

Your Industry's Hands-On Resource

Concrete today

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September 2009

Delaware's Indian River Inlet Bridge Project

PILES IT ON

PLUS:

**Doka's XClimb 60 Formwork Debuts
at Wachovia Center**

**One World Trade Center
Plaza Takes Shape**

**UC Berkeley Team Paddles to Victory
in Concrete Canoe Competition**

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Just for Fun

Hidden somewhere in this issue is a pair of bolt cutters that looks like this:



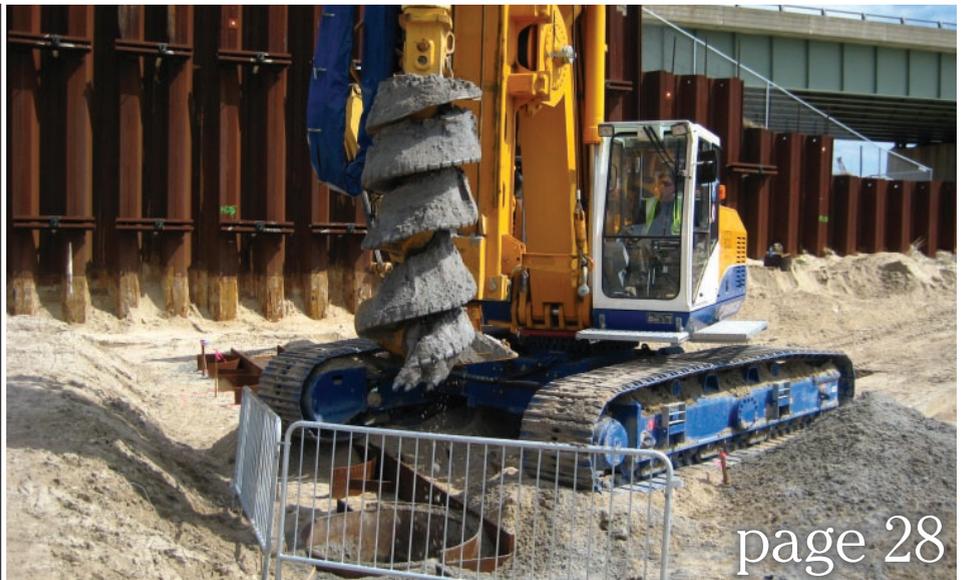
All readers who fax our office with the correct location will be entered into the drawing to win a \$25 gift certificate.
Fax: 407-816-9373

It could be hidden anywhere—in a feature article, in an advertisement, upside down, at the end of a sentence, or even within an order form.

The winner of a \$25 gift certificate for July's Just for Fun contest drawing is:

Tammy Garnett
Hopkins Sand & Gravel Inc.

Congratulations, Tammy!



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Concrete Canoe Competition

FUNNY PHOTO OF THE MONTH—

Send in your funny photos to editor@concretetoday.com



About the Cover

Contracted by the Delaware Department of Transportation, Skanska USA recently put in place pylon foundations that will be the first permanent infrastructure for the new Indian River Inlet Bridge in Dewey Beach, Delaware. Photo Courtesy of Skanska USA Civil Southeast.

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WRITTEN IN STONE



In these challenging economic times, more than ever it is imperative to invest wisely in the future of your business. Joining your industry-related association is a smart move.

By definition, an association is "a group of persons banded together for a common purpose." People join associations because they want to work together on a common cause or interest.

Associations have deep roots in our nation's history. Carrying on British tradition, the first settlers formed guilds to address common challenges and support each other. In 1830, after touring the United States, French statesman Alexis de Tocqueville remarked that the new nation seemed to be succeeding so well at democracy because inhabitants of all ages, all stations of life and all types of disposition were forming associations. In 2004 an estimated 86,054 trade and professional associations existed. These organizations include local, state, regional, national and international associations.

Associations are invaluable resources to concrete industry professionals, whether your business is concrete paving, concrete pipes, ready-mix or precast. Associations provide many benefits and networking opportunities to their members:

- Training and education;
- Standards, codes of ethics and certifications;
- Conventions, conferences, meetings and workshops;
- Advocacy and legislative involvement whenever new rules and regulations relating to the profession are being developed;
- Newsletters, bulletins and journals with information of interest to members;
- Searchable member directory;
- Education for the public about the industry.

CT supports the efforts of associations and recognizes their essential role in the concrete industry. In addition to our "Association Aggregates" department, which brings readers the latest association news and developments, we provide a forum for association leaders in our "Concrete Factors" department. This month, the American Coal Ash Association (ACAA) addresses proposed Environmental Protection Agency regulations for the disposal of coal combustion products and the crippling effect this could have on cement and concrete production. ACAA has been working closely with industry groups to inform and guide the EPA and legislators of the environmental and economic benefits at risk. *CT* invites all associations connected to the concrete industry to submit articles for consideration.

Take a few moments and check out your industry-related association online. If you like what you see, become a member and start reaping the benefits today.

Also in this issue, *CT* provides coverage of several large projects. The massive concrete pour for the Indian River Inlet Bridge project in Delaware is a cooperative effort between the Delaware Department of Transportation, Skanska USA, Freyssinet and Bayshore Concrete. *CT* also reports on this summer's foundation pour for the World Trade Center, a milestone event. Additionally, the Wachovia Center project in Norfolk, Virginia, is on schedule, thanks to the efforts of the concrete subcontractor and Doka, the form provider. These types of concrete projects are a boost, not only to the economy, but also to the public's morale. A person working at a job site is a welcome sight, indeed.



Indian River Inlet Bridge Project Piles It On

Skanska USA Civil Southeast recently put in place pylon foundations that will be the first permanent infrastructure for a new Indian River Inlet Bridge (IRIB) in Dewey Beach, Delaware.

The Delaware Department of Transportation (DelDOT) hired Skanska in 2008 to build the new bridge to replace the existing one. AECOM is

the designer. A requirement for the design-build bridge is to span the inlet entirely, providing no supports in the inlet. Skanska awarded the stay cable and post-tensioning contract to Freyssinet.

Installation of the pylon foundations involves utilizing 291 pre-stressed concrete piles, each about 120 feet long. A large crane and hydraulic hammer

will be used to pound the concrete piles down through three levels of soil.

Jay Erwin Jr., project executive for Skanska USA Civil Southeast, described the square piles as unique and noted that similar piles were used several years ago for a cable stay bridge in Escambia Bay, Florida.

“These are very large-capacity displacement piles capable of supporting



Photos courtesy of Skanska, DelDOT, and Freyssinet

Stay Cable Specifications

The Skanska solution for the Indian River Inlet Bridge replacement is a two pylon, three-span stay cable bridge with a central span of 950 feet and two side spans of 400 feet. The concrete deck is supported from the pylons by 152 stay cables arranged in two planes. Stay cables contain between 19 and 60 0.62" diameter grade 1860 MPa Freyssinet monostrands. Each seven-wire strand is coated with wax and encapsulated inside a robust HDPE sheath. The deck level stay anchorages are located under the edge beams and pass through the concrete in steel formwork tubes. The tower anchorages are located inside steel anchor boxes within the concrete pylon legs. Stressing will take place at the deck anchorages that are also adjustable (ring nut).

All stay cables will be provided with vibration suppression systems using Freyssinet internal hydraulic dampers utilizing viscous damping technology.

All exposed steel elements will be stainless steel.

Freyssinet's role includes the design of the stay cables and stay cable vibration suppression systems, testing, development of all stay cable fabrication, installation, erection, tensioning and adjustment means and methods. Freyssinet also is responsible for the onsite installation of stay cables and damping systems.

The bridge approaches (425' South and 425' North) are 106'-3" precast prestressed I-girders with a cast-in-place (CIP) non-prestressed deck. The 1,850-foot main span unit is comprised of CIP on falsework side spans, with a portion of the main span CIP on falsework and the balance of the main span a CIP cantilever segmental, using custom-designed form travelers. Freyssinet is furnishing its C Range post-tensioning systems with polypropylene duct, permanent non-metallic grout caps and prepackaged non shrink/zero bleed grout for the post-tensioned concrete main span unit. This includes post-tensioned floor beams, longitudinal post-tensioning in the deck slab and edge girders as well as transverse post-tensioning in the transition pier cap cross beams.

project is being funded by the Federal Highway Administration and the state of Delaware.

DelDOT, Skanska USA Civil Southeast and Thoro-Goods Concrete Company teamed up on July 30, 2009, to pour 1,000 cubic yards of concrete into the first pylon on the north side of the new IRIB.

According to DelDOT spokeswoman Tina Shockley, the massive nighttime concrete pour took 12 hours to complete and represented the first major concrete pour of the more than 36,000 cubic yards of cast-in-place concrete that will be used to construct the bridge. The concrete was brought to the site by 111 trucks.

Thoro-Goods Concrete is supplying all of the cast-in-place concrete for the bridge. The precast, pre-stressed concrete for the project is produced at

Skanska's concrete plant—Bayshore Concrete in Cape Charles, Virginia—and then brought to the site.

Concrete rated at 4,000 pounds per square inch (psi) is being used in the footers of the bridge, and concrete rated at 7,000 psi is being used in the upper superstructure. Higher strengths in concrete for the superstructure are needed because this area of the bridge has higher stresses due to the design loads.

Shockley said that the bridge overall will require approximately 36,000 cubic yards of concrete transported via 3,600 truckloads. The concrete contains at least 50 percent slag cement and is considered a "green product."

Expected completion date of the bridge is July 2011. **G**

large loads required for the cable stay bridge," Erwin said, adding that several state departments of transportation are using the square piles.

In July, temporary falsework was installed to support portions of the bridge over land until the cable stay supports are placed. Design of the structure is approximately 70 percent complete. The \$149 million-plus IRIB