

Design and Construction of Cruise Berth for Colon 2000, Panama

Viswanath K. Kumar, MASCE, PE, SE

Carlos E. Ospina, MASCE, PE, PhD



PORTS™ 2010

Building on the Past, Respecting the Future

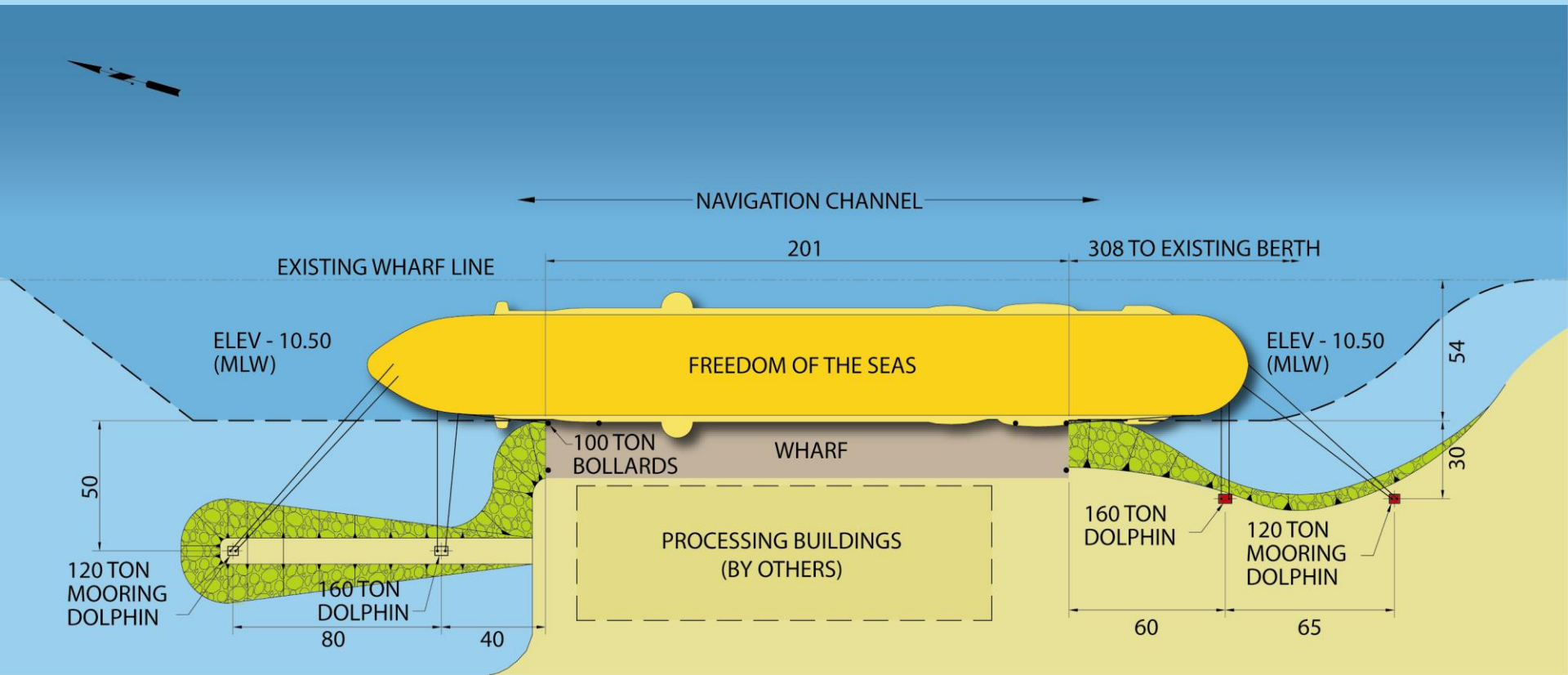
Manzanillo Bay



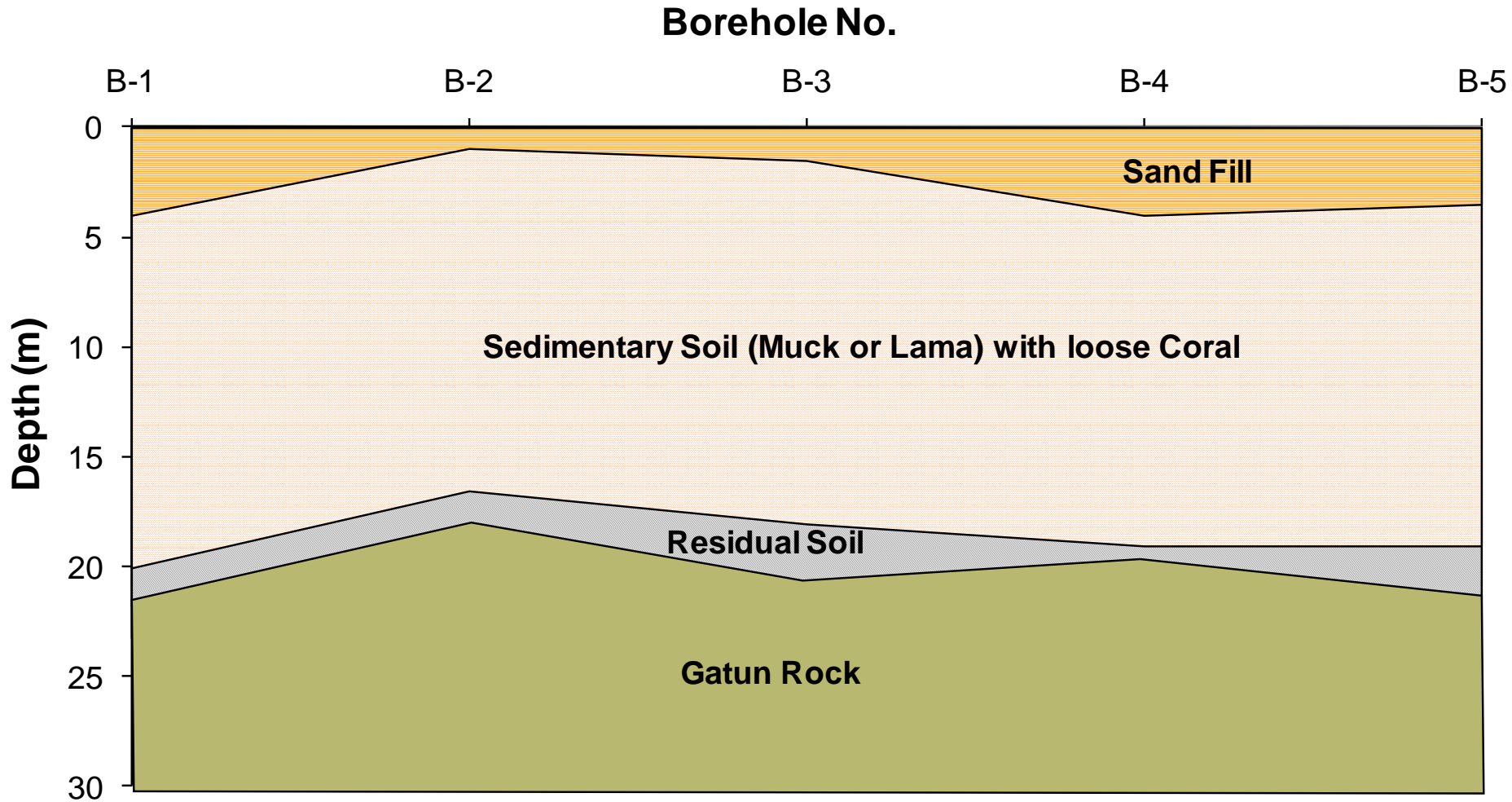
Project Issues

- Marginal Wharf
- Very Poor Soils
- Tight Schedule
- RCCL Interaction
- Dredging by Others
- Construction Costs

Site Plan



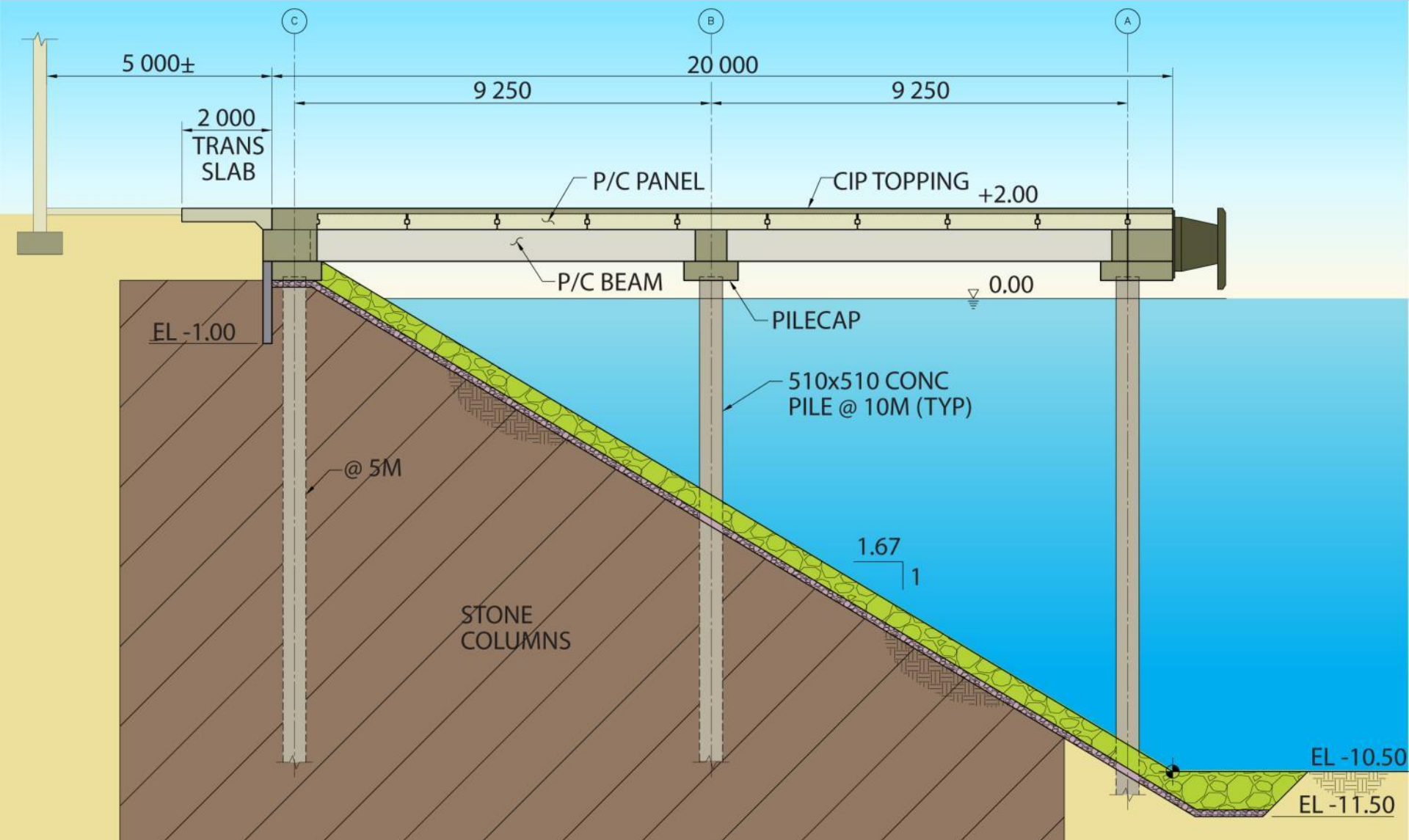
Soil Profile



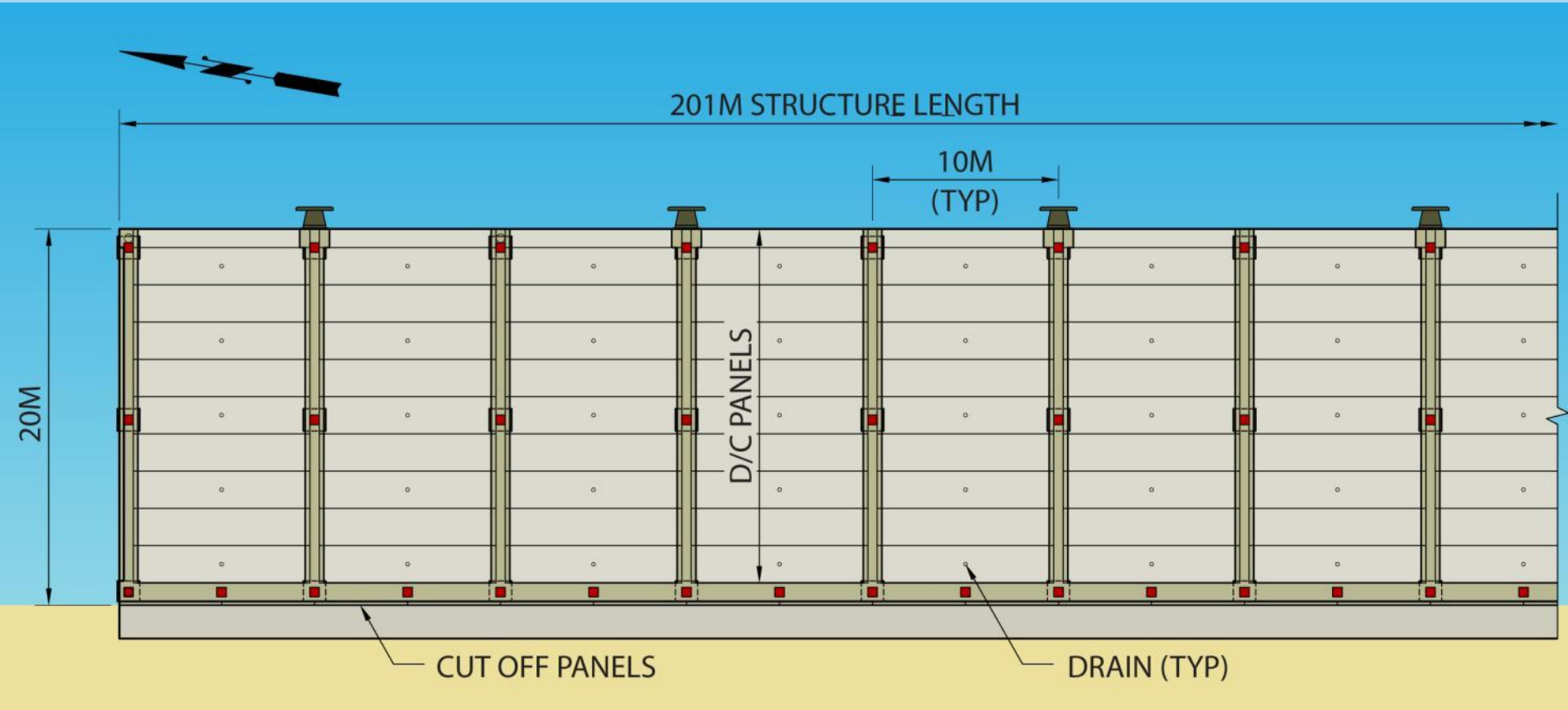
Wharf Alternatives

- Sheet Pile Bulkhead Wharf
- Open (Pile-Supported) Wharf

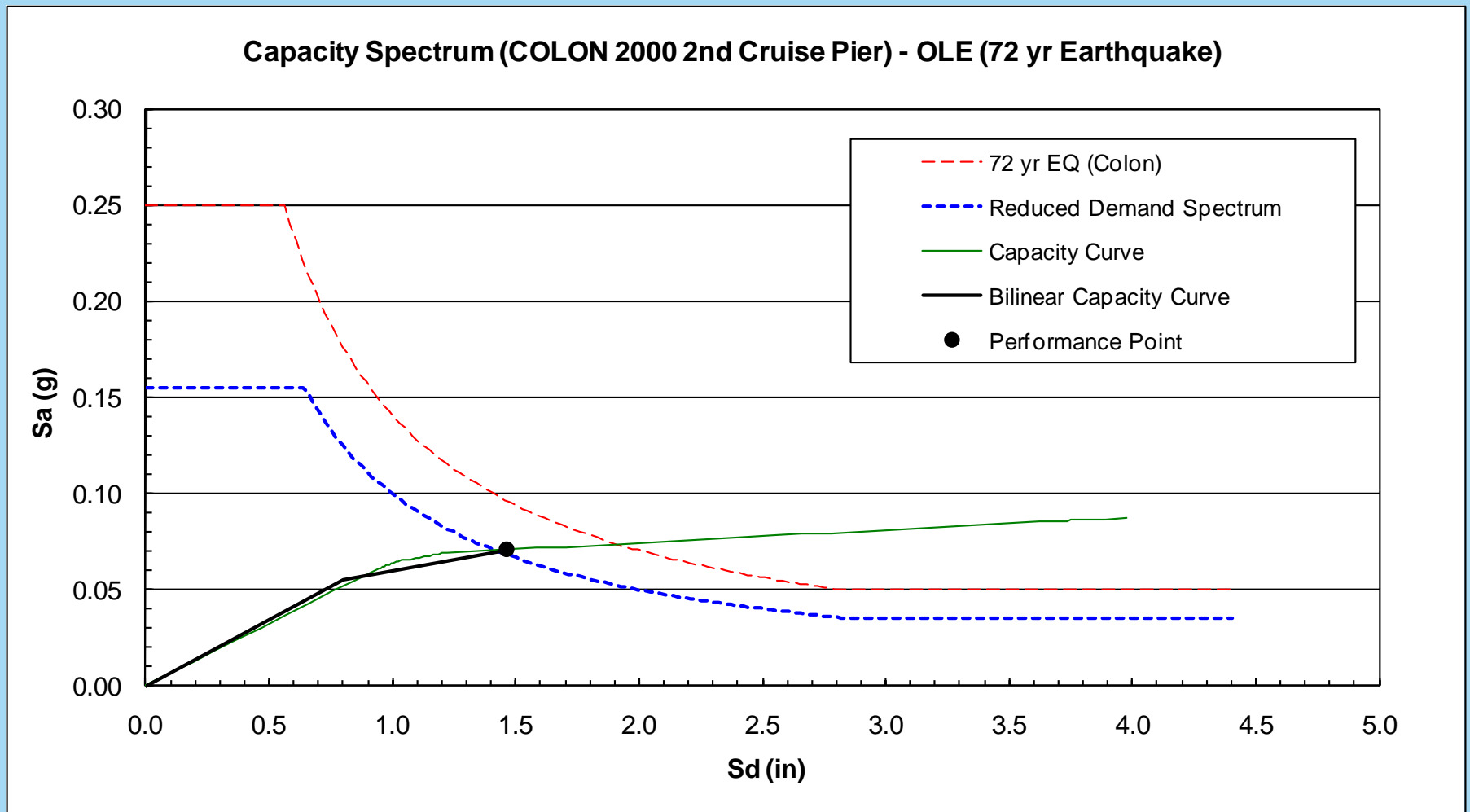
Wharf Cross-Section



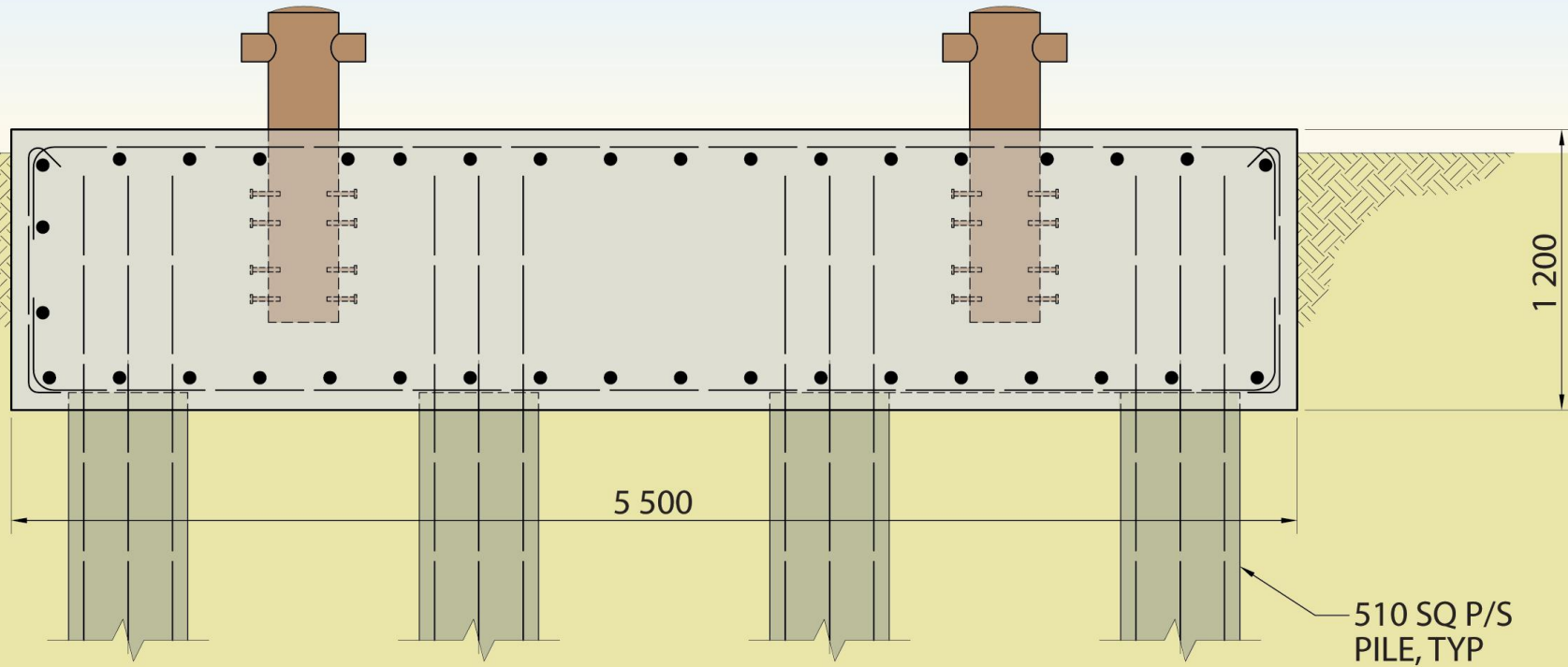
Wharf Framing Plan



Seismic Design



Mooring Dolphins



Stone Columns



PORTS TM *Building on the Past, Respecting the Future*
2010

Pile Driving



PORTS TM *Building on the Past, Respecting the Future*
2010

Pile Caps



Slope Dredging



Deck Panels



PORTS™ *Building on the Past, Respecting the Future*
2010

CIP Topping



PORTS™ *Building on the Past, Respecting the Future*
2010

Completed Wharf



PORTS TM *Building on the Past, Respecting the Future*
2010

Mooring Dolphins



Open for Business – December 2008



PORTS TM *Building on the Past, Respecting the Future*
2010