AB Connections

Second Quarter 2013

HURRICANE DECK BRIDGE
sunrise beach, missouri
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Connections

CONTENTS

thank you

Much appreciation to the following individuals for their contribution to this issue:

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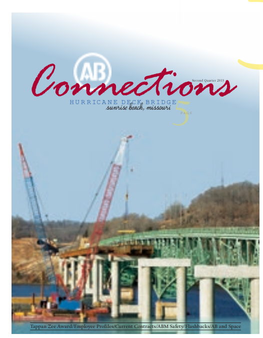


COVER

HURRICANE DECK BRIDGE

AB fights the weather and high-pressure gas main bored to keep this ATC project on schedule

Cover photo: P-Tn Imagery, 2013

Connections NEWSLETTER
by Kadi Camardese
Please contact the Communications and Marketing Department with news and inquiries:
kcamardese@americanbridge.net

corrections to the first quarter *AB Connections* newsletter: One, Jerry Hilbert is a retired AB Project Engineer who should have been listed as an employee on the Lake Cumberland Bridge project (AB Order No.: 430510) which was featured in the Flashbacks. Two, Joy Betler should have been listed as a new hire instead of in this issue.

CURRENT *contracts*

Manufacturing
BNR/Tertiary WWTP Project, Modesto, CA
Queens Ridge Vibration Upgrade, Las Vegas, NV
I-84 Bridges over Center Street, Newtown, CT
Symphony Park Pedestrian Bridge, Las Vegas, NV
Bellevue Access Road Bridge, Bellevue, OH
Edna Maguire Elementary School, Mill Valley, CA
SAS OBG Cable Safety Railing CCO 188, Oakland, CA
I-80 Bridges Group Two, Clarion and Venango Counties, PA
Emsworth Lock and Dam, Neville Island, PA
Harold Structures, NYC
Unicorn Bridge Rehabilitation, NYC
Shore Parkway, Queens, NY
Sun Valley Bridge Widening, Los Angeles, CA
George Washington Bridge Deck Replacement, NYC
Trinity County Bridges, Trinity County, CA
Mansfield Bridge Rehabilitation, Allegheny County, PA
Ambridge/Aliquippa Bridge Rehabilitation, Beaver County, PA
Columbus Road Lift Bridge, Cleveland, OH
East Clinton Street Bridge, Ithaca, NY
Fuller Road Bridge, Albany, NY
Squirrel Hill Tunnel Rehabilitation, Pittsburgh, PA
Milwaukee Light Rail, Portland, OR
Bronx River Parkway, Greenburgh, NY
Las Vegas High Roller Chain Platform, Las Vegas, NV
Granton Rancheria, Rohnert Park, CA
SAS Cable Bands, Oakland, CA
Hub and Spindle Support Stands, Las Vegas, NV
SAS Customer Change Orders, Oakland, CA:
85 Elevator Safety Enclosures
204 Stiffener Angle Retro-fit
189 Bike Path Rail Modifications
223 Split Collar Modifications

Pittsburgh
Charleroi-Monessen Bridge Replacement, Charleroi, PA
Columbus Road Lift Bridge, Cleveland, OH
U.S. 190 Mississippi River Bridge Repairs, Baton Rouge, LA

Special and International Projects
Forth Replacement Crossing, Scotland, United Kingdom
Las Vegas High Roller Observation Wheel, NV

Richmond
Wrightsville Beach Bridge, Wrightsville, NC
Bridge No. 30 - U.S. 421, Wilmington, NC
Explosives Handling Wharf No. 2, Silverdale, WA
Bridge No. 138 on NC-150 over Lake Norman, Catawba County, NC

Western
ABFJV San Francisco/Oakland Bay Bridge, CA

Tampa
Courtney Campbell Design/Build Pedestrian Bridge, Tampa, FL
Tom's Harbor Channel Bridge Repair, Duck Key, FL
Golden Beach Bridge Replacement, Golden Beach, FL
Berth 12 Wharf Extension and Container Terminal, Palmetto, FL
Tampa Berth 227N, Tampa, FL

Kansas City
Hurricane Deck Bridge, Camdenton, MO

New York
Walt Whitman Deck Replacement, Philadelphia, PA
George Washington Bridge Rehabilitation, NYC
Walt Whitman Bridge Dehumidification, Philadelphia, PA
Tappan Zee Bridge, NYC

NEW *hires*

Karen Beglin, Assistant Project Controller (QS), Forth Replacement Crossing, Edinburgh, Scotland
Joy Betler, Human Resources Generalist, Headquarters Office, Coraopolis, PA
Robert Cameron, Commercial Manager, Forth Replacement Crossing, Edinburgh, Scotland
Douglas Caster, Chief Surveyor, Hurricane Deck Bridge, Sunrise Beach, MO
Jonathan Davies, Senior Engineer, Forth Replacement Crossing, Edinburgh, Scotland
Stephen Honeybone, Marine Operations Manager, Forth Replacement Crossing, Edinburgh, Scotland
Wayne Kendrick, Project Engineer, Tappan Zee Bridge, NYC
Christopher Kite, Safety and Health Manager, ABM, Coraopolis, PA
Tyler Luffy, Field Engineer, SIP District, Coraopolis, PA
Fraser McIntyre, Graduate Engineer, Forth Replacement Crossing, Edinburgh, Scotland
Della Miller, Accounting Supervisor, Headquarters Office, Coraopolis, PA
David Oskar, Project Controls, Tappan Zee Bridge, NYC
Antonio Parafioriti, Engineering Intern, Forth Replacement Crossing, Edinburgh, Scotland
Dustin Weeks, Superintendent, Golden Beach Bridge Replacements, Golden Beach, FL

ANNOUNCEMENT

new tappan zee bridge

American Bridge part of JV team that will construct the Tappan Zee Crossings

In December of 2012, the New York State Thruway Authority announced that a joint venture (JV) in which American Bridge is a partner has been awarded a contract to design and build the new Tappan Zee Bridge Crossings over the Hudson River north of New York City. The Tappan Zee Constructors (TZC) joint venture comprises Fluor Corporation, American Bridge Company, Granite Construction and Traylor Bros., Inc. HDR is the lead designer for the JV team.

After much innovative planning to drive down construction costs for the owner, the New York State Thruway Authority, TZC's low-bid was victorious in beating two other proposer teams. The low-price can be attributed to a significantly lighter bridge structure; lower number of piles; shorter contract duration; less dredging volume; a superstructure comprised of structural steel plate girders and many other advancements.

The project is scheduled to begin in the spring of 2013 and to complete in the spring of 2018. The contract involves the construction of two new, three-mile long bridges. The main spans consist of new cable-stay bridges, with a main span length of 1,200', and back span lengths of 515'. The main span towers are more than 400' above the river level. American Bridge and JV partners will construct the two new structures and demolish the existing bridge.

American Bridge was the prime superstructure contractor for the 7,300' deep-water portion of the original 16,000' Tappan Zee Bridge, completed in 1955. The bridge's original three-span channel unit is a 2,415' cantilevered truss that was constructed by erecting the anchor (flanking) spans on false work trusses and cantilevering the 1,212' main span from both directions. The 20 deck truss approach spans were constructed at an on-land yard facility and floated into place. Each span was about 250' long by 64' wide by 26' deep and weighed 830 tons.

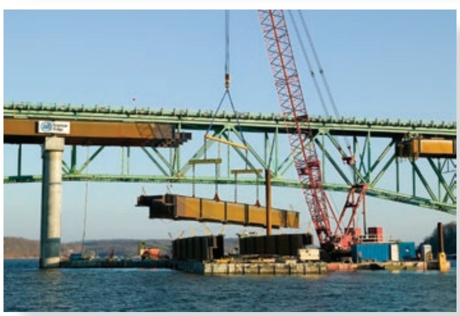
Renderings of the new Tappan Zee Bridge

HURRICANE *deck bridge*

Alternative Technical Concept project remains on-schedule despite difficult winter season

Contribution by Scott Gammon, P.E., DBIA, Vice President, Midwest District

All photos: steel erection



AB project team

Lanny Miller, P.E., Project Manager
Andy Kerr, General Superintendent
Kevin Lynch, Field Engineer
Robert Yohn, Carpenter Foreman
Scott Brother, Carpenter Foreman
Bob Sisco, Erection Manager
Larry Tussey, Ironworker Superintendent

Midwest District

Performing project controls -
Rick Zimmerman, Estimating Manager

Corporate Engineering

Nick Greco, P.E., Chief Engineer
Carl Schwarz, P.E., Senior Engineer
Jody Porterfield, Safety Manager

In January 2012, the Missouri Department of Transportation (MoDOT) awarded AB the Hurricane Deck Bridge Replacement Project on the basis of an Alternative Technical Concept (ATC) proposal. The summer 2012 issue of AB Connections detailed the story of how AB's bold ATC approach saved $8.1M compared to the lowest bid on the baseline design and eliminated a week-long closure of Missouri Route 5. Furthermore, AB's ATC delivered an entirely new structure, in contrast to the baseline design's re-use of the existing foundation system.

AB's project team has been hard at work and has made significant progress. By September 2012 the Parsons Transportation Group (PTG) design team had completed all final design packages for the ATC. With strong collaboration between AB and PTG, the final design was completed on time and with no net quantity growth. Construction progress has been equally pleasing. Drilled shaft foundations were completed in October 2012, followed shortly thereafter by completion of the cast-in-place concrete substructure in December, both right on schedule.

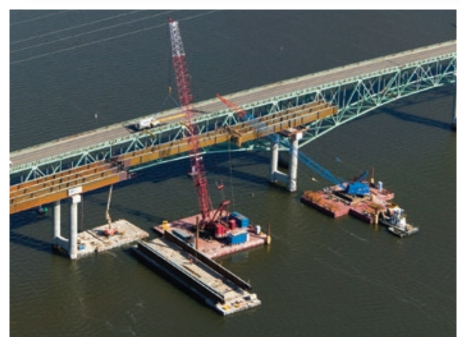
Even with a difficult winter season this year in Missouri and unanticipated major equipment repairs, the project team has managed to maintain the schedule.

HURRICANE *continued top of next page*

Erection of the long span steel plate girder superstructure commenced in early January, and is presently underway with a projected completion date of late April. The combination of long spans (up to 265'), deep girders (94" webs), heavy lifts (in excess of 100,000 pounds), deep water (up to 85') and proximity to the existing bridge (2') challenged AB's engineering staff to develop an atypical erection scheme. Ordinarily for a structure of this type, falsework bents employing pile foundations would be driven into the lakebed to provide temporary vertical support and maintain girder stability during erection. The depth of the lake and unfavorable geotechnical conditions rendered this method impractical, so the AB engineering department and project team devised a plan to erect the girders with no falsework support in the lake. The scheme has worked exactly as planned.

Even with a difficult winter season this year in Missouri and unanticipated major equipment repairs, the project team has managed to maintain the schedule. Structural steel erection is scheduled for completion in April 2013, followed immediately by construction of the cast-in-place concrete deck and parapets of the superstructure. The roadway approach earthmoving and paving are being constructed concurrently with the bridge and will be complete at the same time. Presently, the project team anticipates moving traffic to the new bridge by September 2013, nearly three months ahead of MoDOT's contract date of December 6. Once traffic is moved to the new bridge and the existing bridge is removed from service, AB will begin the tedious work of demolishing the existing 1930s era deck truss. Demolition will employ various methods including the use of linear shape charges for the explosive demolition of the superstructure. Due to the presence of a high-pressure gas main bored beneath the lake, demolition of the existing piers will be completed using specialized mechanical removal tools. The project is scheduled for final completion in May of 2014.

Due to the presence of a high-pressure gas main bored beneath the lake, demolition of the existing piers will be completed using specialized mechanical removal tools.



Most importantly, the project team has fully embraced AB's commitment to a safe work place and commitment to a ZERO incident culture. Since activity began on the project site in January 2012, the project has worked without a recordable incident. Proof that ZERO is an achievable objective.

TAMPA *projects*

Updates on five current and unique projects of the AB Tampa District

GOLDEN BEACH BRIDGE REPLACEMENTS

by James Cornnell, Project Manager

PORT MANATEE BERTH 12 WHARF EXTENSION AND CONTAINER YARD

by Paul Michalak, P.E., Project Manager

COURTNEY CAMPBELL CAUSEWAY MULTI-USE TRAIL DESIGN/BUILD STATE ROUTE 60

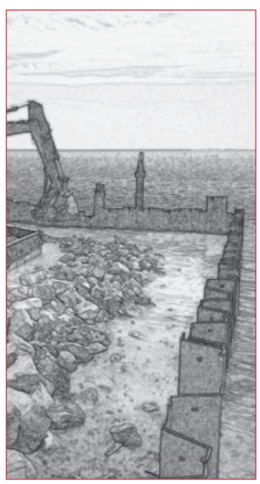
by Allen Dronko, Project Manager

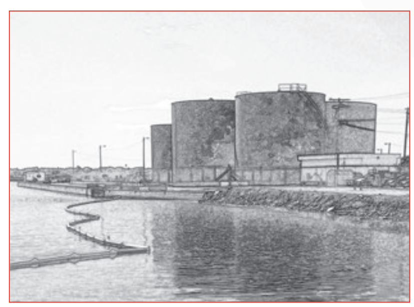
TOM'S HARBOR BRIDGE REPAIR

by William Campbell, Project Manager

TAMPA BERTH 227N BULKHEAD EXTENSION

by Robert Conroy, Project Manager





GOLDEN BEACH BRIDGE REPLACEMENTS

AB project team

James Cornnell, Project Manager
Matt Boos, Project Engineer
David Mondragon, Field Engineer
Dustin Weeks, Superintendent
Ronald Williams, Pile Foreman
Dewey McGhee, Concrete Foreman

TAMPA PROJECTS *continued*

The Tampa district successfully bid the Golden Beach Bridge Replacement project and received notice to proceed in May of 2012. The project entails a phased replacement of two concrete bridges, in a gated residential community, just north of Miami.

A broad overview of the project includes: demolition of two bridges, construction of new bridges founded on 42" diameter drilled shafts, cast-in-place caps, precast deck panels, cast-in-place deck topping, ornamental hand rail and lighting pilasters, brick paved sidewalks, soil improvements, drainage and paving at each approach. Also included is demolition and replacement of adjacent seawalls, new sewer mains, water mains, architectural bridge lighting and landscaping.

The exclusive islands are bordered with the Intracoastal Waterway to the west and the barrier island of Golden Beach to the east; linking them are two, fifty-nine year-old bridges. There are 15, or so, homes on each island. As such, the new bridges had to be built one-half at a time to allow for residential access. Along with phasing, site geometry proved to be a substantial challenge. The right of way on the bridges average 75', allowing minimal construction lay down area and dictating that the work be performed from barges. Further compounding the issue is the fact that the surrounding canals are only 95' wide and are littered with residential docks, million dollar yachts and several mooring piles. In order to get barges on workable stationing, American Bridge had to remove several mooring piles and relocate yachts as applicable.

Once mobilized to site, demolition of the bridges commenced. Removal of one-half of the bridges was accomplished by saw cutting the decks and pile caps, picking with crane barge and load out at the seawalls. The 18" existing foundation piles were extracted using a vibratory hammer.

Upon completion of phase one, demolition and new sheet pile installation, one of the biggest challenges of the project followed: installation of 42" drilled shafts. Due to inconsistent soil conditions at the site (layers of hard rock sandwiched in between softer sand stone and sand layers), the design of the

Demolition

Drilled shaft

Set decks

Along with phasing, site geometry proved to be a substantial challenge; further compounding the issue is the fact that the surrounding canals are only 95' wide.

TAMPA PROJECTS *continued*

drilled shafts require that the bottom 20' of shaft be left uncased to allow for the concrete to penetrate fissures in adjacent substrate. The concrete penetration allows the shafts to achieve capacity at a higher tip, thus reducing the overall pile length. The design and soil conditions dictate that the shafts be cased to tip and excavated with crane mounted drill. As a result, American Bridge must pour the concrete in a fully cased shaft, then pick up the vibratory hammer and raise the casing to expose the bottom 20' of the shaft. At that time, the casing is cut at grade and removed.

American Bridge project engineer, Matt Boos, designed a pile-driving template that remained in place after the shafts were completed and acts as the falsework for the cast-in-place caps and adjacent seawalls. As a bent of drilled shafts were completed, cap construction followed. Once complete, the caps were prepped for placement of 50' pre-stressed precast deck sections.

Precast decks gave way to cast-in-place deck topping and curb. Of note is the fact that all of the structural work from demolition to sheet and pipe pile driving to concrete work is self-performed by American Bridge. Since the bridges are short (100' abutment to abutment), multiple (two each) and phased (built half at a time) they could not be constructed as a production project. To combat these issues, American Bridge formed two small groups (five workers each), efficient and well-rounded crews. One month the crews will be driving pile, the next month they will hang soffits and complete form carpentry for cast-in-place pile caps.

Similar to the poor soil conditions found at the bridge foundations, the approaches also require stabilization; load transfer platform over grout column support. To achieve this, a track mounted drill rig installs the grout columns on a 3' center to center grid. These 6" diameter columns, installed from the hard rock layer at negative 30 to an elevation 3' below road base, are constructed of a dry grout mix that is reverse augured into the soil and hydrated by the tide. At the top of the grout columns, a platform constructed of layers of geogrid, limerock and filter fabric transfer the roadway loads to the grout columns effectively stopping settlement issues that plague the community of Golden Beach.

The bridges also act as a utility corridor that feeds the island from the mainland. Sewer and water were carried across the old bridge and have to be temporarily rerouted as the new bridge is constructed. New sewer and water services are on the southern face of the new bridge and electrical lines will be embedded in the precast. The project is scheduled to complete in August of 2013.

TAMPA PROJECTS
continued top of next page

Deck

Grout columns

Approaches

PORT MANATEE BERTH 12 WHARF EXTENSION AND CONTAINER YARD

AB project team

Paul Michalak, Project Manager
Jon Kelly, Construction Manager
Joseph Swett, Concrete Foreman
Tom Eckert, Piling/Dredging Foreman
Donnie Tillman, Surveyor

TAMPA PROJECTS *continued*

The scope of this project consists of a base bid for the construction of a 590' long extension of the berth 12 wharf as a deep-water pipe pile-sheet pile combination bulkhead with associated concrete works, mooring bollards and fenders, filling approximately 14,500CY dredging and upland disposal, approximately 36,570SF of rip-rap shore protection, three new high-mast light installations with electrical connections, storm-water improvements, asphalt pavement, associated utilities, new and relocated security fencing and selective earthwork.

Crane installing sheet piles on a pipe-z combination wall after the pipe piles have been installed

Additive alternate number one includes the construction of a functional container yard adjacent to the berth 12 wharf extension including approximately 10 acres of asphalt paving and associated earthwork preparation, one acre of wet detention pond expansion, 1,750LF of basins, 2,450LF of new water main and fire protection devices, 710LF of new 2" force main, 34' box culvert extension, three new high mast light installations with electrical connections, new and relocated security fencing and assorted ancillary improvements.

Installation of the tieback system comprised of tierods anchored in concrete inside of the bulkhead pipe piles and connected to a sheet pile deadman wall

The majority of the major technical challenges have been completed on this project. The two major tasks were the pile driving and the mechanical dredging. The bulkhead is a pipe-z combination wall composed of 64' long by 30" diameter pipe piles and 56' long AZ-18 steel sheet piles. The crane used to drive the wall was located on land and the wall was driven parallel to

TAMPA PROJECTS
continued top of next page

TAMPA PROJECTS *continued*

the shoreline in 20' deep water. This presented technical obstacles in selecting the proper equipment that could safely perform the job as well as ensuring that the pipes were driven in the proper locations so that the sheet piles would fit when driven at a later time.

The crane used to drive the wall was located on land and the wall was driven parallel to the shoreline in 20' deep water which presented technical obstacles.

The mechanical dredging was performed with a clamshell and was similar to the pile driving in that the crane was sitting on the shoreline while dredging up to 65' perpendicular from the shoreline. The dredge material was hardened clay and the process was completed on-time by having a high level of efficiency due to daily in-house hydrographic surveys. The crane operator had daily surveys that showed exactly what the seabed looked like. This eliminated the need to go back to previous dredged areas and rework them due to excessive high spots as well as limiting the amount of over dredging that can be costly.

The current major challenges are the placement of concrete that encapsulates the bulkhead and the construction of a rip-rap slope. A significant challenge with both activities is the early spring weather due to cold fronts moving through Florida, causing high winds and waves to shut down operations days at a time when they pass through, as divers are needed to complete this work. The concrete encapsulation is challenging due to the large amount of time required to set concrete forms along a pipe-z combination wall. The rip-rap slope is designed on a 3:1 slope that is 54' wide requiring the use of long reach equipment to excavate and place the stone. However, both types of construction have been successfully completed many times on previous jobs by the highly skilled American Bridge crews. This knowledge and expertise held by the American Bridge employees is what continues to provide value to the company as we are awarded future work.

The AB team and it's subcontractors are currently completing the placement of the concrete cap, a shoreline protection system and the associated base work and paving of a 10-acre container yard. The project completion date is September of 2013.

TAMPA PROJECTS *continued top of next page*

Placement of upper portion of the concrete cap in the foreground; completion of clamshell dredging in background

Concrete encapsulation underway on the bulkhead, the newly expanded drainage pond, subgrade work on the container yard and preparation for the installation of a shoreline protection system in the lower right hand portion of the photo

Progress on the concrete encapsulation to date including the bollard installation

COURTNEY CAMPBELL CAUSEWAY MULTI-USE TRAIL DESIGN/BUILD STATE ROUTE 60

AB project team

Allen Dronko, Project Manager
Sam Gass, Project Superintendent
Paul Vitucci, Quality Control Manager
Steve Norton, Project Engineer
Josh Robertson, Project Administrator
Frank Benevides, Survey Chief
Glenn Lamb, Sitework Foreman

Pile Foreman
Eric Appleby
Darry Boone

Concrete Foreman
Darrell Brown
Don Haas
William Hutchins
James Paul
Delgado Plummer
Allen Steiner
Robert Harlacker


Overview of project


Column and pier cap construction at mid-span


Pre-cast seal and rings


Pre-cast seal and rings

TAMPA PROJECTS *continued*

The Courtney Campbell Multi-Use Trail Design Build Project involves the construction of a 3,200' long, 29-span pedestrian/bicycle bridge over the Tampa Bay. The new bridge is constructed 90' away from the existing State Route 60 vehicular bridge. The maximum height of the structure at mid-span is 45' above the navigation channel.
The bridge is being constructed almost entirely on the open water. The causeway is 10-miles long and connects Tampa to Clearwater, Florida, a popular beach town. Upon completion the bridge will allow pedestrians to cross Tampa Bay along the causeway and provide continual access to over 10-miles of trail. The bridge itself will offer spectacular views of the bay from the widened overlook decks that will be constructed on both ends of the center span.

The foundations are 24" piling constructed in four, five or six pile clusters. A cast-in-place pile cap is constructed on the top of each pile bent to complete the foundations. Columns and pier caps are also constructed with cast-in-place concrete. The pre-cast beams utilized for the superstructure are 45" tall by 112' long, using two beams per span. AB is constructing the deck with cast-in-place concrete and the approaches utilizing MSE (Mechanically Stabilized Earth) walls. The contract also includes extension of an existing pile supported fender system.

On the land side the contract involves the re-construction of 3.5 miles of a paved vehicular/pedestrian trail including new access ramps connecting the trail to State Route 60. Stabilized parking areas along with paved handicap parking spaces will also be constructed.

The project schedule is only 450 short days from contract award to project completion. In order to maximize construction time available, the design was broken into component sets, which included separate design submittals of the foundations, substructure, superstructure

TAMPA PROJECTS
continued top of next page

and trail. By breaking the design up into component sets, it allowed the owner to approve a specific component for the project and release American Bridge to begin construction while we completed the design and approval of the other components. By utilizing this method, AB was able to begin installation of the foundation piling less than four months after the issuance of notice to proceed.

Another great design challenge was determining the best method to construct the pile cap on top of the piling. The design-build delivery method allowed AB the flexibility to consider both structural aspects along with constructability. The final design utilizes a pre-cast seal slab and support rings. After the piles in a bent were driven, an as-built survey of the piles was performed. A pre-cast seal slab was cast on site per the as-built condition of the piling.

With only 450 short days from award to completion, the design was broken into component sets, including the determination of the best method to construct the pile cap on top of the piling.

Preparing forms; form and seal grouted in place; completed pile caps

A ledge was incorporated on the outside perimeter of the seal slabs that was utilized for supporting and attaching the steel plate girder formwork to the seal. Pre-cast seal rings were utilized for supporting the seal slab on the piling. To ensure the seal slabs were set at the correct elevation, adjustment nuts were part of the seal ring design.

To construct a pile cap, the forms were bolted in place on the seal slab. Next the seal slab and forms were set in place over the piling and adjusted for line and elevation. Once the formwork was in the correct location, high strength underwater grout was poured in the annulus between the seal and piling. After the grout achieved strength the formwork could be de-watered, the reinforcing steel installed and the concrete placed.

Another challenging aspect of the project involved the construction of the approaches. The existing area where the end bents and MSE wall approaches were to be constructed was in the bay. In order to construct the approaches, the area would need to be filled in. To accomplish this, an existing concrete sheet pile wall was extended around the area of the end bents. The wall then turned and paralleled the existing wall for 600' before tying back into the existing wall. Fill was then placed between the new and existing walls and rip-rap protection was placed in front of the new wall. To support the weight of the MSE walls, a portion of the wall was tied back. To accomplish this, pre-grouted tie rods were installed and incorporated into the

TAMPA PROJECTS *continued top of next page*

cast-in-place sheet pile cap. Once the sheet pile cap was completed, MSE wall construction could begin followed by the end bent itself.

Environmental issues were a big concern while installing the sheet piling because it had to be jetted in place and this creates a significant amount of turbid water. The opening in the causeway at the existing bridge created very high currents during incoming and out-going tides, especially at both ends where the walls were being constructed. Multiple rows of turbidity curtains were installed during the construction of the western approach. On the eastern approach the soils contained a significant amount of fine materials and combined with strong currents, turbidity could not be controlled with just curtains alone. Therefore, a steel sheet pile coffer cell was constructed along the outside perimeter of the sheet pile wall to completely contain turbid water within the area. The coffer cell was installed far enough away from the sheet pile wall so the rip-rap could also be installed. The wall construction was completed in two phases. Once the concrete sheet pile wall was installed, backfilled, and rip-rap placed, the steel sheet piling were removed and reinstalled along the second half of the wall and the process repeated.

Besides innovative design and construction methods developed on the project, the monitoring of mass concrete temperatures also created a challenge. Due to their size, all 28 of the pile caps were considered mass concrete. The specifications required mass concrete temperatures to be monitored every six hours. Utilizing conventional temperature measurement methods, this would require two individuals to launch a boat four times a day and travel to the pier to check the temperatures. Due to the significant amount of time and resources it would take to monitor concrete temperatures at the actual piers, the project staff did some research to locate a system that would relay the temperature data to land. The solution was an IntelliRock temperature monitoring system manufactured by FLIR Systems. This system allowed the concrete temperatures to be monitored without actually traveling to the piers. The system sent a signal from the thermocouples placed in the concrete to a computer in a field office. The computer would automatically upload the data to an internet site every thirty minutes. To monitor the temperatures, project staff could log onto the site from any location with a smart phone or computer. Needless to say, this system proved to be a huge benefit to the project.

Currently, work is occurring on all aspects of the project. All foundation piling work is completed. Substructure construction is scheduled for completion by mid-May. The western approach is completed. Work is presently ongoing on the eastern approach. Bridge deck construction is complete through mid-span and is heading towards the eastern approach. On the landside trail construction is ongoing throughout the site. The project will be completed in early August of 2013.

TAMPA PROJECTS
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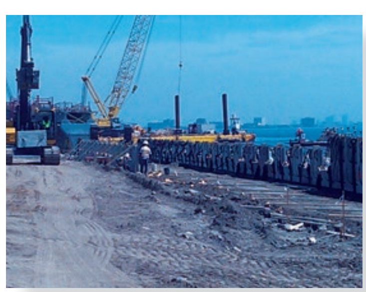



Sheet pile cap formwork; MSE wall construction; rip-rap placement in coffer cell

TOM'S HARBOR BRIDGE REPAIR

AB project team

William Campbell, Project Manager
Jerry Cabe, Superintendent
Charlie Cisco, Foreman

TAMPA PROJECTS *continued*

The Tom's Harbor Bridge Repair Project is located in Duck Key, a small city in the Florida Keys. This project consists of 203CF of spall repairs, 45LF of structural pile jackets, with demolition and replacement of 250' concrete bridge deck. The repairs will be completed in two phases while maintaining traffic flow with fully signalized intersections. Phase one, completed at the end of March, included removal and reconstruction of the east half of the existing concrete bridge deck, sidewalk and traffic railing. Phase two began with the demolition of the west half of the bridge deck, which took the expected five weeks to complete. This task is being followed by installation of the new bridge deck, sidewalk and traffic railing. The major challenge to execution of this project is maintaining a safe and efficient construction operation while pedestrian and vehicle traffic utilize the open lane of the bridge. To overcome this difficulty, AB has implemented safety as the first priority and awareness of all the surrounding engagements including ongoing public use of the bridge. Small barges and forklifts are used to execute all activities which require minimal space for maneuvering. All the formwork designs, created by AB staff, were developed so that construction could be efficiently performed with the specified equipment and a small labor force. Substantial completion is scheduled to be achieved in July of 2013, one month ahead of the current contract completion date.

TAMPA PROJECTS
continued top of next page

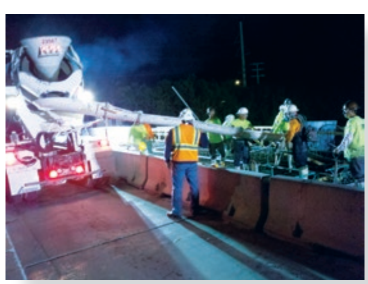
The major challenge to execution is maintaining a safe and efficient construction operation while pedestrian and vehicle traffic utilize the open lane of the bridge.

Crew preparing for first deck concrete pour after formwork and rebar has been installed

Crew installing formwork in spans one and two

Demolition crew removing deck slab on east half of bridge

East half of the bridge completed with sidewalks and traffic railing; crews removing formwork and installing handrails



Second night concrete pour completing the east half of the bridge deck

Crew installing 4" force main after completion of east bridge deck

TAMPA BERTH 227N BULKHEAD EXTENSION

AB project team

Robert Conroy, Project Manager
Steven Horne, Superintendent

Demolition of the existing concrete cap where the new bulkhead ties into the existing bulkhead

Clearing of the current shoreline

Typical assist-tug prop wash influence on bulkhead

TAMPA PROJECTS *continued*

The bulkhead extension project at Berth 227 for the Port of Tampa has a value of $2.4M. The construction duration is five months and is part of a three phase expansion to increase the berthing capacity of a petroleum unloading facility servicing the lower part of the state of Florida.

The 420LF bulkhead consists of an AZ 26 driven steel sheet pile wall supported by grouted soil anchors and a 4.5' wide by 8' deep concrete encapsulation. The extension will be tied into the existing bulkhead and bar-lock couplers will be used to provide continuity in the reinforcing.

> The project will require every effort to coordinate the ship traffic with the construction sequencing, a choreographed operation with tugs operating within feet of wall installation.

The sheet pile wall alignment is located 30' in front of the existing bank. All of the existing rip-rap and unsuitable material shall be removed. This area will be backfilled and vibro-compacted later in the project.

After the piles are driven, the 35' by 120' long soil anchors will be installed. Concurrently a continuous MC12 waler was installed on the backside of the sheets to spread the forces from the soil anchors once they were stressed to design loads. The concrete encapsulation will follow the soil anchor operation which will encompass the soil anchor head and waler to provide stability for the wall.

The project presents many challenges. The work will be performed utilizing land based equipment, requiring the utilization of a small strip of land adjacent to the sheet pile wall that is bordered by the petroleum tank farm. Working from land rather than barges relieves the problem of dealing with the ship traffic of an active and over-stressed petroleum unloading facility that shares the same water front area. As it stands, the project will require every effort to coordinate the ship traffic with the construction sequencing. Each day will be a choreographed operation since the tugs will be operating within a few feet of the wall installation.

In addition, the re-occurring issue of vessel berthing and its associated assist-tug prop wash will be problematic for our free standing sheet pile wall prior to back filling and for the form work while installing the concrete cap.

Turbidity curtains deployed ahead of soil excavation; looking back at existing wall; tie in demolition can be seen in the distance

Typical berthing configuration utilizing assist-tugs

American Bridge has had a long-standing relationship with the Tampa Port Authority through various projects and this project will further strengthen this connection and continue our reputation as a leading contractor and team player. This job is an integral part of what will later be utilized to provide an increased supply of petroleum products to the state of Florida. Ⓐ

COLUMBUS ROAD LIFT BRIDGE
rehabilitation

AB innovates truss float-in on high-traffic river to rehabilitate structurally deficient bridge

Contribution by Daniel Patterson, Field Engineer

AB project team

John Schober, P.E., Operations Manager
Matt Brownlee, Project Manager
Gary McDonald, Project Superintendent
Kenny Edleblute, Iron Worker General Foreman
Chris Deklewa, Field Engineer
Dan Patterson, Field Engineer
Local 17 Iron Workers
Local 18 Operating Engineers

Engineering

Nick Greco, P.E., Chief Engineer
Carl Schwarz, P.E., Senior Engineer

After months of meticulous and diligent planning, the Columbus Road Vertical Lift Bridge rehabilitation project is now in full swing. Built in 1939, the original bridge spanning the Cuyahoga River in Cleveland, Ohio is structurally deficient. AB's $30M project includes the replacement of the 250' mainspan including a new operator and machinery house and new tower houses, the rehabilitation of the tender houses, the rehabilitation and plumbing of the existing towers, the installation of new machinery, the replacement of the north and south approaches and the installation of a new fender system.

The narrow and winding river is heavily trafficked by freight barges, making it impossible for American Bridge to assemble the truss on the water. AB overcame this obstacle: the truss will be constructed on land and then rolled onto a barge and floated to the site. The main span, consisting of 1,000 tons of structural steel fabricated by ABM (American Bridge Manufacturing) is being erected on land up-river from the existing bridge. Utilizing the company's Puerto Rico and F1 falsework, as well as designing and constructing custom falsework, AB was able to effectively construct the truss.

Top of Carter Road Lift Bridge during top chord installation (photo: Wes Weir Transystems, 2013)

Another challenge of this project are the poor soil conditions. Piles were driven on-site near the river wall to support the truss during erection. Each intermediate support was designed and custom fabricated by AD&T (American Dock & Transfer) with the ability to utilize jacks at the top to aid in construction. The falsework consists of interchangeable lengths of 14" pipe, which will allow it to be employed on future projects. In the coming months, AB will continue erecting the new span with the operator's and machinery house. All machinery will be installed and fully operational at the time of the float-in to ensure the waterway is navigable after a 72-hour river closure that was granted to AB by the U.S. Coast Guard. Concurrent with the erection of the new truss, AB will be gearing up to float-out and demolish the existing truss off-site. With the old bridge removed from service, the towers will be re-plumbed using a complex synchronous jacking system. These jacks will be placed under custom fabricated jacking beams, which will be mounted to the existing towers. This project is yet another example where American Bridge's experience and ingenuity sets us apart from the competition.

Truss during sway bracing erection; Puerto Rico falsework and pile can be seen at the end of the bridge closest to the river

FALL PROTECTION TRAINING CLASS

This winter, Ultra-Safe conducted a fall protection safety class at the Columbus Road Lift Bridge rehabilitation project site. The company made many demonstrations simulating falls into various protection devices and reminded AB employees of the importance of proper implementation and use of PFAS (Personal Fall Arrest Systems) in the field. By dropping test weights, employees saw the dramatic effects of falling into an improperly used PFAS, as well as how a properly used system can save lives.

AB employees at the Ultra-Safe fall protection training

LAS VEGAS HIGH ROLLER

progress

Bearing installation and spindle erection: a critical aspect in AB's project

Contribution by John Callaghan, P.E., Project Manager; Daniel Schwarz, P.E., Project Engineer
and images provided by Simon Laming, Field Engineer

When the Las Vegas High Roller (LVHR) is completed, it will be the world's largest observation wheel. The basic design is similar to a bicycle wheel – a rim attached by cables to a hub which rotates around a spindle. Between the hub and spindle two very large spherical roller bearings keep the wheel spinning smoothly. The installation of the bearings and the erection of the hub and spindle was a critical part of the LVHR project. American Bridge ironworkers successfully installed the bearings and erected the hub and spindle in the first quarter of 2013 and the erection engineering for the bearing installation and hub and spindle erection was performed in-house by American Bridge engineers.

Bearing fabrication

BEARING FABRICATION AND BEARING SHIPPING/STORAGE IN LAS VEGAS

The wheel bearings were provided for AB by SKF and were among the largest the supplier has ever produced. Each bearing weighs 8,655 kg (kilograms, or 19,084 pounds), is 630 mm (millimeters, or 24.75") wide, has an outside diameter of 2,300 mm (about 7') and an inside diameter of 1,600 mm (5'3"). These large pieces mimic bearings of a much smaller scale - they have an inner race, an outer race, a cage and rollers. From design to deliver, the bearings took nearly one year to produce. To ensure a level and rigid surface for shipping, the bearings were transported on flat-racks and stored at a local warehouse until needed on the project site.

Transporting hub and spindle

BEARING DELIVERY TO JOB AND UNPACKING AND TRIPPING

When it was time to install the bearings into the hub and spindle end assemblies they were each pulled from the storage warehouse and carefully transported across Las Vegas Boulevard to the project site. Having been packaged and stored lying on their sides, each bearing would require a critical 'tripping' operation to position them upright and ready for installation. Using two strategically placed synthetic fiber slings, each of the 19,000-pound bearings were carefully raised from their laying position. With one sling hooked to the crane's mainline and the other sling on the whip line, the crane operator under the direction of the signalman was able to alternate the controls and 'trip' the bearing into a vertical position. At a cost of almost $1M each, and a fabrication time of one full year, there was no margin for error in this operation.

Bearing tripping

HUB AND SPINDLE FABRICATION AND TRANSPORT TO JOBSITE

The tubulars were fabricated by ZPMC (Shanghai Zhenhua Heavy Industries Company, Ltd.) in China and shipped to JSW (Japan Steel Works) in Muroran, Japan where the forgings were fabricated.

VEGAS HIGH ROLLER
continued top of next page

The hub and spindle are made of two major components: tubulars and forgings. On the original design, the bearing was to be supported by weldments on the ends of the hub and spindle. However, AB knew this plan would not provide the uniform stiffness required to ensure a 50-year design life for the bearings, and therefore, introduced forging. The forging raw materials were melted in an electric arc furnace at JSW to produce ingots, which were pierced and made into rings. In a 14,000 MT (metric ton) forge, the rings produced the rough forgings which were soft-machined and NDT (Non Destructive Testing) was performed. The rough forgings were heat-treated and finish machining was performed. The full hub and spindle were trial-assembled to ensure that the engineer's dimensional requirements were met and then were disassembled and shipped to Long Beach, California on a geared vessel. Upon arrival, the geared vessel direct-discharged the hub and spindle scope to specialized trucks and trailers. The journey ranged for the sections depending on size and weight; three of the heaviest pieces took several weeks to reach the jobsite. As the trailers arrived in Las Vegas, AB ironworkers unloaded the parts and pieces immediately and staged them for the next steps.

Bearing mounting

Temporary steel

Temporary steel

HUB AND SPINDLE STAND AND BEARING MOUNTING

The bearing, spindle and hub had to be joined together in order for the bearing to function properly. American Bridge and SKF engineers developed a procedure to mount the bearing onto the spindle and then the hub onto the bearing. A stand was designed by American Bridge to support and align these pieces throughout the assembly process, which consisted of a cantilever beam supporting the spindle and independent supports for the hub providing jacking provisions to align the two pieces. Two 17-ton stands were procured from American Bridge Manufacturing's Reedsport plant.

First, the AB team installed the bearing onto the spindle and held it in place with precision-machined bearing chocks. Second, the hub was placed around the spindle and bearing assembly. The space between the hub and the bearing was locked together with a tapered collar, weighing 7,690kg (kilograms, 16,956 pounds). Then the collar was pulled into position using sixteen 60-ton hydraulic jacks. The collar's final position was determined by measuring the internal clearance between the bearing rollers and the inner surface of the bearings. The correct internal clearance at installation was necessary because it sets the bearing preload. When the entire structure is erected the cables will 'stretch' or 'pull' the hub in all directions, reducing the compressive preload on the bearing; therefore, the bearing must be installed in an already 'compressed' state. Engineers were constantly measuring and monitoring while the bearing was being mounted, and once complete workers installed seals and 155 gallons of grease around each bearing.

VEGAS HIGH ROLLER
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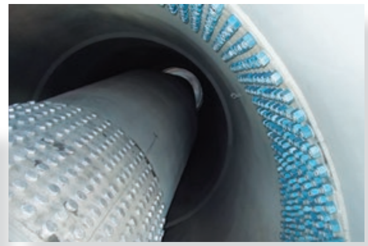
Hub and spindle erection



HUB AND SPINDLE TEMPORARY WORK (TRUSS AND CART)

Originally, the hub and spindle were to be fully assembled on the ground just north of the wheel and erected with two cranes. This erection scheme required the unit be picked by both rigs and then held as the rigs walked, then swung and landed. Unfortunately this scheme had to be abandoned when it became clear that required real estate west of the site was unavailable and due to the impact of underground structures. AB fabricated a different plan that accommodated the site restrictions: to erect the hub and spindle in pieces and use a heavy transfer truss to both move parts into position and support the entire assembly during erection. The hub and spindle transfer truss was designed in-house by American Bridge and procured from Finnoe Design in Spokane, Washington.

HUB AND SPINDLE ERECTION INCLUDING BEARING

The hub and spindle assembly was erected in four main pieces: the west hub, spindle and bearing assembly; the middle hub; the middle spindle; and the east hub, spindle and bearing assembly. A Liebherr LR1750 crawler crane with 367' of boom and a 212-ton capacity (at this reach) was used to erect these pieces. The west hub, spindle and bearing pick weight was 188 tons and had to be landed on a cart on top of the transfer truss and pulled into position using a Manitowoc M2250 assist crane. Once in position, the assembly was lowered into the support legs. After aligning the west assembly, the 144-ton middle hub section was erected and bolted to the previously erected section with 1,280 1.5" bolts. Next, the 98-ton middle spindle was erected at elevation by setting up a rail and cart system inside the hub and landing the spindle on it. The rigging was then transferred and the spindle was pulled through the center of the hub. Using 672 1.5" bolts, the spindle was spliced to the previously erected spindle. The final piece to be erected was the east hub, spindle and bearing assembly which was flown into position and landed on the top of the support legs after the bolted splices were made.

HUB AND SPINDLE TEMPORARY IRON DEMOLITION

After the hub and spindle were erected, preparations were immediately made to hang the chainfall platform and remove the truss. The platform was landed on the truss and hung from the hub. The chainfall platform hanger supports have rollers which allow the platform to hang directly below the hub while the hub is rotated. The platform was erected and hung off of the hub in five locations and then the truss was lowered using the same 50 MT chainfalls that will be used to erect the rim in the coming months. The transfer truss was removed in two main sections and lowered. The sections were then transferred to the crane and removed from the structure.

SUMMARY

American Bridge successfully completed the installation of the bearings and the erection of the hub and spindle for the Las Vegas High Roller project

VEGAS HIGH ROLLER *continued top of next page*

once again proving AB's advanced technology and unique way of overcoming challenges. This critical part of the LVHR project was successful thanks to the Local 433 ironworkers who installed the bearings and erected the hub and spindle and the American Bridge engineers who designed the erection and installation methods.

The hub and spindle assembly was erected in four main pieces: the west hub, spindle and bearing assembly; the middle hub; the middle spindle; and the east hub, spindle and bearing assembly.


Hub and spindle truss

John Callaghan extends his appreciation to the team: "Please include a big thank you to Nick Greco, Chief Engineer and his team in Pittsburgh, including Ronald Crockett, Vice President - Engineering and Carl Schwarz, Senior Engineer. Also a big thank you to our Team China including Gene Rosamilia, Fabrication Manager; Steve Lawton, Quality Control Manager; Soononn Low, Project Engineer; Larry Luo, Fabrication Supervisor; Levi Li, Surveyor; Ji Haiyong, Driver and Helen Xue, Administrator."


Hub mount

AB project team

Bruce Bartkovich, General Foreman
Jeremiah Beiter, Field Engineer
John Callaghan, P.E., Project Manager
Michael Cegelis, Senior Vice President
Ugo DelCostello, Superintendent
James DiPasquale, P.E., Field Engineer
Jason Faltinowski, Safety Manager
Simon Laming, Field Engineer
Lori Nichols, Project Administrator
Tim Popham, Field Engineer
Daniel Radu, P.E., Estimating Manager
Daniel Schwarz, P.E., Project Engineer

Corporate support

Dan Radu, P.E., Chief Estimator, SIP District
Nick Greco, P.E., Chief Engineer, Pittsburgh District
Carl Schwarz, P.E., Senior Engineer
Ron Crockett, P.E., Vice President, Engineering
Henry Mykich, Safety Director
Jody Porterfield, Safety Manager

China support

Gene Rosamilia, Fabrication Manager
Steve Lawton, Quality Control Manager
Soononn Low, Project Engineer
Larry Luo, Fabrication Supervisor
Levi Li, Surveyor
Ji Haiyong, Driver
Helen Xue, Administrator

EMPLOYEE *profiles*

Employees talk about the rewards and challenges of working for American Bridge

Scott has been involved in the construction industry since 2003, over which he has held management, surveying and engineering roles. In 2004, Scott participated in a study abroad engineering program with the University of Technology of Troyes in France and in 2008, graduated with his Bachelor of Science in Civil Engineering from the University of Buffalo. He has been an AB field engineer since 2009 and is currently working on the George Washington Bridge Span Upper Level Structural Steel Rehabilitation project in New York City.

What are the most rewarding and unique aspects of your current job?

I especially like to design a job-specific tool or piece of equipment and to utilize it within a successful erection plan or task. Much of the work we perform is unique and requires tools that aren't on local vendor's shelves. I always find it rewarding to design a job-specific tool or piece of equipment that safely improves efficiency. I think it's the challenge of balancing cost, ergonomics and structural integrity that makes the task so unique.

What do you enjoy most about working for American Bridge?

With AB, I can never anticipate what the next day will bring. With each day comes a new learning experience, which constantly keeps me on my toes. I also enjoy the competitive nature of most of my coworkers. Everyone is looking to come up with a more efficient and safe way to accomplish each task, while working with one another to do so. That drive makes me look forward to coming to work.

How did your background/previous work prepare you for your current role?

I had worked with a surveying outfit prior to graduating from college. My knowledge of surveying definitely helps from time to time, but more importantly, my engineering background aids in common field calculations. Understanding physics and statics helps to assess everyday picks and loading.

What is the most challenging project(s) you worked on at AB and why? Please explain.

To date, the Grand Island Bridge deck replacement (South Grand Island Bridges Rehabilitation, AB Order No.: 486410) was the most challenging. All of the work was done at night: we were to demo the existing deck, install (and level to contract elevations) new deck panels, install rebar, form for closure pours, pour concrete, install parapet walls, pump grout into the parapet walls, install temporary guiderail, install temporary road plates and install temporary parapet splice plates. All of these tasks were to be performed and the concrete cured in under nine hours.

What advice can you offer to those seeking a career similar to yours at American Bridge?

Never hesitate to ask questions. You will, most likely, deal with something new each day. If you have an idea, discuss it with your coworkers. If you see a potential problem with a plan, bring it up. Every AB employee I've worked with has a different way of looking at things. Combining ideas helps to achieve the best results.

Andy has been in the construction business since 1979 and a General Superintendent for American Bridge since 2007. He won the OSHA VPP (Voluntary Protection Programs) Star Status for his work on the Clifford Hollow Bridge in 2002 and the American Bridge 1st Annual Presidential Safety Award in 2012. Andy is currently working on AB's Hurricane Deck Bridge project in Missouri for the Midwest District.

What are some of the major contributions you have made to safety on the job in the past year?
In the past year, my major focus has been the creation of a job-wide safety culture in which every employee is responsible for the safety of themselves and their coworkers. At American Bridge, safety is as routine as taking a lunch break or putting on your tool belt.

Why do you feel safety is an important aspect on the project site and how does AB excel in this area?
The workers on any given jobsite are the most important resource. It is our obligation to send each one home as good as, if not better, than they arrived. AB offers many training courses and practicums to improve an individual's knowledge of safe work practices.

What unexpected situations arose that you witnessed the advantages of safety training?
The JHA (Job Hazard Analysis) and Task Plan systems eliminate unexpected situations. However, the best practice is prevention – we incorporate safety into each workday prior to its start to prevent delays and unneeded labor costs.

What are the most rewarding and unique aspects of your current job?
It is my job to take the design and plan of a structure and construct it. Throughout this process, there are erection complications that cannot be accounted for from an office. I find solutions to erect complex structures in the safest, quickest and most cost-effective ways possible.

What do you enjoy most about working for American Bridge?
Compared to other companies in the heavy construction industry, American Bridge works on the most complex bridge projects. The challenges that arise from these jobs and AB's encouragement in forward-thinking makes me look forward to coming to work each day.

How did your background/previous work prepare you for your current role?
With over 35 years of experience in the industry, I worked for five other construction companies before joining AB in 2007. Throughout my career I have been exposed to some of the most difficult projects and heaviest equipment within some of the smallest, high-traffic work zones. In the early years, I had the opportunity to observe and be taught by experts in the field. Now I have the opportunity to mentor those just starting with American Bridge.

What is the most challenging project(s) you worked on at AB and why? Please explain.
One of the most difficult projects I have been involved with was the Chesapeake Bay Bridge Through Truss Deck Replacement (AB Order No.: 466010). This job consisted of replacing the bridge deck with precast segments under bridge closures in a defined period and there were high-cost penalties if the bridge was to open late. The gantry crane used to transport the segments was conceived by another AB General Superintendent, Ugo DelCostello, designed by American Bridge Engineering, and built by AD&T (AB's storehouse division). There was a very large amount of work to be completed by several crews during the shift. Through the efforts of a very talented AB team, this work was performed on a nightly basis with no late penalties assessed.

What advice can you offer to those seeking a career similar to yours at American Bridge?
Take advantage of AB's engineering and construction staff as a reference library. The company employs some of the best bridge construction talent in the world who are willing to help you with questions and solutions.

ABM *safety*

Long-time ABM employees rewarded for zero recordable accidents in hazardous working environment

Contribution by Maudee Parkinson, Plant Administrator and Jon Young, Plant Manager

At American Bridge safety is FIRST, and employees who maintain a 'zero accident' workplace' are rewarded. The top five ABM (American Bridge Manufacturing) employees, who went between 10 and 13 years without a recordable accident, were treated to dinner at the Capital Grille restaurant in downtown Pittsburgh and a trip to the Penguin's hockey game in March with Senior Vice President, Jake Bidosky. They watched the Penguins extend their winning streak to 13 games with a one to zero winning score over the Montreal Canadiens.

ABM shop employees work in an environment in which they are constantly exposed to safety hazards. Before new employees ever touch the shop floor, they are extensively trained in general safety and made aware of all potential and everyday hazards. These hazards include sprains and strains from improper lifting and pinch points during the handling of material. Special attention is given to new employees to help them become accustomed to their new surroundings.

From left to right: Mark Dunn, Ted Soisson, Scott Lane, Rod Jones, James Branch and Jake Bidosky (Senior Vice President)

One hazard that exists in the fabrication shop is the constant movement of material using overhead cranes, fork lifts, jib cranes and tractor trailers. When performing daily tasks, each employee must be on the constant lookout for material movement near their work station.

TOP SAFETY RECORD EMPLOYEES

Ted Soisson, Burner, 13 years
Rod Jones, Paint Department Supervisor, 13 years
Mark Dunn, Shipping/Receiving Supervisor, 11 years
James Branch, Laborer, 10 years
Scott Lane, Painter, 10 years

On the shop floor, there are numerous pieces of drilling and burning equipment that can be hazardous to employees. The standard hazards of magnetic drills, CNC's (Computer Numerical Controls) and radial arm drills must be regularly monitored for jams, sudden movements and kept clear of drill shavings during operation. The burn tables can operate up to four oxy-fuel torches simultaneously while traveling

ABM SAFETY *continued bottom of next page*

Working under these conditions while maintaining impeccable safety records means that the top five ABM employees put safety FIRST every day.

WELLNESS *program*

Activities to look forward to in the next few months

This year's program is moving forward with much success. Several employees have already passed the first tier of the program and received their $50 Visa gift card.

If you have not begun participating in the program this year, why not start now? You can earn points for many items that you are probably already doing. If you should forget to take your wellness certificate with you to appointments, there are other ways to verify you completed an item such as providing an Explanation of Benefits (EOB).

Please keep in mind that some items are featured in certain months, but can be completed any time throughout the year.

Here are some things you can look forward to over the next couple of months with the wellness program:

COMING MONTHS

may

The incentive for May will be a *10,000 Steps Challenge*. This is a 12-week program with the goal of working up to taking 10,000 steps a day. Kits, which include a pedometer, will be provided for you if you choose to participate in the program. Information will be sent in mid-April. If you participated in the past, try it again and see if you can pass your goal from last time! In order to receive points for this program, you must provide your completed booklet.

june

If you choose to join a gym, American Bridge will reimburse you for your initiation fee, up to $100. If you are already a member of a gym, you can get reimbursed for one month's membership fee, up to $100. You will need to send the HR (Human Resources) Department a copy of the paid bill in order to receive reimbursement and wellness points. Gym Memberships will be reimbursed throughout the year and not only in June.

july

The incentive for July is Biometric Screenings. These screenings measure your blood pressure, total cholesterol, LDL (low-density lipoprotein), HDL (high-density lipoprotein), glucose and triglycerides. You can then take your test results and discuss them with your doctor at your next visit. Biometric Screenings are a good tool for early detection and prevention. You will have the option to go to a LabCorp location by you or order a home test kit to administer the test yourself. Once the test has been taken, LabCorp will notify the HR Department as to who completed the test and wellness points will be awarded accordingly. **Please keep in mind that no one but you will receive the actual test results.**

ABM SAFETY *continued*

back and forth on a 100' runway. Burns are a constant reminder that material can burn faster than it can be removed from the table and sparks can travel farther than imagined.

Welding operations can occur at any location on the shop floor. Hazards include burns to exposed skin from welding sparks and flash to the eyes. However, ABM practices submerged arc welding because it eliminates many of these hazards.

Working under these conditions while maintaining impeccable safety records means that the top five ABM employees put safety FIRST every day. They were always aware of their surroundings and took advantage of the specialized safety training ABM offers to all employees. American Bridge would like to thank and congratulate the top five employees for their successful efforts.

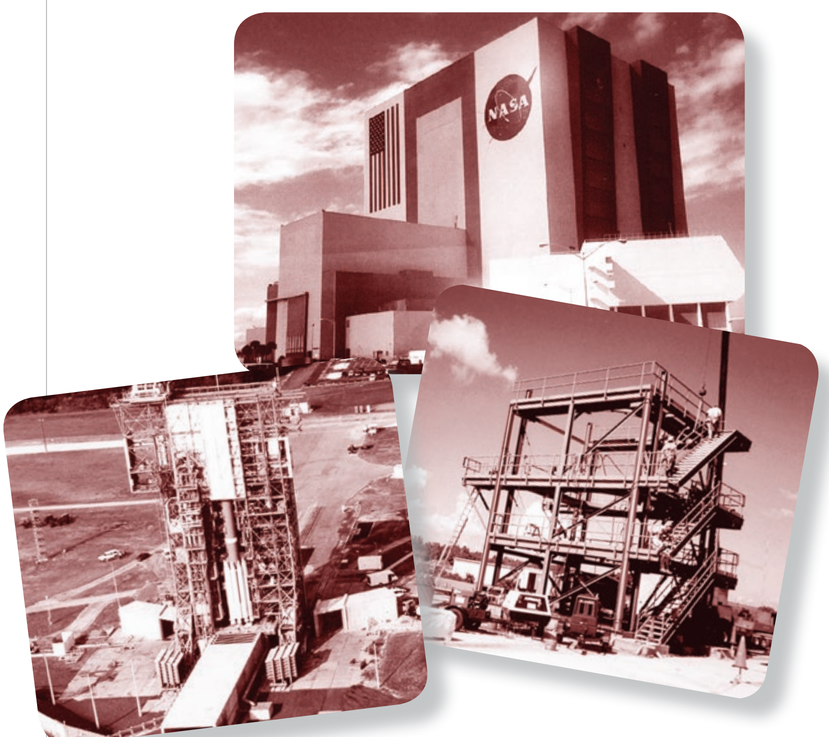
see FALL PROTECTION TRAINING CLASS *on page* 17

AB *published*

AB's involvement in major space exploration and intercontinental ballistic missile projects

Contribution by Michael Cegelis, Senior Vice President

American Bridge has had a major role in the space program of the U.S. since its inception in the early 1950s. The company has been involved in 25 major space exploration and intercontinental ballistic missile projects throughout the U.S.A., including many at the two main launch sites of Cape Canaveral Air Force Station/Kennedy Space Center, Florida and Vandenberg Air Force Base, California. The projects have included wind tunnels, underground and aboveground missile launch facilities, research facilities, space vehicle assembly buildings, operations centers and rocket processing facilities.



Clockwise from top: Vehicle Assembly Building, Kennedy Space Center, FL; Boeing Delta III 2nd Stage Test Stand, Cape Canaveral Air Station, FL; Boeing LC 17B Modifications, Cape Canaveral Air Station, FL

In the book *Gateway to the Moon: Building the Kennedy Space Center Launch Complex* by Charles D. Benson and William B. Faherty, they cover the fascinating history of the development of the Canaveral complex, which covers over 140,000 acres (57,000 hectares) of land in East Central Florida, U.S. While the book covers the evolution of launch facilities and programs from the 1950s through the 1970s, its main focus is the massive facilities development in support of the Apollo Manned Space Program that took place from 1962 through 1966. It details the award of the major contracts:

"On 9 July (1963) Col. G. A. Finley, District Engineer of the newly established Canaveral District of the Corps of Engineers, acting as agent for NASA, and officials of the **American Bridge Division** *of U.S. Steel Corporation, Atlanta, signed the largest single contract NASA had yet awarded for the Cape area. This contract, in the original amount of $23,534,000, called for furnishing more than 45,000 metric tons of structural steel and the erection of the skeleton framework of the VAB (Vehicle Assembly Building), with completion by 1 December 1964."*

AB PUBLISHED
continued bottom of next page

A COMPLETE LIST OF AB AEROSPACE EXPERIENCE

EELV Concept Development Consulting, 1997, Cape Canaveral, FL
Boeing Delta III Second Stage Test Stand, 470610, 1998, Cape Canaveral, FL
Boeing LC 17B Modifications, 460610, 1997, Cape Canaveral, FL
McDonnell Douglas (now: Boeing) Modifications – SLC 2W, W201AB, 1993, Vandenberg, CA
U.S. Air Force SLC 4W Modifications, W-207AB, 1992, Vandenberg, CA
SRB and External Processing Facilities, J-1622, 1982, Vandenberg, CA
Aeropropulsion Systems Test Facility, K-7300-69, 1980, Tullahoma, TN
Space Propulsion Facility, V-9876, 1967, Sandusky, OH
Minuteman Facilities, K-0300-29, 1967, Great Falls, MT
Minuteman Facilities, V-9200-29, 1966, Grand Forks, ND
Technical Facilities, Titan III - Support Facilities, V-8901-15, 1965, Cape Canaveral, FL
Vehicle Assembly Building, V-8707-26, 1965, Kennedy Space Center, FL
Technical Facilities, Titan III - Complexes 40 and 41, V-8614, 1965, Cape Canaveral, FL
NORAD Combat Operation Center, V-8440, 1965, Colorado Springs, CO
Minuteman Facilities, V-7300, 1964, Sedalia, MO
Mobile Launch Platforms, 1964, Kennedy Space Center, FL
Minuteman Facilities, V-8100-29, 1964, Cheyenne, WY
Manned Spacecraft Center, V-8215-27, 1963, Clear Lake, TX
Technical Facilities, Titan II, V-6430-49, 1963, Wichita, KS
Minuteman Facilities, V-6200-19, 1962, Great Falls, MT
Atlas Missile Bases 1-12, V-5313-20, 1962, Ellenbergh Depot, NY
Missile Launch Facilities, Titan II, V-5941-60, 1962, Wichita, KS
Convair Missile Launch Facilities, V-4907-19, 1962, Salina, KS
Minuteman Facilities, V-6600-19, 1961, Rapid City, SD
U.S. Navy Radio Research Station, V-3200-19, 1961, Sugar Grove, WV
Wind Tunnel Test Facilities, Q-2350, Q-3850, Q-8961, 1961, Cleveland, OH

HUMAN *resources*

Remember the difference between necessary and preventative when obtaining medical procedures

PREVENTIVE CARE

Reminder: when you go to the doctor for preventative care such as a physical and/or blood work, only certain procedures will be covered unless the procedure is considered 'medically necessary' and not preventative. Highmark has a preventive schedule which shows all routine covered services. You can find a complete preventive schedule located on the Access site or by contacting the HR Department. You can always check this schedule to see if the services you are going to receive are covered. If you are ever unsure, please call the member services number located on the back of your Highmark medical insurance card.

HEALTHCARE REFORM

The Patient Protection and Affordable Care Act of 2010 (PPACA) or as we know it - Healthcare Reform - will change the health care system in many ways such as how people buy health insurance, how health care is paid for and how the government regulates the health care system. As the bulk of Healthcare Reform will be effective for 2014, American Bridge has been in constant communication with our medical care provider to insure we are compliant with all the new regulations that are set to take place. American Bridge wants to make sure the employees have all the information needed with respect to Healthcare Reform. Future detailed communication will be provided as we draw closer to our next open enrollment period.

HIGHMARK BLUE CROSS/BLUE SHIELD

Our medical healthcare provider, Highmark Blue Cross/Blue Shield, has a new program called Blue 365. This program provides discounts and valuable information that can be utilized throughout the year. Blue 365 features wellness discount programs and services, as well as resources on nutrition, fitness, vision, hearing and travel savings. Some organizations participating in the program are Westin Hotels, Fairmont Hotels, Jenny Craig, Nutrisystem, Reebok and Men's Health, just to name a few. To find out more information on this program, go to www.highmarkbcbs.com and go to the 'members' tab then log in using your ID and password. If you do not have one, go to 'register now' and follow the instructions. Once in the site, select the 'your coverage' tab and go to member discounts. You can also contact the HR Department at 412-631-1000.

AB PUBLISHED *continued*

After the bidding for the general construction contract some months later, AB's contract was assigned to the Morrison Knudsen (MK)/Perini/Paul Hardeman joint venture that was the successful bidder.

Overlapping the VAB project, American Bridge was also involved in the construction of Space Launch Complexes 40 and 41 at Kennedy Space Center, working in conjunction with contractors Kiewit, CH Leavell, Hardeman and Morrison Knudsen. This complex was completed in 1965. Later, a Morrison Knudsen/American Bridge venture was awarded the general contract for the Space Shuttle External Processing Facilities at Vandenberg Air Force Base, California, completed in 1983. An MK/AB joint venture also built the $261M Aeropropulsion Systems Test Facility at Arnold Air Force Base in Tennessee, completed in 1985. In the 1990s - 2000s, AB had been involved with a number of projects at both Canaveral and Vandenberg, including extensive reconstruction of Launch Complex 17B at Cape Canaveral for Boeing Space Systems to accommodate the Delta III rocket. This latter project included new cryogenic storage and piping for liquid hydrogen and oxygen fuels, as well as an overpressure suppression system to alleviate backpressure at the time of rocket ignition.

Benson, Charles D. and William B. Faherty. Gateway to the Moon. University Press of Florida, Florida, 2001. Print.

The acting agent for NASA, and officials of the **American Bridge Division** of U.S. Steel Corporation, signed the largest single contract NASA had yet awarded for the Cape area.

Gateway to the Moon is highly recommended for anyone with an interest in the American Space Program and the manned missions to the moon.

FLASH backs

Railroad tracks built by AB nearly 100 years ago are still in use today

East Street Bridge
Parkersburg, WV
AB Order No.: 450710

17 years ago

AB Employees: Lanny Frisco, Senior Vice President, Estimating; Cal Boring, Project Manager; Robert Kick, Field Engineer; Ron Williams, Superintendent; John Perine, Ironworker

The East Street Bridge, which crosses the Little Kanawha River in Parkersburg, West Virginia, was originally built in 1907 and then rehabilitated in 1951. In 1996, American Bridge was hired as the general contractor to tear down the existing bridge and build a new one. This project included replacing the original eight-span bridge with a new five-span bridge. The demolition of the existing bridge involved the removal of a 300' river truss, two 120' flanking trusses, two multi-span continuous girder units, two land abutments, two river piers and five land piers. The approximate quantities removed were 1,240 tons of steel superstructure and 2,330CY of substructure concrete. The construction of the new substructure consisted of widening the existing embankment fills, placing new drainage, installing 3,000LF of 16" diameter water lines and new electrical utilities, driving 10,000LF of steel bearing pile, placing 6,000CY of structural concrete and 446,000 pounds of reinforcing rods to build two abutments, two river piers and two land piers. The new mainspan superstructure is a 400', 1,300 ton (Grade 50) parallel chord truss with two by two-span continuous girder approaches. The total steel superstructure weight is 1,533 tons. The truss was erected in place from barge-mounted rigs, using two falsework bents on steel piling. The overall bridge length is 784' with a width of 60'. The deck slab on the truss has stay-in-place forms and the girders were formed and stripped. The project also included 1,223LF of asphalt paving.

Atchafalaya River Bridge
Morgan City, LA
AB Order No.: K-5034-51

40

American Bridge held the contract for the fabrication and erection of the Atchafalaya River Bridge, a cantilevered through truss structure, completed in 1973. The bridge crosses the Atchafalaya River connecting Morgan City and Berwick in Louisiana. It has a mainspan length of 607', a width of 76' and the total truss length is 1,840'. The bridge, which carries four lanes of traffic and weighs a total of 8,382 tons, is still in use today. The average daily traffic is 32,600 vehicles.

Today, it has the 17th longest main steel-arch span in the world. This bridge was also the inspiration for the Sydney Harbor Bridge in Australia.

Sunshine Bridge
Donaldsonville, LA
AB Order No.: V-7146

49

In 1964, American Bridge completed the fabrication and erection of the Sunshine Bridge, a large four-lane cantilevered through truss bridge in Donaldsonville, Louisiana. It is one of a dozen bridges constructed by American Bridge that crosses the Mississippi River. The bridge was originally suggested to be named after the Louisiana Governor, James Davis, however he requested that it be named the Sunshine Bridge instead. Davis was not only the governor but was also in the music industry; the bridge's name was taken from his hit song, 'You Are My Sunshine'. The total length of the bridge is 8,236'.

Thousand Islands Bridge
Collins Landing, NY
AB Order No.: H-940-51

75

American Bridge fabricated and erected all superstructure and approaches, including towers, cables and roadway decks for the Thousand Islands Bridge, a 4,500' suspension bridge that is part of a U.S./Canada international bridge system. The crossing, which was completed in 1938, carries two lanes of traffic across the St. Lawrence River connecting New York in the U.S. to southeastern Ontario in Canada. It is one of the top 10 most used border crossings between the U.S. and Canada, as well as the fourth busiest in New York. The bridge weighs a total of 3,684 tons and exceeds 2,000,000 vehicle crossings per year.

Hell Gate Bridge
Queens/Bronx, NY
AB Order No.: C-4699-4700

97

Almost 100 years ago the Hell Gate Bridge was built, and today three of the four railroad tracks are still in use. The bridge, which crosses the East River in New York connecting Astoria, Queens to Randall's Island/Ward's Island, was completed in 1916 by American Bridge. The contract included the fabrication and erection of a two hinge, four track railroad bridge built for the New York Connecting Railroad with 63 approach spans and a 978' arch main span. The overall length of the bridge and viaduct approaches is 16,900' with a width of 100', and it weighs 40,300 tons. When the bridge opened, the main steel-arch span was the longest of its type in the world at 1,017'; it held that title for 15 years until the Bayonne Bridge (also built by American Bridge) opened in 1931. Today, it has the 17th longest main steel-arch span in the world. This bridge was also the inspiration for the Sydney Harbor Bridge in Sydney, Australia.

Connections
NEWSLETTER
by Kadi Camardese

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FRC main cable walk

AB employees walk the Forth Road Bridge main cable

Not many people can claim they have climbed the Sydney Harbour Bridge and the Tagus Bridge catwalks or walked the catwalks through the New River Gorge (NRG) Bridge Arch – but Matt Murphey can. Ben Reeve, P.E. walked the catwalks through the NRG Arch back in his college days. This March they both added another feat to their lists: walking the main cable of the Forth Road Bridge over the Firth of Forth in Scotland. This was their prize for winning the FRC (Forth Replacement Crossing) newsletter, *ForthMatters*, word search competition. Matt, Joint Venture Accountant, and Ben, Project Engineer, both currently work on the FRC project in Scotland. Matt started his career with American Bridge in 1996 and Ben in 2002.

Murphey and Reeve before walking the FRB main cable in March

Murphey atop the Tagus Bridge Tower before AB work commenced

Birds-eye-view and close-up of the main cable walk