US Army Corps of Engineers

Hurricane Protection Office
Teammate Update
4 Nov 2009

1. Orleans Metro (Main Supporting District - St. Louis)

Currently, more than 90% of the Orleans Metro perimeter meets the 100-year level of protection.

We awarded a $14 million contract on 21 Oct. to Cycle Construction, a Louisiana-based firm, for construction services on the levee reach between London Avenue to the Inner Harbor Navigation Canal (LPV 104.01a). Notice to proceed was issued, and work will begin early next month. We expect to award the second part of work on that reach (LPV 104.02) next month; work will consist of constructing the new Seabrook floodwall and ramp at the University of New Orleans, as well as replacing the floodgate at the railroad.

Major construction activities began between 17th and Topaz Streets (LPV 101.02); traffic controls are being implemented and the contractor is mobilized. Construction activities also began between Orleans and London Avenues (LPV 103.01A1); the contractor is mobilized and preparing to remove the temporary armoring.

The last remaining Orleans Metro contract for work between Orleans and London Avenues (LPV 103.01A2) will be awarded next spring and has about a six-month construction duration.

2. New Orleans East (Main Supporting District - Memphis)

We awarded a $25.6 million contract to BIS Services, L.L.C., a Louisiana-based small business, on 23 Oct. The eight-month contract calls for placing a fabric and sand layer, called a drainage blanket, on the protected side of the levee between South Point and CSX Railroad (LPV 109.02a2), which will prepare the reach for final construction.

Floodwall construction at Collins Pipeline

The levee work between Paris Road and South Point (LPV 108) is 99% complete; construction of the floodwall at Collins Pipeline is 40% complete.

Notice To Proceed on the validation phase for South Point to CSX Railroad (LPV 111.01) was issued. That phase should be complete in Dec.

News Release - http://www.mvn.usace.army.mil/news/view.asp?ID=252

News Coverage - http://www.nola.com/politics/index.ssf/2009/10/post_85.html

3. St. Bernard Parish (Main Supporting District - St. Paul)


LPV 145 Access point construction

The contract award for phase two construction from Verret to Caernarvon (LPV 148.02) was cancelled following a protest. We are in the process of developing an amendment to the solicitation and will subsequently seek revised proposals from offerors.

The contractor is mobilized for work between Bayou Bienvenue and Bayou Dupre (LPV 145), to construct access points from the Mississippi River Gulf Outlet to the levee crown for pile load testing. The construction of these access roads will require 2-3 weeks and pile testing is scheduled to begin this month.

4. Inner Harbor Navigation Canal (Corps-wide Support)

a. Surge Barrier

On Oct. 21, we marked a major milestone in our risk-reduction efforts in pounding the last of 1,271 66-inch spun-cast piles into the ground. Our partners and stakeholders joined us to observe the driving of the last pile on the south heading of the barrier.


Driving the last 66-inch pile

Work is progressing on the barge gate, a 150-foot navigation gate that will be open for traffic next spring. We completed a 36-hour casting of 4,970 cubic yards of concrete ahead of schedule and without incident. We also finished dewatering the cofferdam.

Shaw Environmental & Infrastructure is the prime contractor for the project. There are 55 small business contractors working for the team, 44 of which are Louisiana firms. Every day there are about 350 people working on the job site, with up to about 2,000 other people working full or part-time to support the effort.

IHNC Surge Barrier *In the News*

Times-Picayune - Surge barrier spells death knell for MR-GO
http://www.nola.com/hurricane/index.ssf/2009/10/post_8.html

WVUE-TV (FOX) Great Wall takes shape in N.O. East
http://www.fox8live.com/news/local/story/Great-Wall-takes-shape-in-N-O-East/aLogl5x9AEmrx539Q-7_TA.cspx

WWL-TV (CBS) Corps completes critical flood barrier stage
http://www.wwltv.com/news/local/65829512.html

Design Build Institute of America - *Dateline Magazine* (pages 6-10)

Associated General Contractors of America - *Constructor Magazine*
http://constructoragc.construction.com/mag/2009_9-10/features/0909-24_AGC.asp

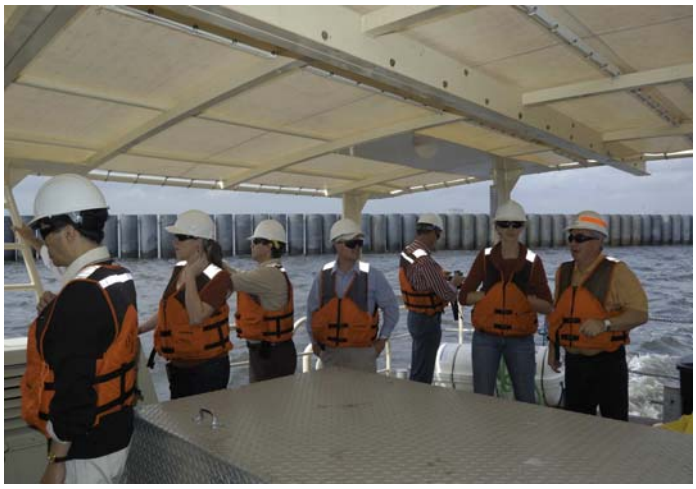
Business Wire featured Shaw Environmental & Infrastructure
http://www.businesswire.com/portal/site/home/permalink/?ndmViewId=news_view&newsId=20091023005127&newsLang=en

Leaders Observe IHNC Surge Barrier Construction

N.O. City Council President Arnie Fielkow

N.O. Regional Planning Commission

Waterways Council Incorporated and Major General Bo Temple



Permanent International Association of Navigation Congresses

New District Commanders of the U.S. Army Corps of Engineers

Inland Waterways Users Board

b. IHNC West & East Wall

IHNC west wall work is 100% complete. On the east wall, work is 97% complete and the relief wells are fully operational. The next phase will be to bolster an additional 1,400-foot stretch along the east wall with sheet pile. We expect to award that contract sometime next month.

c. Seabrook

On 2 Nov., we awarded a $495,000 Early Contractor Involvement (ECI) contract to Alberici Constructors for preconstruction services. The ECI contract includes two subsequent options which, when awarded, would account for the majority of the estimated $155 million in construction costs. The proposed Seabrook Floodgate Structure would consist of a navigable sector gate and two non-navigable vertical lift gates approximately 540 feet south of the Ted Hickey Bridge with floodwall tie-ins on the east and west sides. The proposed Seabrook gate will close the one remaining gap along the lakefront and will work in tandem with the IHNC Surge Barrier at Lake Borgne.

News Release - http://www.mvn.usace.army.mil/news/view.asp?ID=255

We held an Individual Environmental Report (IER) public meeting on 27 Oct. in Gentilly to provide an overview of the proposed action for the Seabrook Floodgate Complex. The IER will be out for a 30-day public review period later this month. We also held a community meeting on 29 Oct. in the Ninth Ward to provide an overview of projects along the IHNC.

IER 11 Tier 2 Pontchartrain Public Meeting - *Thurs., December 3, 2009 6:00 - 9:00 PM*
New Orleans Baptist Theological Seminary, PLC Conference Rm, 3939 Gentilly Blvd New Orleans, LA 7012

5. Plaquemines Parish
(Main Supporting District - Vicksburg)

IER 13 Eastern Tie-In Public Meeting
Thurs., November 5, 2009, 6:00 - 9:00 PM
Belle Chasse High School Auditorium, 8346 Highway 23, Belle Chasse, LA 70037-2694

Plaquemines Parish Federal Levee Scoping Meeting
Tues., November 10, 2009, 6:00 - 9:00 PM
Plaquemines Parish District 1 Office, 15535 Highway 15, Davant, LA 70040


Rig obtains soil borings for geotechnical study

6. Existing Pump Station Repairs
(Main Supporting District - Chicago)

We have completed 27 projects out of a total of 30; 3 projects are in construction. The overall Pump Station Repair Program is approximately 95% complete.

On 2 Nov., we began demolishing 14 residential units in the Mariner's Cove subdivision adjacent to the 17th Street Outfall Canal Interim Control Structure (ICS). The work will expand the area needed for ongoing use of the ICS.

Condominium Demolition at Mariner's Cove

7. Storm Proofing
(Main Supporting District - Chicago)

We continue work on finishing up the storm proofing program in Jefferson Parish (15 projects): 4 are in Statement of Work development; 6 are in design; 2 are under construction; 1 has been advertised; and 2 are completed. Storm proofing continues in Orleans Parish (18 projects): 4 are in Statement of Work development; 11 are in design; 1 will soon be under contract; and 2 are completed. The overall Storm Proofing Program is approximately 21% complete.

8. Grand Isle (Main Supporting District - St. Louis)

Major construction of the geotextile tube is now complete. Currently, the tubes are being covered with dredged sand. To date, approximately 3,000 of the total 31,500 feet of the geotube has been covered and another 15,000 feet has been stockpiled.

News Coverage - *Civil Engineering Magazine* (pages 11-13)

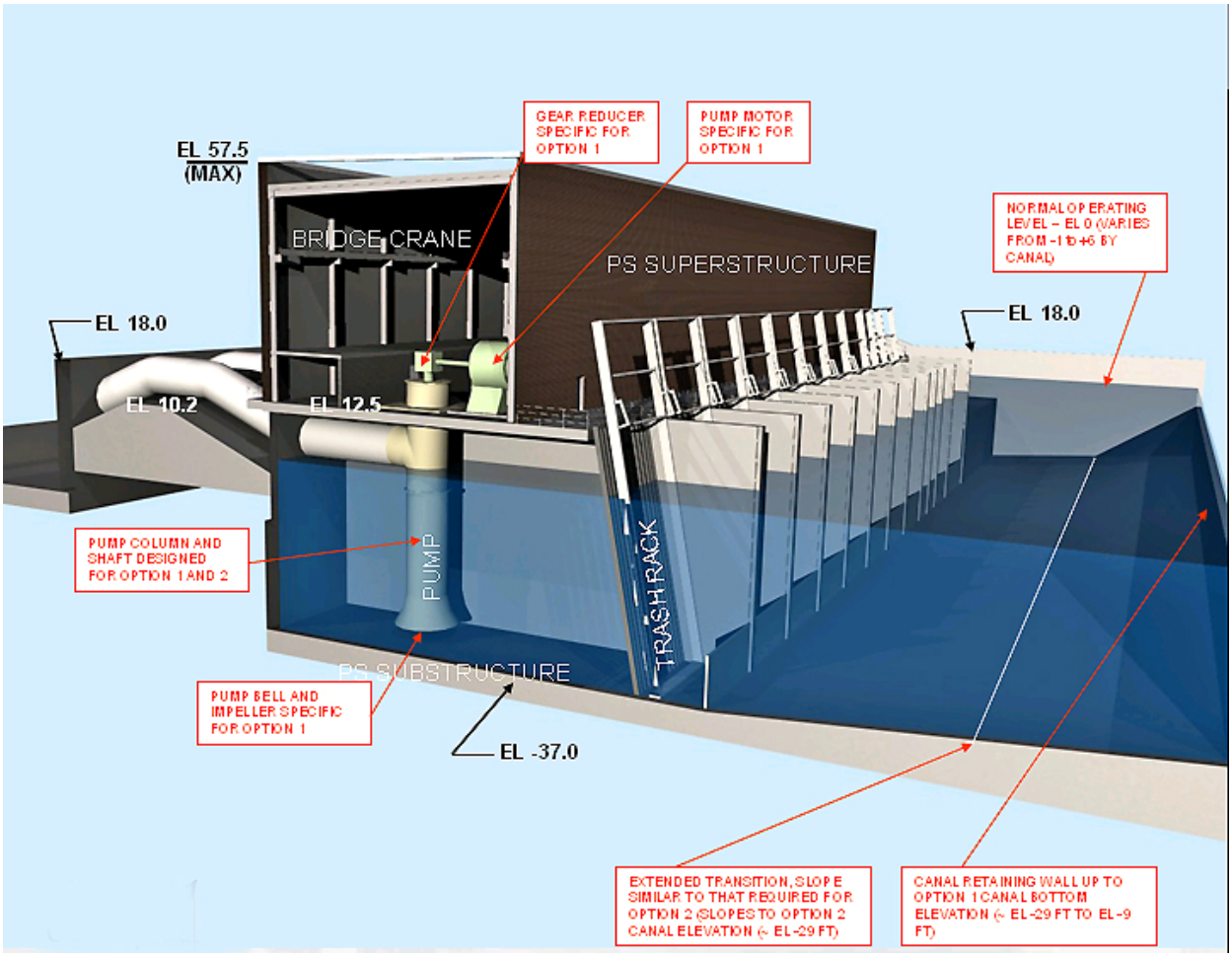
Finished Beach Section - Geotube covered with sand layer

9. Permanent Replacement Pump Stations

Replacing the outfall canal temporary structures with the Congressionally authorized and funded permanent facilities is essential, and we will engineer and build the new facilities to accommodate potential future improvements to the city's internal drainage system. Recently, we met with the state (OCPR) to develop language for an amendment to the Project Partnership Agreement (PPA). The state is now reviewing the amended PPA, and we anticipate that the document will be signed sometime this month. Based on our projected schedule, the permanent replacement pump stations would be complete in 2014.

News Coverage - WWL-TV (CBS) Corps begins work on three outfall canals
http://www.wwltv.com/news/local/65829507.html

Community Meeting Request for Proposal Phase Two - *Thurs., November 19, 2009 6:00 - 9:00 PM*
St. Louis King of France School, 1600 Lake Ave., Metairie, LA 70005



Conceptual drawing of the permanent replacement pump superstructure

Col. Robert A Sinkler, Commander
Hurricane Protection Office

SEPTEMBER 2009

DESIGN-BUILD

Dateline

THE JOURNAL OF THE DESIGN-BUILD INSTITUTE OF AMERICA

stopping the storm

Corps of Engineers begins construction on the New Orleans storm surge barrier

\+

Security/Military Focus

PROGRESS REPORT:

Shaw brought two 500-plus ton cranes fitted with pile driving hammers and to date has driven more than 600 66-inch diameter, 144-foot-long concrete, spun cast cylinder piles that will form the vertical face of the IHNC barrier wall.

New Orleans Levees under Construction

By Angelle Bergeron

POST-KATRINA, THE U.S. ARMY CORPS OF ENGINEERS UNDERTAKES A $1.3 BILLION PROJECT – THE LARGEST DESIGN-BUILD EFFORT EVER ATTEMPTED BY THE CORPS.

"THE CORPS OF ENGINEERS has committed to providing 100-year level of protection by June 2011. Or break our backs trying," said Lt. Gen. Robert Van Antwerp on June 15, 2006. Naysayers doubted that the U.S. Army Corps of Engineers (USACE) could build the $1.3 billion Inner Harbor Navigation Canal (IHNC) Lake Borgne storm surge barrier by that deadline.

Armed with an abundance of determination and confidence in the design-build process, the corps and its prime contractor, Shaw Environmental & Infrastructure, are on track to deliver the project, which will provide 100-year levels of hurricane protection in New Orleans. It is the largest design-build civil works project in corps history, and will be completed in record time.

"We opted for design-build because we knew we had an aggressive schedule," said Rick Kendrick, deputy for program execution for the corps' Hurricane Protection Office (HPO) in New Orleans. "We met with [members of the construction] industry and asked for help. They told us we couldn't deliver."

Despite a four-month delay on commencement of construction, by the end of June, at least a third of the concrete piles that comprise the vertical face of the wall that is the central component of the two-mile barrier were in place. Shaw estimates completion of the wall portion of the project by September or October, and promises to have the whole barrier operational by the June 1, 2011, deadline. "People really thought we couldn't get there," Kendrick said. "We aren't there yet, but we can see the project completion. That's really exciting."

The IHNC storm surge barrier is considered the most critical component of the Greater New Orleans Hurricane and Storm Damage Risk Reduction System (HSDRRS), which consists of 325 miles of earthen levees, concrete floodwalls, pump stations and gate structures. The IHNC barrier is about two miles long and includes the steel-braced concrete wall, a sector gate, bypass barge gate and navigable sector gate. All of this is being constructed from a water site and will tie into existing land-based structures on either side. The barrier is designed to block storm surge at what is considered the Achilles' heel of the system, the confluence of the IHNC, the Gulf Intracoastal Waterway (GIWW) and the Mississippi River Gulf Outlet (MRGO). The three waterways form a geographical funnel that invites storm surge into the city from Lake Borgne and the Gulf of Mexico.

The pace of the project is phenomenal, especially considering that the normal life cycle of a civil works project is 17 years, said Charlie Hess, Shaw's senior vice president of operations. "This is very exciting because, in a reasonable amount of time, we will be done with this." The corps awarded Shaw the $695 million base construction contract on April 3, 2008, and the barrier will be in place for the 2011 hurricane season.

In November 2005, after the corps had completed repairs to restore the Katrina-damaged system, the corps' Task Force Hope (TFH) was assessing what improvements were needed and trying to get appropriations from Congress. "It was very clear this was going to be a very large program — lots to do with lots of money — and it needed to be done as quickly as possible," said Dan Hitchings, former director of TFH and current program manager for ARCADIS-US, a company that performs design and construction management for corps projects in south Louisiana. "We knew the normal corps process was going to take too much time, and perhaps we were going to have to use things like cost-reimbursable contracts instead of firm fixed price and maybe design-build instead of traditional."

Hitchings started shopping around for the person who could make that happen. "I contacted Rick (Kendrick) and asked him to put together a skeleton or framework for our acquisition strategy — how we could get all of this done," Hitchings said. "He threw out some ideas about how we could develop acquisition strategies to get it done well and quickly, manage cost and get the product we needed to do that. After he was down here a little while, I asked him if he would be interested in going to work for us full time. The rest is history."

Kendrick, who was named deputy director of HPO in May 2006, has a healthy history of running big-dollar programs using innovative contracting and delivery methods. When Hitchings called, Kendrick was serving as site manager for the U.S. Department of Defense Missile Defense Agency's Fort Greely, Ark., facility. Kendrick had previously served as chief of design and construction planning, coordinating the activation and operational stand-up of the nation's first Inter-Continental Ballistic Missile (ICBM) defense site, a $2 billion chunk of the overall $10 billion agency budget. "That was the first thing actually fielded from Reagan's Star Wars concept," Kendrick said. "It was the first time an ICBM was put in the ground and had an actual operation system. Before that, everything was research and development."

One end of the storm surge barrier, shown in June 2009.

Timeline

August 29, 2005
Hurricane Katrina makes landfall
- Less than 12 hours before landfall, Katrina is a Category 5 storm
- Winds were at 127 miles per hour at landfall in Louisiana
- Approximately 75-80 percent of New Orleans was flooded

September 24, 2005
Hurricane Rita makes landfall
- Less than 12 hours before landfall, Rita is a Category 4 storm
- Sustained winds of 175 miles per hour in the Gulf of Mexico
- Sustained winds of 120 miles per hour at landfall

September 2005 to June 1, 2006
The U.S. Army Corps of Engineers completes repair and restoration of 220 miles of floodwalls and levees.

June 15, 2006
Congress authorizes IHNC in 4th Emergency Supplemental appropriations.
Corps commits to providing 100-year level flood protection to New Orleans area by 2011.

April 3, 2008
Corps awards Shaw Environmental & Infrastructure a $695 million base design-build, cost-plus contract. Overall project is anticipated to cost an estimated $1 billion. It is the largest design-build civil works project in the history of the corps.

December 4, 2008
Groundbreaking

January 14, 2009
Contractor receives Notice to Proceed

May 9, 2009
First 66-inch cylinder pipe pile for the vertical face of the barrier wall driven

June 1, 2011
Barrier operational

March, 2012
All gates and hydraulics complete

From 1981 to 1999, Kendrick had also been a design and construction manager with the corps on a $225 million program to build a large rocket test facility in Alabama where ICBM motors were tested. Prior to that, Kendrick specialized in design-build projects and actually developed the USACE Prospect Course for design-build that is still being taught by the corps today. "Back when the corps was trying to figure out how to work this, I got a McGraw-Hill legal book, went through lessons learned and wrote a process of how to manage it," Kendrick said. He developed his own presentation, including his "five myths of design-build," and went around teaching the delivery method to corps districts across the country.

"He had experience managing cost contracts and design-build contracts, which is something very few people in the Corps of Engineers had," Hitchings said. Because of the nature of how civil works projects are funded, speed and contract innovations aren't usually in high demand. Whereas vertical infrastructure is typically funded at one time, civil works projects are funded incrementally, according to annual appropriations. "For a typical levee, if it is $75 million, you may only get $2 million this year, $7 million the next, but you never know how much Congress will give you," Hitchings said. "You can't create a contract that spans the amount of money, and that's why you don't normally have design-build in civil works."

After Hurricane Katrina, Congress, in an unprecedented move, appropriated the full amount required to bring the HSDRRS to 100-year levels of protection by 2011. A huge, complicated piece like the IHNC barrier seemed a natural for design-build. "We said here's a line on the map. We aren't sure what it is going to be, and give us a cost," Hitchings noted. "No one could bid on that. Design-build was the right thing at the right time."

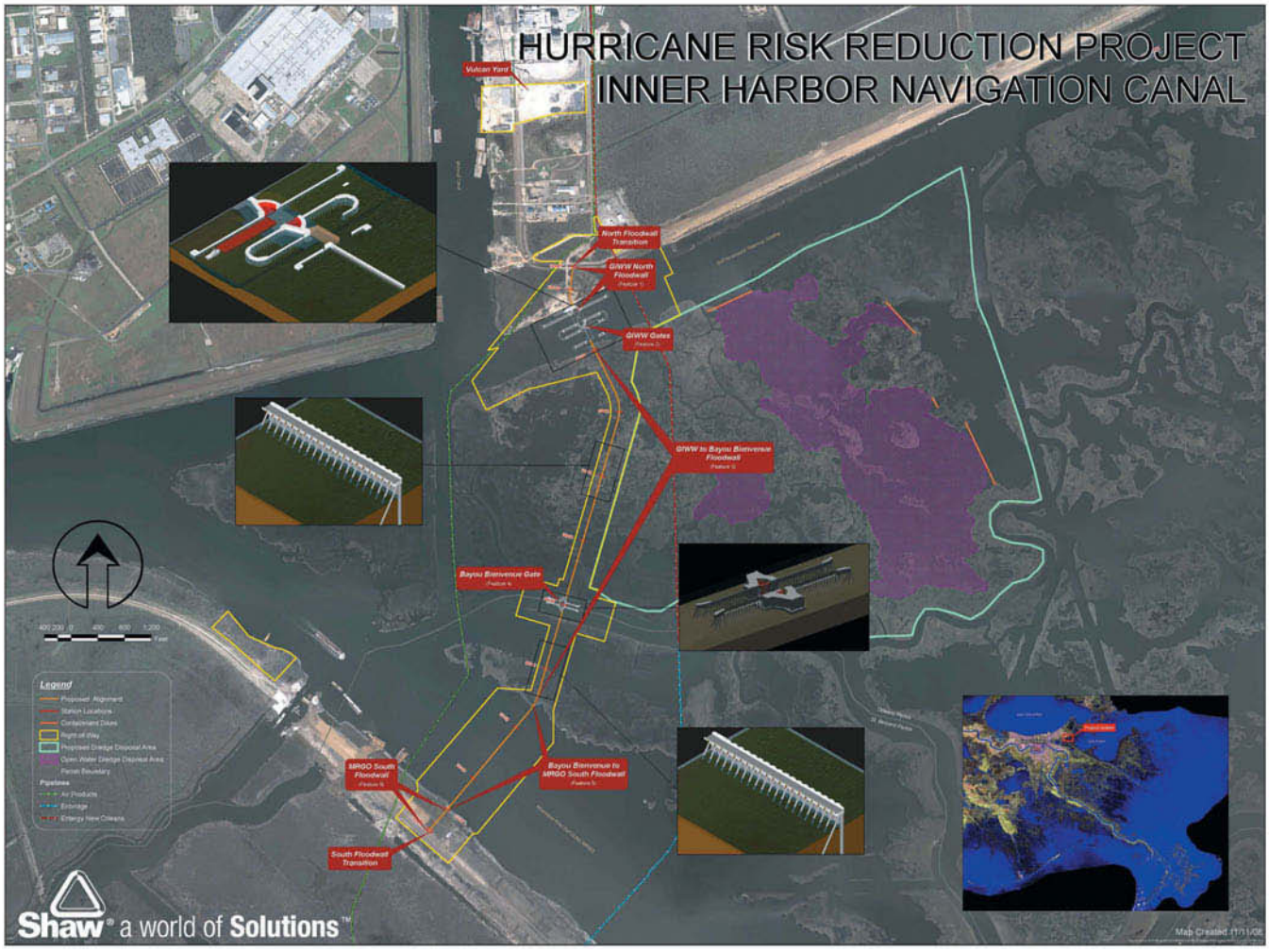
Initially, there were some concerns from within the corps and the contracting community about whether using design-build was the right thing to do. Hitchings believes that there was more resistance to the contract being cost-plus, which means the owner pays cost, plus a percentage for fee. "We had to use that because no one had the ability to estimate cost," Hitchings said. And the corps is fully occupied with program management of the remainder of the $14.3 billion program.

In the litigious post-Katrina environment, indemnity issues were a key concern for contractors. "A number of firms were very reluctant, thinking they would get sued for the final project not working properly," said Charlie Hess, senior vice president of operations for Shaw. "The challenge with dealing with hurricane protection is you can never eliminate risk. You can't guarantee a perfect reduction of risk."

A previous stint in Iraq as the director of the Project Contracting Office for the Secretary of the Army sold Hess on design-build. "We did $16 billion all design-build because of the pace of the work," he said. On the IHNC, Hess engaged major national contractors, well-versed in corps and marine work, as subcontractors to Shaw. These contractors include Traylor Brothers, Massman Construction, Weeks Marine and Manson. "Using design-build [allowed] the corps get the benefit of [Shaw's] innovative concepts and we got the benefit of the contractors' innovative concepts," Hess said. "That's an art — the constructor figuring out how to get it done."

For example, to install the 66-inch diameter cylinder pipe piles, TMW, the joint venture of Traylor, Massman and Weeks, erected temporary steel train trestles with hydraulically-powered cars to work over the water. To install the 96-ton concrete cylinder piles, they set up two kinds of driving operations to use their biggest equipment. TMW also fabricated a huge steel template to diagonally drive the steel piles that will brace the concrete ones on the protected side of the wall.

Prior to Shaw's receipt of the contract, the pile supplier, Gulf Coast Pre-Stress Inc. of Pass Christian, Miss., met with Shaw engineers and suggested the use of the cylinder piles because they could be made ahead of time in 16-foot segments. "We had over 2,000 16-foot sections in the yard before they started construction," said Max Williams, vice president of sales. "As soon as we found out the piles were 144 foot long, we started popping them together. There is no way that this project could have been done in time if we had waited to receive those lengths to start production." Innovation continues; ongoing research at the corps' Engineer Research and Development Center in Vicksburg, Miss., and other private facilities throughout the country continues to inform project design.



Lessons Learned

IN ORDER TO quickly deliver much-needed infrastructure projects to the nation, contractors and owners must embrace innovative approaches, said Charlie Hess, vice president of operations for Shaw Environmental & Infrastructure.

Rick Kendrick, deputy for program execution for the corps' Hurricane Protection Office in New Orleans and Hess offer these lessons learned for using design-build on future civil works projects:

- Make certain the general public understands the difference between construction contract awards and program budget. After advertising the $695 million base contract award, people were upset when the cost increased to $1.3. The corps initially had a concept budget of $1 billion, but the public thought the base contract was supposed to cover it all.
- Owner involvement is critical to the success of the program. Construction was originally scheduled to begin in September 2008. The corps and Shaw spent several weeks changing the approaches to and placement of gates to satisfy the navigation industry. The corps thought they had effectively communicated nuances of the project, but realized the users had many more questions once the modeling was done. "You've got to work hard to make sure all the users understand concepts when you don't have drawings in front of them," Kendrick said.

Probably the greatest benefit of the design-build process is the atmosphere of teamwork that pervades the process. "There are a number of people within the corps who had to put their reputation on the line to get design-build," Hess points out. "I can't overstate the teaming piece. If we didn't have everybody pulling on the oars in the same direction, we wouldn't be here. When everybody starts working together and you see it is being built, it is almost like an avalanche."

About the author: Angelle Bergeron is a freelance writer who lives and works in New Orleans and focuses on construction. She is the New Orleans correspondent for Engineering News-Record.

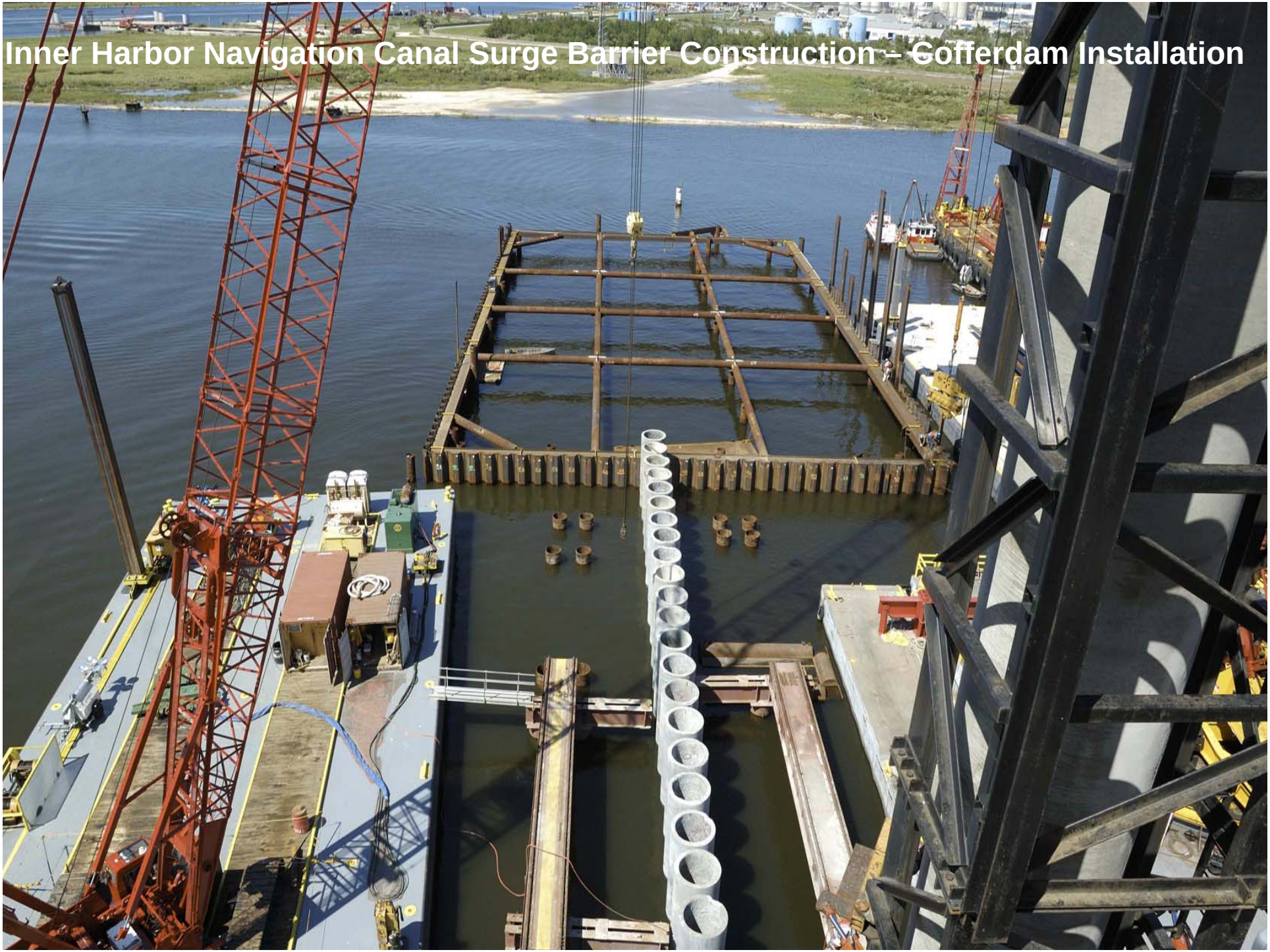
Spin casting 66-inch diameter concrete pipe piles at Gulf Coast Prestress in Pass Christian, Miss., in November 2008. GCP proposed that Shaw use concrete cylinder piles because the fabricator knew they could begin production before the piles were actually needed, because the cylinders are made in 16-foot lengths. Before construction began on the IHNC, GCP had fabricated more than 2,000 16-foot sections.

GIWW Barge / Sector Gate (Conceptual)

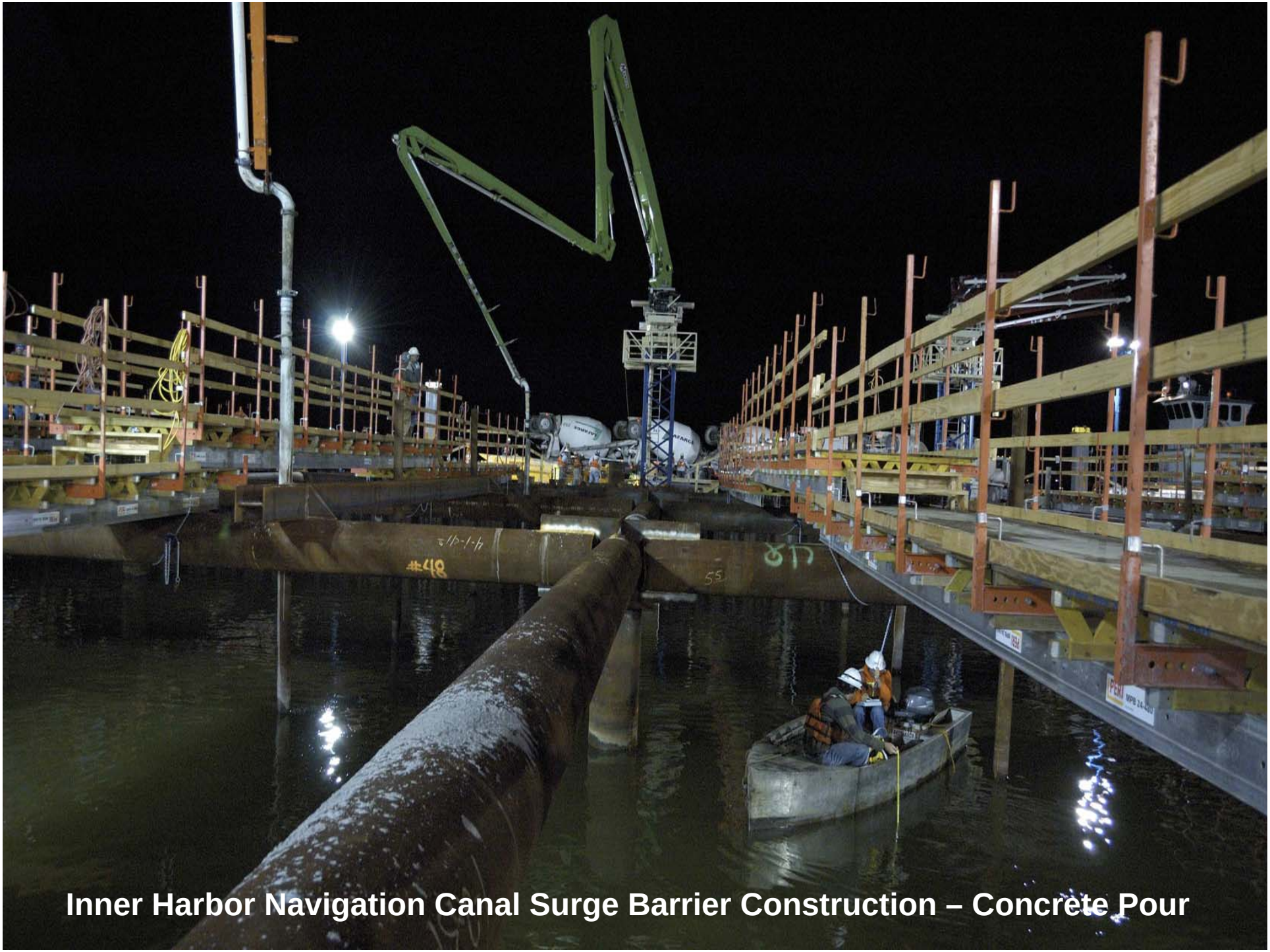
Bayou Bienvenue Vertical Lift Gate (Conceptual)

Inner Harbor Navigation Canal Surge Barrier Construction

Inner Harbor Navigation Canal Surge Barrier Construction – Cap Placement



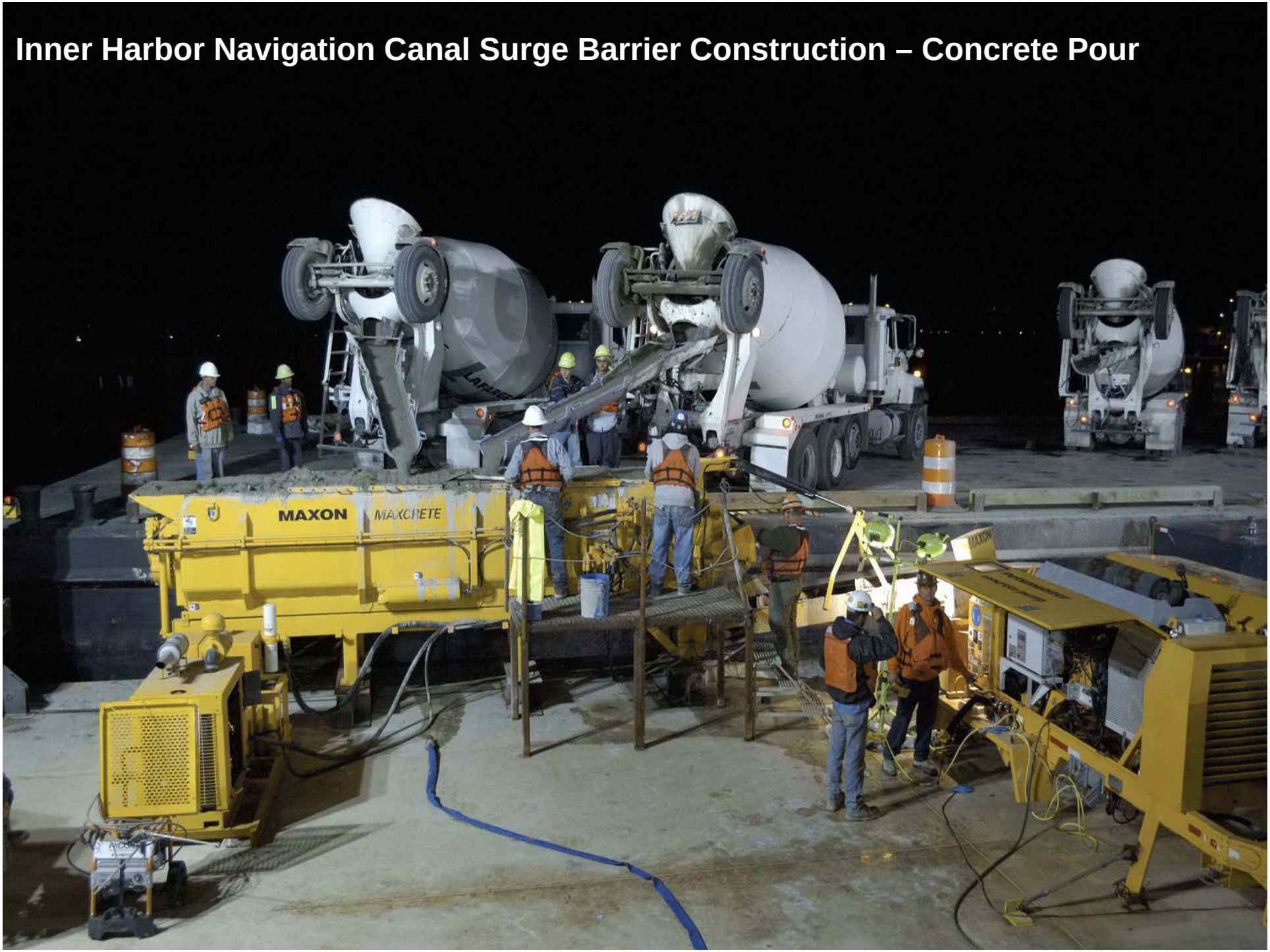
Inner Harbor Navigation Canal Surge Barrier Construction – Cofferdam Installation



Inner Harbor Navigation Canal Surge Barrier Construction – Concrete Pour


Inner Harbor Navigation Canal Surge Barrier – Dewatered Barge Gate Tremie Slab

Inner Harbor Navigation Canal Surge Barrier Construction – Concrete Pour



Inner Harbor Navigation Canal Surge Barrier Construction

Inner Harbor Navigation Canal Surge Barrier Construction