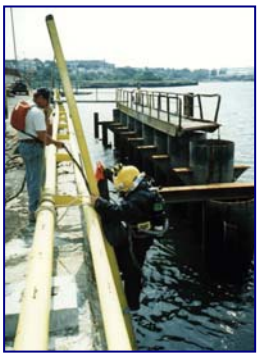
Ocean and Coastal

a COWI USA Company



Overview

Ocean and Coastal Consultants (OCC) is an engineering consulting firm that specializes in providing Coastal and Port Engineering. **OCC's** services include underwater investigations with one of the largest contingencies of Professional Engineer and Engineer Divers in the United States. **OCC** provides unique expertise for solving complex problems in the coastal and offshore environments. This expertise includes engineering planning, design, and construction management for port and harbor development; harbor structure inspection and rehabilitation; design of coastal structures such as piers, bulkheads, breakwaters, groins, and jetties; design and construction oversight of dredging and dredged material disposal operations including beneficial use.

OCC provides complete engineering and planning services for waterborne transportation projects. **OCC** prepares ADA compliant water taxi and ferry landing designs.

OCC provides evaluation and assessment of ocean wave climatology, wave and ice forces on marine structures, storm surge prediction, wave refraction analyses, and coastal and estuarine sedimentation and erosion studies. **OCC** has extensive experience in applying for flood insurance rate map revisions, and is currently performing coastal flood insurance remapping studies for FEMA in Maine, Massachusetts, and Connecticut.

OCC provides complete project permitting services for the preparation of Federal, State and local regulatory permits related to dredging and coastal construction. **OCC** draws on the extensive marine construction experience of the professional staff in preparing constructible project plans and specifications and in the development of realistic opinions of probable costs. **OCC** typically maintains approximately 100 active projects with construction values ranging from $10,000 to more than $40,000,000.

OCC has twenty-three Engineer Divers and ten of those are Professional Engineer Divers. This gives **OCC** an advantage in understanding the analysis and behavior of waterfront structures. **OCC** has performed underwater inspection analysis and rehabilitation design for a significant number of timber piers, relieving platforms, bulkheads, and seawalls throughout the eastern seaboard and in Aruba. **OCC** understands the process of evaluating waterfront structures, their unique function, the processes by which they age, and the forces imposed on them by man and nature.

SERVICES

- Underwater Investigation
- Dredge Design / Disposal
- Coastal Engineering
- IT/GIS Database Development
- Structural Engineering
- Regulatory Services
- Construction Administration
- Coastal Resource Evaluation

ADDITIONAL INFORMATION

Ocean and Coastal Consultants is a growing business with talented individuals focused on coastal and marine engineering. The OCC Staff takes pride in client service and "Getting the Job Done". Visit our website at www.ocean-coastal.com.

Massachusetts

50 Resnik Road, Suite 201

Plymouth, MA 02360

Connecticut

35 Corporate Drive, Suite 1200

Trumbull, CT 06611

New Jersey

20 E. Clementon Road, Suite 201N

Gibbsboro, NJ 08026

GETTING THE JOB DONE

Underwater Investigation

OCC performs underwater investigations of structural components of a variety of marine structures. OCC employs ten P.E. Divers, seven Engineer Divers, two Scientific Divers, and one Commercial Diver. Investigations are performed for piers, wharves, relieving platforms and seawalls, steel and timber bulkheads, revetments, intake and outfall structures, and a variety of other structures found in the marine environment. These structures are exposed to corrosive and abrasive environments and require periodic review and repair or replacement. Information taken from the underwater investigation is used to evaluate the condition of the structure and is used in the design of repairs. OCC conducts routine inspections for rapid assessments as well as detailed inspections for rehabilitation design or demolition and reconstruction.

Dredge Design / Disposal

Dredge Design Services cover a wide range of services including obtaining the contours of a harbor or river bottom (bathymetry) and developing a new design dredge profile. OCC obtains bathymetric data, develops the profiles, calculates dredge volumes, and prepares the Contract Documents required by regulatory agencies for permitting and Owners who will be soliciting bids from dredging contractors. OCC also provides the Owner with assistance during the bidding process and field engineering and construction administration services during the dredging work. Dredged material must be tested for potential contamination and these results affect disposal options and cost. OCC can prepare Sampling and Analysis Plans, permit applications, and coordinate field sampling and testing. Recommendations and cost estimates for disposal of dredged material also considers potential cost savings from beneficial use.

Coastal Engineering

The shoreline is a dynamic environment where sand and sediment are constantly eroding or accreting. Structures designed along the waterfront must withstand many forces associated with wind and wave action. OCC has a staff of five coastal engineers that are responsible for determination of wind and wave forces acting on the waterfront structure. State-of-the-art computer and mathematical numerical modeling are used to predict offshore and coastal wave environments, sediment transport, and shoreline changes. Coastal processes analyses include the assessment of littoral drift, erosion and sedimentation patterns, storm damage, inlet and shoreline management plans, FEMA flood studies, and preparation Letters of Map Revision (LOMR). OCC has also performed many engineering designs for beach nourishment, coastal structures for shoreline stabilization and erosion control, port and harbor facilities, and marinas.

IT/GIS Database Development

Waterfront structures require routine underwater inspections, maintenance and repairs because they are exposed to the harsh marine environment. These critical structural components are below the low tide level and can be easily overlooked. OCC uses facilities management tools to track many components of a waterfront facility. These components include structural elements, regulatory permits, and maintenance inspection schedules. OCC is on the leading edge of this technology using web-based databases and Geographic Information Systems (GIS), which enable key facility personnel to access information or receive automated notices to track the status of waterfront structures they rely upon.

Structural Engineering

OCC has a staff of Structural and Marine Engineers that have specialized training in the inspection, design, repair, and construction of marine structures including geotechnical foundation design. OCC engineers understand the significant wind and wave forces on marine and port structures and the effect of the marine environment on timber, steel, and concrete components. The Structural Engineer is responsible for performing the structural analysis and design of a project, and working closely with the drafting staff to prepare construction documents and technical specifications. The Structural Engineer provides review of the design under construction and coordinates with the OCC Construction Engineer.

Regulatory Services

In addition to the professional design and construction administration services, OCC provides regulatory support to owners of waterfront projects. Generally, dredging, new structures or structures in need of repair will be required to have Federal, State, and sometimes Municipal environmental permits. OCC's design concepts take into account these environmental regulations and will incorporate into the design environmental components that help enhance the in-water habitat. OCC works closely with regulatory agencies and ecological consultants to prepare an application that meets the owner's needs and also complies with regulatory guidelines. Field work includes surveying of the waterfront property and development of conceptual designs that meet the owner's objectives while complying with regulations. Work also includes preparing and presenting designs in a public forum.

Construction Administration Services

OCC performs Construction Administration that provides the Owner of a waterfront construction project with a representative who is experienced in waterfront construction. The Construction Engineer develops cost estimates that take into account the variables of working on the shoreline. These include proper scheduling of tasks that are tidal dependent and work that must be performed underwater. The Construction Engineer performs quality assurance reviews of the work in progress to confirm the construction complies with the design in coordination with the Project Engineer. OCC reviews foundation pile installation, sheet pile installation, concrete reinforcing steel and concrete placement. Other components of Construction Administration include review of shop drawings for structural steel and reinforced concrete, conducting project meetings, and then preparing and distributing meeting minutes. The Construction Engineer works closely with the Contractor and the Owner to resolve construction related issues.

Coastal Resource Evaluation

OCC performs Coastal Resource Evaluations that include determination of physical and biological coastal resources that may be impacted by construction, development, or dredging. OCC performs field delineation and monitoring of physical coastal resources such as beaches and dunes, and biological resources such as shellfish habitat and coastal vegetation, and determines the functional values of these physical and biological features. OCC strives to develop concepts and designs that improve or enhance the shoreline. OCC works closely with Municipal, State, and Federal regulatory agencies to develop designs that offset or mitigate the effects of waterfront construction.