CALIFORNIA WATER COMMISSION

Additional Information for the Commission on Delta Habitat Conservation and Conveyance Geologic Exploration Activities

September 21, 2011

Presentation Overview:

- INTRODUCTION OF STAFF
- PURPOSE OF THIS PRESENTATION
- GEOLOGIC EXPLORATION
- PROJECT DESCRIPTION
- TYPICAL EQUIPMENT AND TYPES OF EXPLORATION

INTRODUCTION OF STAFF

- Allan Davis, Supervising Land Agent, DWR
- Ward Tabor, Assistant Chief Counsel, DWR
- Gordon Enas, Principal Engineer, DWR

PURPOSE OF THIS PRESENTATION

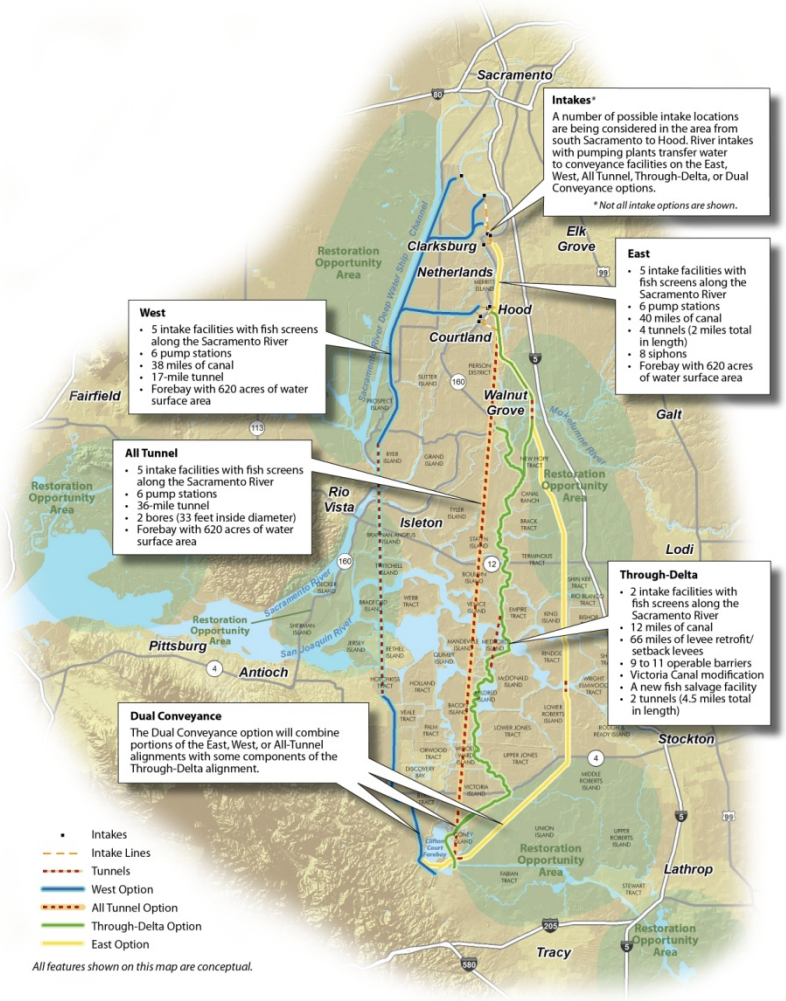
To provide additional information to the California Water Commission (CWC) on the Delta Habitat Conservation and Conveyance Program's Geologic Exploration Activities.

Topics

- What is the project?
- Why is the geologic exploration necessary?
- Intakes, Forebays and Canal options
  - Tunnel option
- Current geotechnical data
- Geology logs, Tunnel profile, and Exploration
- Typical equipment and types of exploration
  - SPT (drill hole)
  - CPT (cone penetration testing)
  - Test Pits
- Funding:

Project Description

- In his letter dated February 28, 2008, the governor requested that four different conveyance options to move surface water from the North Delta to the South Delta be investigated as solutions to help reduce the deteriorating conditions in the Delta.
- Geotechnical field investigations are required to acquire data that could be used to support the preparation of the environmental documentation, feasibility studies, and preliminary engineering needed to evaluate each option.



Project Description (cont'd)

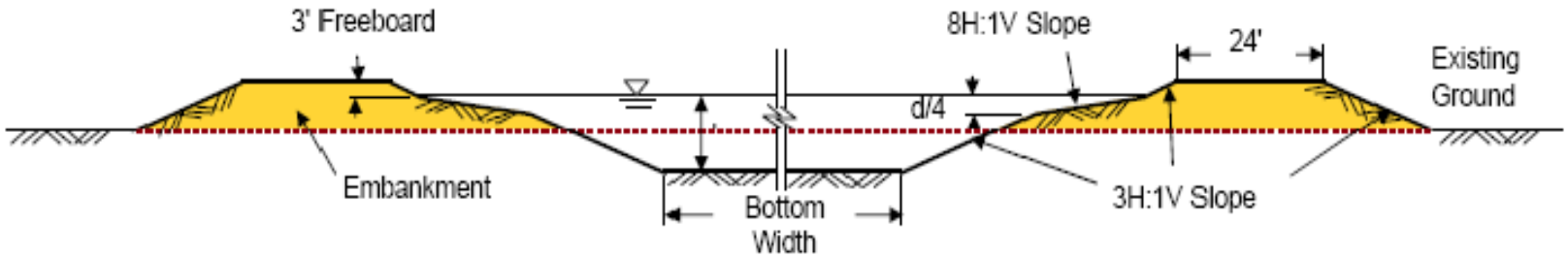
- The Description of the Department's Geotechnical Investigations "Project"

The Geo-technical studies Project is best described in the Notice of Determination for the Final Supplemental Initial Study/Mitigated Negative Declaration dated September 23, 2010 (SCH No. 2010062041):

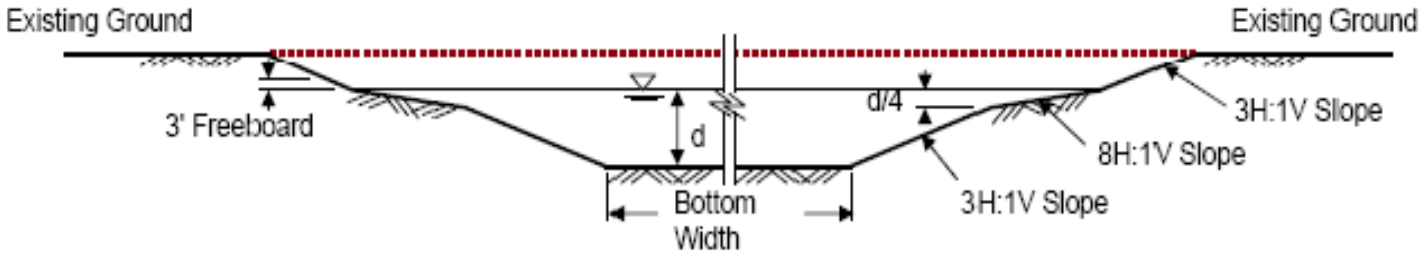
"Project Description

The Department of Water Resources is planning to conduct overwater and land geotechnical borings, perform cone penetration tests (CPT) and dig approximately 30 small test pits in order to test soils in the Sacramento-San Joaquin Delta. DWR will investigate the engineering properties of the soils within a narrow corridor transecting the Delta. The purpose of the investigation is to gather necessary geotechnical information to support the preparation of a draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the proposed BDCP and/or preliminary engineering design for the Delta Habitat Conservation and Conveyance Program. This testing is necessary because of the lack of geotechnical data available to DWR in the Project location."

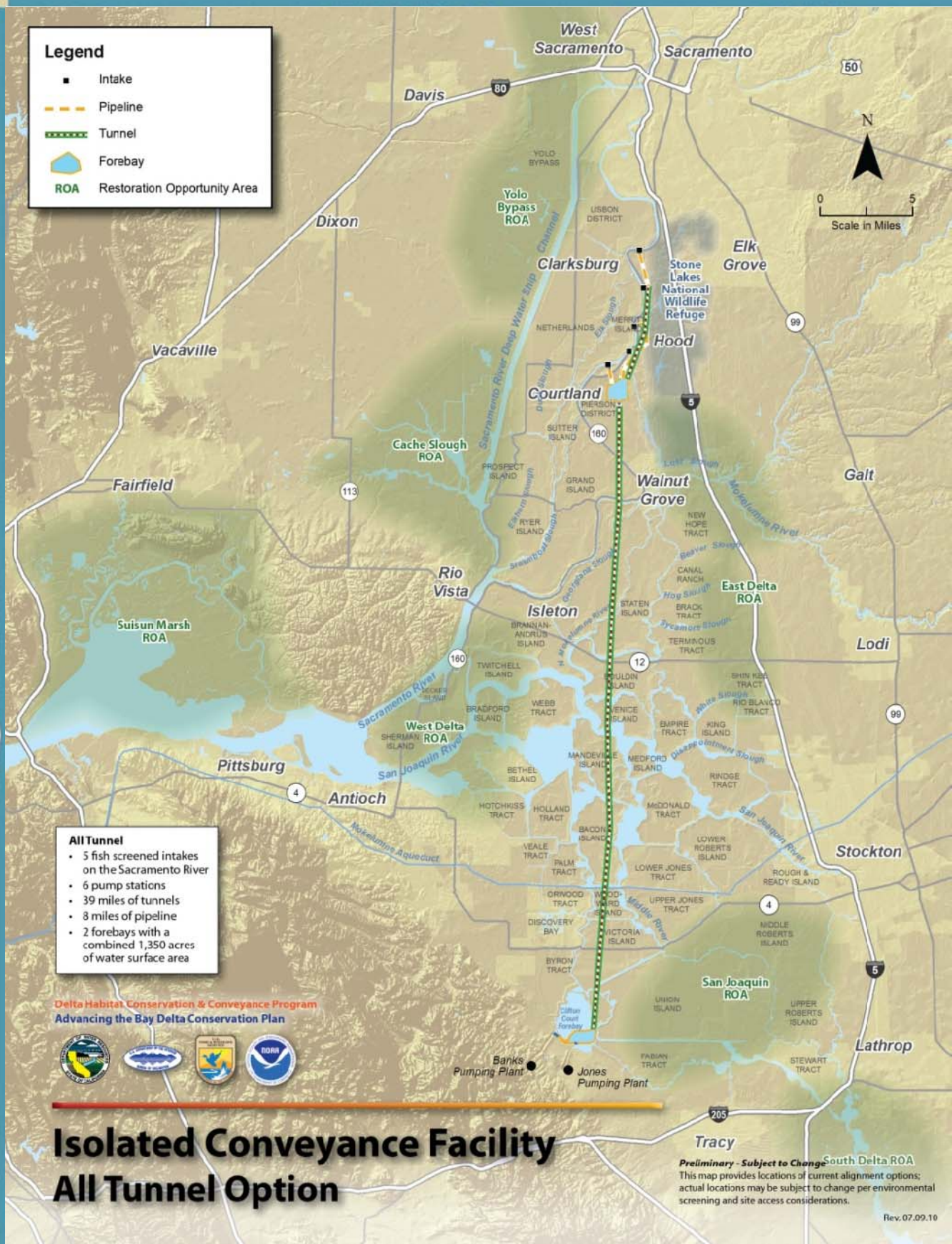
Intakes, Forebay, and Canal Options



Typical Canal Section with Fill Embankment
Not to Scale

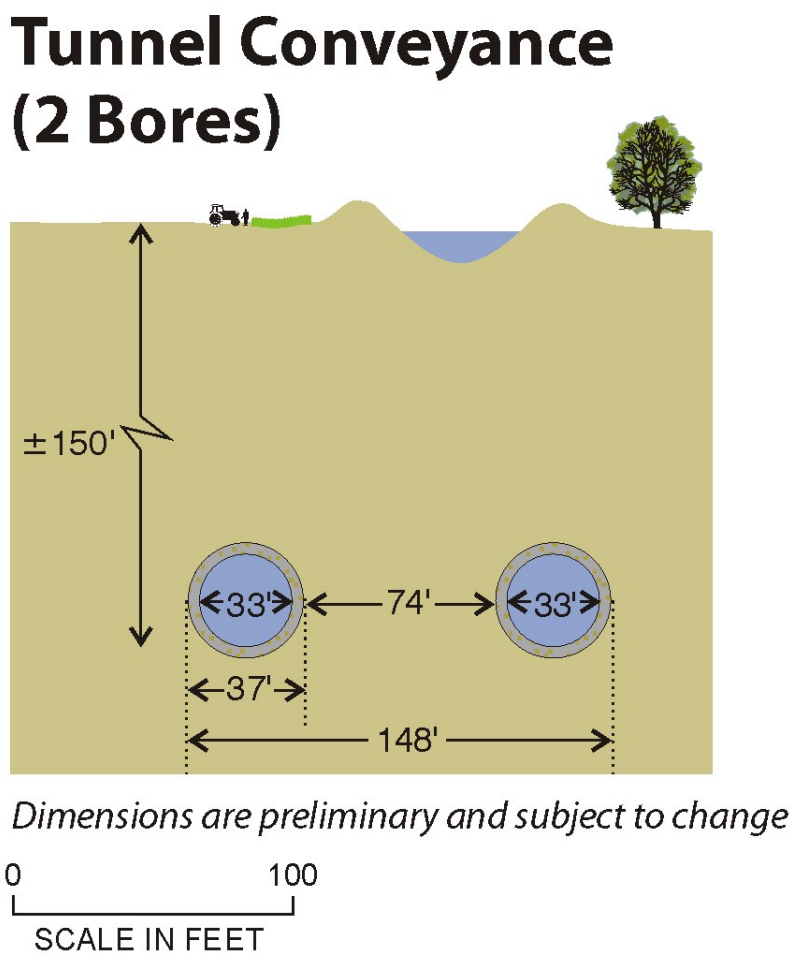


Typical Canal Section with No Fill Embankment
Not to Scale

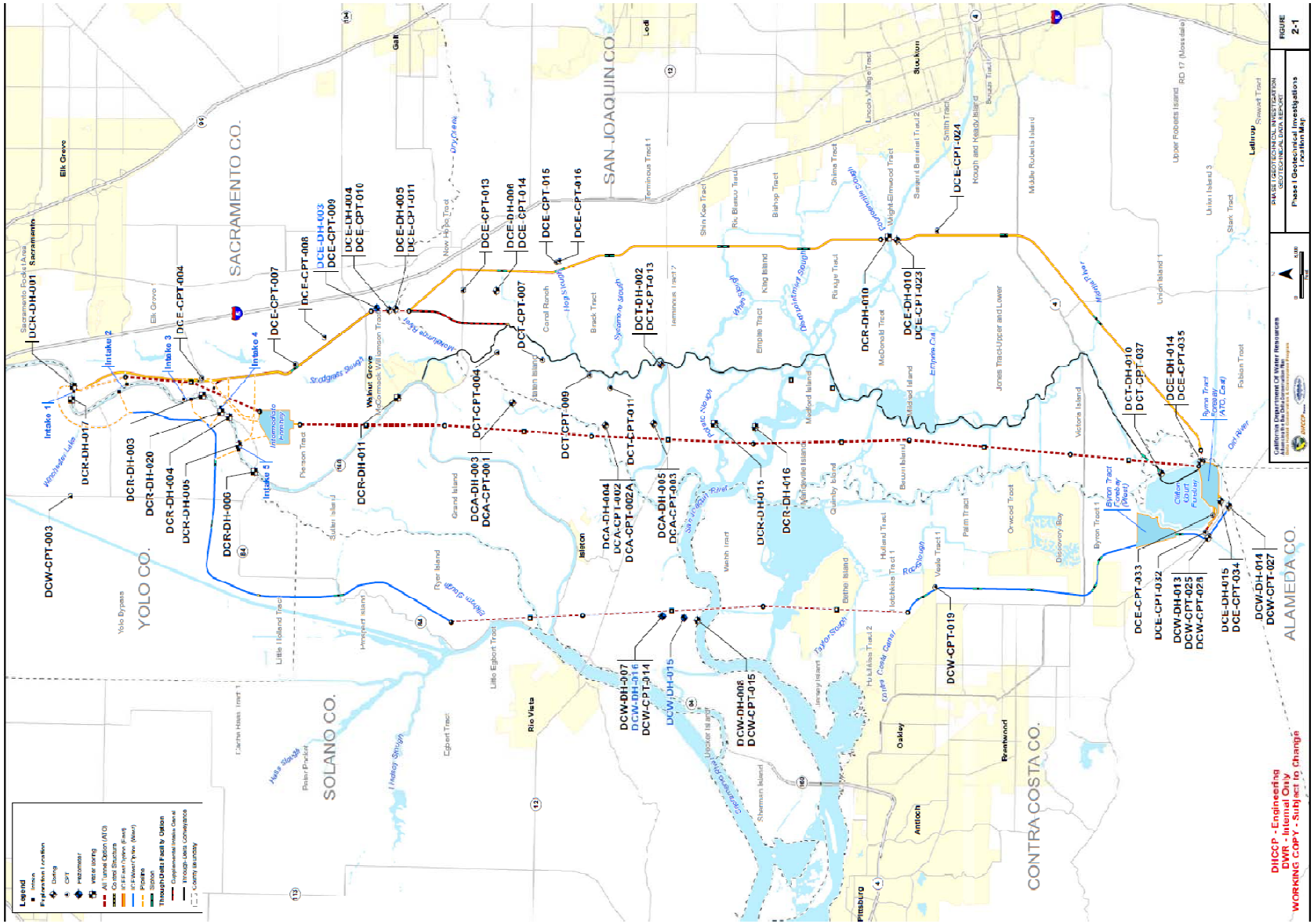


Isolated Conveyance Facility
All Tunnel Option

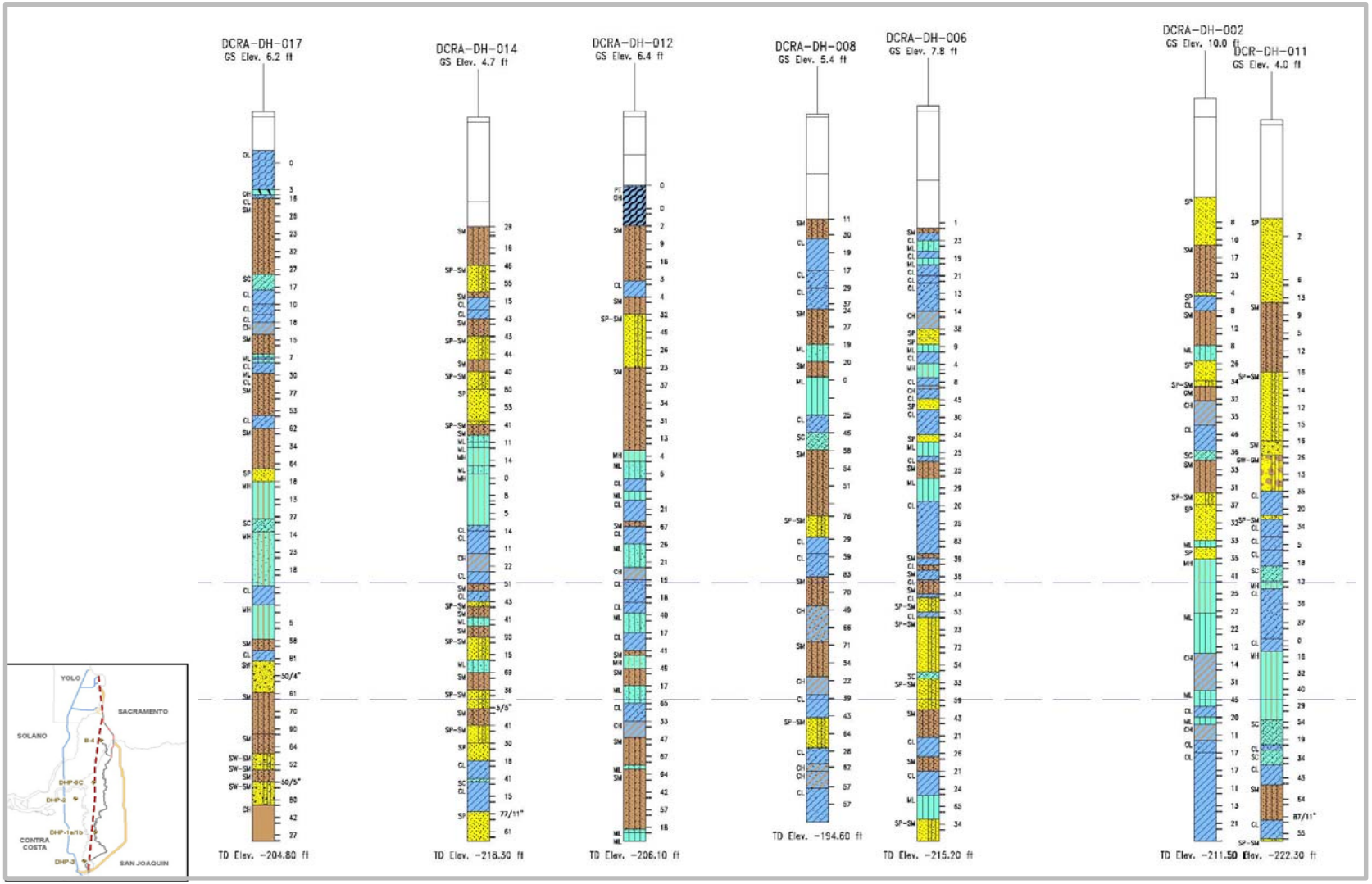
Tunnel Option



Current Geotechnical Data

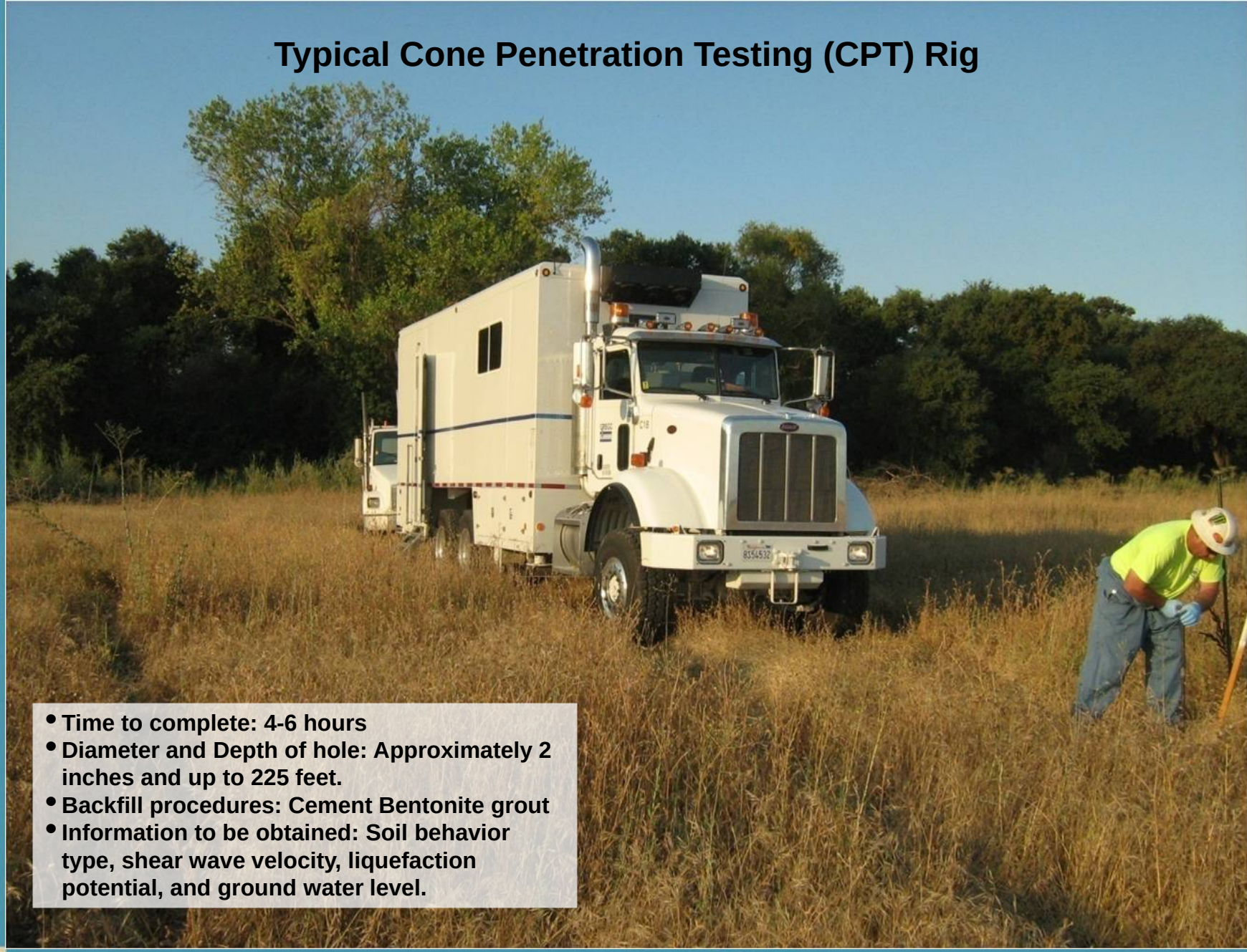


Geology Logs and Tunnel Profile



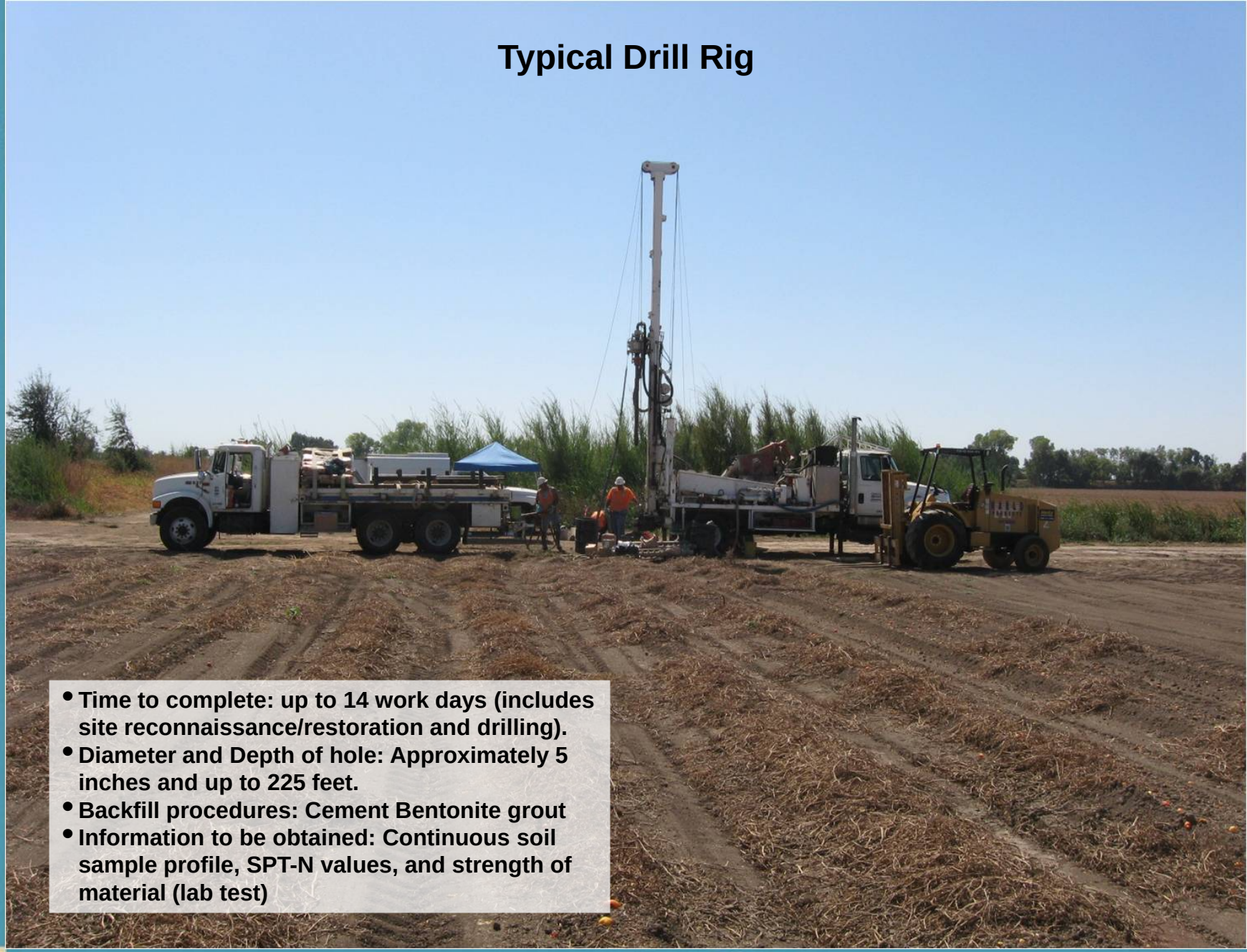
Typical Over Water Drilling Rig

Typical Cone Penetration Testing (CPT) Rig



- Time to complete: 4-6 hours
- Diameter and Depth of hole: Approximately 2 inches and up to 225 feet.
- Backfill procedures: Cement Bentonite grout
- Information to be obtained: Soil behavior type, shear wave velocity, liquefaction potential, and ground water level.

Typical Drill Rig



- Time to complete: up to 14 work days (includes site reconnaissance/restoration and drilling).
- Diameter and Depth of hole: Approximately 5 inches and up to 225 feet.
- Backfill procedures: Cement Bentonite grout
- Information to be obtained: Continuous soil sample profile, SPT-N values, and strength of material (lab test)

Typical Test Pit

- Time to complete: 2-4 hours
- Size of pit: Approximately 3 feet x 12 feet x 20 feet
- Backfill procedures: Refill pit with original material.
- Information to be obtained: Bulk sample, examine and perform density test, view of soil profile.