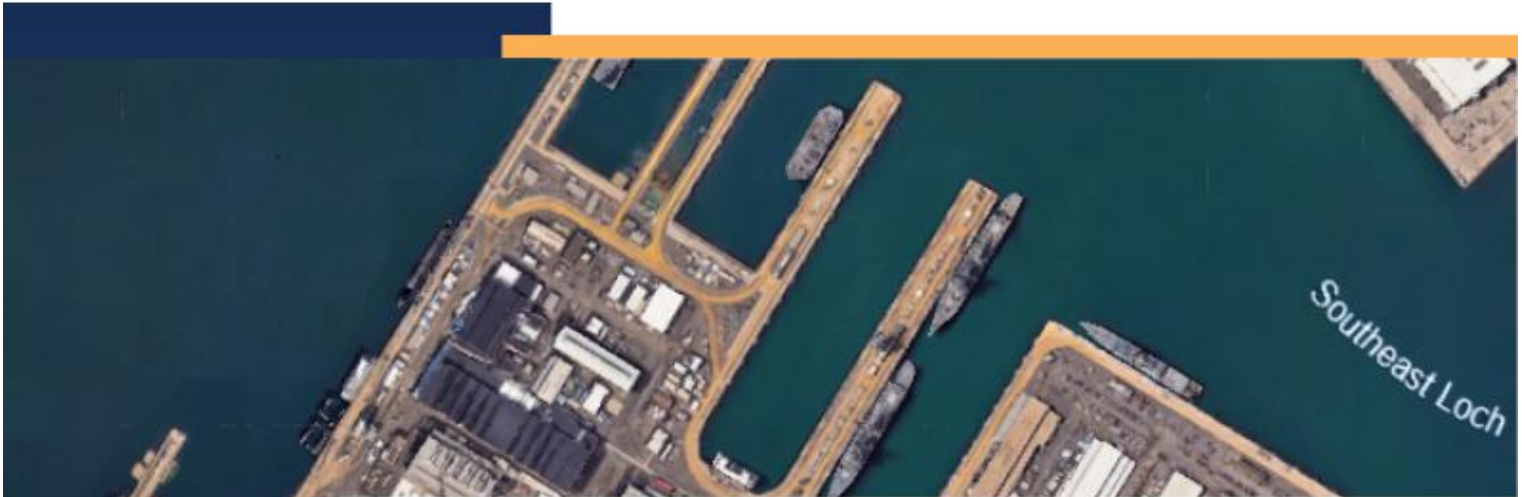


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BENEATH THE SHIPBUILDING BOOM



SHIPYARDS IN FOCUS: FROM HAWAII TO SOLANO

From the Pacific to the Bay Area, shipbuilding is back in focus. In Hawaii, the Navy is constructing Dry Dock 5 at Pearl Harbor Naval Shipyard—a \$3.4 billion project designed to support nuclear-powered submarines and replace the outdated Dry Dock 3. It's the first new dry dock built there since 1943 and is expected to serve for 150 years.¹

That momentum extends to California, where California Forever has proposed the Solano Shipyard, a 1,400-acre shipyard², expected to create more than 10,000 jobs in its first decade.³ Both projects reflect a broader effort to reduce reliance on China's dominant shipbuilding sector and strengthen U.S. manufacturing and maritime capabilities. As these large-scale coastal facilities take shape, they require smart site planning, thorough environmental reviews, and resilient ground engineering to support their long-term success.

"Projects like Pearl Harbor and the Solano Shipyard don't come around often—they are the kind that shape not just coastlines and local economies, but significantly influence the trajectory of our nation's history," says G. 'Neel' Neelakantan, PhD, PE, GE.

IN THIS NEWSLETTER

- **Renewed National Focus on Shipyards and Ports**
- **Industry Snapshot**
- **Key Site Evaluations and Considerations**

INDUSTRY SNAPSHOT: RISING TIDES, RISING STAKES

Federal agencies project that sea levels along U.S. coastlines will rise by about one foot by 2050, significantly increasing the risks of flooding and requiring upgrades for storm and wastewater systems.⁴



The Port of Oakland's Sea Level Rise Vulnerability Assessment reinforces these concerns, highlighting that critical infrastructure—including roads, electrical systems, and cargo operations—could be impacted even with moderate sea level increases.⁵

For engineers and planners, this means prioritizing adaptive design strategies: elevating site grades, using flood-resistant materials, upgrading drainage, and designing flexible utility systems. Long-term monitoring and proactive planning are essential to ensure port facilities remain safe, functional, and economically resilient as conditions change.



SITE CHALLENGES IN MODERN SHIPYARD DEVELOPMENT

Behind every ambitious shipyard project lies a complex and critical challenge: understanding what's happening below ground. Whether on the coastline or a riverbank, shipyard development brings a unique set of geotechnical and environmental complexities.

KEY CONSIDERATIONS IN COASTAL AND SHIPYARD SITES

Soft Ground & Soil Behavior

- Coastal sites often contain loose, compressible, or liquefiable soils. These require detailed subsurface investigations and may need deep foundations, ground improvement, or surcharging to support heavy infrastructure and provide long term stability.

Seismic Risk

- In high seismic zones, we assess hazards like liquefaction, lateral spreading, and strong ground motion. Site-specific response analyses inform the design of foundations, retaining systems, and lifeline infrastructure.

Sea-Level Rise & Flooding

- We design for future water levels, not just today's. That means accounting for overtopping, drainage capacity, and continuous access during storm events. Elevation, redundancy, and resilience are key.

Hydrology & Sediment Transport

- Understanding water flow—velocity, direction, sediment load—is critical. We analyze how much runoff the site receives, potential for scour, and risks from sediment deposition around intakes, docks, and channels.

Legacy Contamination

- Many shipyard sites sit on formerly industrial land. We conduct Phase I/II ESAs, soil and groundwater sampling, and coordinate remediation strategies to address hazardous materials and meet regulatory thresholds.

Regulatory Complexity

- Permitting spans multiple agencies and can stall projects if not managed proactively. Early coordination with local, state, and federal regulators is essential for timely approvals and informed design.

Site Evaluation Approach

- We research public records and gather field data: borings, CPT, geophysics, and hydrogeologic testing. These studies reveal fault zones, groundwater behavior, contamination risks, and provide the baseline for environmental and geotechnical design.

ENGEO ACROSS THE PACIFIC: PORTS & SHIPYARDS

[Download Our Port & Shipyard SOQ -->](#)



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