

# Inlet Overhaul

SKANSKA IS REPLACING A BRIDGE ON THE ATLANTIC COAST FOR THE DELAWARE DOT.

**W**hen concerns arose over the safety of the Indian River Inlet Bridge on Delaware's Atlantic Coast, the state's department of transportation (DelDOT) called on Skanska USA Civil Southeast to perform design/build for a new bridge. Because of extensive sediment scouring, the original bridge's supports were exposed and undermined, DelDOT says.

Skanska was awarded the project in June 2008, and it will be completed in 2011, Senior Project Manager Jay Erwin Jr. says. The bridge design is being managed by Construction Manager Peo Halvarsson, who is working closely with the design manager, Ken Butler of AECOM.

The structure will be 2,600 feet long consisting of a three-span cable-stayed bridge with a 900-foot clear span from structure to structure with

flanking approach spans, Erwin says. The cable-stayed superstructure consists of a cast-in-place (CIP) concrete edge girder, with both precast and CIP concrete transverse floor beam, and a CIP concrete deck. The four approach spans, on each side of the cable-stayed unit, are 106 feet long and consist of 69-inch deep pre-stressed concrete bulb-T girders. The design utilizes a single mast pylon configuration and a semi-harped stay configuration. The foundation consists of 290 36-inch-square piles to be manufactured by Bayshore Concrete Products, a subsidiary of Skanska USA Civil Southeast Inc. Skanska previously has used these types of piles on the Escambia Bay Bridge in Florida.

Erection of the cable-stayed bridge will be accomplished using a combination of falsework and form travelers, Erwin explains. The back span

*Skanska USA Civil  
Southeast - Indian River  
Inlet Bridge*

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- *Site: Rehoboth Beach, Del.*
- *Employees: 15 (Skanska)*
- *Scope: Four-lane bridge construction*

*"The wind blows consistently in  
... the mid-Atlantic, and that  
creates numerous challenges."*

*- Jay Erwin Jr., senior project manager*



» Skanska split the Indian River project into two parts to ease complications.



and approximately 180 feet of the main span will be CIP concrete on a falsework system; the remaining portion of the main span will be erected in a balanced cantilever method, using CIP concrete form travelers. This approach will save time on the overall construction schedule as the back spans can be constructed at the same time. Construction will occur on both sides of the inlet, utilizing two form travelers working concurrently on both the north and south headings.

The superstructure on the main span is supported by 152 stays, which are provided by cable-stay specialist Freyssinet USA. The Indian River Inlet Bridge has two vehicle lanes in each direction and one pedestrian and bicycle lane.

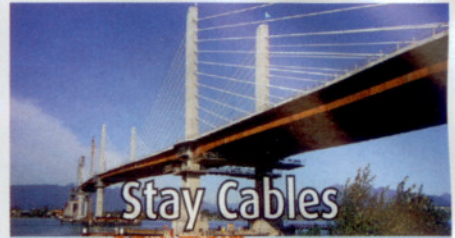
"Under the new design, the minimum vertical clearance will increase from the existing 35 feet to 45 feet over the navigational portion of the inlet," DelDOT explains. "The bridge will

## Preserving State Parks

On the north and south sides of the Indian River Inlet is the Delaware Seashore State Park, so the Delaware Department of Natural Resources also is involved in the project. DelDOT says the bridge project has spurred proposals for extensive park enhancements, including:

- Day-use facility improvements
- Campsite improvements, including laundry facility
- New and enhanced bath houses
- Park office
- Contact stations
- Additional recreation areas
- New lighting and landscaping
- Handicap access to new bridge
- Marina improvements

» The project will use foundation that consists of 290 36-inch square piles.



Stay Cables



Prestressing



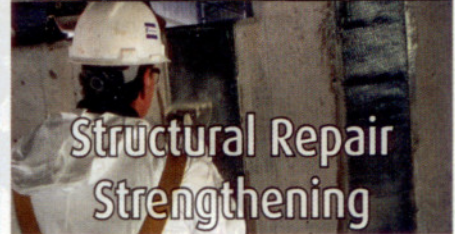
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Sustainable Technology



have two 12-foot wide travel lanes, a 10-foot wide outside shoulder and a 4-foot-wide inside shoulder in each direction. Additionally, one 12-foot-wide sidewalk will be accessed from the east side of the bridge. The reduced embankment limits will result in the elimination of massive embankments and will provide an open view."

Erwin says an interesting feature of the bridge is its sand bypass system. "It consists of a high-density polyethylene pipeline and pumping station that will be used to pump sand from the north side of the inlet to the south side to replenish the sand that erodes away due to the normal currents of the ocean," he explains.

### Bridging Challenges

The area's volatile weather and the sheer volume of the project present some challenges, Erwin says. To better manage the project, Skanska split the project into two halves – north and south. "[The halves] are supported by a completely separate set of resources, including management, materials and equipment," he explains. "By doing this, this will allow us as a contractor to improve upon the

## Big Thanks

"Skanska Civil Southeast congratulates the Delaware Department of Transportation on a very fluid procurement process," Jay Erwin Jr. says. "The way in which DeIDOT handled this process is world-class."

state's schedule by a considerable number of months." The company also is working closely with DeIDOT, which has a full-time staff onsite. "We meet regularly to discuss our schedules and four-week look-ahead schedules," Erwin states. While this is the first time Skanska has worked with DeIDOT, he notes that Bayshore Concrete Products has provided pre-cast elements for the state for many years.

As for the unpredictable weather, Erwin says the project just has to keep moving. "The wind blows consistently in this area of the mid-Atlantic, and that creates numerous challenges with operations of cranes and lifting of materials," he states. "The weather is what it is; we just deal with it. We're just working throughout the year."

## Delaware Transportation

"The mission of the state of Delaware's Department of Transportation is to provide a safe, efficient and environmentally sensitive transportation network that offers a variety of convenient and cost-effective choices for the movement of people and goods," the department says.

DeIDOT has responsibility for 90 percent of the state's roads and bridges, and it oversees the state transit system and division of motor vehicles, it says. The department has 14 locations throughout the state, including administrative offices, toll plazas, public safety buildings and maintenance sites in four districts, it says.

The department is split into 10 divisions, including office of the secretary, Delaware Transit Corporation, finance, human resources, maintenance and operations, motor vehicles, planning, public relations, technology and support services and transportation solutions.

DeIDOT's secretary, Carolann Wicks, has been at the head of the department since 2006, and she began her career in the department in 1982 as an entry-level engineer, DeIDOT says. She manages 2,600 employees and an annual budget of nearly \$1 billion. ♦



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