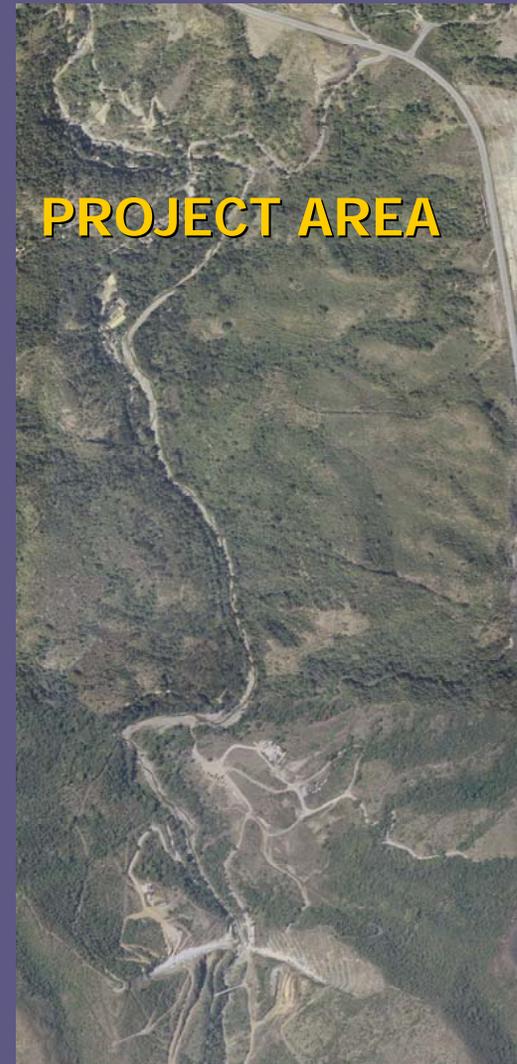


PORTUGUES DAM

Project Overview



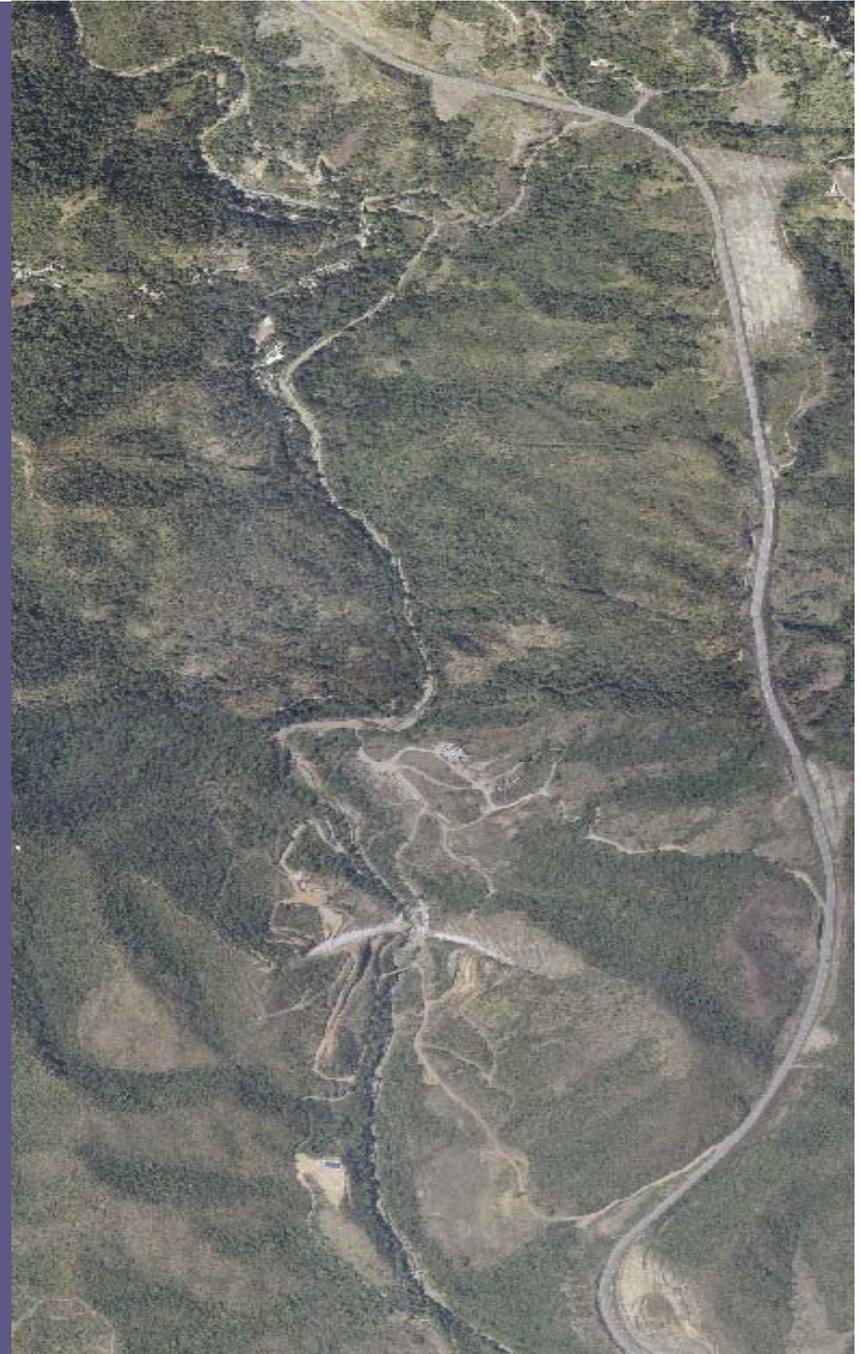
PROJECT FEATURES

- SITE
- *EXCAVATION AND DENTAL CONCRETE*
- *QUARRY DEVELOPMENT*
- DAM
- OUTLET WORKS
- FOUNDATION GALLERY
- *FOUNDATION GROUTING*
- *SLOPE STABILIZATION*
- INSTRUMENTATION
- *CONCRETE TESTING LABORATORY*
- TEST SECTION
- *RCC PRODUCTION AND PLACEMENT*
- ACCESS ROAD AND BRIDGE
- POWERLINE RELOCATION
- OTHER FEATURES
- CONSTRUCTION PHASING

PROJECT FEATURES

SITE

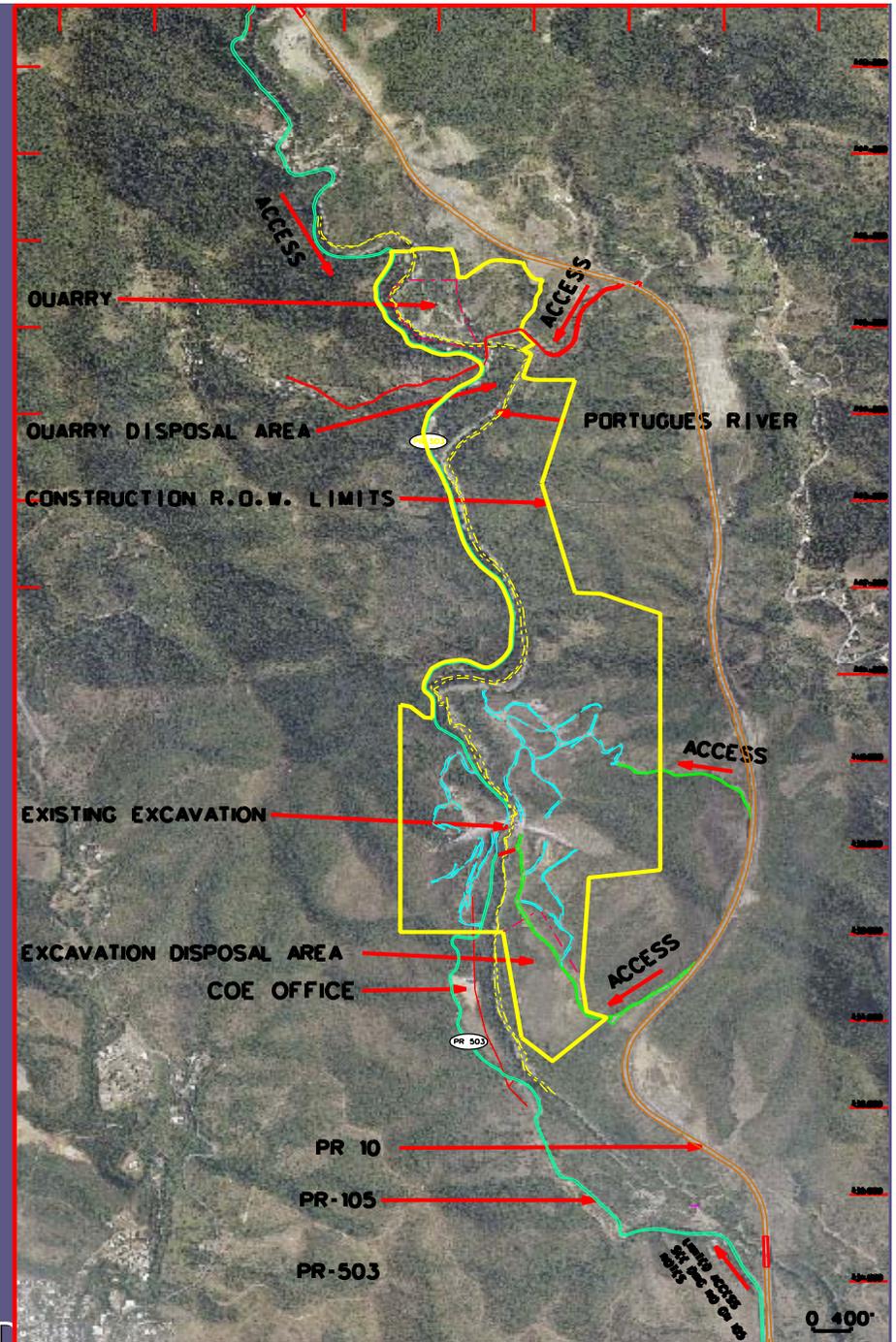
- AERIAL VIEW



PROJECT FEATURES

SITE

- ACCESS
- EXISTING EXCAVATION
- QUARRY AREA
- STAGING AREAS



12 JULY 2007

PORTUGUES DAM IND

PORTUGUES DAM SITE PLAN

PROJECT FEATURES

EXCAVATION



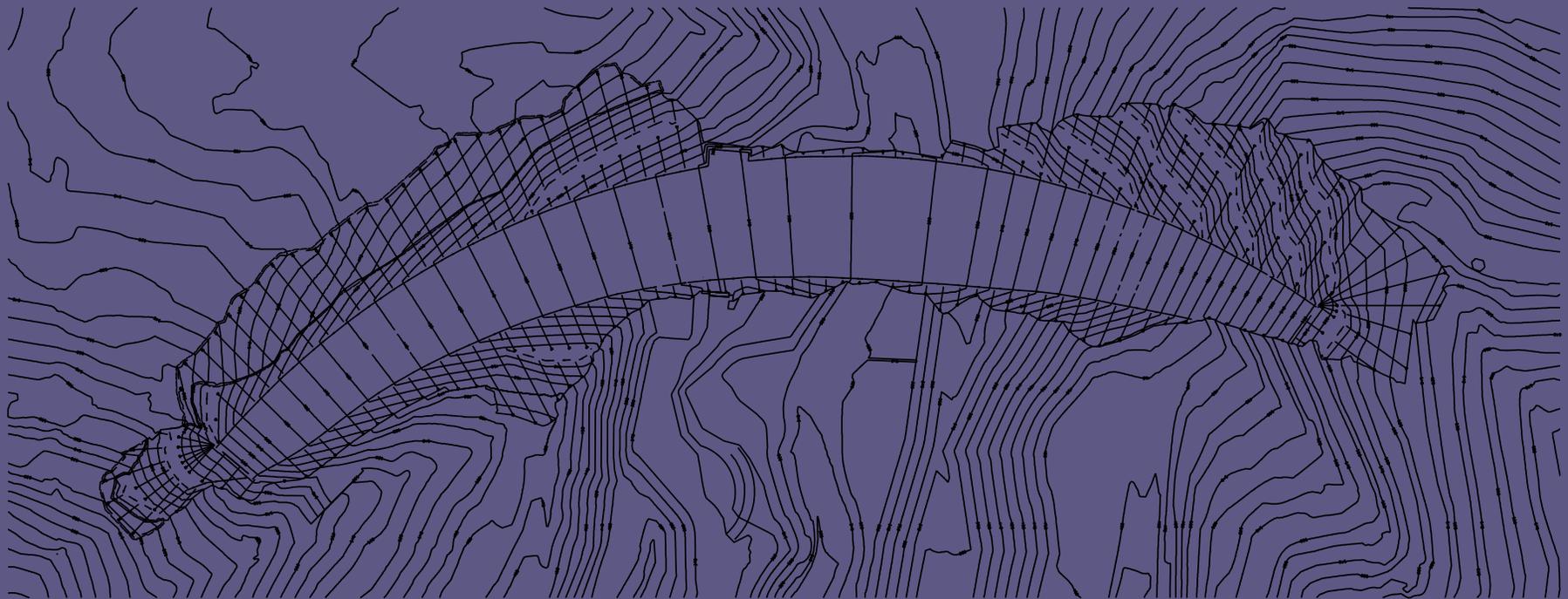
12 JULY 2007

PORTUGUES DAM INDUSTRY DAY - PONCE, PR

5

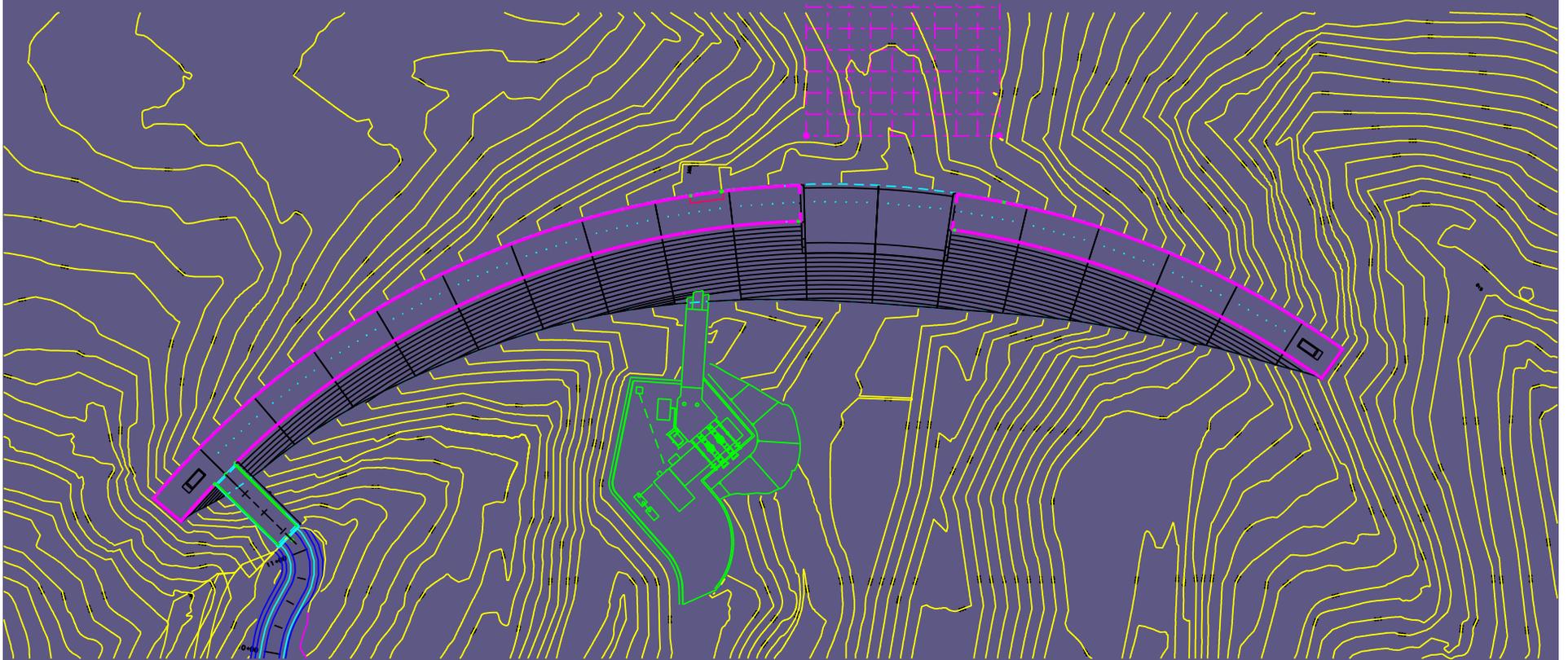
PROJECT FEATURES

NEW EXCAVATION



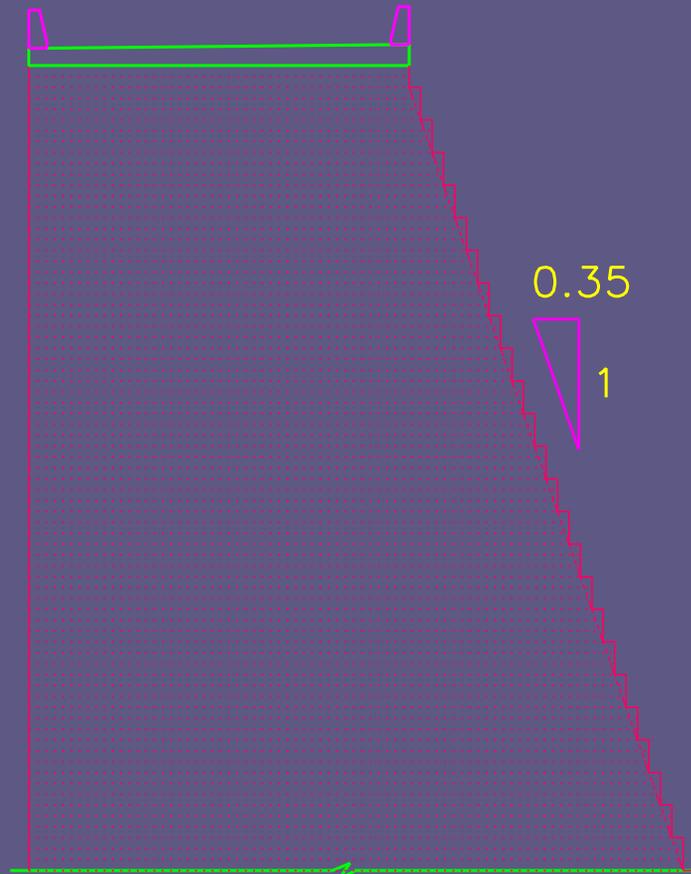
PROJECT FEATURES

DAM

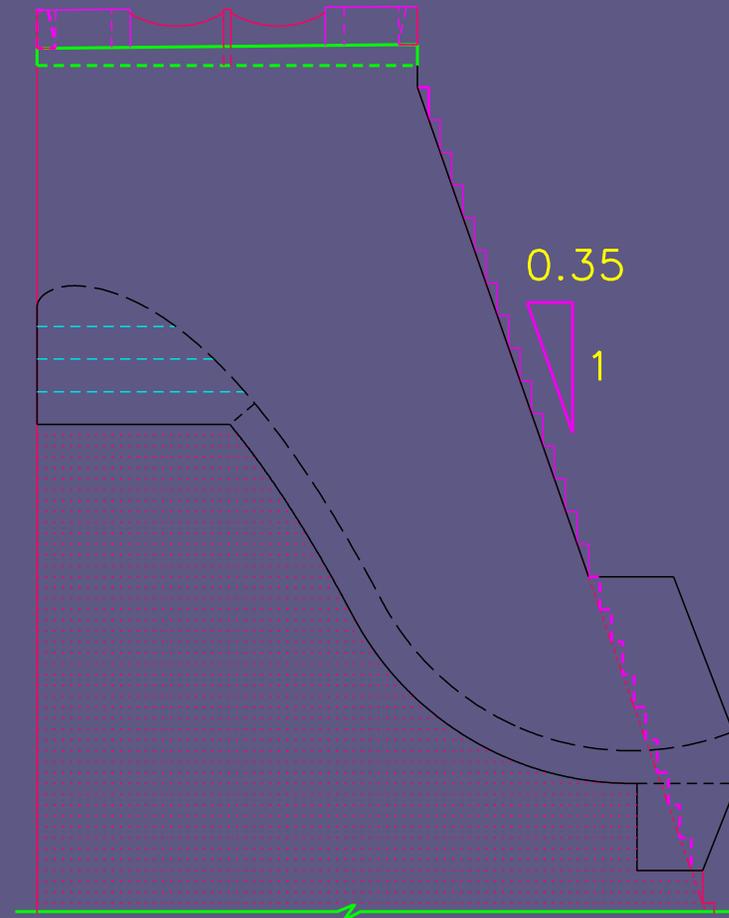


PROJECT FEATURES

DAM



SECTION



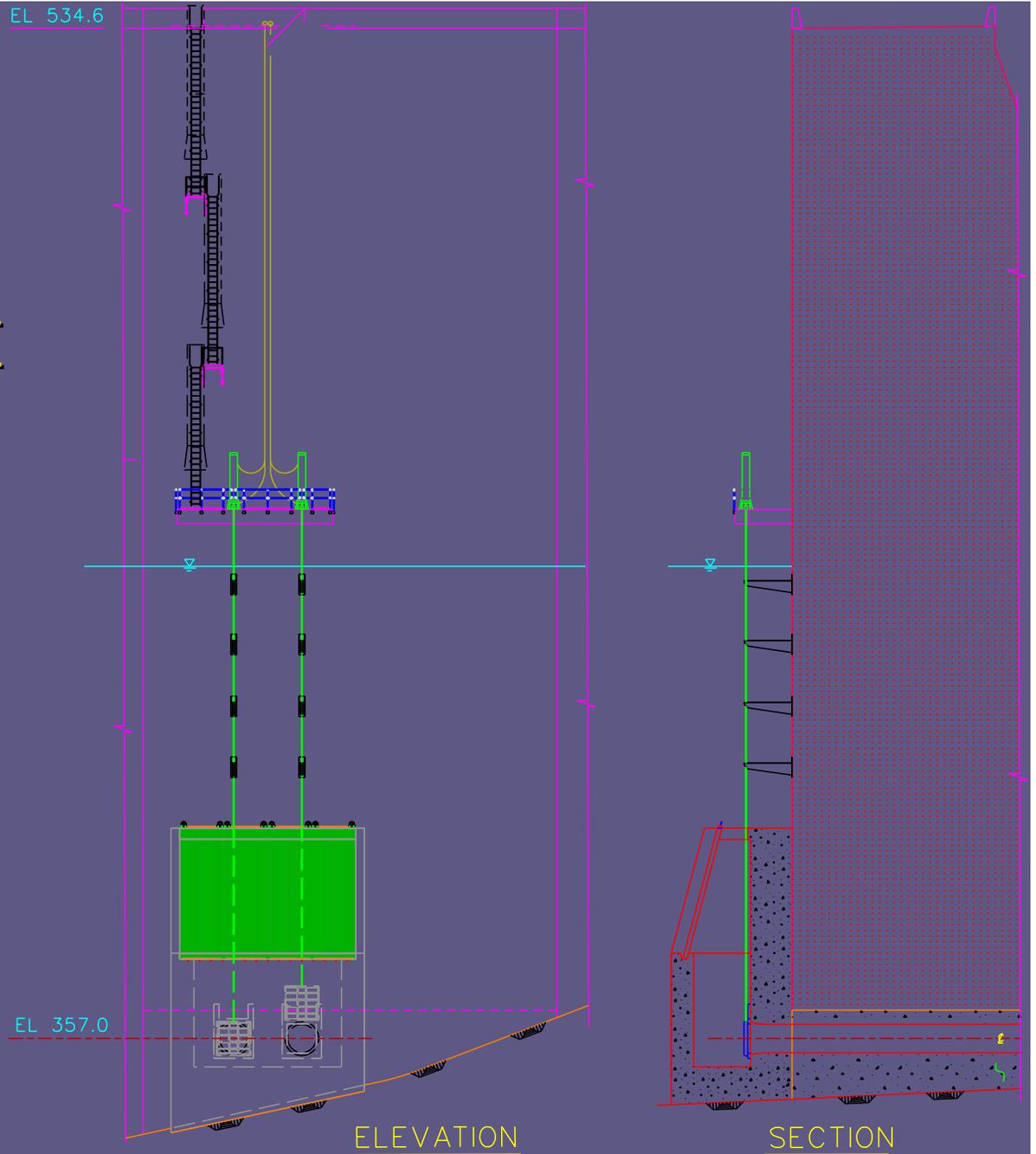
SECTION

PROJECT FEATURES

OUTLET WORKS

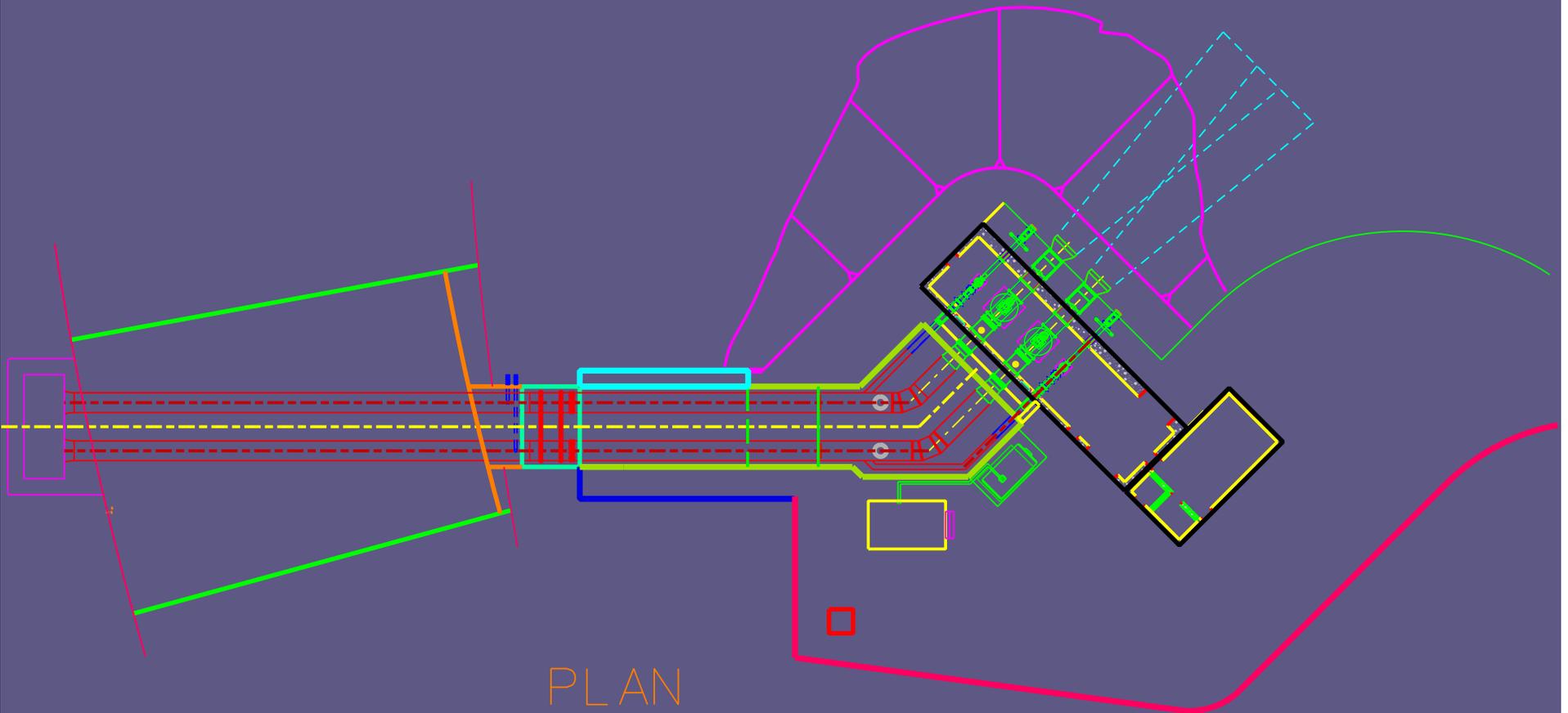
- PURPOSE
- INTAKE STRUCTURE
- TRASH RACKS
- BULKHEAD GATES
- 60" DIA REGULATING OUTLET PIPES
- VALVE HOUSE & CONTROL ROOM
- EMERGENCY VALVES
- SERVICE (FIXED CONE) VALVES
- SPILLWAY

PROJECT FEATURES OUTLET WORKS INTAKE STRUCTURE



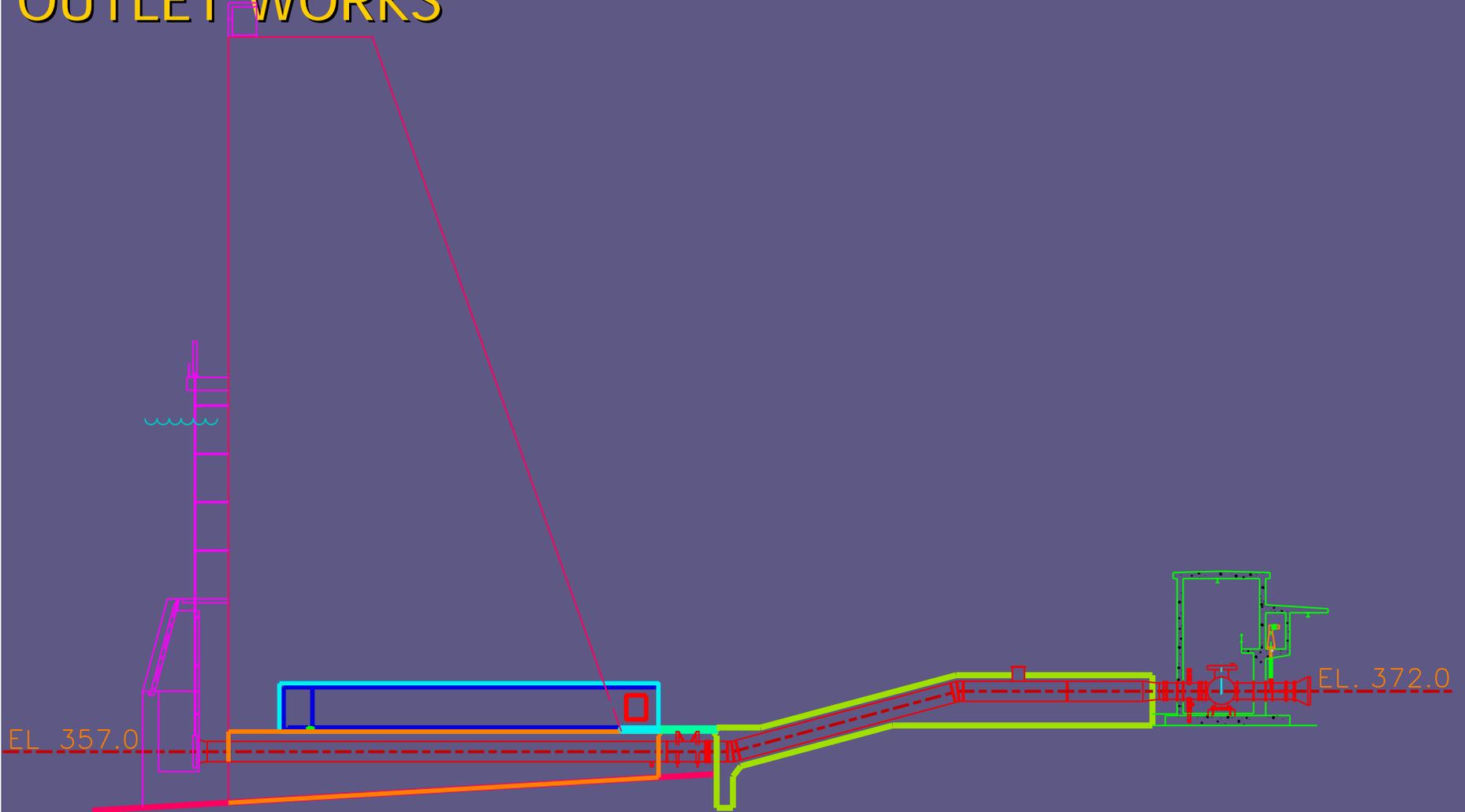
PROJECT FEATURES

OUTLET WORKS



PROJECT FEATURES

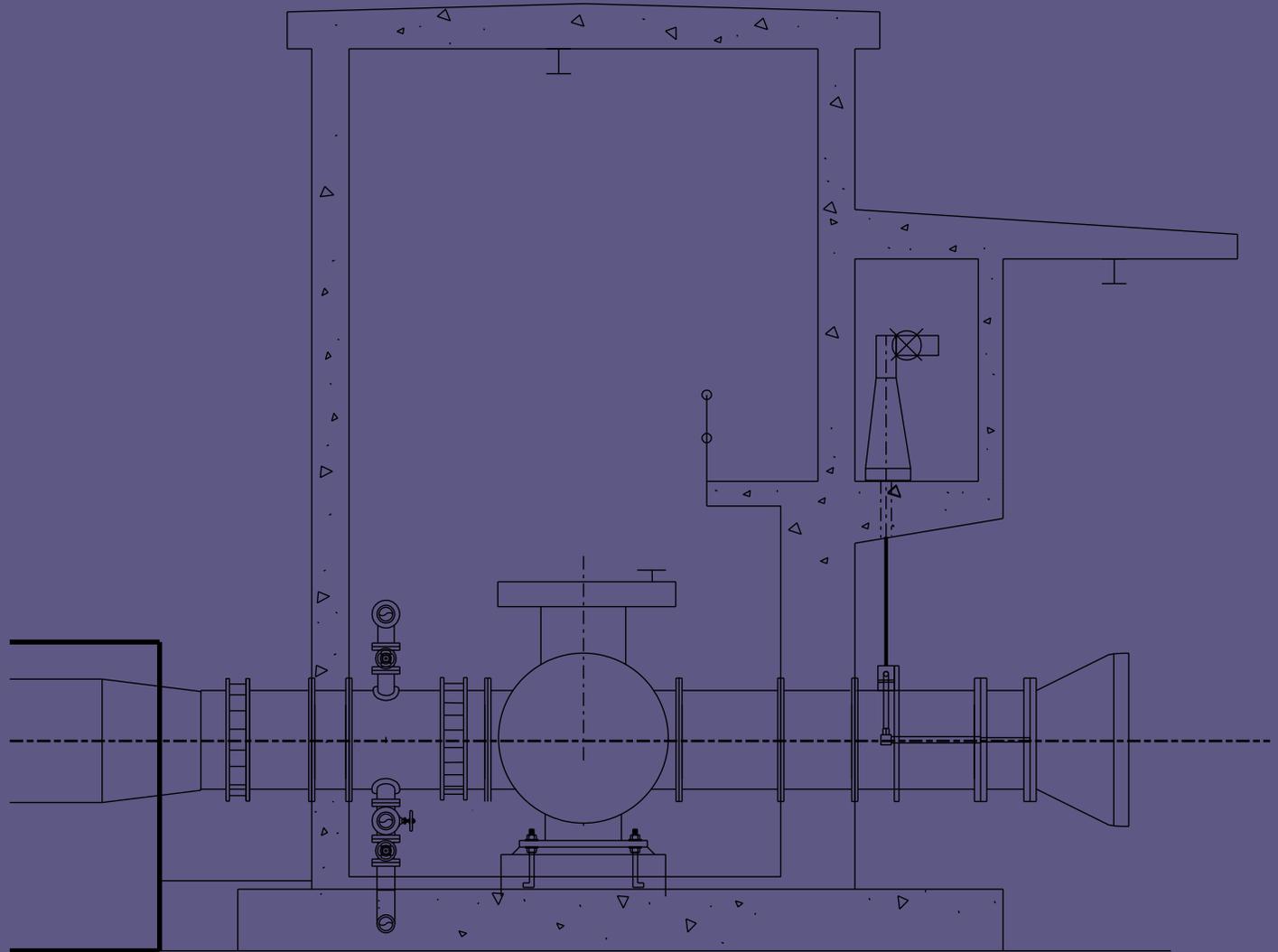
OUTLET WORKS



ELEVATION

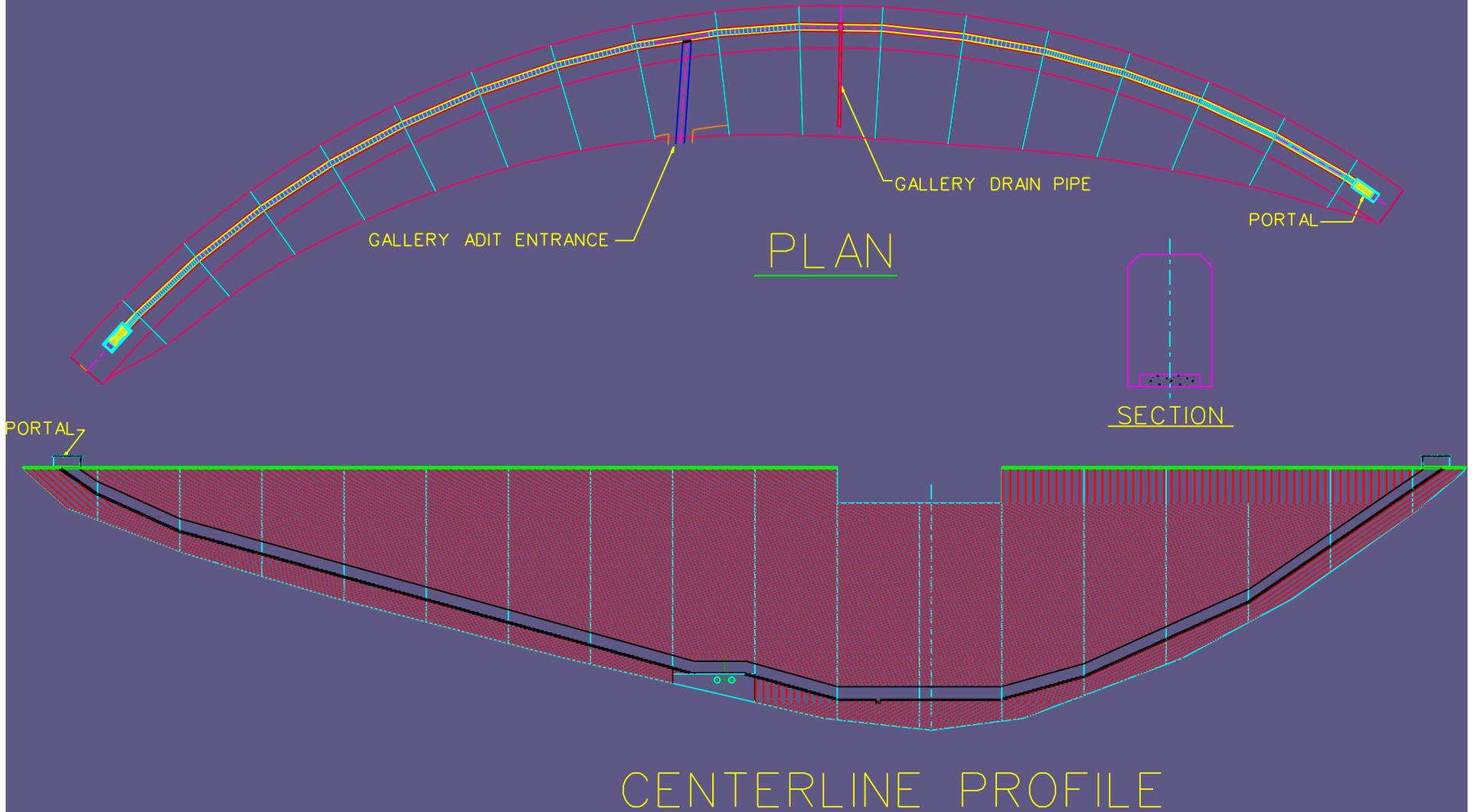
PROJECT FEATURES

OUTLET WORKS - VALVES



PROJECT FEATURES

GALLERY



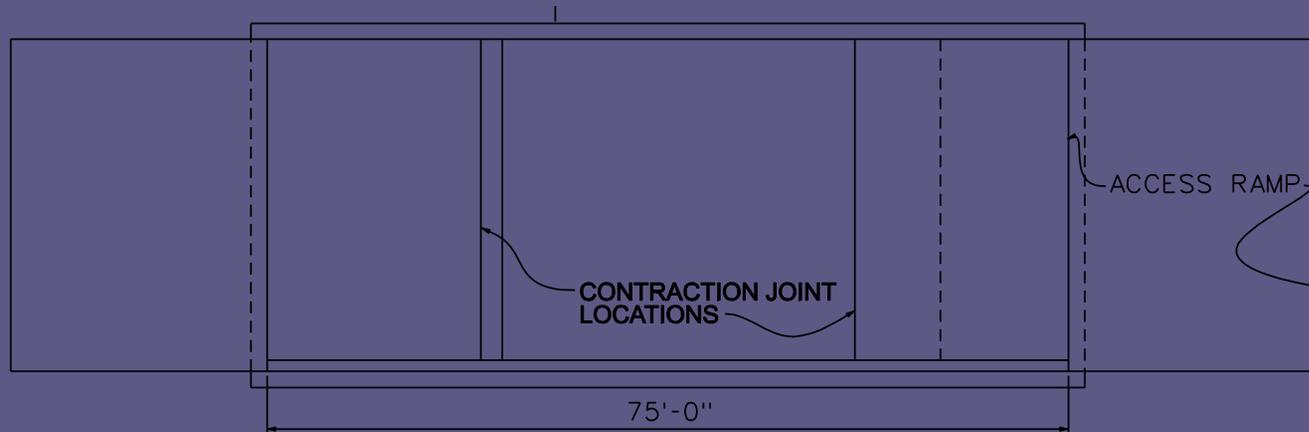
PROJECT FEATURES

INSTRUMENTATION

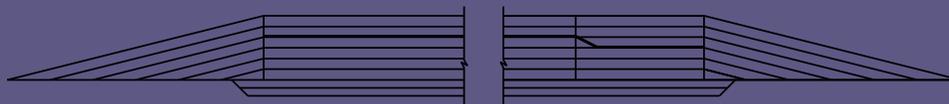
- PIEZOMETERS (FOUNDATION)
- EXTENSOMETERS (FOUNDATION)
- INCLINOMETERS (FOUNDATION)
- THERMISTORS (STRUCTURAL)
- JOINTMETERS (STRUCTURAL)
- STRESS/STRAIN METERS (STRUCTURAL)
- ACCELEROGRAPHS
- AUTOMATED DATA ACQUISITION SYSTEM

PROJECT FEATURES

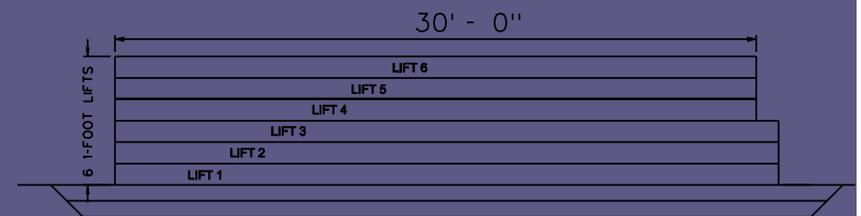
TEST SECTION



PLAN



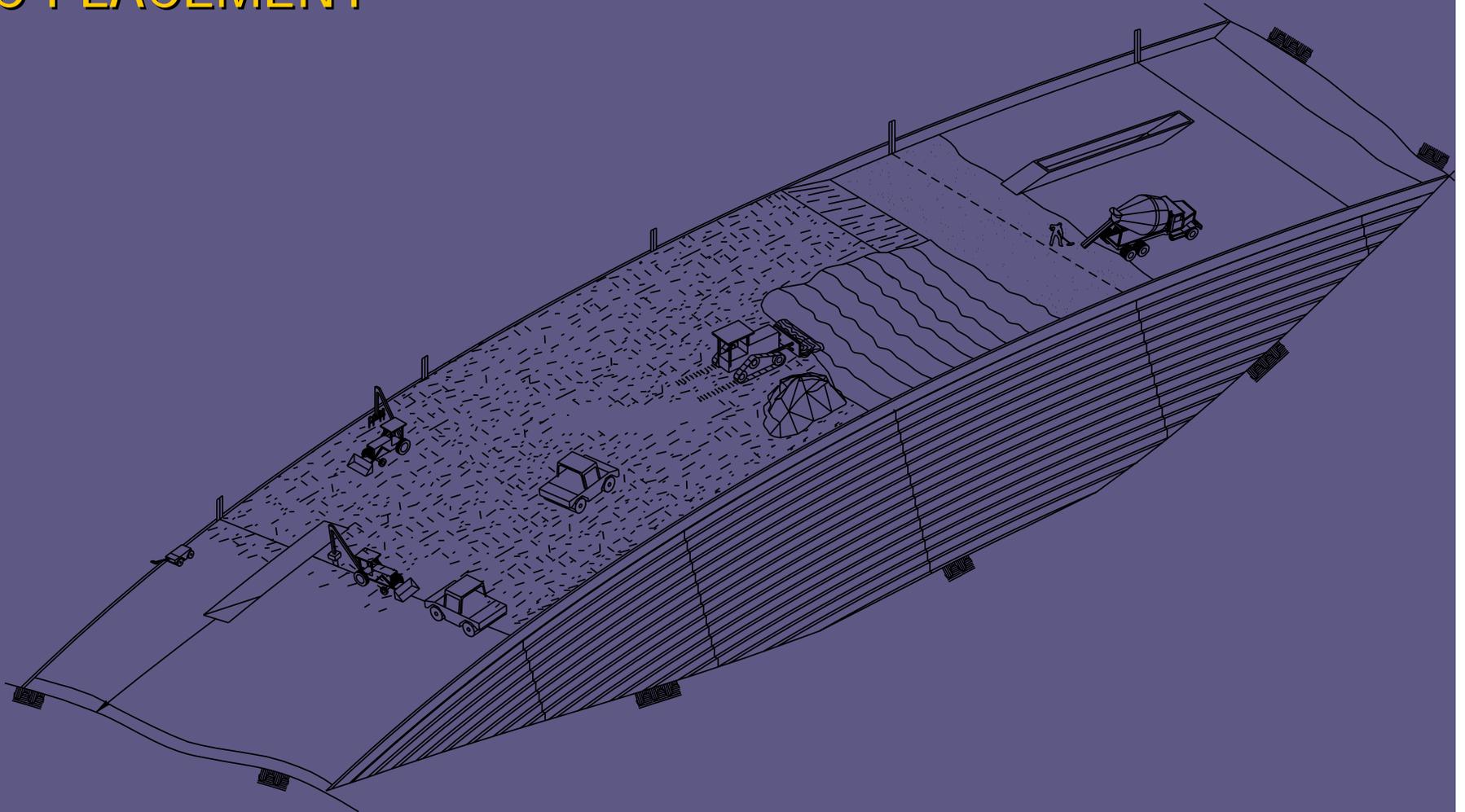
SECTION ALONG CENTERLINE OF TEST SECTION



SECTION

PROJECT FEATURES

RCC PLACEMENT



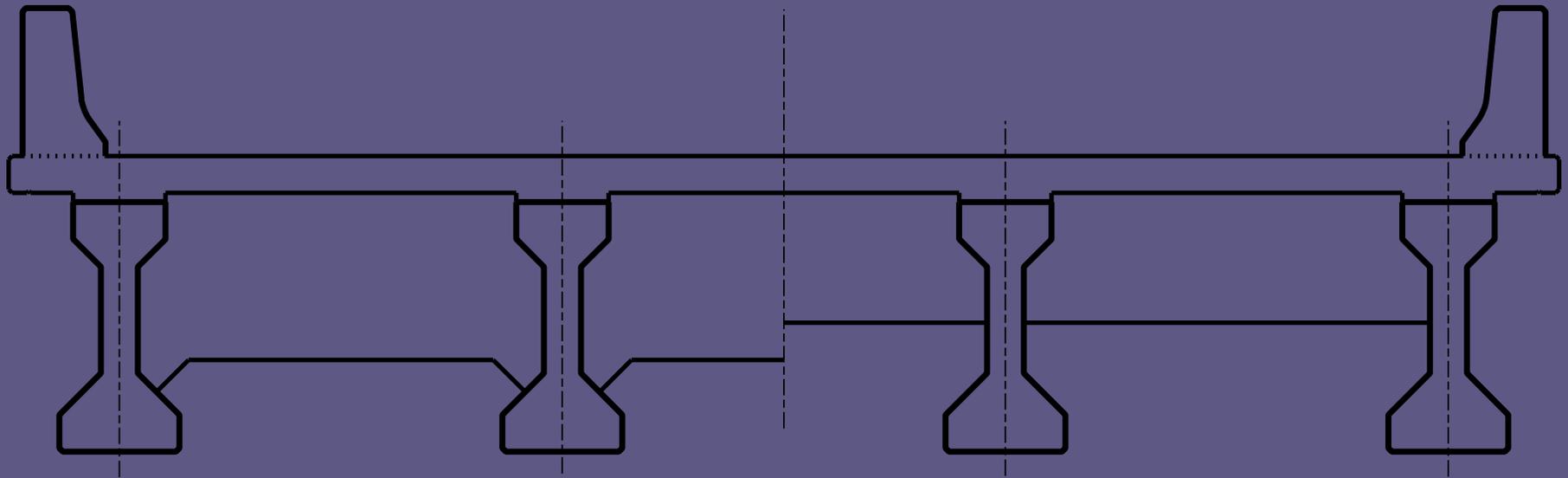
PROJECT FEATURES

CREST ACCESS ROAD
AND BRIDGE



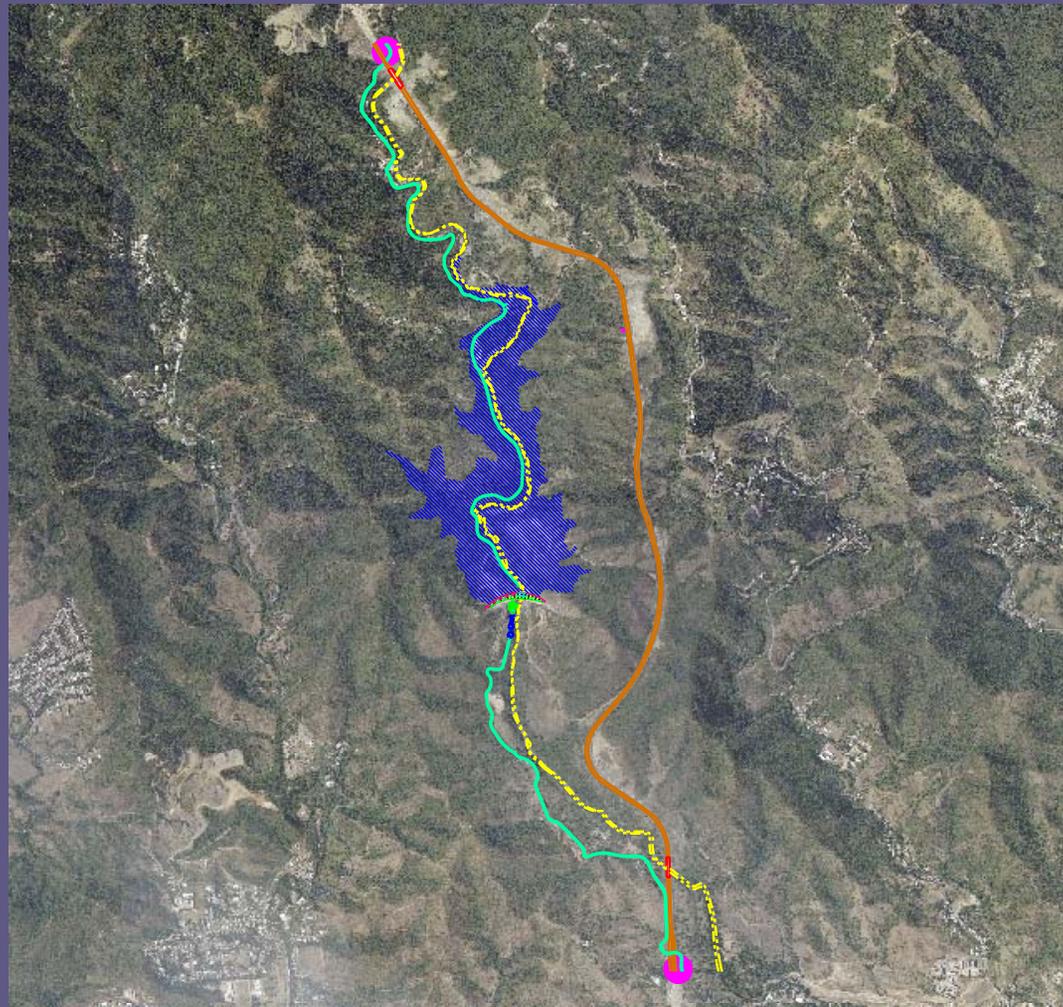
PROJECT FEATURES

CREST ACCESS ROAD
AND BRIDGE



PROJECT FEATURES

POWERLINE RELOCATION



12 JULY 2007

PORTUGUES DAM INDUSTRY DAY - PONCE, PR

20

PROJECT FEATURES

OTHER FEATURES

- DIVERSION & CARE OF WATER
- FOUNDATION DENTAL CONCRETE
- FOUNDATION CONSOLIDATION GROUTING
- FOUNDATION CURTAIN GROUTING
- FOUNDATION CONTACT GROUTING
- SLOPE STABILIZATION
- DAM DRAINS

PROJECT FEATURES

OTHER FEATURES

- ALUMIMUM SAFETY RAILS
- MODULAR OFFICES
- GENERATOR BUILDING AND GEN SET
- ALUMIMUM CAGED LADDERS
- PRECAST SANITARY HOLDING TANKS
- WELL WITH PUMP
- HVAC SYSTEMS – GALLERY, VALVE HOUSE & CONTROL ROOM
- DEMOLITION
- ELECTRICAL WORK

CONSTRUCTION PHASING

- PHASED DUE TO FUNDING CONSTRAINTS
- 5 PHASES OVER APPROXIMATELY 5 YEARS
- PHASE 1 – MOBILIZATION, CLEARING, QUARRY OVERBURDEN EXCAVATION, POWERLINE RELOCATION
- PHASE 2 – FOUNDATION EXCAVATION, AGGREGATE PRODUCTION, DENTAL CONCRETE
- PHASE 3 – AGGREGATE PRODUCTION, ½ DAM RCC PLACEMENT
- PHASE 4 – FINAL DAM RCC PLACEMENT, SPILLWAY, INTAKE STRUCTURE
- PHASE 5 – REMAINING ITEMS, VALVE HOUSE, ACCESS ROAD, MECHANICAL, ELECTRICAL.

MUCHAS GRACIAS

THANK YOU