BELLOTA WEIR MODIFICATIONS PROJECT

65% Ad-Hoc Committee Review
October 22, 2021

01 Introductions and Meeting Objectives

02 Project Elements & Site Layout

03 Construction Sequencing

04 Opinion of Probable Construction Cost

05 Questions

01 INTRODUCTIONS AND MEETING OBJECTIVES

3

MEETING OBJECTIVES

- Review of:
  - Project elements at 65% level of design
  - Construction sequencing
  - Construction Period Costs

4

02 PROJECT ELEMENTS & SITE LAYOUT

Existing Site Elements

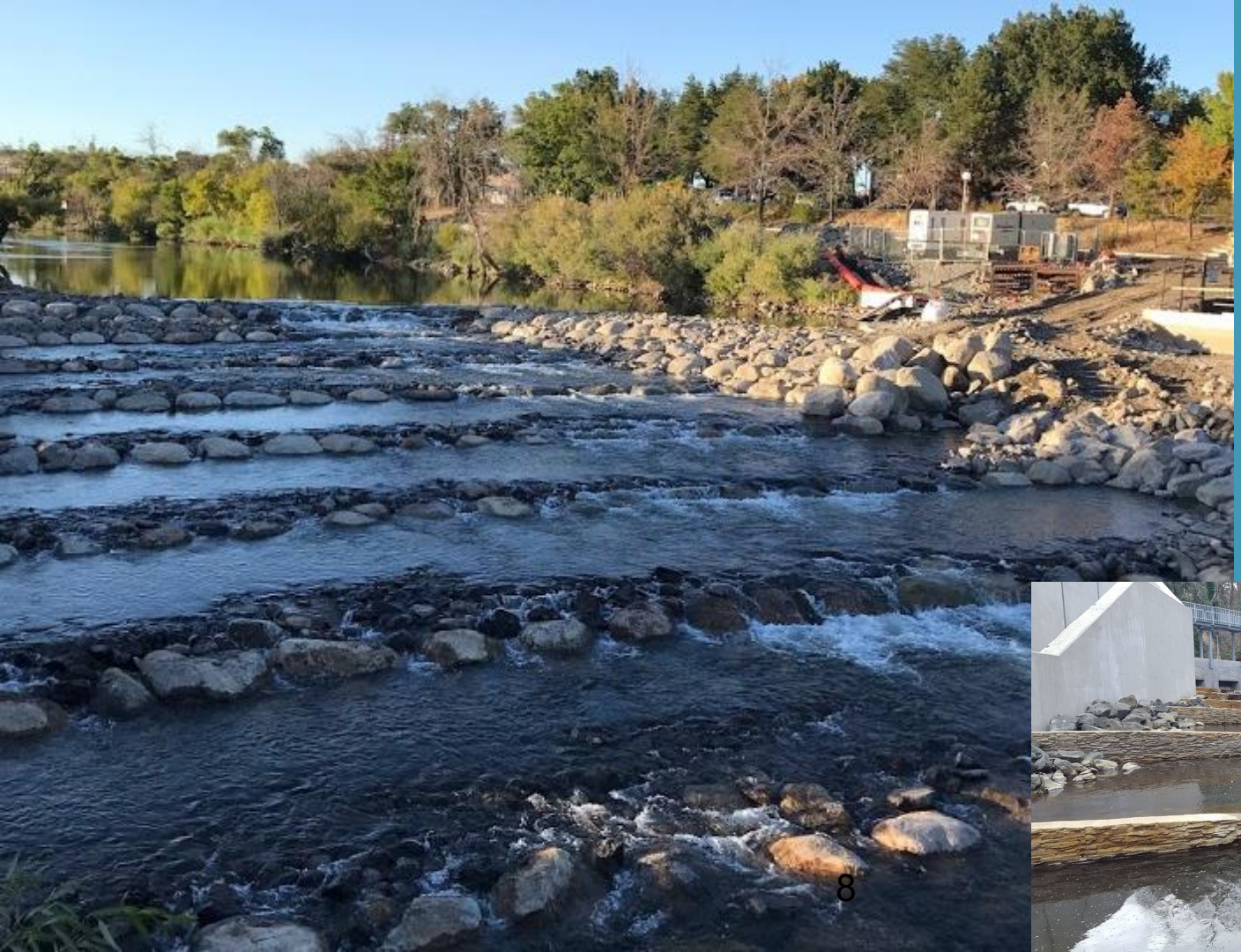
1. Concrete Weir w/ Flashboards
2. Surface Water Intake
3. Earthen Berm, Four Culverts with Water Control Gates
4. Denil Fish Ladder
5. 54-inch Diameter Gravity Flow Pipeline

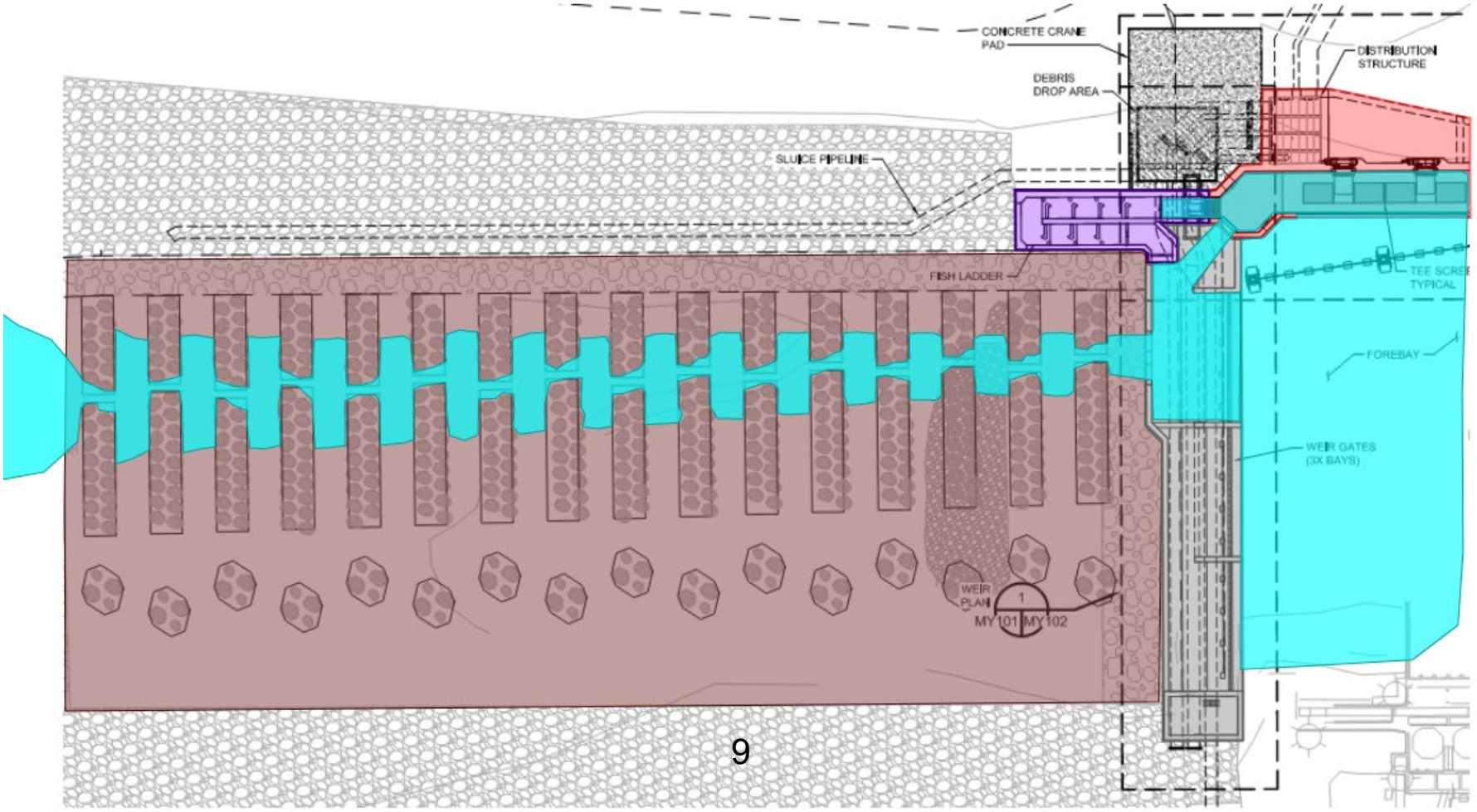
Project Elements

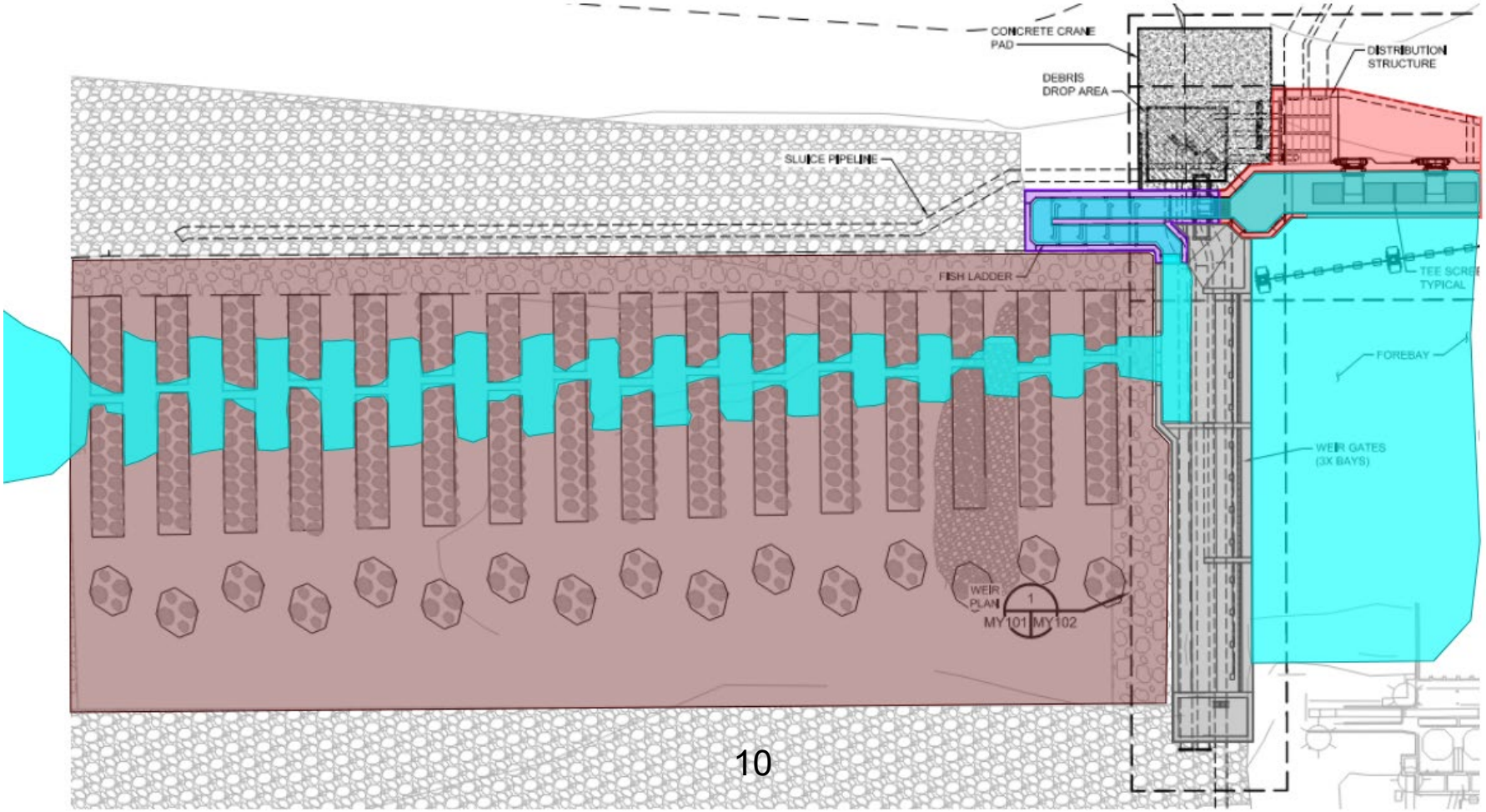
1. Inflatable Weir Gate Dam
2. Surface Water Intake with Barrel Style Fish Screens
3. Isolation Embankment and Old Calaveras River Culverts
4. Permanent Pool and Weir / Vertical Slot Fish Ladder
5. Gravity Flow Culverts to Bellota Pipeline
6. Roughened Channel

- Replaces the existing profile control infrastructure
- Provides fish passage for fish species throughout various life stages at project site
- Provides fish exclusion and protection measures for SEWD intake at Bellota Weir
- Excludes fish from migrating downstream into the Old Calaveras River

Nature-like Fishway Examples




CONCRETE CRANE PAD
DISTRIBUTION STRUCTURE
DEBRIS DROP AREA
SLUICE PIPELINE
FISH LADDER
TEE SCRE
TYPICAL
FOREBAY
WEIR GATES (3X BAYS)
WEIR PLAN
1
MY101 MY102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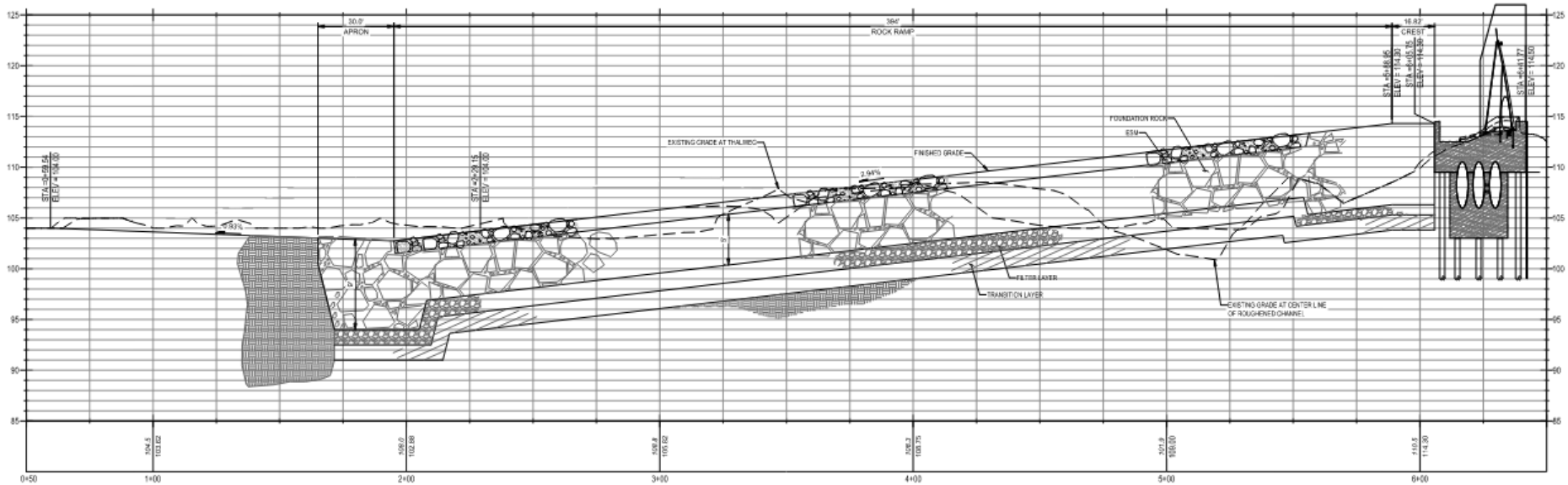


PROFILE - ROUGHENED CHANNEL

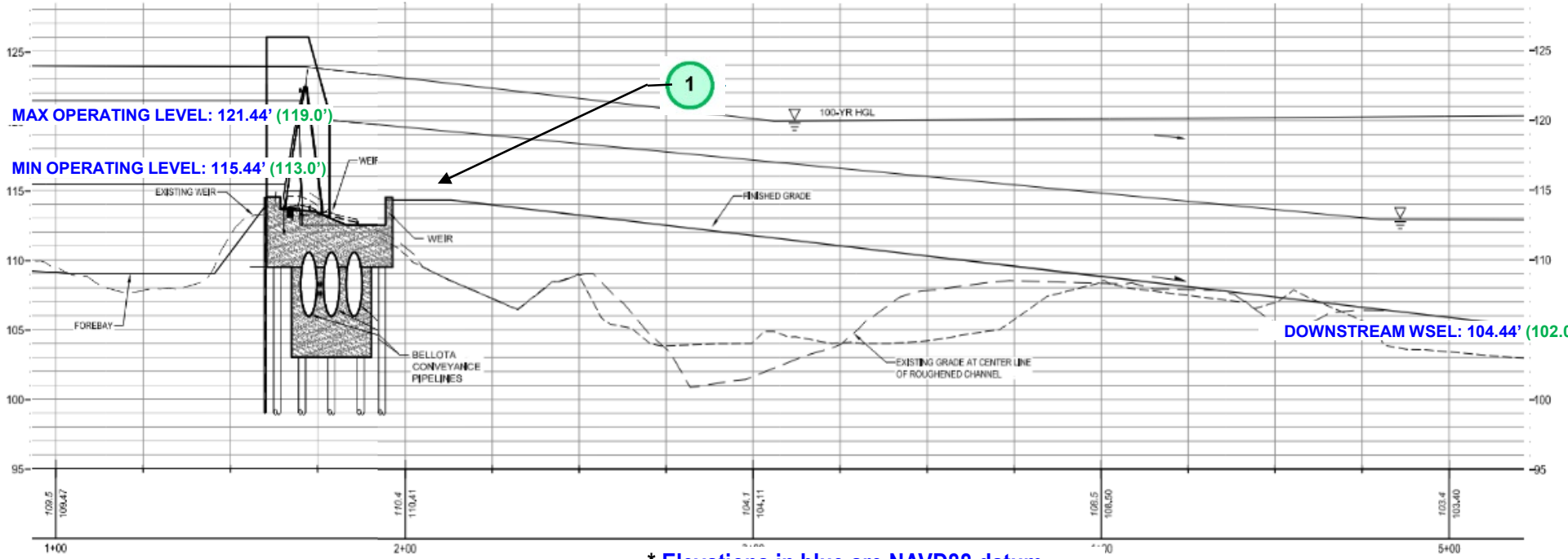
SCALE: H: 1"=20' V: 1"=5'

INFLATABLE WEIR GATE DAM EXAMPLE

Wallace Weir
Reclamation District 108, Knights Landing, CA

Project Elements

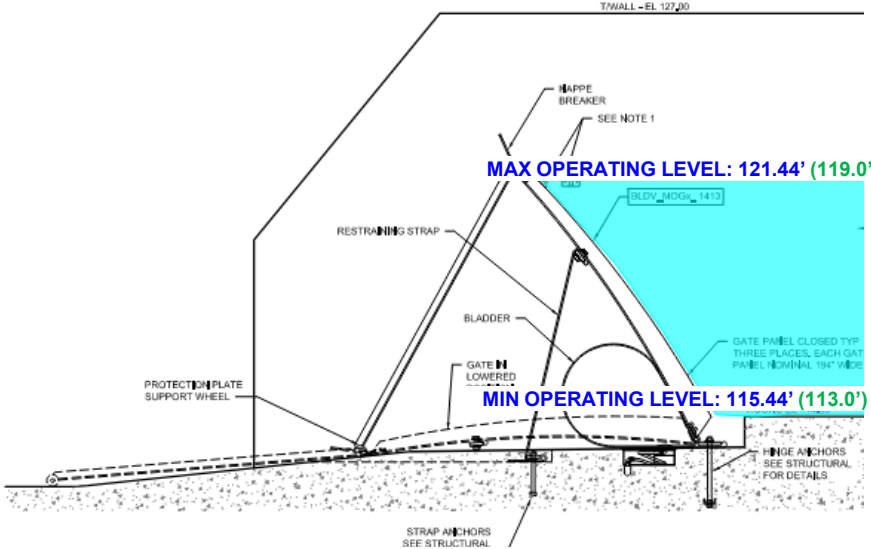
1 Inflatable Weir Gate Dam



* Elevations in blue are NAVD88 datum
(Elevations in green are NGVD27 datum)

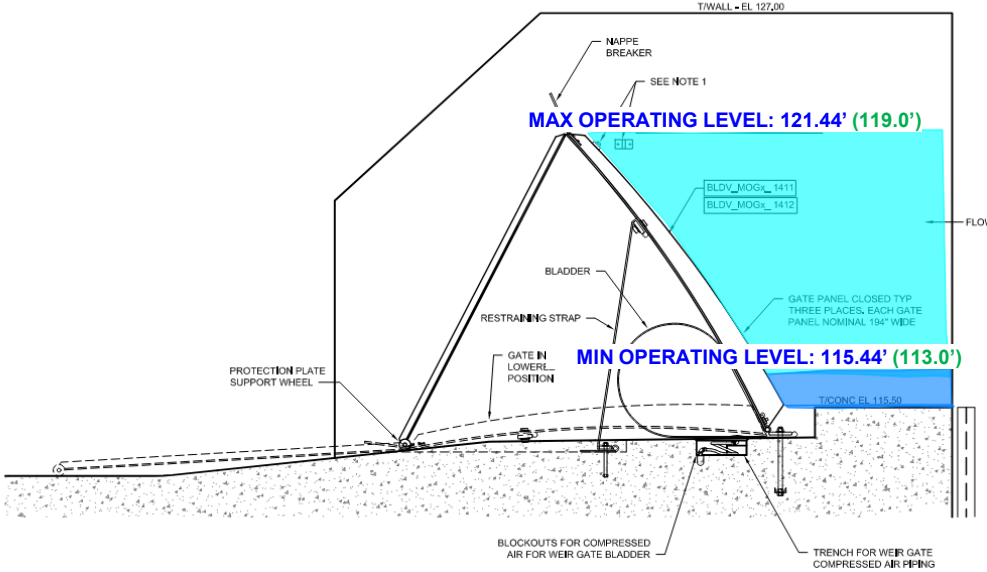
Project Elements

1 Inflatable Weir Gate Dam



WEIR GATE 1 AND 2 - SECTION
SCALE: 1/2" = 1'-0"

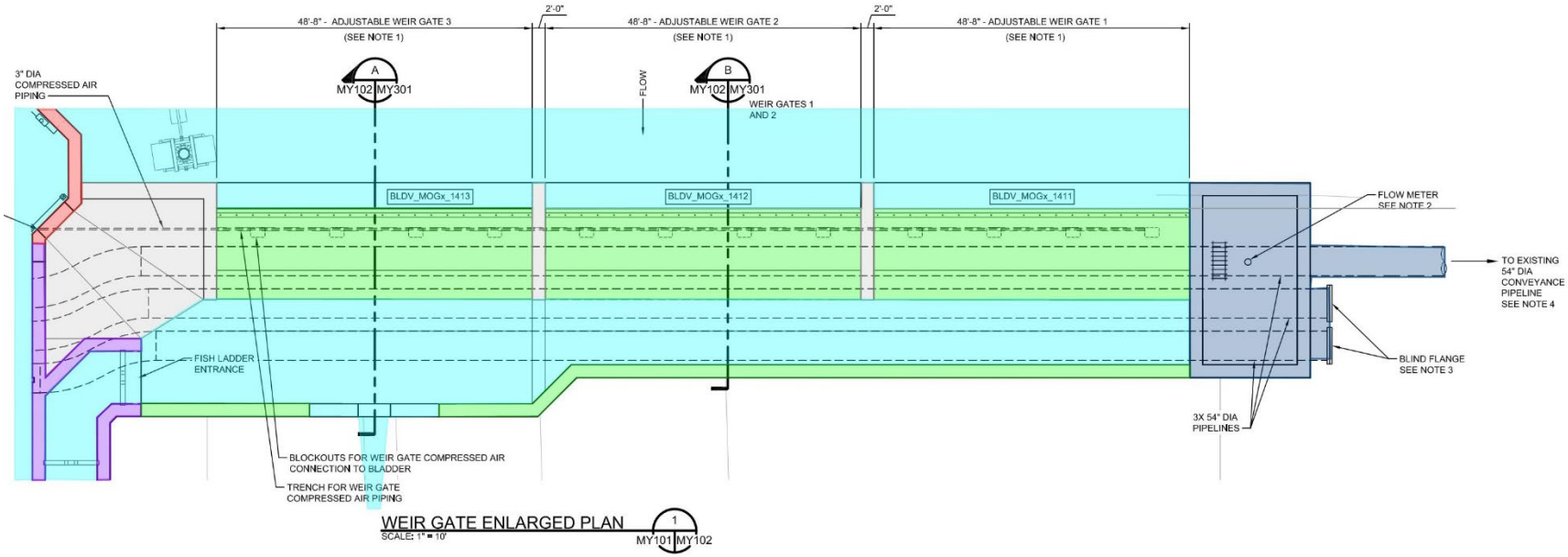
1



WEIR GATE 3 - SECTION
SCALE: 1/2" = 1'-0"

1

SEDIMENT MANAGEMENT APPROACH – WEIR GATES & SILL



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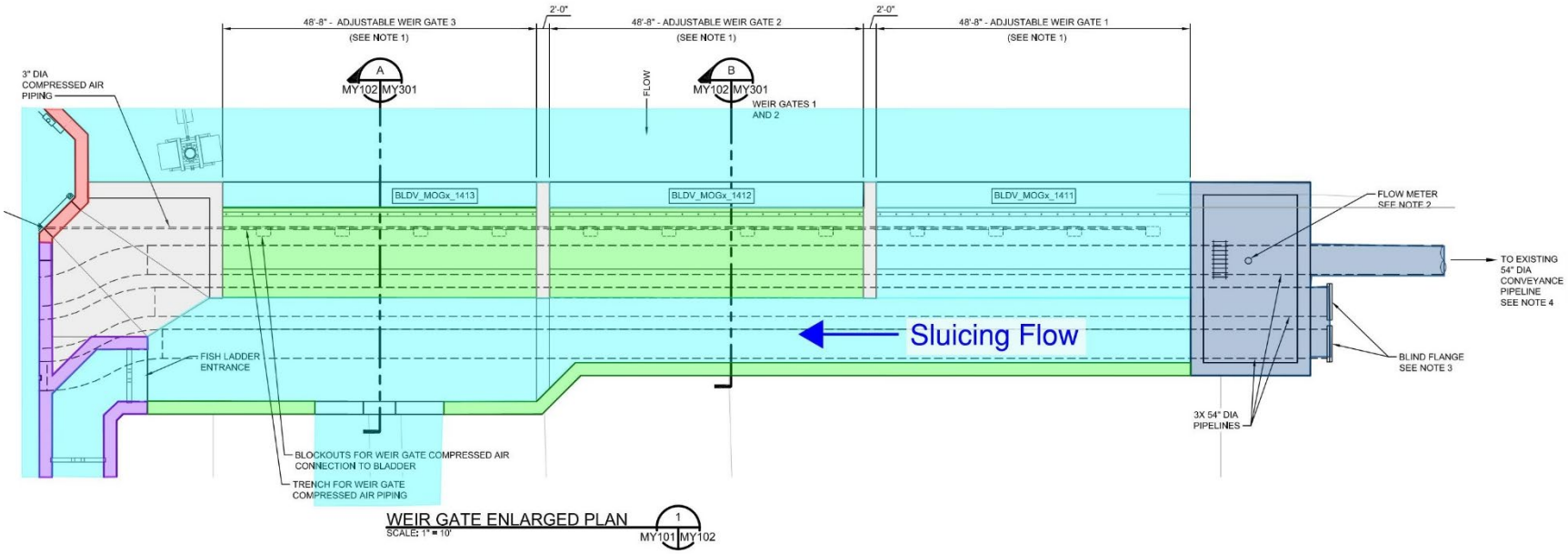
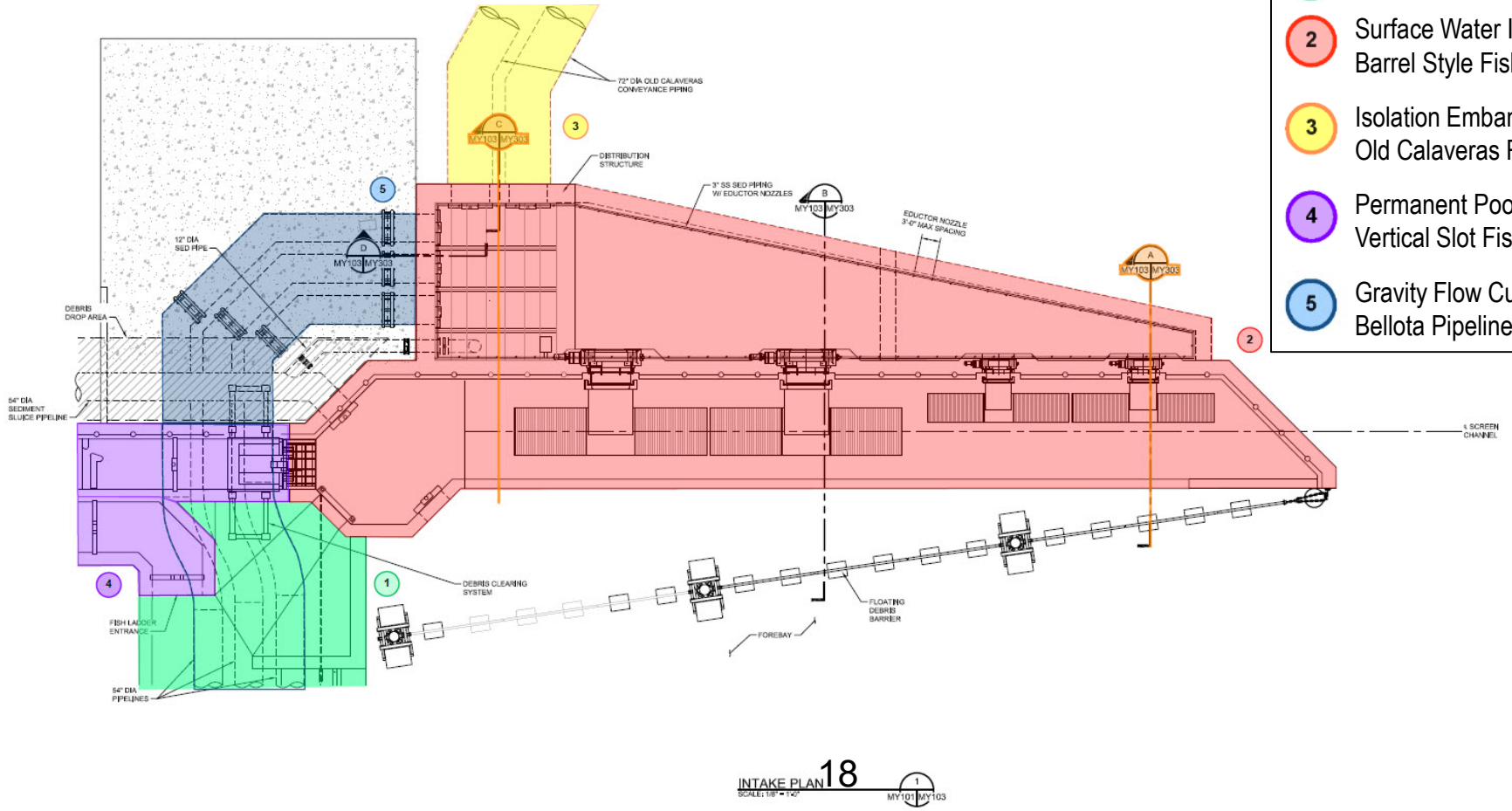


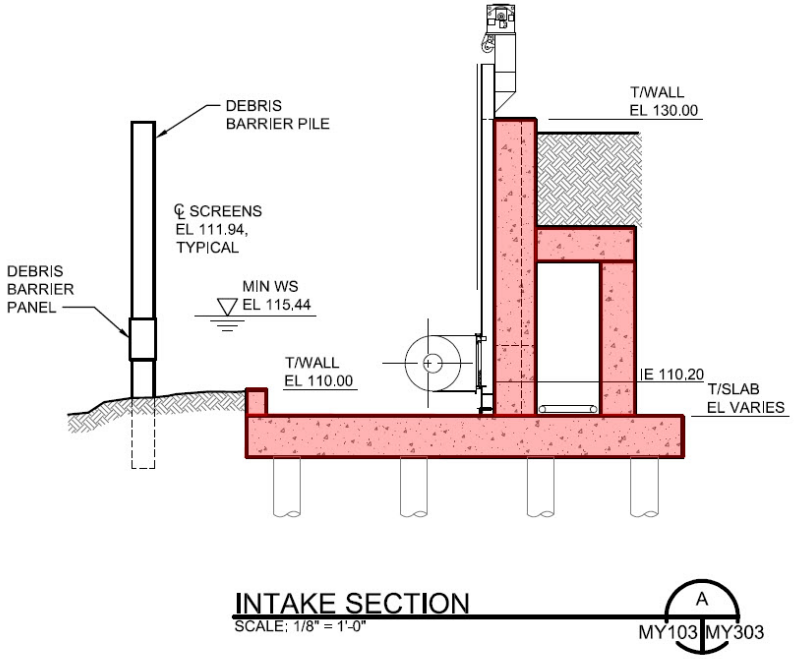
INTAKE WITH CYLINDRICAL SCREENS EXAMPLE

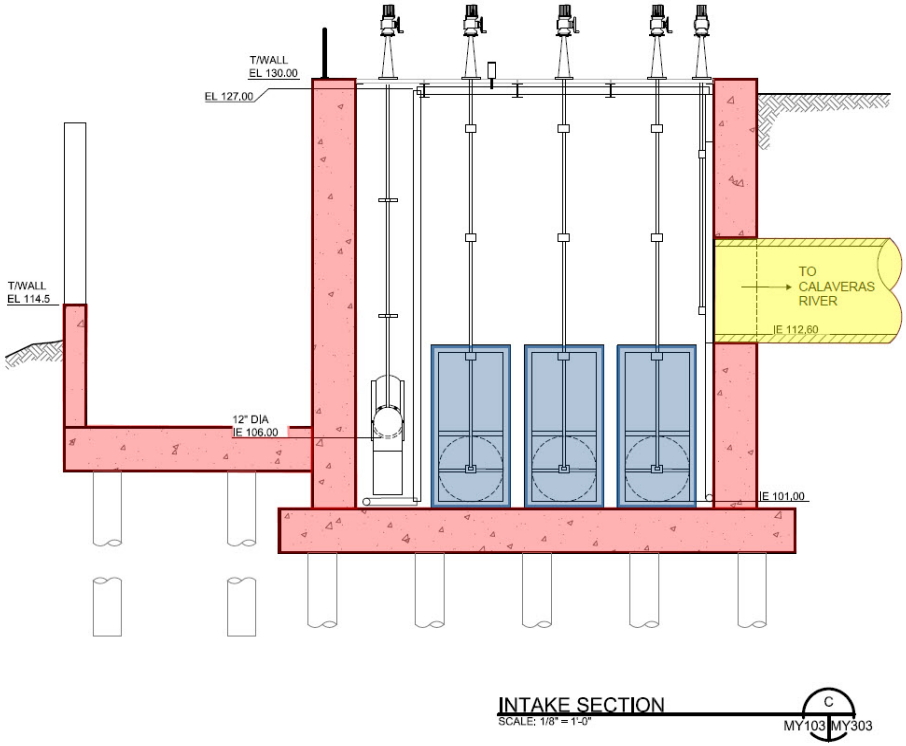
Retractable Cylindrical Screens
17 Alameda Creek Diversion Dam, Sunol, CA



Project Elements

1. Inflatable Weir Gate Dam
2. Surface Water Intake with Barrel Style Fish Screens
3. Isolation Embankment and Old Calaveras River Culverts
4. Permanent Pool and Weir / Vertical Slot Fish Ladder
5. Gravity Flow Culverts to Bellota Pipeline



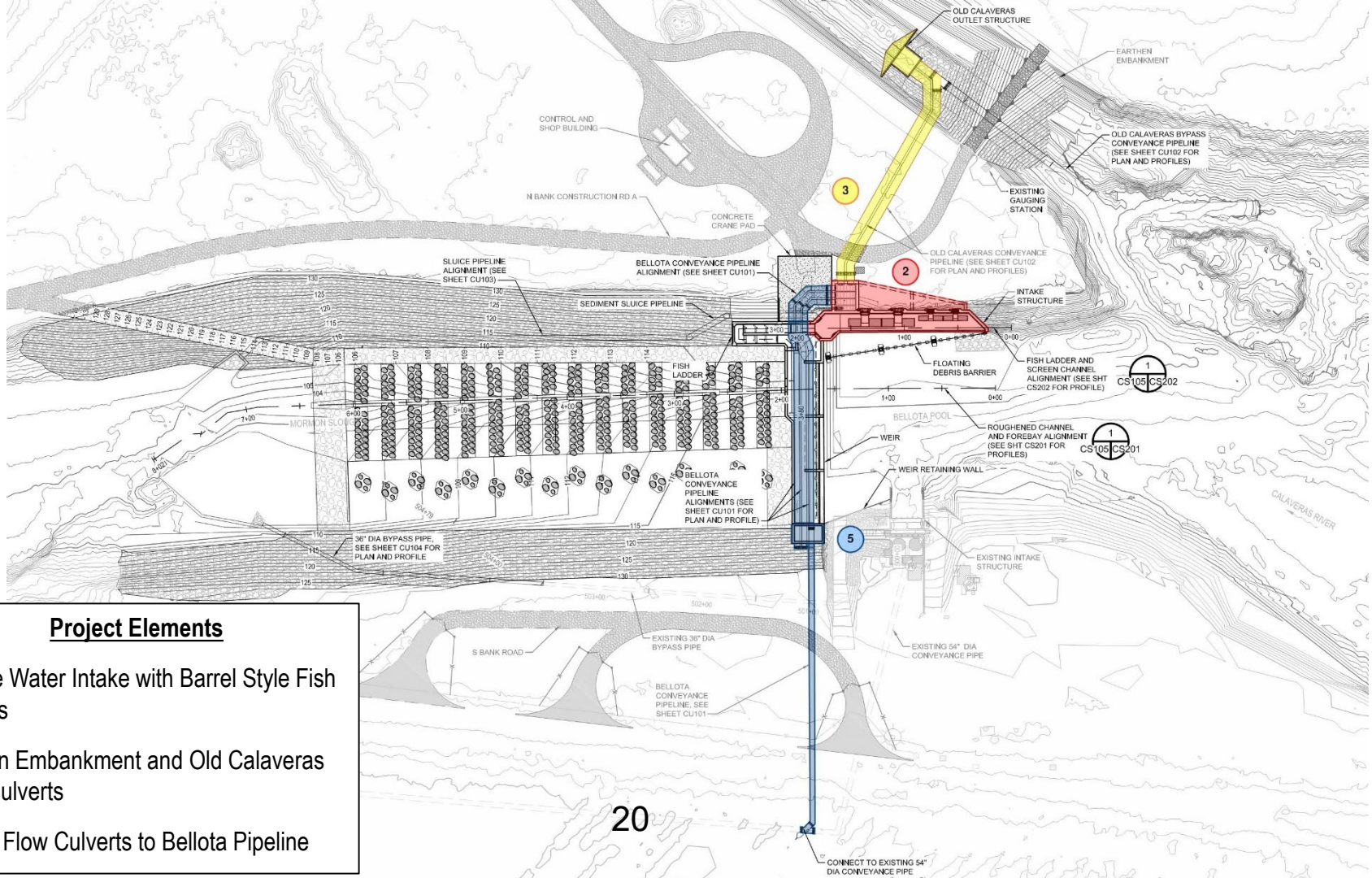


Project Elements

2 Surface Water Intake with Barrel Style Fish Screens

3 Isolation Embankment and Old Calaveras River Culverts

5 Gravity Flow Culverts to Bellota Pipeline

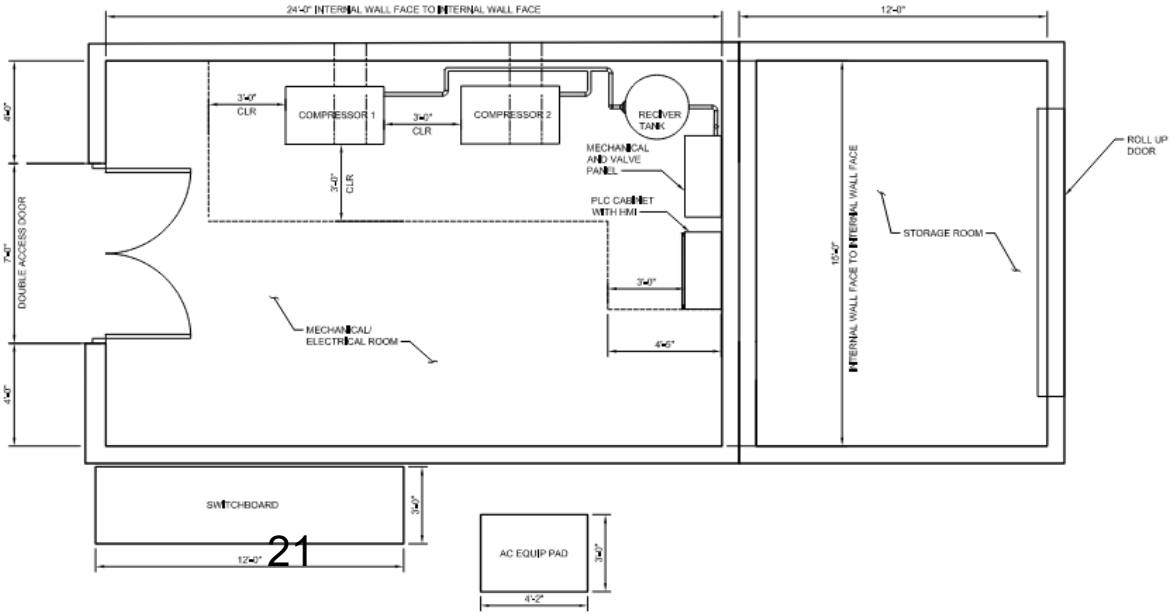


Project Elements

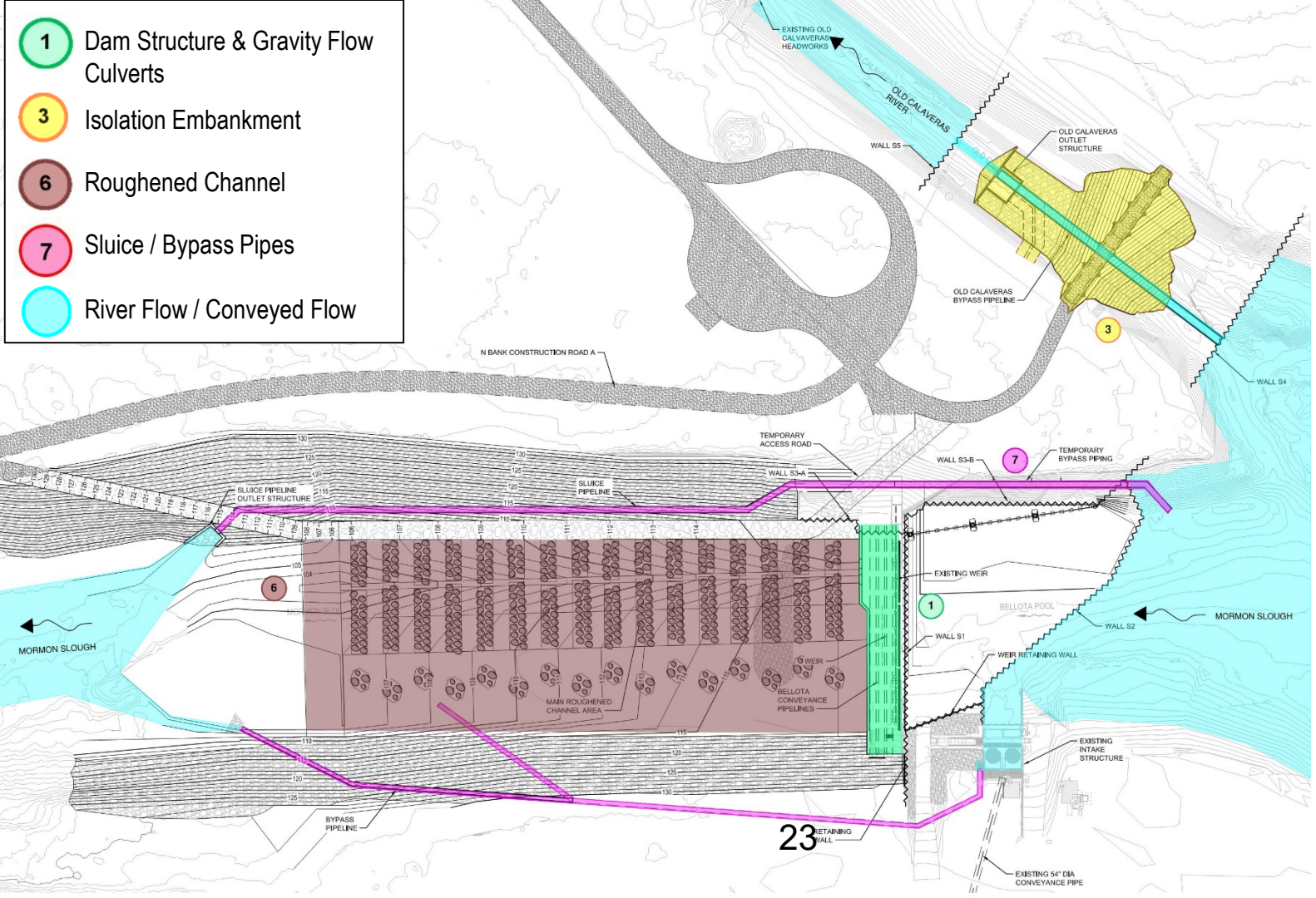
- 2 Surface Water Intake with Barrel Style Fish Screens
- 3 Isolation Embankment and Old Calaveras River Culverts
- 5 Gravity Flow Culverts to Bellota Pipeline

CONTROL BUILDING OVERVIEW

- BASE LAYOUT (Minimum Elements Needed for the Weir & Fish Passage Improvements)
  - Mechanical Room:
    - Compressor
    - Electrical panels and controls for all mechanical components
      - Includes inflatable weir gates and sediment suspension system
  - Storage Room with Roll-up Door

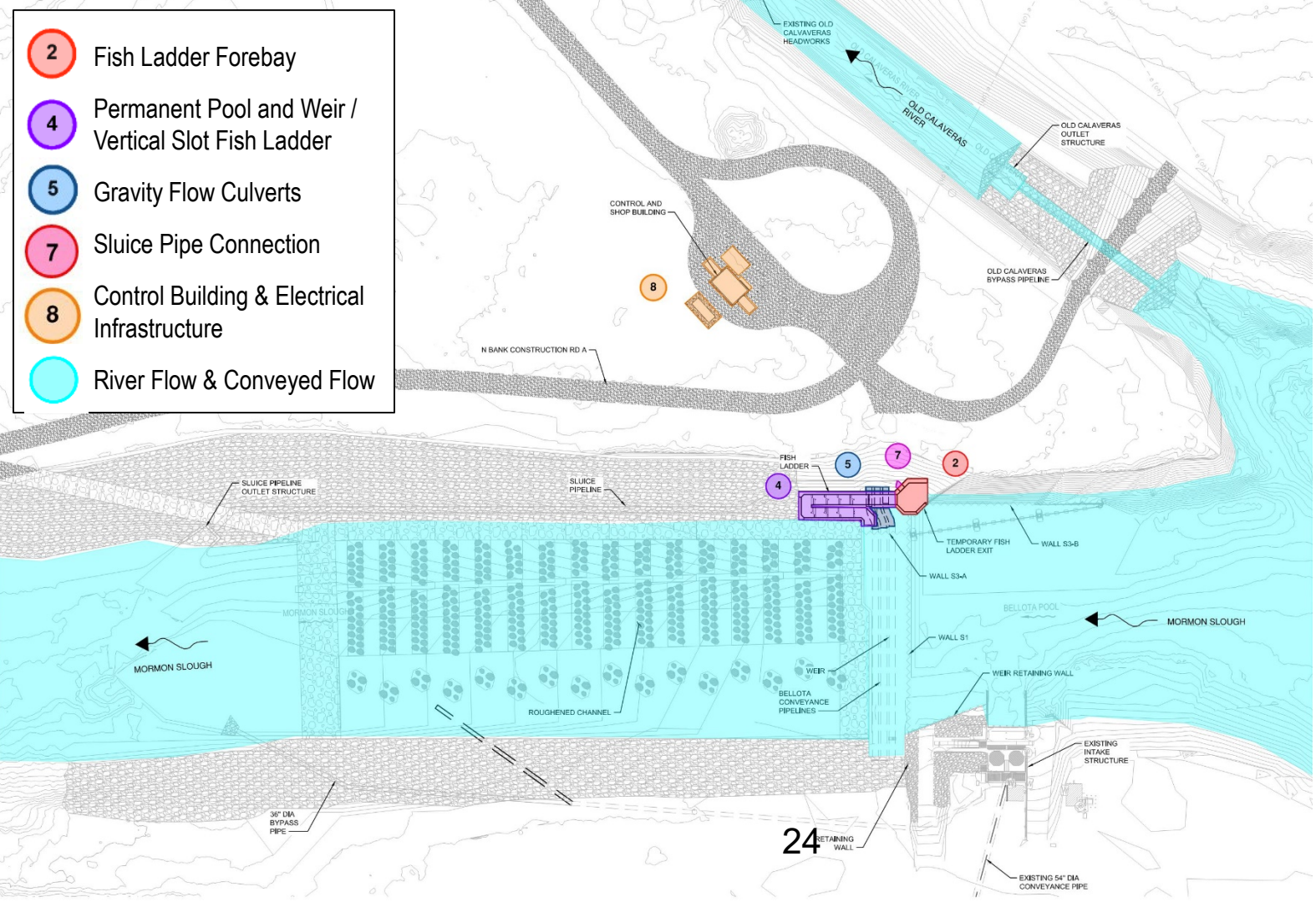


03 CONSTRUCTION SEQUENCING



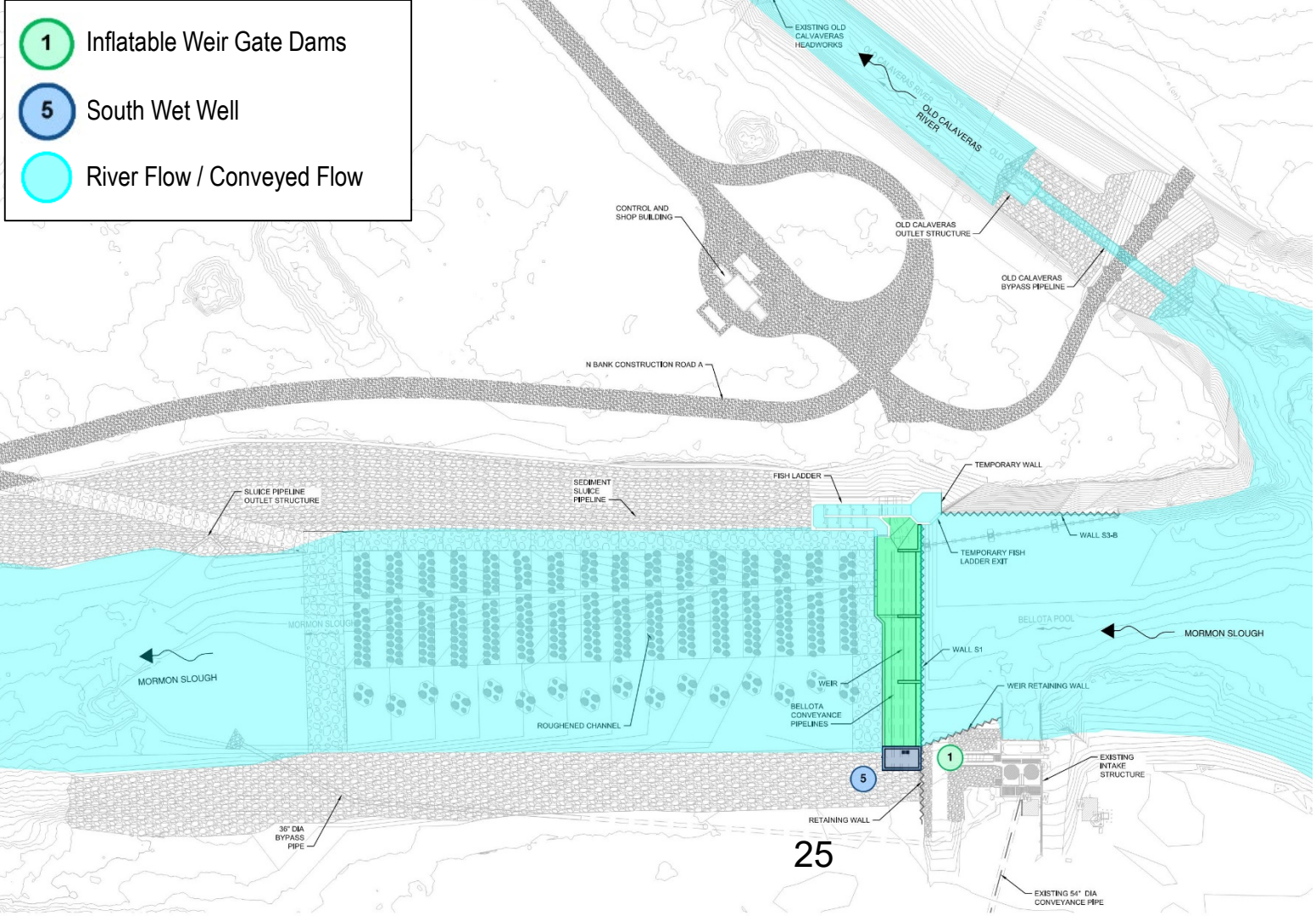
Stream Bypass Sequence 1

- Existing Intake to Remain in Operation
- Construct Roads/ Gates
- Emergency Bypass Flow Directed North and South of Roughened Channel in Pipelines
- Construct Roughened Channel
- Construct Weir Substructure including Gravity Flow Culverts
- Construct Old Calaveras River Bypass Pipeline and Embankment
- Construction to Take Place Over 1 Irrigation Season (Summer)



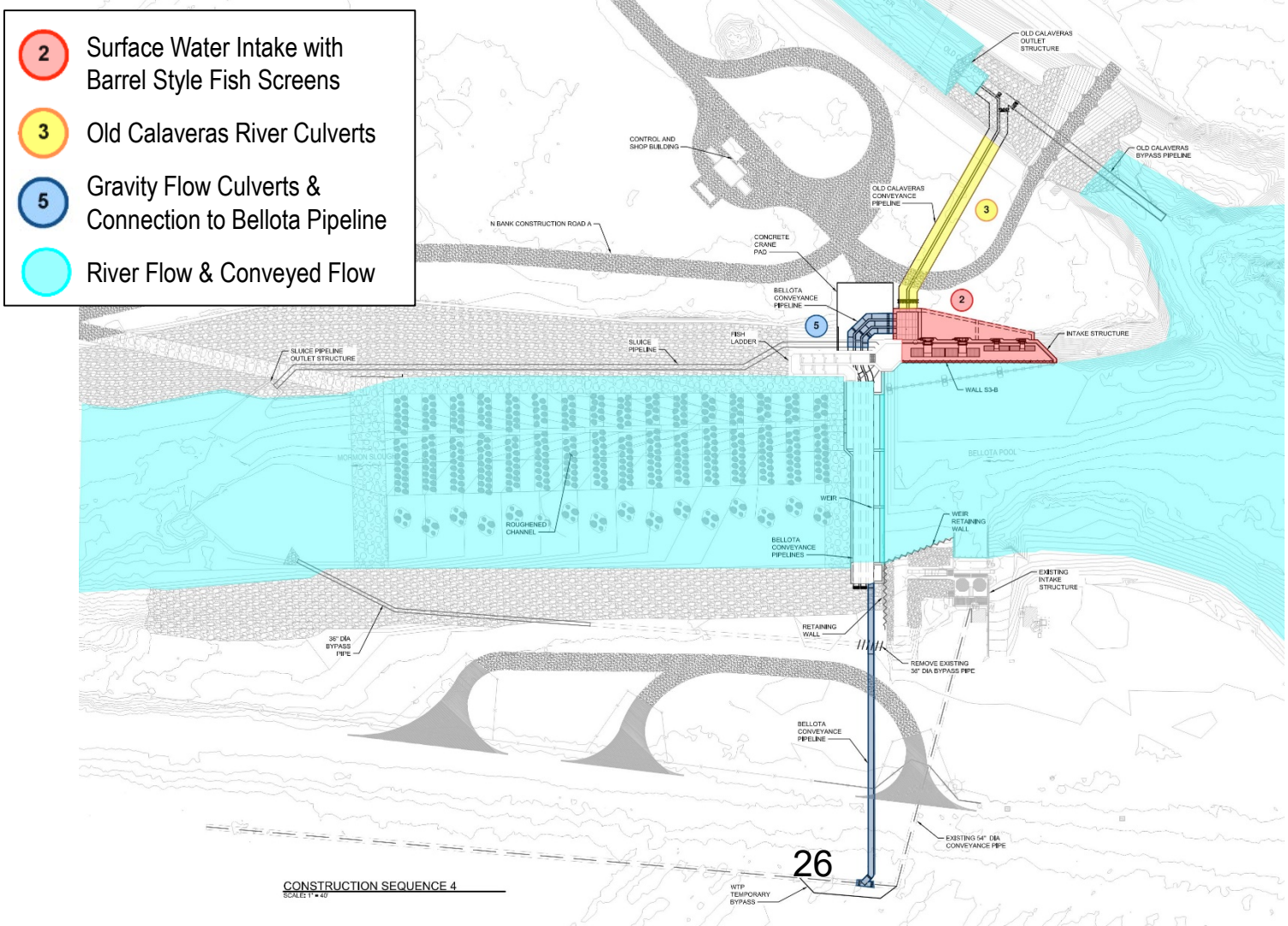
Stream Bypass Sequence 2

- Existing Intake to Remain in Operation
- Install Next Segment of Gravity Flow Culverts
- Construct New Fish Ladder & Forebay
- Construct Control Building and all Electrical Infrastructure for Project
- Construction may Take Place in Non-Irrigation Season



Stream Bypass Sequence 3

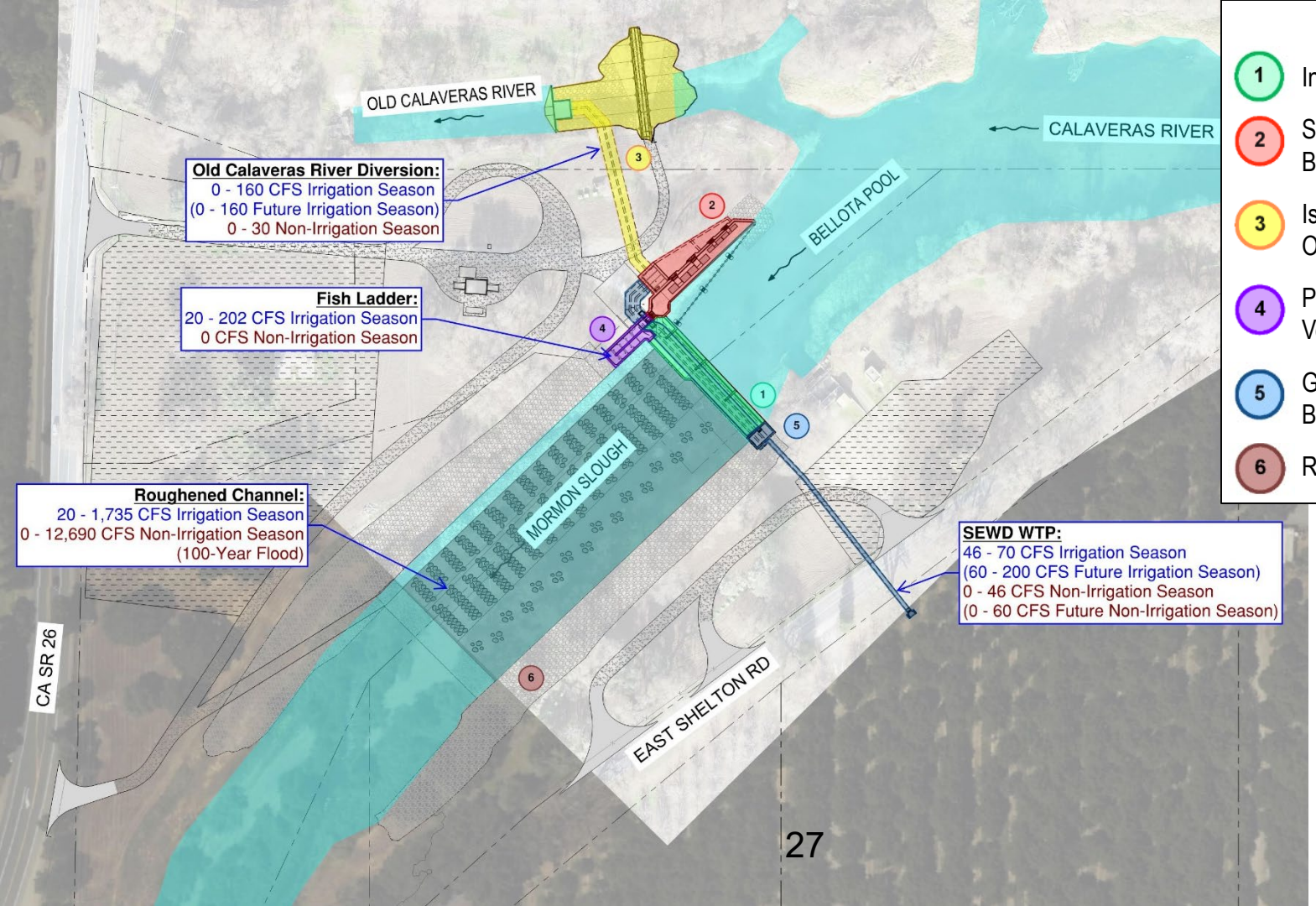
- Install Inflatable Weir Gates in Existing Dam Substructure
- Construct Wet Well at south end of Gravity Conveyance Pipes
- Construction to Take Place Over 1 Irrigation Season (Summer)



Stream Bypass Sequence 4

- Construct New Intake and Install Barrel Style Fish Screens
- Construct Old Calaveras River Culverts and Connect to Existing Culverts
- Complete Gravity Flow Culverts
- Construct Connection to Bellota Pipeline
- Construction may Take Place in Non-Irrigation Season

- All Project Components Complete


OLD CALAVERAS RIVER
CALAVERAS RIVER
BELLOTA POOL
MORMON SLOUGH
EAST SHELTON RD
CA SR 26
Old Calaveras River Diversion:
0 - 160 CFS Irrigation Season
(0 - 160 Future Irrigation Season)
0 - 30 Non-Irrigation Season
Fish Ladder:
20 - 202 CFS Irrigation Season
0 CFS Non-Irrigation Season
Roughened Channel:
20 - 1,735 CFS Irrigation Season
0 - 12,690 CFS Non-Irrigation Season
(100-Year Flood)
SEWD WTP:
46 - 70 CFS Irrigation Season
(60 - 200 CFS Future Irrigation Season)
0 - 46 CFS Non-Irrigation Season
(0 - 60 CFS Future Non-Irrigation Season)
Project Elements
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3 Isolation Embankment and Old Calaveras River Culverts
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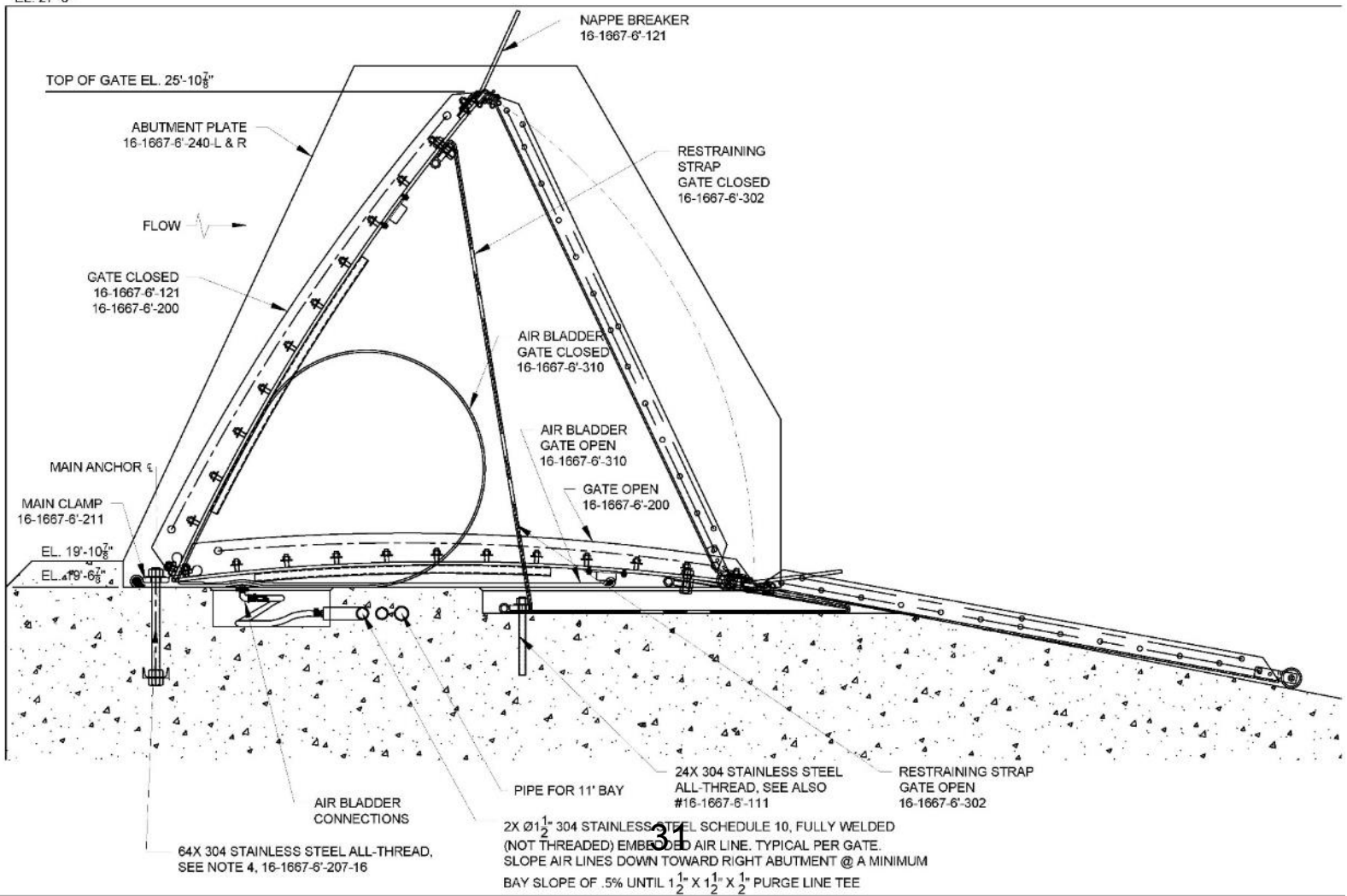
5 Gravity Flow Culverts to Bellota Pipeline
6 Roughened Channel

04 OPINION OF PROBABLE CONSTRUCTION COST

ANTICIPATED 65% DESIGN-LEVEL OPCC

Project Elements	Low (Base-15%)	Base OPCC w/ Escalation	High (Base+30%)	Total Base OPCC w/ Indirect Costs
Consolidated screening facility on north bank combined with a roughed channel	**$50.0 M**	**$58.9 M**	**$76.6 M**	**$71.9M**
Costs to be further refined for 90% design: - Large roughened channel rock / rip rap - Fine tuning of all quantities and unit costs				
Note: 65% OPCC is a Class III estimate, with -15% / +30% cost range from Base; previous OPCC provided a Class IV estimate with -20% / +40% range from Base				

05 QUESTIONS

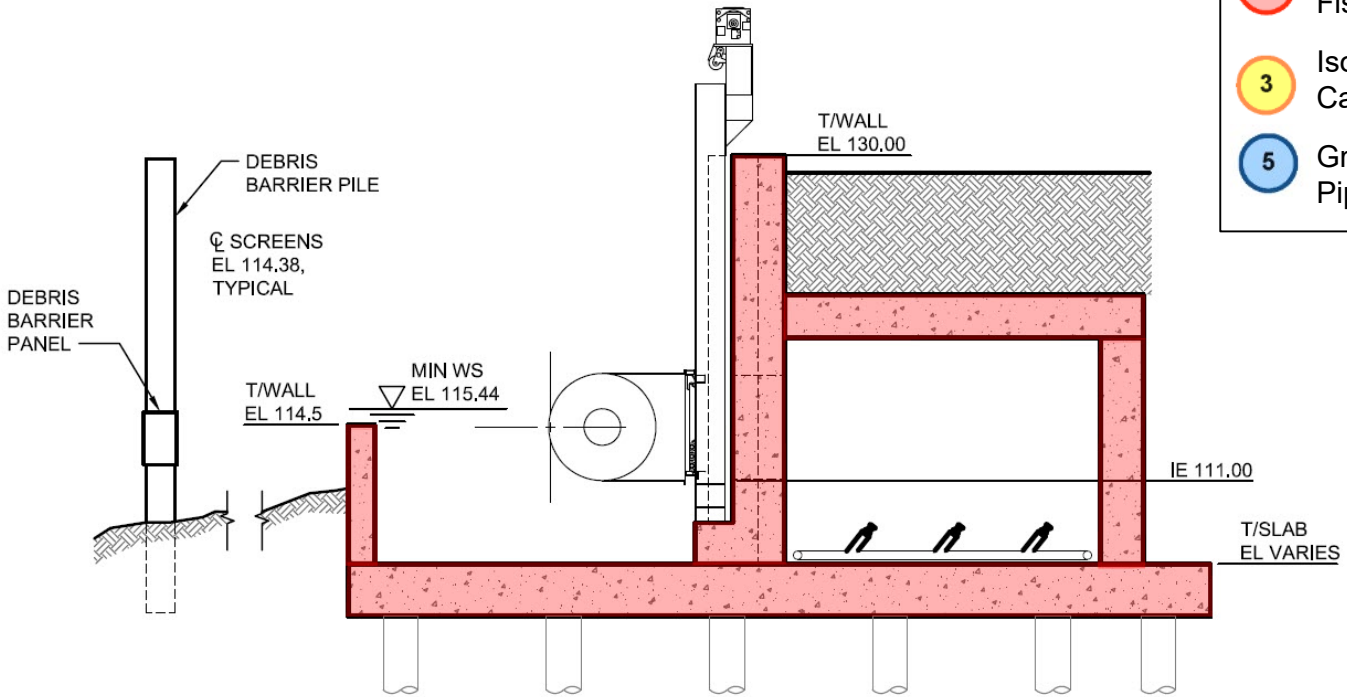

EL. 27'-0"
NAPPE BREAKER
16-1667-6'-121
TOP OF GATE EL. 25'-10 7/8"
ABUTMENT PLATE
16-1667-6'-240-L & R
RESTRAINING
STRAP
GATE CLOSED
16-1667-6'-302
FLOW
GATE CLOSED
16-1667-6'-121
16-1667-6'-200
AIR BLADDER
GATE CLOSED
16-1667-6'-310
AIR BLADDER
GATE OPEN
16-1667-6'-310
MAIN ANCHOR ℄
GATE OPEN
16-1667-6'-200
MAIN CLAMP
16-1667-6'-211
EL. 19'-10 7/8"
EL. 19'-6 7/8"
24X 304 STAINLESS STEEL
ALL-THREAD, SEE ALSO
#16-1667-6'-111
RESTRAINING STRAP
GATE OPEN
16-1667-6'-302
PIPE FOR 11' BAY
AIR BLADDER
CONNECTIONS
2X Ø1 1/2" 304 STAINLESS STEEL SCHEDULE 10, FULLY WELDED
(NOT THREADED) EMBEDDED AIR LINE. TYPICAL PER GATE.
SLOPE AIR LINES DOWN TOWARD RIGHT ABUTMENT @ A MINIMUM
BAY SLOPE OF .5% UNTIL 1 1/2" X 1 1/2" X 1/2" PURGE LINE TEE
64X 304 STAINLESS STEEL ALL-THREAD,
SEE NOTE 4, 16-1667-6'-207-16

Project Elements

2 Surface Water Intake with Barrel Style Fish Screens

3 Isolation Embankment and Old Calaveras River Culverts

5 Gravity Flow Culverts to Bellota Pipeline



INTAKE SECTION

SCALE: 1/8" = 1'-0"

B MY103 MY303

Project Elements

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- Replaces the existing profile control infrastructure
- Provides fish passage for fish species throughout various life stages at project site
- Provides fish exclusion and protection measures for SEWD intake at Bellota Weir
- Excludes fish from migrating downstream into the Old Calaveras River

Construction Access

- Improve permanent access fences and gates on East Shelton Road and SR-26
- Provide vehicle turnarounds for permanent access roads
- Provide temporary construction access points for single lane drive-thru truck traffic to project elements, including roughened channel construction haul route
- Temporary roads to remain in place after construction for District use
- Preserve trees where feasible

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Construction Laydown Areas

- Provides storage for construction materials and vehicles on each side of channel