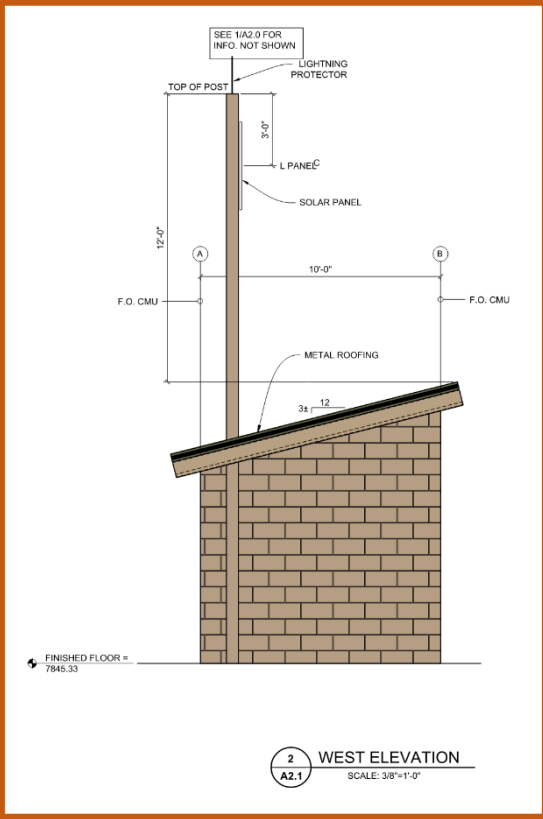
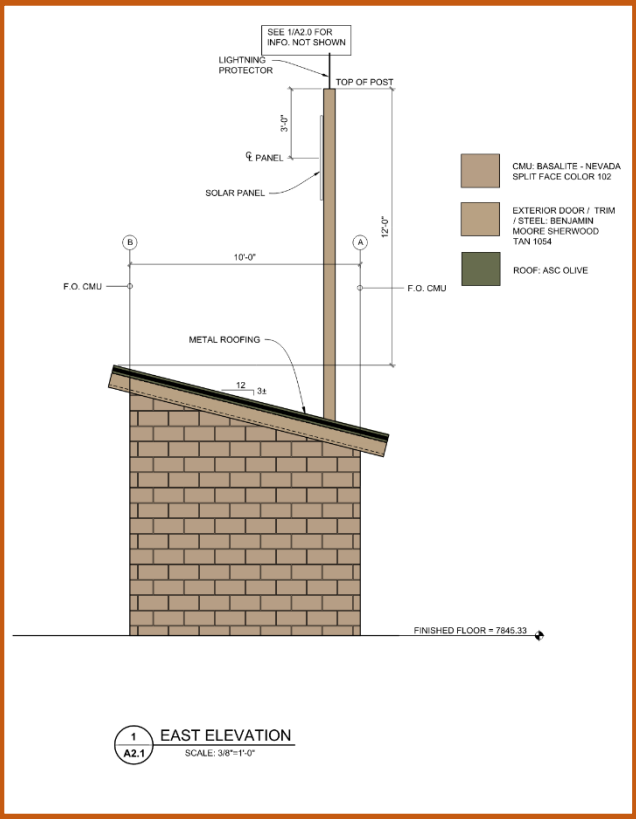
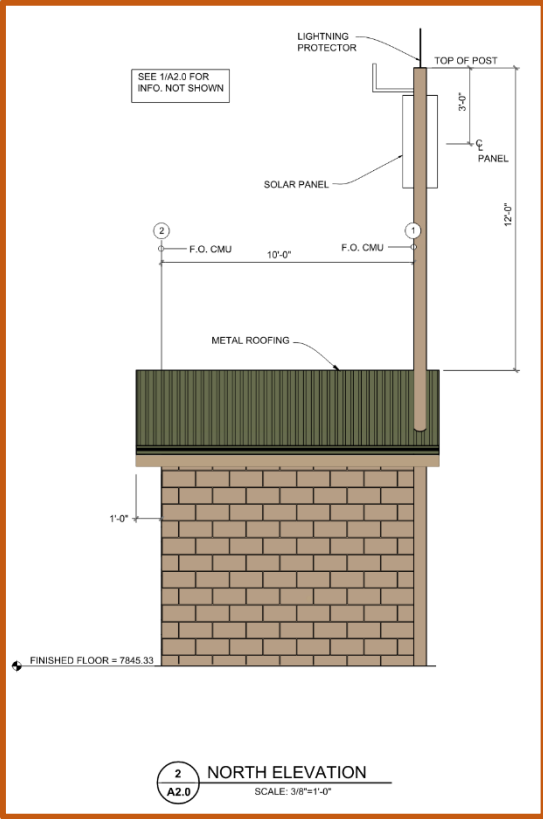
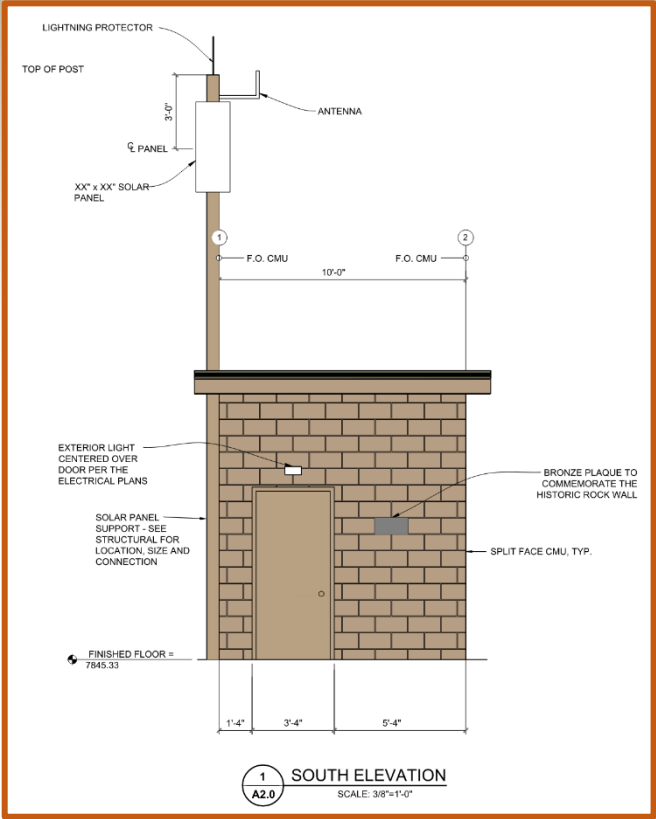
- ❖ CONTROL BUILDING
- ❖ SCADA
- ❖ MONITORING EQUIPMENT



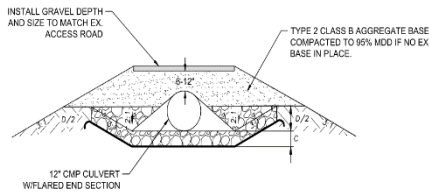
EXISTING CONTROLS

CONTROL BUILDING

PROPOSED CONTROL BUILDING ELEVATIONS



ACCESS ROAD / AREA IMPROVEMENTS

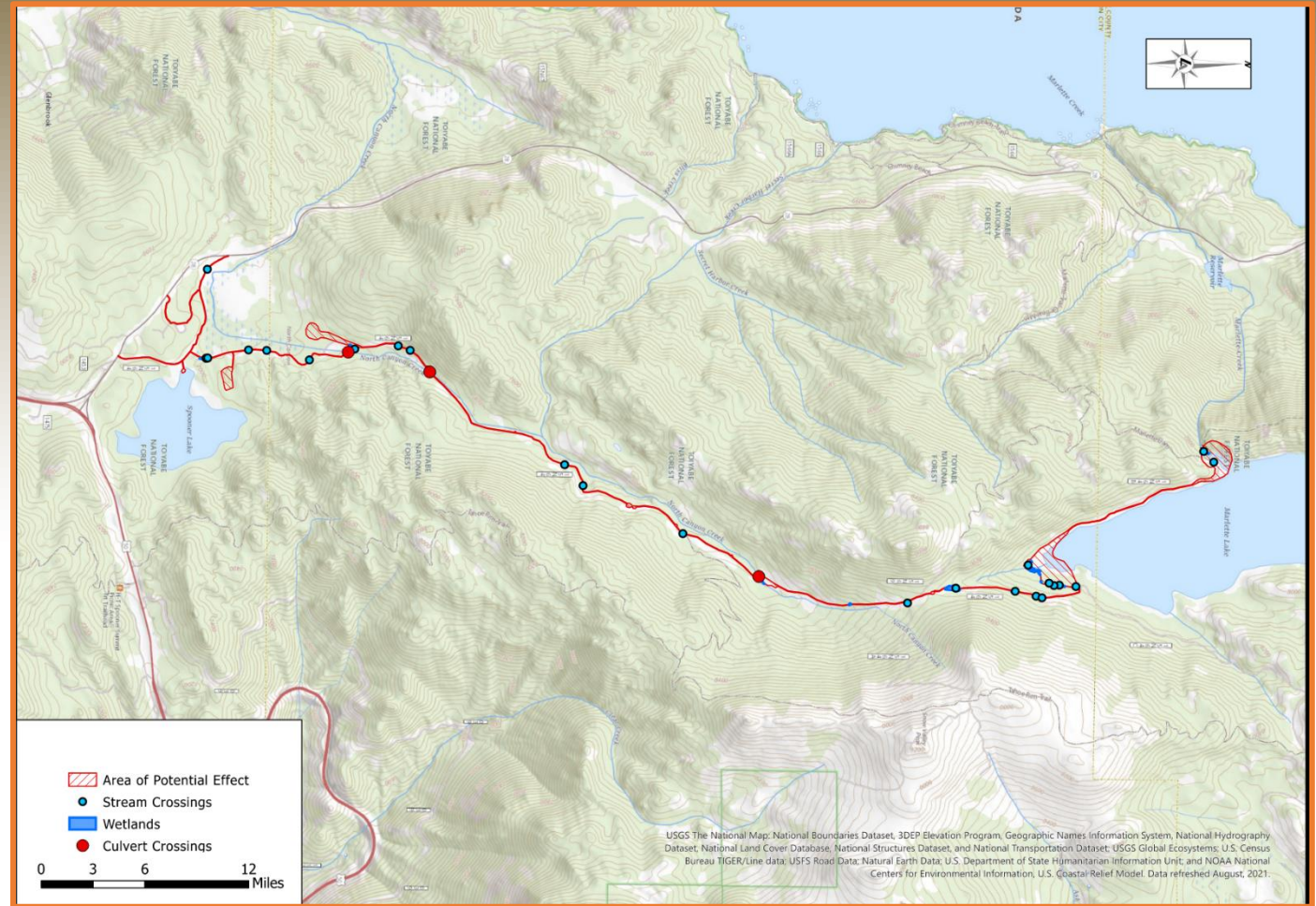


CULVERT SIZE	A	B	RIPRAP CLASS	C
12"	6"	3"	150	12"
18"	9"	4.5"	150	12"
24"	12"	6"	150	12"
30"	15"	7.5"	300	24"
36"	18"	9"	300	24"

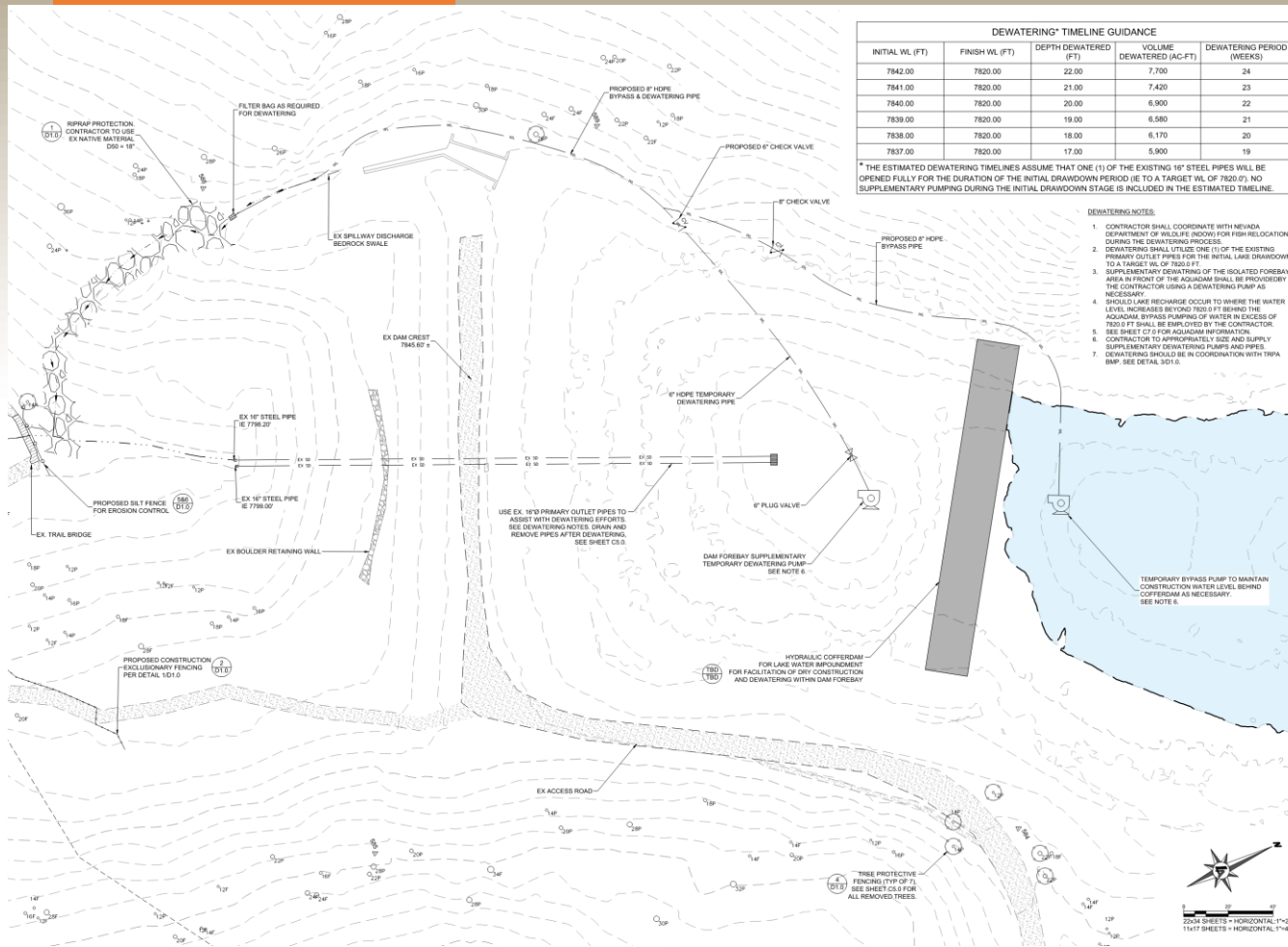
3 ACCESS ROAD REPAIR - TYPICAL CULVERT SECTION
D1.0 SCALE: N.T.S.

ACCESS IMPROVEMENTS MAY INCLUDE:

- CULVERT REPLACEMENT
- EROSION CONTROL
- GRADING
- TURNAROUNDS, STAGING, STOCKPILING SITES
- REHABILITATION DURING AND AFTER CONSTRUCTION ACTIVITIES

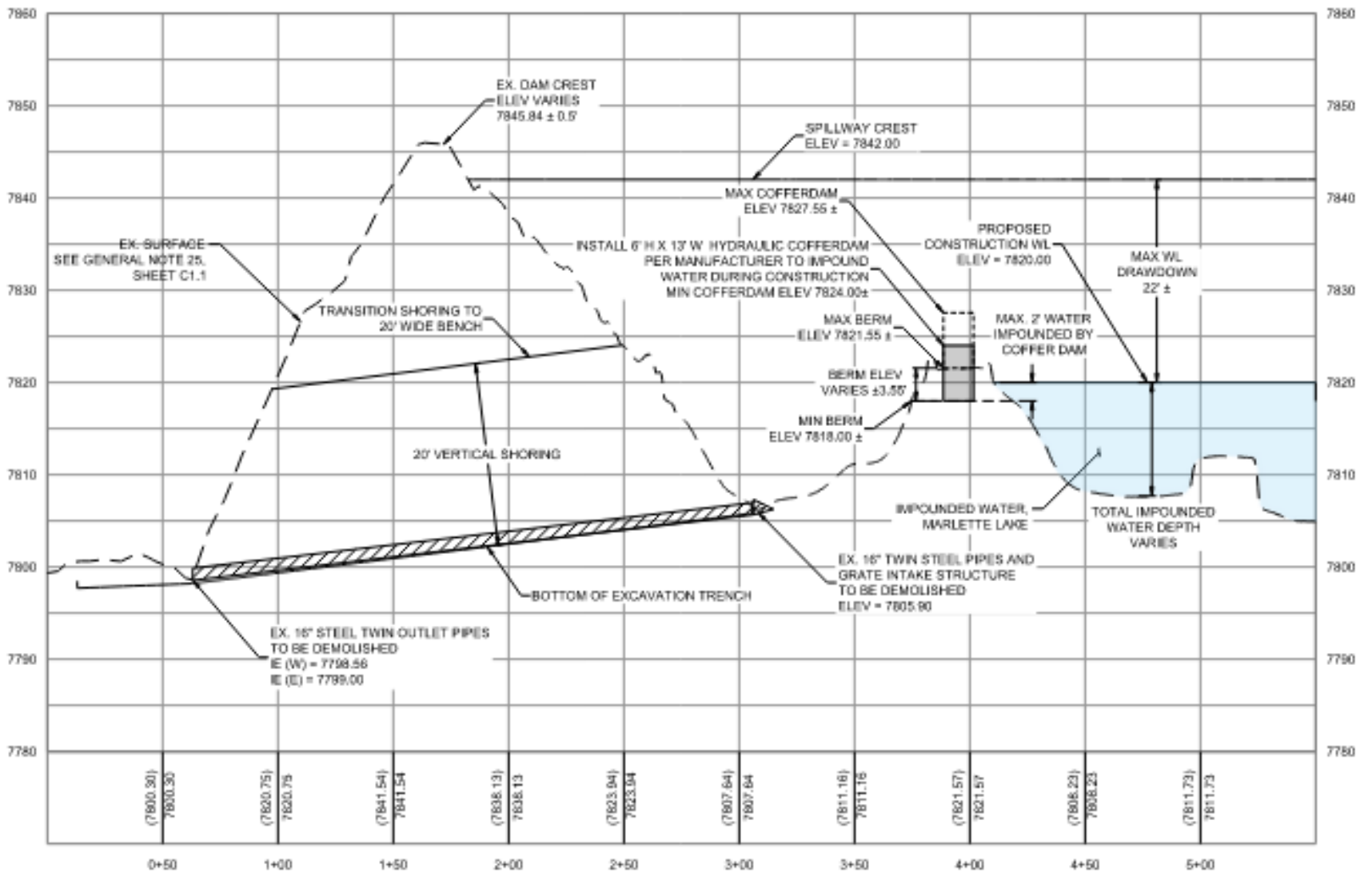


TEMPORARY CONSTRUCTION MEASURES



1. **TEMPORARY COFFER DAM:**
 - UP TO 6± FEET OF WATER RETAINED
2. **BYPASS PUMPING & DEWATERING :**
 - MAINTAIN DESIGN LAKE LEVEL FOR CONSTRUCTION OF 7820 (20-FT LAKE DEPTH PLUS 2 FEET SAFETY FACTOR)
 - MAINTAINING WORKABLE SITE CONDITIONS DOWNSTREAM OF COFFER DAM
3. **EROSION CONTROL AND BMPs**
 - TURBIDITY CURTAIN
 - FILTER BAG
4. **SITE SECURITY AND RECREATIONAL ACCESS:**
 - EXCLUSIONARY FENCING
 - PUBLIC NOTICING, ALTERNATE ROUTES/DETOURS

DRAWDOWN ANALYSIS



DRAWDOWN ANALYSIS

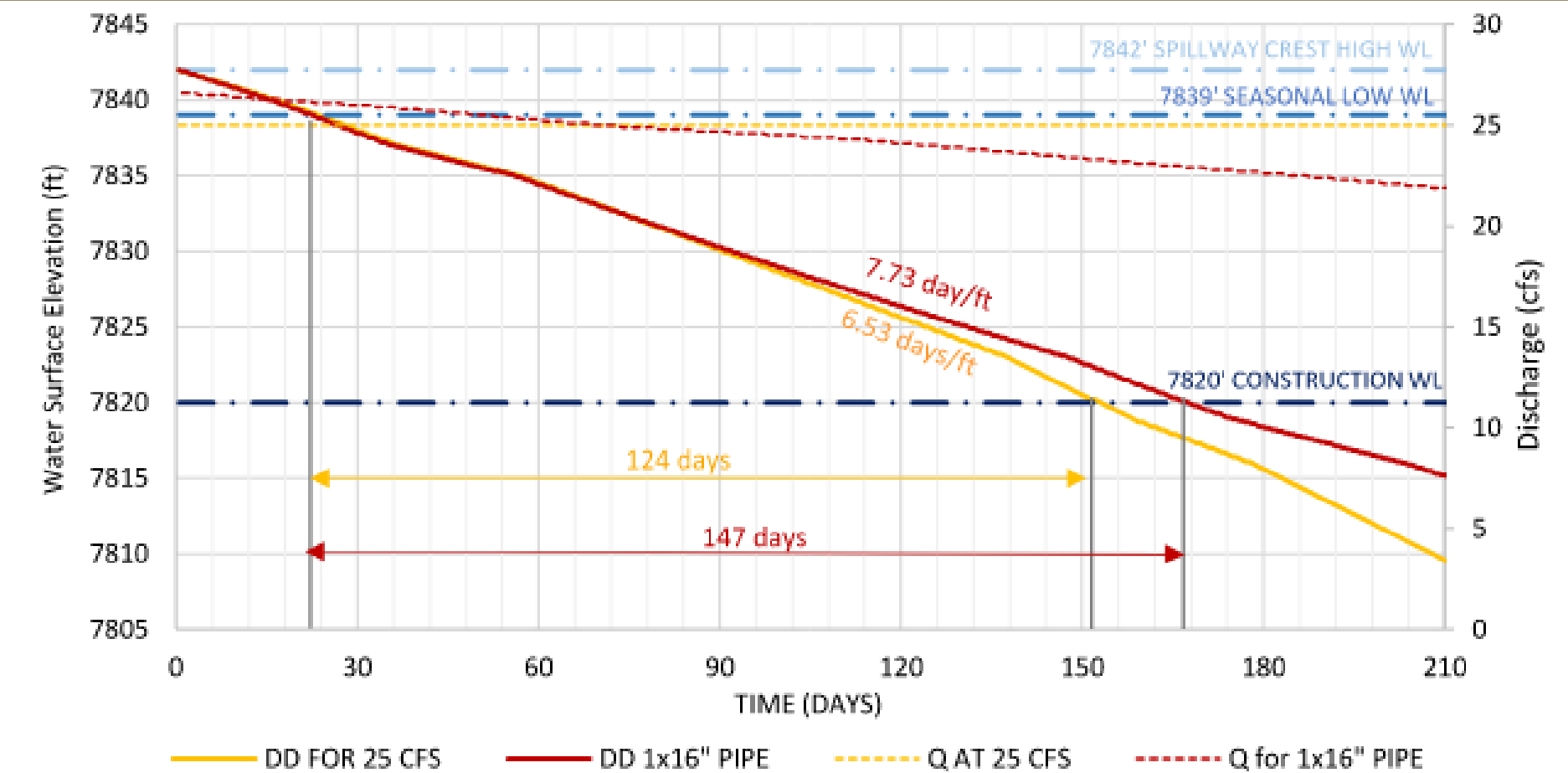
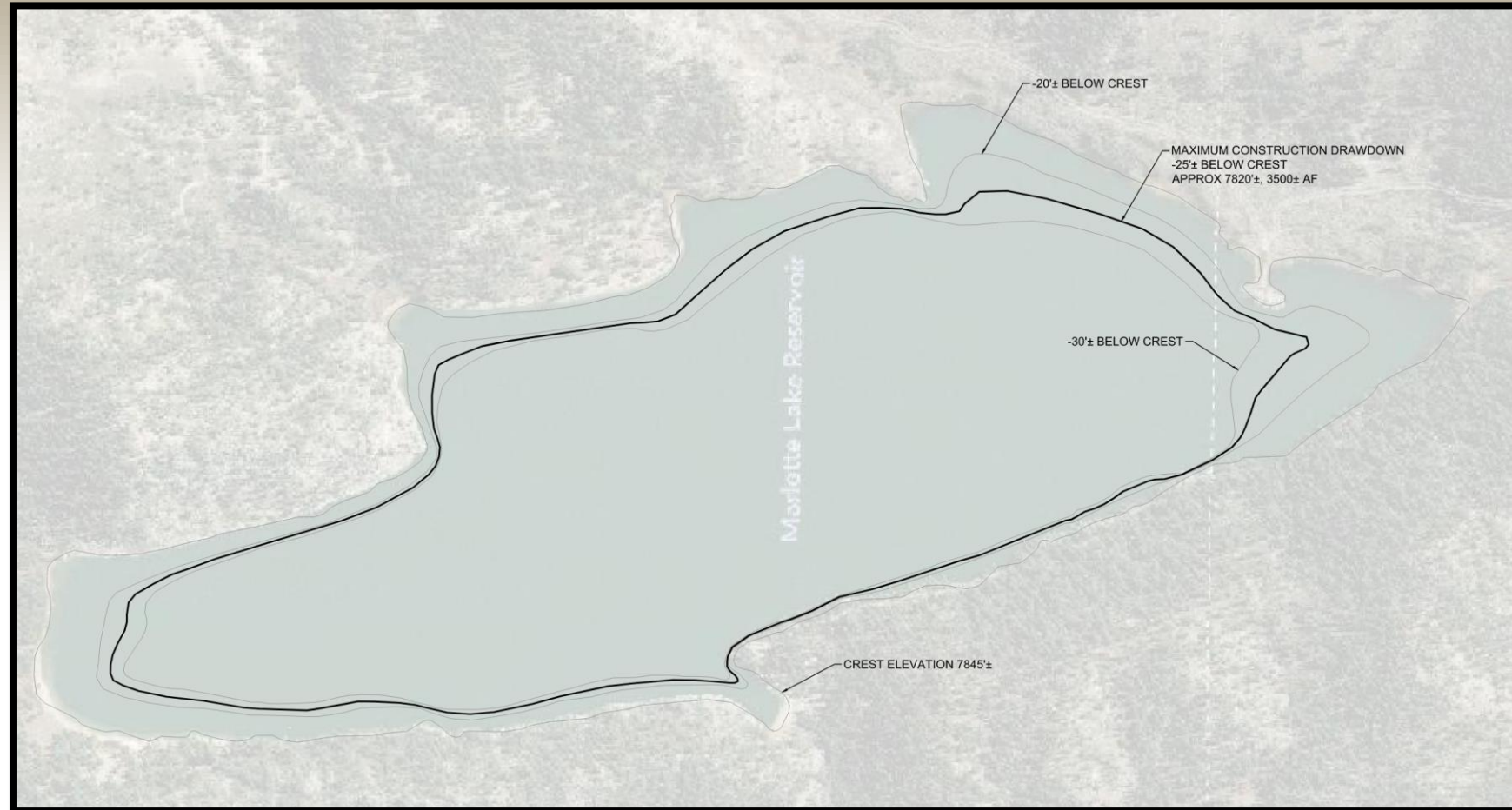


Figure 2. Marlette Lake Drawdown Modeling Results.

LAKE RECHARGE

- Est. Min. Water Surface starting point is 7820'
- MLWS Operators indicate average annual recharge is 3' per year (average total with pumping operations)
- Estimated to take approx. 6 years to recharge back to 7842'



PROJECT SCHEDULE

- A. FEMA ENVIRONMENTAL PERMITTING – INITIATED ANTICIPATED THROUGH SPRING 2024
- B. 50% CONSTRUCTION DRAWINGS TO STATE PUBLIC WORKS: 10/2023
- C. 100% CONSTRUCTION DRAWINGS TO STATE PUBLIC WORKS: 12/023
- D. CMAR UPDATED COST RECONCILIATION: FEBRUARY 2024
- E. CMAR ADVERTISE FOR SUBCONTRACTOR BIDS: APRIL 2024
- F. APPROVED FEMA ENVIRONMENTAL DOCUMENTS: ANTICIPATED MAY 2024
- G. REMAINING PERMITTING ACTIVITIES: MAY 2024 – APRIL 2025
- H. BEGIN RESERVOIR DRAWDOWN: FALL 2024
- I. INSTALL COFFERDAM: JUNE 2025
- J. MAJOR EARTHWORK ACTIVITIES: JUNE 2025 – OCTOBER 2025
- K. REMOVE COFFERDAM: NOVEMBER 2025
- L. COMPLETION OF REMAINING DAM WORK: MAY 2026 – OCTOBER 2026

PERMIT STATUS

- FEMA DOCUMENTS SUBMITTED – EHP IN PROCESS

AGENCY SCOPING (ONGOING):

- NDOW
- STATE PARKS
- STATE LANDS
- DIVISION OF DAM SAFETY
- TRPA

FEMA EHP:

- NEPA DOCUMENTATION
 - WETLANDS DELINEATION
 - NESTING BIRD SURVEYS
 - ESA CONSIDERATIONS
 - SECTION 106/SHPO

Agency	Lead Coordinator	Permit and Survey Needs	Target Submittal Date
TRPA	Lumos	TRPA Public Service Permit Application Package: IEC, Applicable Findings Report, BMP plan, Historic determination, grading plan, and make Environmental Documentation findings*	Pending FEMA Review
	Lumos	Grading permit - soils/hydrologic report approval	Pending FEMA Review
	Lumos	Geotechnical Plan approval	Complete
	Far Western	Historic determination results	Submitted to FEMA - in review
	Granite	Tree removal plan	Pending construction plans
US Army Corps of Engineers	RCI	Aquatic resource delineation NWPs	Complete
NV Department of Wildlife	RCI	Preconstruction Bald Eagle Surveys / coordination with NDOW	Spring/Summer 2024
NV State Parks / Water System	All	Back country passes - required for vehicle access in back country, can be obtained from Marlette Water System or State Parks	Submitted - in review
NV State Lands	Brian Wacker	Back country passes - required for vehicle access in back country, can be obtained from Marlette Water System or State Parks	On-going throughout
SHPO	FEMA/Brian Wacker	Certification application (NRS 321.003): Improvement plans	Pending FEMA Review
Tribal Consultation	Far Western	Cultural resources report	Submitted to FEMA - in review
NDEP		--	On-going; incorporated in FEMA/TRPA Process
Bureau of Water Pollution Control	Granite	Temporary working in water ways CSP / SWPPP	Fall 2024
		Temporary Discharge to Waters Permit	
Bureau of Water Quality Planning	Granite	Water Quality Certification	Fall 2024
Bureau of Air Pollution Control	Granite	Dust control permit	Fall 2024
State Building Official	Brian Wacker	Building permit; 50% design level	Spring 2024
NDWR - Division of Dam Safety	Lumos	Application; Notice of Construction; geotech. Report; design plans and report review; approval	Ongoing through 2024
FEMA	Brian Wacker	NEPA Environmental Analysis and Documentation	Submitted to FEMA - in review
Marlette Water System User Group			
Carson City Storey County Marlette Water NV Tahoe Cons. District	Lumos/Brian Wacker	Stakeholder communications; Recreational access plan	Ongoing through 2024
USFWS	FEMA/Brian Wacker	Informal consultation, Section 7 consultation and biological assessment	Submitted to FEMA - in review
NDOT	Granite	Encroachment Permit	Fall 2024
USFS Lake Tahoe Basin	--	Not applicable	Informal coordination - ongoing

QUESTIONS?

