



# CONNECTIONS

Summer 2016 - Issue #1004

## SAFE PASSAGE:

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How a small bridge is providing a big connection for a Nicaraguan community

Cover: Bridge over Los Mollejones River, Nicaragua

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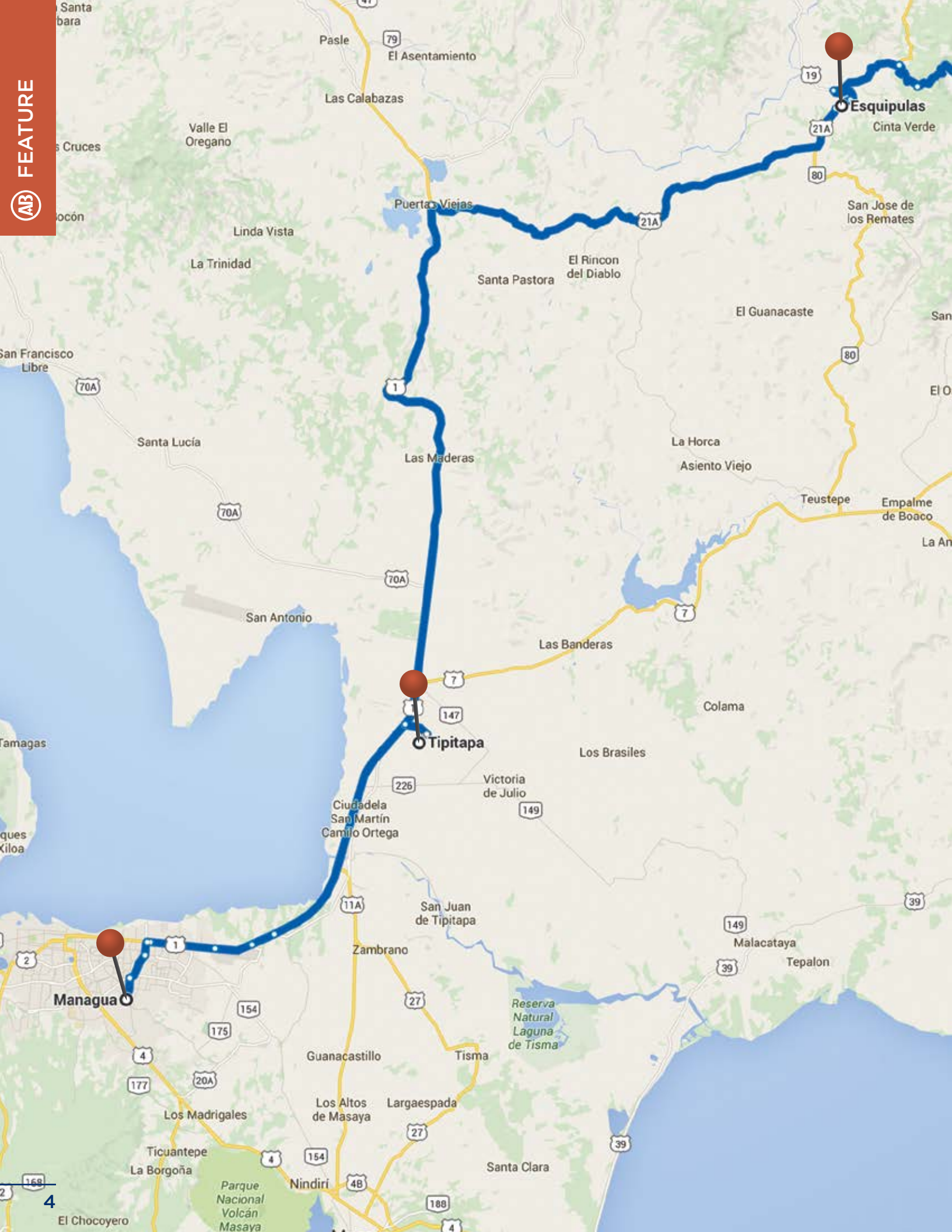


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AMERICAN  
BRIDGE  
CONNECTIONS  
Summer 2016—Issue #1004

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# SAFE PASSAGE:



## How a small bridge is providing a big connection for a Nicaraguan community

Seven American Bridge employees traveled south to Nicaragua to build a footbridge that changed a community for the better. **Josh Perry**, a Project Manager with American Bridge, one of the employees lucky to experience this one of a kind opportunity, gives a firsthand look into the ins and outs and ups and downs of the two week expedition. While the trip may not have been a walk in paradise, Josh is certain that it was well worth it!

### PLANNING AND PREPARATION

American Bridge continues to build upon its impressive history of working on unique and notable projects throughout

the world. This time, American Bridge ventured into an arena in which we have not previously participated, and took on the role of volunteers to build a footbridge for an isolated community in the impoverished Central American country of Nicaragua. Working alongside the non-profit organization Bridges to Prosperity (B2P), seven American Bridge employees and five employees from our corporate team partner ARUP, traveled to Nicaragua in late November 2015. We camped on a rural mountainside farm for two weeks while building a 360 foot suspension footbridge across the Los Mollejones River for the 780 people of La Caldera in western Nicaragua.

Based in Denver, Colorado, the non-governmental organization B2P administers a global volunteering program of developing and constructing footbridges across impassable rivers and ravines for isolated communities so they can have year-round access to necessities such as food, education, health care, and economic opportunities. B2P was founded in 2001 by Ken Frantz after he saw a picture in a National Geographic magazine showing a group of men using a rope to cross over the Blue Nile River in Ethiopia. This image, and the thought of these men risking their lives to access basic necessities inspired Mr. Frantz to take action and become



part of the solution to this problem, one that unfortunately remains true for thousands around the globe. To date, B2P has helped build nearly 200 bridges in 18 countries across four continents, enriching nearly 900,000 lives by doing so. B2P's goals for 2016 include plans to construct 40 new footbridges, benefitting an additional 150,000 people.

On August 25, 2015 AB's Director of Human Resources issued an open call to participate in our first B2P project—the footbridge in La Caldera, Nicaragua. Nearly 10 applications were submitted to volunteer for this effort and four team members were selected, along with one alternate, to join the AB team. Led by long-time American Bridge employees, Ron Crockett (Pre-Trip Logistics Manager) and Ugo Del Costello (Construction Manager), the lineup included Kwadwo Osei-Akoto (On-Site Logistics Manager), James DiPasquale (Safety Manager), Dallas Compeau (Team Member), Miguel Lo (Team Member) and Joshua Perry (Alternate Team Member).

The AB Team began working diligently over the next six weeks to develop and finalize the AB/ARUP Corporate Team Construction Plan and Schedule, Safety and Health Plan, and Logistics Plan. The pre-trip organization effort, led by Ron Crockett, covered all foreseeable instances we could encounter during our travel abroad. From ensuring team members were up-to-date on necessary immunizations, all passports were valid, appropriate PPE was available, right down to the food we would be eating and how much water we would be drinking for two weeks, Ron had us covered.

The construction planning and scheduling effort, led by Ugo Del Costello, Ron Crockett and myself, analyzed the design provided by B2P. We developed our own unique Means and Methods to ensure we maintained safe practices while still completing the work in a timely manner. In fact, the alternate scheme developed by AB to raise the tower segments

significantly improved the safety of this operation and was adopted by B2P and will be implemented on all future builds. The safety and health planning efforts, led by James DiPasquale, covered all hazards our team members could be exposed to. Not only did James develop the Job Hazard Analysis (JHA's) for all work activities, he considered environmental hazards, such as poisonous native plant life, wildlife, and insects.

After a series of coordinated group calls with B2P staff and the corporate team, and the successful review of our plans and procedures, we were ready and well-equipped to embark on this adventure that would be completely unfamiliar to us all.

On Saturday, November 14, 2015, team members from around the United States and Canada departed for the capital city of Managua and we all stayed our first night at the hotel across the street from the international airport. The following morning, we had a scheduled breakfast meeting with B2P's Program Coordinator for Nicaragua, Katie Lavvorn, who brought us up to speed with the status of work onsite and educated us on local Nicaraguan culture. We then set off on the four hour journey to the bridge site! Our first stop along the way was to the small municipality of Tipitapa in the Managua Department. Here, we stocked up on our main food source for the week: eggs, rice, beans, chicken, sardines, and beer.

The next leg of our adventure was to the municipality of Esquipulas in the Matagalpa Department. While in Esquipulas, our team hosted a lunch meeting with the Mayor and some of his officials and there, the team was also introduced to the rest of the B2P team, including Alex McNeill (Program Manager for Nicaragua), Leonel Suárez Mejía, (Lead Foreman), and Chepe (Assistant Foreman). The Mayor's office ensured security measures were in place during our lunch with a patrolman

diligently watching our vehicles—containing all of our clothing, camping gear, tools, and food for the next two weeks. I vividly recall seeing this armed patrolman pacing up and down the street while I looked out through the barred windows of the family-owned restaurant.

The next and final leg to La Caldera was a treacherous ride through the rural mountainside. To help paint the picture of how this trip went, Esquipulas to La Caldera was less than 15 miles in distance but took over an hour to reach through the switchbacks of the mountainside. It's worth noting that Nicaragua doesn't have guardrails on any of these mountainside roads.

Around 3:00 p.m., we arrived at a villager's small farm and quickly realized that this was home for the next two weeks. As we began to unpack and set up camp, Mother Nature warmly welcomed us to the rainforests of Nicaragua as the sky opened and it began to rain non-stop into the night—completely soaking our gear. Later that night, we gathered at the “pavilion” to have dinner. This gathering area was nothing more than a tin-roofed shelter with no walls to offer protection from the rain—or the farmer's livestock. To put it bluntly, we took over the living room the animals enjoyed by themselves for many years. It didn't take long to reach the sobering conclusion that we were living on a farm and cohabiting with cows, pigs, roosters, and dogs. We called it an early night and tried to get some rest—the next morning marked the first day of the build.

Building the bridge proved to be incredibly challenging. We understood that the work would be both mentally and physically demanding, but hadn't realized that the vast majority of the work would have to be performed solely by the corporate team and without much help from the local community. This differs from the typical B2P project, where some of the initial site work is started

**“...we took over the living room the animals enjoyed by themselves for many years. It didn't take long to reach the sobering conclusion that we were living on a farm and cohabiting with cows, pigs, roosters, and dogs.”**

before the team arrives. As an alternate team member, I was informed just two weeks before our departure that I would be heading to Nicaragua to help with the build. November marks the beginning of the coffee harvest in most of Central America, and from November through March, the vast majority of Nicaraguan workers tend to the coffee bean farms. This short harvest season provides subsistence throughout the remainder of the year until the next harvest. Coffee has been Nicaragua's principal crop since the late 19<sup>th</sup> century and has remained one of their prominent exports. This was the sole reason the local community members we were counting on to help with the build would not be there. Once onsite, we truly realized that we were going to have to build this bridge by ourselves!

#### **A TYPICAL DAY**

Over the next two weeks, we worked every day from Monday, November 16<sup>th</sup> through Wednesday, November 25<sup>th</sup>, with the exception of Friday the 20<sup>th</sup>. Heavy rains that began on Thursday night and lasted throughout the day on Friday caused the Los Mollejones River to rise to a level that prevented us from safely getting anything done. Our routine changed little from day-to-day, except for the specific work at hand. By 6 a.m., everyone would convene for breakfast and share some locally grown and roasted coffee. During breakfast, Ugo and James would hold our safety meeting

and review the work to be done that day along with the JHA's for each activity and how to eliminate any hazards. Sebastian from our corporate team partner, ARUP, would help translate this information to Leonel, our Lead Foreman. By 7 a.m., the team would leave camp and take the two minute walk to the river to begin work.

We generally had two or three crews working throughout the day. In the early days of the build, we had one crew on each side of the river erecting the scaffolding that would be used to trip the towers into position. These crews were led by Ugo and Dallas. Our third crew worked in the staging yard, across the river from camp. This crew, led by Leonel (B2P) and Maxime (ARUP) worked on all support tasks such as cutting, bending, and painting suspenders, cutting and pre-drilling deck planks, and assembling crossbeams. All crews worked throughout the morning until noon. Then, everyone would head back for lunch and a well-deserved break from the sun and heat of the Nicaragua rainforest.

Lunch (just like breakfast and dinner) always consisted of rice and beans, along with some variation of chicken—either stewed, baked, or fried. On some occasions, Miguel would ensure we had enough sardines to accompany our breakfast, lunch, and dinner. Not everyone would agree, but I found it was a welcomed break from the normal culinary delight of rice and beans. Every couple of days, Miguel would lead the effort to head back into Esquipulas to re-stock our supply of food and water. During one trip, Miguel managed to procure what I assume was the entire town's supply of Oreo cookies—a delectable treat for our taste buds. And thanks to Kwadwo, enough ready-to-make pancake mix was bought to last us the full two weeks, which became the most requested food item on our menu. We even had “syrup” to put on our pancakes. Sadly for Kwadwo though, he brought the mix, so he had to make the pancakes.

After a 30-45 minute lunch break, we headed back to the bridge site to resume working until around 5 p.m. As the days went by, we noticed team members started to race back to camp to stake their spot in line for the shower. This became a hot commodity at the end of the work day and before dinner. Even though the shower consisted of only a 55-gallon drum filled with water and a bowl to rinse off, it was an enjoyable 15 minutes in which we could “get clean” and feel refreshed. It was better for all of us if we ignored the fact that we probably weren't getting as clean as we'd like to be after sharing a drum full of soapy water!

### **SOUNDS IN THE NIGHT**

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In the evenings, we gathered under the pavilion to keep dry from the rain that usually started right about the time we finished work and would continue until we retired for the night. James kept record of the weather and noted that we experienced rain on nine of the 11 nights during our stay. After dinner, we socialized and played cards, guitar, chess, or talked and told stories. This usually took place over several Toña cervezas (local Nicaraguan beer) and sometimes a sip of local rum (we learned the big difference in quality between the four year and the seven year varieties). When only the four year was left, everyone pretended as if it tasted like a 12 year scotch—some of us more than others.

At this time of year, nightfall hit the mountainside by 7 p.m. and the Nicaraguan sky would become impossibly dark and full of rain clouds and stars. By 8 p.m., it felt like 11 p.m. Aside from an occasional late night due to a birthday or dance party, we would usually hit our tents by 9 p.m.

I know without a doubt, that by 4 a.m., the entire team was ready to wring the necks of the roosters crowing back and forth between farms. Don't believe the Sunday morning cartoons that lead you to think roosters only







crow when the sun comes up. Maybe they do elsewhere, but our feathery Nicaraguan friends enjoyed crowing at various inconvenient hours throughout the night and into the early morning. In addition to the seemingly harmless roosters, we were welcomed to the dark nights of this mountainside village by the loud and eerie sounds of the howler monkeys. I urge you to Google “Howler Monkey Sound” and try to imagine what it might be like to hear that hair-raising wail, protected only by your tent in the pitch black night. Needless to say, the nights were damp and restless, and dragged on for everyone. Getting up the next morning for breakfast was a bittersweet start to the day.

### **OPENING DAY**


November 26, 2015 was inauguration day for the bridge, the same day our families celebrated Thanksgiving back home in the States. Ironically (if not cruelly), the weather on this day was the best of the two weeks. It was sunny, dry, and not too hot or humid. The Mayor and his officials did not arrive for the inauguration until 3 p.m., so we all spent the day breaking down camp, preparing for the event, and relaxing. The AB team even had a chance to get away for a short time to travel through the nearby villages.

We were all thrilled by how many La Caldera community members arrived for the inauguration. Dallas counted nearly 100 people at the event. During the speech given by the Mayor, we learned that the La Caldera community had been petitioning for a bridge to be built for the past ten years! Imagine what this day must have felt like for this community. A dream ten years in the making, and our team were the ones fortunate enough to deliver it and watch them cross the river safely for the first time. I know I can speak for the entire team that all of the struggles, challenges, and long days we experienced while constructing the bridge were forgotten during the inauguration. Seeing firsthand how invested the community

**“The personal benefits you will gain are greater than I can even attempt to express to you.”**

was in the creation of this bridge and how important it is for their ability to thrive and grow was a life-changing experience that we won't soon forget.

Once the inauguration was over, the AB team jumped in our trucks and began the long, winding journey back to the capital city of Managua so that we could catch a plane the next morning for our long-awaited trip back home. By Friday night, November 27<sup>th</sup>, we were all safely home, taking real showers, sleeping in our own beds, and not once being woken up by livestock or howler monkeys.

Paul Driscoll, AB's Chief Financial Officer, is a sitting board member with B2P. Since Paul joined AB, we have donated materials for other builds and have now participated in our first-time build, The Las Calderas Suspension Bridge. I'm confident AB will continue to participate with this organization in the future and should the opportunity come again that AB does volunteer to build another footbridge in a different part of the world, I strongly suggest AB employees to submit an application to volunteer your time and abilities towards helping one of these isolated communities better their chances at thriving. The lucky group of chosen team members will gain valuable experiences, build courage, and carry the pride earned by helping others in need. The personal benefits you will gain are greater than I can even attempt to express to you. 

Learn more about B2P: <http://bridgestoprosperity.org/>

# CONSTRUCTION S

1

## STAGING YARD ACTIVITIES



As part of the beginning steps of construction, AB and ARUP verified proper bends and lengths of the rebar suspenders and then pre-painted them in the staging yard.

2

## SCAFFOLDING



Scaffold erection was the first step at the bridge site once AB and ARUP arrived, which would aid in the days to come. On the left is a partially-completed scaffold at the right tower. On the right, the installation of tower-cant offset stop on top of the completed right scaffold is taking place.

3

## TOWERS



Using innovative techniques, the team transported the left tower leg sections across the Los Mollejonos River utilizing two pickup trucks.



The team lifting a tower leg into a horizontal position to assist in pre-assembling the tower.



The tower trip-up at a 45 degree angle, half-way to its final standing point.

# SEQUENCE

4

## SUSPENSION COMPONENTS



With the main cable strands in the process of being installed, the bridge finally has a connecting visual from one side of the river to the other.



“Hokey” (Ugo) in a makeshift bosun’s chair untwisting crossed main cable strands.



The structure finally starts to replicate a bridge as crossbeam and suspender assemblies are installed.

5

## DECK PLANKS



A usable structure is almost complete as deck planks are installed at the right tower, one of the last major steps in the construction of this bridge.

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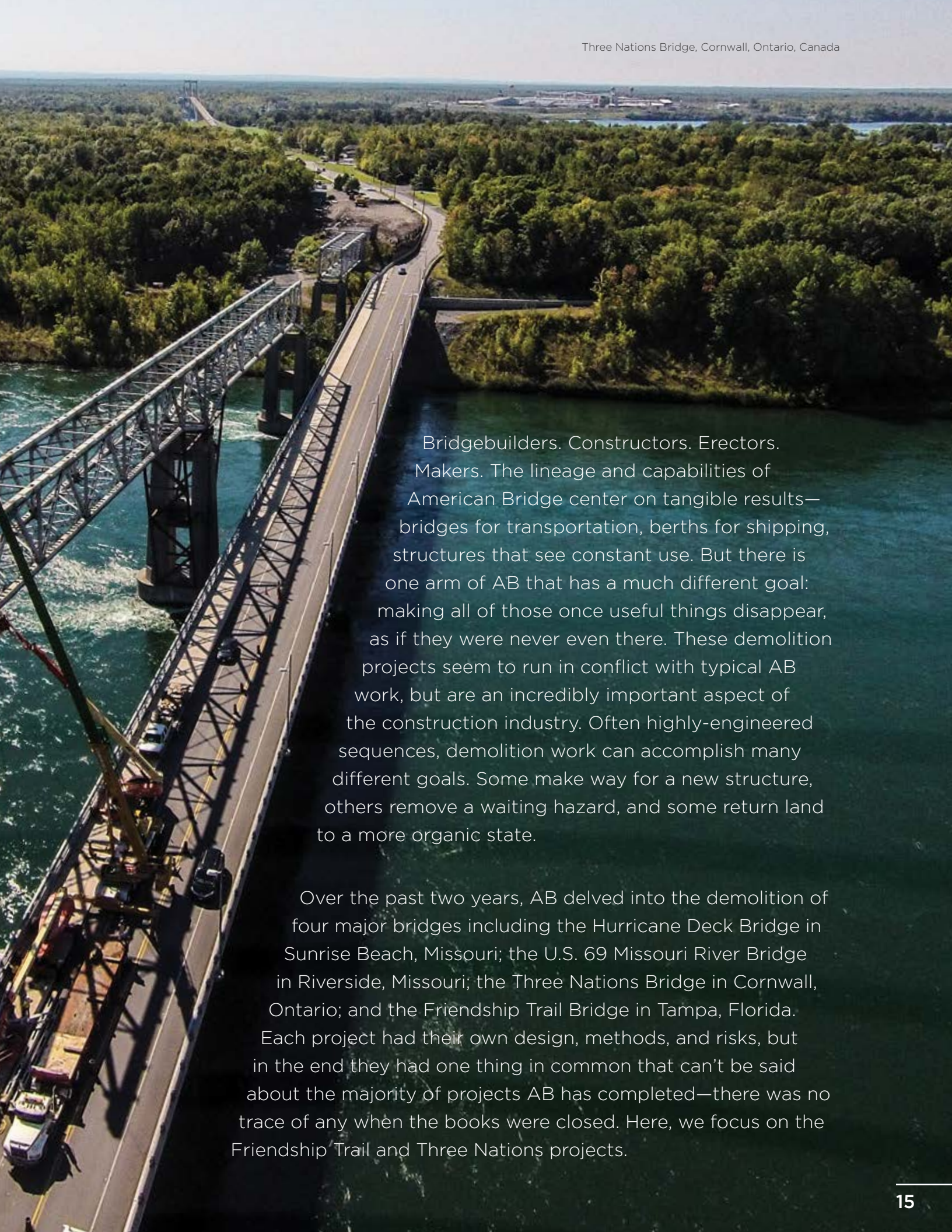
## COMPLETED PROJECT



The long-awaited La Caldera Bridge in use by the community after the grand opening.

# WITHOUT A TRACE:

Demolition Projects Leave  
Nothing Behind



Bridgebuilders. Constructors. Erectors. Makers. The lineage and capabilities of American Bridge center on tangible results—bridges for transportation, berths for shipping, structures that see constant use. But there is one arm of AB that has a much different goal: making all of those once useful things disappear, as if they were never even there. These demolition projects seem to run in conflict with typical AB work, but are an incredibly important aspect of the construction industry. Often highly-engineered sequences, demolition work can accomplish many different goals. Some make way for a new structure, others remove a waiting hazard, and some return land to a more organic state.

Over the past two years, AB delved into the demolition of four major bridges including the Hurricane Deck Bridge in Sunrise Beach, Missouri; the U.S. 69 Missouri River Bridge in Riverside, Missouri; the Three Nations Bridge in Cornwall, Ontario; and the Friendship Trail Bridge in Tampa, Florida. Each project had their own design, methods, and risks, but in the end they had one thing in common that can't be said about the majority of projects AB has completed—there was no trace of any when the books were closed. Here, we focus on the Friendship Trail and Three Nations projects.

# Friendship Trail Bridge

Location: Tampa, Florida | Project Value: \$11.2M

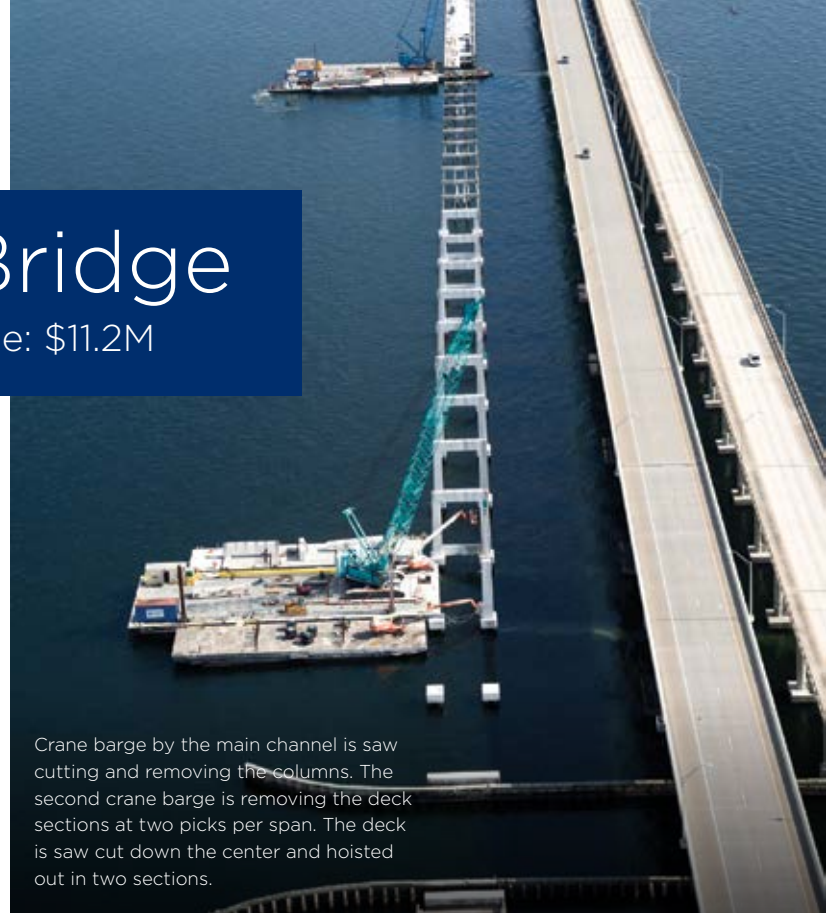
The now completely demolished Friendship Trail Bridge assumed several different personalities over its lifetime. Originally an automotive bridge when it was constructed in 1956, it was transitioned into a 2.6 mile trail segment after engineers deemed it unsafe for vehicles. From 1999 to 2008, it provided a connection between Hillsborough and Pinellas Counties for walkers, joggers, and cyclists. However, when engineers found it structurally unfit to support pedestrians, it was closed after nearly 10 years of trail use.

The original 13,770 foot long bridge was made up of three distinct superstructure components; the structural steel span over the designated navigation channel, the concrete girder spans leading to the navigation spans, and the concrete girder spans.

The demolition involved the complete removal of the bridge spanning Tampa Bay, including the removal of a 1,440 foot structural steel girder span across the navigational channel supported by 48-foot high concrete columns and concrete bents caps. The balance of demolition was 12,096 feet of low-level trestle consisting of 248, 48-foot spans with a superstructure concrete deck supported by concrete caps and 18-inch by 18-inch concrete pile bents.

AB partnered with engineering firm Aryes Associates Inc. on the design-build project. Aryes' scope of work included the procurement of permits from various stakeholders and final demolition plans based on AB's selected means and methods.

There were several significant challenges that had to be carefully considered for a successful completion of the Project. Since the bridge spanned Tampa Bay, harsh weather conditions were a constant worry. The construction work, lasting from July 2015 to October 2016, covered two hurricane seasons and persistent



Crane barge by the main channel is saw cutting and removing the columns. The second crane barge is removing the deck sections at two picks per span. The deck is saw cut down the center and hoisted out in two sections.

strong winter cold fronts. In order to progress the work as scheduled and to mitigate the possibility of weather delays, AB employed two 275 ton cranes mounted to 150 by 60 barges.

Each crane barge was equipped with a double drum deck winch that was used to operate the spuds. There were four, 120-foot by 30-foot material barges used to shuttle the demolition materials from the work areas to the offloading dock location. To move the crane and material barges, two 500 HP pusher boats, Bridge Builder IV and Bridge Builder V, were utilized. In the event that weather created unfavorable conditions, all of the equipment had to be secured. Instead of mooring off at the work location and leaving equipment exposed to weather, the team demobilized crane barges to a safe harbor location.

The second challenge was protection of the recreational and commercial boater traffic from the active work zones. As part of the design-build responsibilities, a boater safety zone was established in coordination with the United States Coast Guard and Hillsborough County. The work area was designated by a series of buoys along with the publication of the USCG



notification to mariners. During the progression of the work, no incidents occurred between the boat traffic and AB barges.

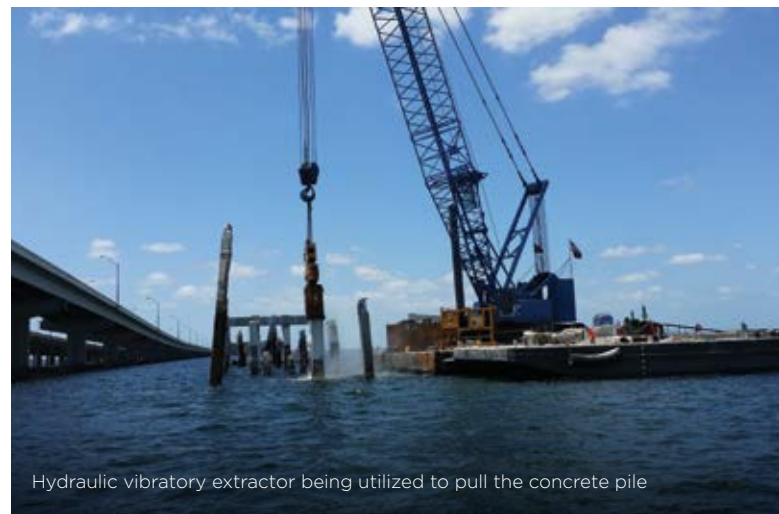
AB's in-house Engineering Department was an integral part of the success of the Project, primarily focusing on the demolition means and methods. The Engineering Department developed the barge charts for the Manitowoc 999 Series III and Kobelco CKE 250 that were used on the Project. AB Engineering designed 24-inch diameter spreader beams, which gave the Project Team the flexibility to pick the 48-foot span and the 72-foot span superstructure sections. AB's engineers also helped design the cofferdams and pick plans for the removal of two submerged piers. Pier 12 and Pier 13 had to be removed to elevation -19.00.

The equipment resources that were selected gave AB the ability to remove the largest possible sections of bridge. Each of the 48-foot superstructure spans consisted of four concrete girders with an 8-inch concrete deck and Florida Department of Transportation (FDOT) concrete curb and barrier wall. Each superstructure span weighed around 125 tons with the concrete pile caps supporting the spans weighing in at 18 tons. Each pile bent was supported by either four or six 18-inch by 18-inch concrete pile cluster. The 48-foot span sections were demolished by cutting the bridge deck and concrete diaphragms in the middle of the span. Each section of the superstructure weighed 62.5 tons. The pile caps were removed by utilizing a Prime 24 concrete shear. Finally, the piles were removed by employing an APE 300 Pile Extractor.

The 72-foot spans consisted of six concrete girders with an 8-inch concrete deck and FDOT concrete curb and barrier wall. The superstructure deck was saw cut into five sections with a maximum weight of 50 tons. The piers supporting the superstructure were as high as elevation 42.03. The piers consisted of a 28.5' by 5.0' by 5.5' pier cap supported by two piers (5.0' by 3.0' by 36.0') and a 5.0' by 2.75' by 20.0' concrete strut at the bottom of the piers. The piers were demolished by wire sawing the pier into four manageable sections; the pier cap, the two columns, and the strut. The columns

for the pier were supported by two 9.0' by 7.5' by 4.0' bents caps. These were carried by five 18-inch by 18-inch concrete piles. Wire sawing the pile under the pier was the most effective method for removing the pier caps.

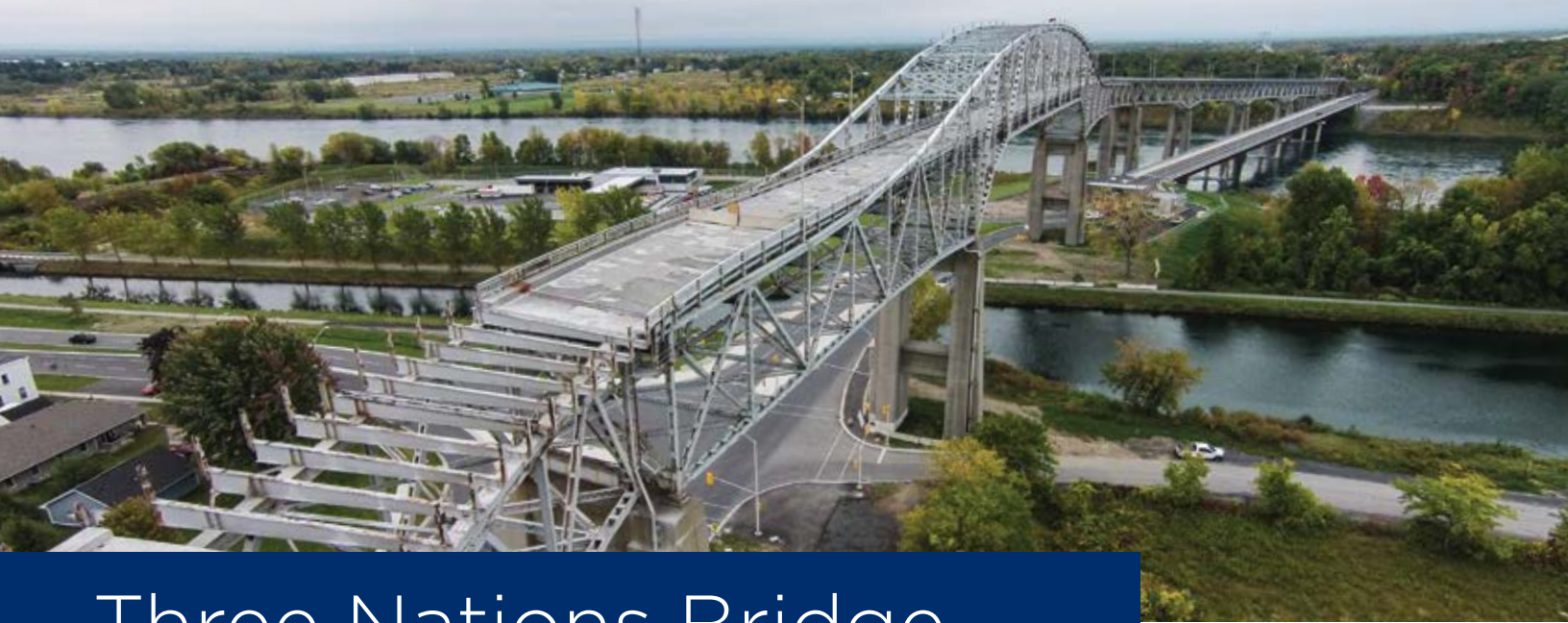
The entire bridge was removed in just eight months, six months ahead of the scheduled completion date, and on May 9, 2016 a post-demolition hydrographic survey was performed utilizing a multi-beam sonar. Results were then compared to the pre-hydrographic survey that was conducted before demolition work started. The results were favorable and showed that there was no measureable demolition debris left on the bay bottom, and with no bridge left behind, AB added this project to its long list of successful feats.



Hydraulic vibratory extractor being utilized to pull the concrete pile



Piles under column caps were cut with a wire saw. The pile configuration prohibited the use of the hydraulic pile shear.



# Three Nations Bridge

Location: Cornwall, Ontario, Canada | Project Value: \$15M

Meanwhile, about 1,500 miles north of the Friendship Trail Demolition project site, the demo of the Three Nations Crossing, also known as the North Channel Bridge, was taking place. This structure consists of two separate bridges connecting Cornwall, Ontario, Canada to Massena, New York, USA. The south channel bridge, from Massena to Cornwall Island, Ontario, was completed by AB in July of 1959. The north channel bridge, from Cornwall to Cornwall Island, was deemed to have exceeded its life cycle and was scheduled to be replaced in the mid-2000s. The North Channel Bridge Replacement was divided into four separate contracts. The demolition contract is the third of four phases, and was awarded to AB in June of 2014. AB also previously completed the first phase of the bridge replacement, construction of the new piers, in 2012.

AB's scope on this project was to remove the decommissioned bridge in its entirety in a controlled, safe manner. No explosives were permitted due to the high pressure gas line that ran adjacent to the bridge, which was also in a highly residential area. The bridge itself consisted of approximately one mile of concrete road deck and 33 spans of structural steel supported by 32 concrete piers and an abutment at both the north

and south ends. During the planning stages early in the project, it became evident that the demolition nature of the project would create some unique challenges.

The first step in the demolition process was to remove approximately one mile of 6-inch reinforced concrete deck, including two traffic lanes plus sidewalks. Deck slabs were saw cut and removed one by one with an excavator and trucked off site by AB's subcontractor. As deck removal was ongoing, AB was developing plans to remove the entire steel superstructure. Since the removal of deck slabs cut off vehicle access to the bridge, prep work for the steel removal was performed much earlier than originally planned. The early installation of various lifting hitches and tie downs from the road deck was able to save the project time in the long run. The first deck slab was pulled in August of 2014 and continued through one of the coldest winters on record in the area to completion in June 2015.


As the snow began to melt in April of 2015, AB was mobilizing a Manitowoc 2250 crawler crane to the site to begin the removal of steel. The steel superstructure consisted of five rolled girder approach spans, six built-up plate girder approach spans, 19 deck truss approach

spans, and a 3-span continuous through truss main arch span. The steel removal procedures, all of which were developed by the AB Engineering Department, were broken down into three main categories: spans over land, spans over water, and the main span. The majority of the bridge fell into the “over land” category. These spans, both simple and continuous, were removed with the M2250. Tower crane sections of varying heights were used as falsework to support different bridge sections as required.

Only four spans of the bridge were over water, but these spans proved to be some of the most difficult to remove. The north channel of the St. Lawrence River has a current as high as eight knots. When working from the water in these swift currents turned out to be more difficult than anticipated, AB immediately shifted gears. To eliminate the need for a barge mounted crane, the owner granted AB permission to stage a smaller hydraulic crane on the deck of the newly built low level bridge to perform the steel removal. The continuous water spans were removed one beam at a time from July 2014 through October 2015. Falsework bents were installed on the middle pier, and the final two spans were removed as a balanced cantilever. These cantilevers were nearly 300 feet on either side of the pier! This demolition

method was much safer than performing the work from the river.

On the morning of September 30, 2015, the entire city of Cornwall came out to watch the main arch span of the bridge lower to the ground. The 1,000 ton main span, including both steel and concrete weight, was lowered 150-feet using strand jacks. The lowering process began at about 1:00 p.m. and lasted a full nine and a half hours until 10:30 p.m. Cheers were heard from the spectators who stuck around to watch the final touch down. The back span portions of the main span were removed in much smaller pieces in the months to follow, completing the removal of all structural steel totaling over 10,000,000 pounds.

As the spans of steel were removed, a pier demolition crew followed closely behind. Each pier was removed with an excavator equipped with a hydraulic hammer. The concrete piers were as tall as 120-feet at the main span of the bridge. The tallest of the piers took as long as six weeks to demolish, while the shortest approach piers were taken down in just half a day. The final pier was demolished in May of 2016 marking the completion of the Project. The contractual completion date was June 30, 2016. 



Pier 1S demolition



Ironworkers - Local Union 765, Ottawa, Ontario

# INTERNATIONAL TEAM BRINGING FOCUS, SUCCESS TO EUROPEAN OPERATIONS

Since our establishment in 1900, American Bridge has maintained an international presence, and in 2014, took the important step of establishing a full-time group overseas. Enter James (Jim) Mawson and Nick Lamb. Veterans of the construction industry and experts in the international market, Jim and Nick have already made big strides in advancing AB's market presence in the United Kingdom and Europe. Here is a brief introduction to the team leading the charge as American Bridge International (ABI).



**NICK LAMB**  
BUSINESS  
DEVELOPMENT  
MANAGER

## What does a typical day look like for you?

The nature of my role means that it's difficult to describe a "typical" day. I can be in meetings with potential clients, touring a job with a potential partner organization, researching databases for new leads or putting together a proposal for submission. The variety is one of the reasons I love my job.

## What do you see in the future for ABI?

The future looks bright with record breaking projects like the Dardanelles Crossing and Julsundet Bridge in the pipeline in Europe. We'll also be looking to build on our reputation for rehabilitation projects that we've established on the Severn Cable Inspection by winning more jobs of a similar nature. In a similar manner to the US, there are numerous 1950's and 60's-era bridges in the UK that, due to a lack of maintenance, are deteriorating and require major structural rehabilitation in the next

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**My ambition is for ABI to be identified as the partner of choice by our clients when implementing a strategic maintenance program for their assets.**

”

few years. This, coupled with the fact that there are very few companies in the UK that have the expertise and the resources to carry out this work, mean that there is an opportunity for ABI to aggressively gain market share and generate returns over and above those typically achieved in the UK. We already have excellent relationships with the various bridge authorities and top level consultants in the UK, cultivated over ten years delivering main cable rehabilitation projects, access gantries, bearing replacement, etc.

**What are the highlights of your experiences at AB so far?**

It sounds cliché, but there have been so many highlights it's hard to cover them all. Working with great people to produce fantastic bids, traveling to the top of the towers on Queensferry and Tappan Zee, and attending my first Annual Meeting at Nemaquin are just a few. The biggest highlights have to be learning that we'd won the Severn Cable Inspection and Delaware Memorial Dehumidification contracts though. After tracking these for over three years it was incredibly satisfying for Jim (Mawson) and me to learn we'd been successful.

**What are you looking forward to as AB steps more and more into the construction market overseas?**


I really like working on large complex bids, so I'm looking forward to getting my teeth into some more of these over the coming months. Developing the ABI brand is also something I'm really passionate about, though it might surprise some people just how strong our reputation is already in these parts. American Bridge has a long history of innovating in order to differentiate ourselves from our competitors.

I'm passionate about adding to this legacy by identifying new technologies that can assist us in generating greater value for our clients. There are a number of exciting innovations in structural health monitoring and maintenance programming that have the potential to revolutionize how our clients manage and maintain their assets. My ambition is for ABI to be identified as the partner of choice by our clients when implementing a strategic maintenance program for their assets.

**How did you become interested in engineering and construction?**

I grew up in the shadow of the Humber Bridge during its construction and remember the Queen opening what was at the time (1981), the longest single span suspension bridge in the world. Ever since then I've always taken an interest in major engineering projects, including the Channel Tunnel, Heathrow T5, the Boston Big Dig and the Burj Khalifa. After leaving University with a Degree in Science, I studied for my MBA, then went to work in the oil & gas industry. I started my career working five years marketing and delivering proposals for a company that supplied operations and maintenance documentation for oil rigs, LNG plants and nuclear power stations. I was then approached to do a similar job for a strategic safety consultancy, who performed risk assessments including the statistical analyses of gas cloud dispersal patterns, and failure modes, effects and criticality analysis of safety and mission critical equipment. I then joined Spencer Group where I met Jim and worked alongside him to deliver proposals for major bridge rehabilitation schemes. Our work took us to Halifax, Nova Scotia to bid to AB for the dehumidification of the Angus Macdonald Bridge. Shortly after that I joined AB, and the rest is history!

**What are some of your interests outside of work?**

I've been a fan of the National Hockey League, and more specifically a Colorado Avalanche fan since they moved from Quebec in 1996 and also follow soccer and rugby in the UK. I'm also a craft beer enthusiast and whilst in the US have taken the opportunity to sample many from excellent breweries like Long Trail, Yards, Firestone Walker, and of course Fatheads. 

# JIM MAWSON

## OPERATIONS MANAGER UK & EUROPE



**How did your previous experiences prepare you for your position as AB's Operations Manager of UK and Europe?**

I have 18 years of experience in civil engineering; I spent seven years tunneling under the UK, Singapore, and Hong Kong, three years in railroads, and the last eight years working on large bridges. All of this has provided me with adequate experience in the general world of civils including the safety, quality, planning, and commercial aspects. In my previous job with a UK civil engineering contractor, I headed a team undertaking large span bridge rehabilitation, a position I attained over time from my early days as a Field Engineer. This near-decade worth of exposure has armed me with the necessary experience to fully understand the complex nature of the work AB undertakes, not just here in Europe but globally too. It is, after all, the same work wherever we travel.

Over this period of time my understanding of the nature of our work from a consultant and client's perspective has grown as well. We need to have synergy with their needs and empathy for their anxieties if we are going to build and maintain relationships with our customers. This approach

has allowed me to develop relationships with bridge owners and I have brought those relationships with me to AB. The bridge community globally is tight-knit and small and through the years I have attended many conferences and exhibitions which have allowed me to network, building up many contacts in the community along the way.

**What has been the most challenging aspect of this new position?**

In the UK we have a civil engineering role called a Quantity Surveyor. Their job is to look after all commercial aspects of a contract, and they would embed themselves in a site team. They would typically look after the main contract; change orders, claims, applications for payment along with subcontractor engagement and commercial management. Therefore, the single most important and most challenging aspect has been to absorb this role with the role of Operations Manager looking after our first UK contract on the M48 Severn Bridge Main Cable Inspection. I must say I prefer the US way; it gives a much clearer focus and view of the commercial status of a contract for the Project Manager and/or Operations Manager. It has been

a challenge to overcome this large and significant civil engineering cultural difference. Everything else in the role remains the same and is consistent. Oh, and spelling too, I have noticed how the US doesn't like to spell correctly and how you miss out letters here and there—two countries divided by a common language!

**What are you most excited about with your new position?**

I am extremely excited and motivated to build a sustainable and viable UK-based business for AB. We are off to a great start by winning the Severn Bridge contract and the job is well underway. We need to build on this, although it is still very early. The support and understanding from the departments at the AB Headquarters in Coraopolis, Pennsylvania has been outstanding throughout. They are on board and I think they are all excited about it too, especially for the possibility of travel to Europe and the UK in the future.

UK and Europe Business Development Manager, to identify and track opportunities as they arise and plan to meet clients prior to bid releases to further expand our network of contacts and spread the ABI name far and wide. I am also involved with Delaware Memorial Bridge Dehumidification project (New Castle, Delaware) and Angus L. Macdonald Suspended Spans Deck Replacement (Halifax, Nova Scotia) because of my experience with suspension bridge main cable dehumidification. Although this is not full time by any means, it does add to my work load with trips to both project sites periodically to assist wherever I can.

**What do you see in the future for ABI?**

ABI will grow. The opportunity exists in the UK for a solid bridge rehabilitation contractor, and when the opportunity arrives, one that can also undertake the larger scale new build too—we are doing both currently. Both myself and Nick work hard to identify opportunities



**I am extremely excited and motivated to build a sustainable and viable UK-based business for American Bridge.**




**What does a typical day look like for you?**

At the moment a typical day is extremely busy. Not only did we need to set Severn up as a contract, but simultaneously the framework and foundations of a business too. We didn't exist and were without a single vendor account just six months ago in the UK. Not one account from our joint venture at the Queensferry Crossing project could be used—the history was with Forth Crossing Bridge Constructors (FCBC) and not ABI.

I look after all commercial aspects of the contract; budget, CO's, applications to the client and subcontractors. It has led to many long days to achieve but it will be worth it. Planning and overseeing Severn takes up a lot of time during a typical day, although now that the team is settling in and we have the vendor accounts we need, I will be able to stand back. In between I work closely with Nick Lamb, our

and to maintain existing client relationships to ensure we are always in the running come bid release. I believe we can grow in the UK and become the bridge contractor of choice, and not forgetting those technical and risk laden one-off jobs that AB as a business is so good at delivering. They will be looked at, if and when, they arise.

**What are some of your interests outside of work?**

Outside of work, my partner and I have two boys, Jack, three and Bertie, one. They obviously come first, keeping them entertained and active when I'm at home with trips out, etc. If there is any spare time after that, I enjoy gardening. I find it relaxing and it allows me to escape from work. I also have a commercial helicopter pilot license and enjoy nothing better than hiring a chopper for a few hours and taking friends and family out over rural Yorkshire and maybe landing at a county pub for food and drink, non-alcoholic for me though! 

# A LIFE-LONG CAREER OF ADVENTURE



## Ron Crockett reminisces on fond memories of his travels around the world

It wasn't always the construction industry that excited Ron. Although growing up with a father who was a general contractor always kept construction in the back of his mind throughout his high school and early college years, Ron wasn't convinced that the industry was for him. His interests were instead driven by the practical application of math and trigonometry, and as a self-proclaimed "nerd" Ron also had visions of becoming an astrophysicist. By his sophomore year of college, Ron realized he didn't want to work in a laboratory, or spend five to six more years getting a PhD. He transferred schools and began pursuing civil engineering with the intention of going into construction. He was then offered a fellowship at the University of Illinois to secure a Masters in Civil Engineering, specializing in

Construction Management, and as he says, "the rest is history!"

Ron worked on a variety of notable AB projects, such as the Las Vegas High Roller, the San Francisco-Oakland Bay Self-Anchored Suspension Superstructure, the Tagus River Bridge, Lions Gate Bridge, and the Wheeling Suspension Bridge. These projects took him from state to state, country to country, and back again. Shortly after coming to the Pittsburgh office of American Bridge in 1990 after a couple of years in Chicago, Ron was put in charge of pursuing a project in Denmark and another in Hong Kong, though neither were successful bids for AB. Soon after, Ron got the opportunity to switch direction from administration to operations, and just a few months later, found himself traveling to Europe with Bob Luffy, former President and CEO of AB. By the end of 1994, Ron was assigned to look after the tender for the Tagus Bridge. He continued leading the AB team for the project after the contract was awarded a year later. Ron then spent the next six



months working with other AB employees planning the work before heading off to Portugal in June 1996 to start construction. “My favorite project was the 25<sup>th</sup> of April Bridge over the Tagus River in Lisbon, because it got American Bridge’s name back on the map in terms of current suspension bridge experience and also provided me a great learning experience and foundation for things to come,” said Ron. “I have very fond memories of living and working in Portugal!”

As a veteran of some of AB’s most significant projects, Ron has a lot to be proud of. But if he had to pinpoint one thing—it was a recent effort, considering the many years of his life he has put into his career. Ron was Technical Director for the San Francisco-Oakland Bay Self-Anchored Suspension Superstructure, which started in late 2002. In this position, he was able to use his prior experiences to contribute to the success of his role—his many years of experience culminated into one great accomplishment! As Technical Director, he started with the early stages of contractor outreach, continued through developing the basic construction means and methods applied when bidding the project and finally during the first three years of the project, he guided the team leaders (Kevin Smith, Nick Greco, Scott Tudor, and other outside consultants) to finalize the construction means and methods. This all laid the foundation for the successful field operations that followed.

Because of their caliber and experience, AB retirees always have a way of making things seem easy and seamless. Ron will be the first to tell you that is not true. However, because of his many years of working for AB, Ron was prepared for the challenges of the San Francisco-Oakland Bay project. Ron recalls the Lions Gate Suspension Bridge as the most challenging project with which he was ever involved. While difficult, it prepared him for his future projects. “The experience I gained from that project, and from Tagus, was invaluable when planning the erection engineering and means and methods work for the very successful Self-Anchored Suspension Span of the San Francisco-Oakland Bay Bridge,” said Ron. Everything had finally come full circle for him.

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**“Ron has been instrumental in the re-building of American Bridge. He took on leadership roles and successfully delivered projects that resulted in AB being recognized as a leader once again in complex structural construction, including the 25<sup>th</sup> of April Bridge in Lisbon, the Lions Gate Bridge in Vancouver, and the Wheeling Bridge in West Virginia. He was instrumental in winning and in setting up the engineering team for the San Francisco-Oakland Bay Self-Anchored Suspension Span. In more recent years Ron demonstrated amazing breadth of knowledge ranging from detailed engineering to insurance, and positively impacted the Queensferry Crossing and the Las Vegas High Roller in that regard. I’ve had my share of personal battles with Ron, but I hold him in the highest regard for his skills and purity of motives. We would not be the company we are without him.”**

—Mike Cegelis,  
Senior Vice President

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**“When I think of Ron, I think of the incredibly difficult retrofits on the 25<sup>th</sup> of April Bridge and the Lions Gate Bridge. Ron was Project Manager on both of these resume building projects and it was his leadership that helped restore AB’s brand. On SAS Ron not only played a role in technical oversight of our engineering team, but was key in design development, procurement, and construction of the now famous Left Coast Lifter. With a keen eye for risk from both an administrative and an engineering standpoint, Ron’s knowledge and input will be greatly missed.”**

—Mike Flowers,  
Former President & CEO

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**“Ron once described our profession as inventors rather than engineers because we are doing things that have never been done before. The three projects where I had the privilege of working with Ron were all firsts. Each presented unique challenges, and Ron provided the guidance to successfully navigate these projects to completion. I cannot say enough to describe Ron’s contributions to these projects, AB, and the construction industry. His dedication is an inspiration, he is my mentor and he is truly an inventor.”**

—Kevin Smith,  
Chief Engineer

It’s a common theme among AB retirees to note that the people they worked with are one of a kind. When reflecting on what he will miss most about AB, Ron says, “working with the people on the variety of projects, especially the AB engineers, estimators, and Ugo Del Costello (another recent AB retiree—AB Connections Issue #1002).” It is no surprise that Ron also claims that his favorite memory at AB is the exact same thing—the people and the projects.

As one of Ron’s last hurrahs with AB, he was fortunate to be involved in the Bridges to Prosperity project in Nicaragua late last year (featured on pages 4-13). Ron’s charitable contributions abroad, as well as the time and effort he put into his career, is something AB will always be grateful for.

Although Ron has now retired, his involvement in the civil engineering industry will never completely fade. Besides the typical routine of spending more time with family, doing projects around the house, devoting time to charitable, community, and professional activities, and the atypical of being involved with a small orphanage in Haiti, Ron plans to stay involved in the AASHTO/ National Steel Bridge Alliance Collaboration. In this group, Ron provides and updates guideline specifications for steel bridge erection to be used by states and other bridge owners. Other duties with the group include providing expertise on the practical aspects of steel bridge erection to a group of academics and design professionals that will facilitate development of bridge industry consensus standards for data description, modeling, and interoperability for integrated design, construction, and lifecycle management of bridges. Although the industry didn’t start out as his predetermined destiny, it certainly ended that way and it is apparent that Ron will never fully separate himself from what he spent doing his whole life. ♦

# ONCE AN AB EMPLOYEE, ALWAYS AN AB EMPLOYEE

As Win Patchell reflects on his life-long civil engineering career, he remembers how deep the AB blue blood truly runs

Win Patchell (left)

Growing up in a family of engineers and contractors, it is no surprise that Win Patchell's career led him down the path it did. Win is a fifth generation engineer and constructor. "My greatest influence was my grandfather who designed and built major projects for the Pennsylvania Railroad," remembers Win. When Win was younger, his grandfather would take him to different projects and explain the operations which led him to his interest and lifelong career in construction. Throughout the years, he worked on many projects, but his first dates all the way back to his kindergarten days—a six-foot-long suspension bridge he built using Tinker Toys and string—and it was all easy from there.

Not only does Win come from a family of engineers and constructors, but he also had a strong connection to AB—his father was a former employee. Upon

graduating from the University of Pittsburgh in 1976 with a Bachelor of Science in Civil Engineering, Win followed in his father's footsteps and applied for a Field Engineer job at AB. He was in luck, as a Field Engineer had just left the company, opening up a position on a US Steel electric furnace and continuous mill construction in Baytown, Texas. "Five days after my interview, everything I owned was in a U-Haul trailer and on the road south," said Win.

A few years later, after earning his MBA at Indiana University in 1980, Win was on the move again. But this time to South Pittsburg, Tennessee where he worked on the Edward P. Wasserman Bridge over the Tennessee River. This bridge was a 750-foot tied arch with plate girder approaches. Win recalls erecting the 100 ton box chords as a unique challenge, but remembers the feeling of accomplishment after

dealing with such a challenge. "It was rewarding to see the progress of your project at the end of the day," says Win. The feeling he got from his success at working with the unique challenge is what makes this his favorite project of his entire career, and will forever remain a fond memory.

Following his time in Tennessee, Win found himself back to his roots helping to build the PPG tower in downtown Pittsburgh, Pennsylvania. As the most challenging project Win says he has worked on, he was lucky to get that experience so early in his career to prepare him for his many years ahead in the industry. Recalling the project Win said "the PPG structure was a shear tube with plate welded to the basement core and exterior tree columns with staggered splices and platform framing connected to trusses at the top level of the building atrium. A survey of the trusses showed that

**“Win had extensive field and design office experience with American Bridge. Win used this experience to be a versatile engineer in the Engineering Department coming up with creative engineered construction solutions for a multitude of AB jobs.”**

—Nick Greco,  
Chief Engineer, East

**“With Win Patchell’s retirement, AB loses a seasoned veteran and professional that served AB over 30 years of his 40-year career. As an Engineering Manager, Win brought a lot of field experience to the job and created innovative approaches to the very tough projects for which AB is known.**

**I most remember Win for his work on the complete retrofit of the Philadelphia Naval Reserve Lift Bridge. The job had a variety of complex issues surrounding increasing the navigational clearance of an existing vertical lift bridge. His experience and field sense will be greatly missed.”**

—Mike Flowers,  
Former President & CEO


they were not in the proper position. After confirming that the welding of the basement core plate had caused the problem, we re-established the building lines on the truss top chord to correct the alignment of the tree columns. The building has no braced core above the truss level, so the exterior columns had to be plumbed on all four sides.” Difficult or not, the project was a success and remains a very prominent building along the Pittsburgh skyline that Win can proudly say he played a part in building.

Throughout the years, Win was an extremely dedicated engineer, earning his Professional Engineer license in over 10 states, allowing him the ability to work on a wide-ranging list of projects. “Earning a license enhances confidence that you can approach and solve almost all design issues,” said Win. He also believes it to be an important part of the engineering career path and urges those pursuing a career in civil engineering to begin preparing for licensure. And while a P.E. should be sufficient for construction engineering, he encourages those in design to consider a Structural Engineer license as it is becoming increasingly popular as a requirement for state projects.

With a lifelong career in the civil engineering industry, it is no doubt that Win has some other good advice for those just starting out. Even some advice that may not be apparent. Looking back on his career, Win remembers

that not every difficulty can be solved with just your engineering education and that anyone looking to advance their career must be prepared to move frequently. Along with moving frequently comes new customs and cultures you may be thrown into, which he urges the young engineers to embrace.

Later in his career, in the 1990’s, Win had a stint at a few other construction companies where he gained different experiences including concrete work, erection by helicopter, and Canadian codes and labor practices, but that AB blue blood always ran deep. Win returned to AB in 2000 after about 10 years of being away. He always knew that he’d end up back at AB, but the idea came to fruition when he was in Pittsburgh reviewing a potential project. He stopped by the AB headquarters office to say hi to a few old acquaintances and after talking with then-President Mike Flowers, the AB blue blood resurfaced. From then on, AB was a permanent fixture in Win’s life.

Now that Win is an emeritus, he plans to fully embrace the positives of retirement. He is moving to Florida, the “sunshine state”, where he has family and an inviting pool for exercise and relaxation. He is happy to say goodbye to the snow and hello to warmer weather all year long. A well-deserved permanent vacation! 

# NEW EMPLOYEES

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**David Barger** Project Manager, WICO Inner Berth Bulkhead Improvements

**Jocelyn Berglund** Estimator

**Diana Brown** Field Engineer, Tappan Zee

**Jeanne Cotter** Director—Quality

**Brian Hall** QA/QC Coordinator, Queensferry

**Kevin Link** Field Engineer

**Brett Kermode** Operations Manager

**Padraig McGinn** Project Manager, Edmonton

**Kara Mullin** Project Engineer (rehire)

**Randy Pegram** Estimating Manager

**Derrick Pepper** Field Engineer

**Susan Simon** Payroll Administrator

**Jene Van Zant** Estimating Manager

**Blake Yaffee** Project Manager, Tappan Zee

# EMPLOYEE ACHIEVEMENTS

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**Tom Palansky**  
**Director, Business Development - Midwest**

Tom successfully completed the requirements for the nationally recognized Designated Design-Build Professional (DBIA) certification.



**Jarret Kasan, Ph.D., P.E.**  
**Engineer**

Jarret earned his West Virginia PE. Jarret is currently developing the construction analysis and erection plans for five plate girder structures on the Corridor H construction project in West Virginia.

# CURRENT CONTRACTS

- ◆ **Explosives Handling Wharf #2** Silverdale, Washington
- ◆ **Horseshoe Arch Pedestrian Bridges** Dallas, Texas
- ◆ **U.S. 69 Missouri River Bridge** Riverside, Missouri
- ◆ **Freeport Harbour Berths 3, 8, & 9 Refurbishment** Freeport, Bahamas
- ◆ **Blount Island Marine Terminal Wharf Reconstruction** Jacksonville, Florida
- ◆ **Atchafalaya Pipeline Suspension Bridge** Melville, Louisiana
- ◆ **Friendship Trail Demolition** Tampa, Florida
- ◆ **Portageville Bridge Replacement** Portageville, New York
- ◆ **Queensferry Crossing** Edinburgh, Scotland
- ◆ **Angus Macdonald Bridge Suspended Spans Deck Replacement** Halifax, Nova Scotia
- ◆ **M48 Severn Bridge Main Cable Inspection** United Kingdom
- ◆ **The New NY Bridge (Tappan Zee)** Tarrytown, New York
- ◆ **Delaware Memorial Bridge First and Second Structures—Dehumidification of Main Cables and Anchorages** Wilmington, Delaware
- ◆ **Inner Berth Bulkhead Improvements and Bollard Replacement** St. Thomas, US Virgin Islands
- ◆ **BNSF RR Truss Bridge Over I-235** Oklahoma City, Oklahoma
- ◆ **WV Corridor H - Kerens to U.S. 219** Tucker/Randolph Counties, West Virginia
- ◆ **Peace Bridge Rehabilitation** Buffalo, New York



## PROJECT WINS

### I-235: NW 50<sup>TH</sup> AND BNSF BRIDGES AND APPROACHES (SEGMENT 4A)

Oklahoma City, Oklahoma  
(AB a captive subcontractor to Allen Contracting)

### WICO 12SE-016: INNER BERTH BULKHEAD IMPROVEMENTS

St. Thomas, US Virgin Islands

### PEACE BRIDGE REHABILITATION

Buffalo, New York



# WORDS TO THE WISE



**APRIL 8, 2016**

University of Wisconsin-Madison's 19<sup>th</sup> Annual Construction Club Banquet



On April 8<sup>th</sup> retired President and CEO, Michael Flowers, was the keynote speaker at the University of Wisconsin-Madison's 19<sup>th</sup> Annual Construction Club Banquet. This event, organized by the students of the University's civil and construction engineering department, is held every year to honor outstanding professionals in the construction and engineering industry and also gives students the opportunity to connect with some of the industry's leading professionals.

As keynote speaker, Mike presented an overview of the construction of the San Francisco-Oakland Bay Bridge Self-Anchored Suspension Superstructure, one of American Bridge's most complex projects, and shared with the students his advice for success in their future careers. The University of Wisconsin-Madison has a growing construction and engineering management program, and the banquet was a success with over 400 construction professionals, as well as students, attending this year's event. ♦

# AB SOLUTION TAKES CENTER STAGE AT COLLABORATE 16 CONFERENCE

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In 2015, the American Bridge Information Technology Department was hard at work enhancing the AB JD Edwards system, a resource planning software platform. Throughout the year, AB improved the quality of data and reduced administrative burden for field users, which included a more intuitive and aesthetic point and click user interface, project summary dashboards, and graphical bar and line chart reporting.

While these improvements were being made, the software creator saw a presentation given by Senior IT Manager **Brent VanArsdale**, closely involved in the upgrades. Impressed by AB's innovations, Brent was asked to be featured as part of a keynote interview at


Collaborate 16, a conference that offers a variety of education and networking opportunities for business application users and IT professionals.

The keynote entitled, "JD Edwards Thriving in the New Business Reality" took place in Las Vegas, Nevada on April 11<sup>th</sup> and was given by Lyle Ekdahl, Senior Vice President and General Manager, along with Brent. The keynote interview was a success, reaching numerous viewers. It was delivered in front of an audience of about 500-600 people and also live-broadcasted over Twitter and Periscope.

## STEAM ON!

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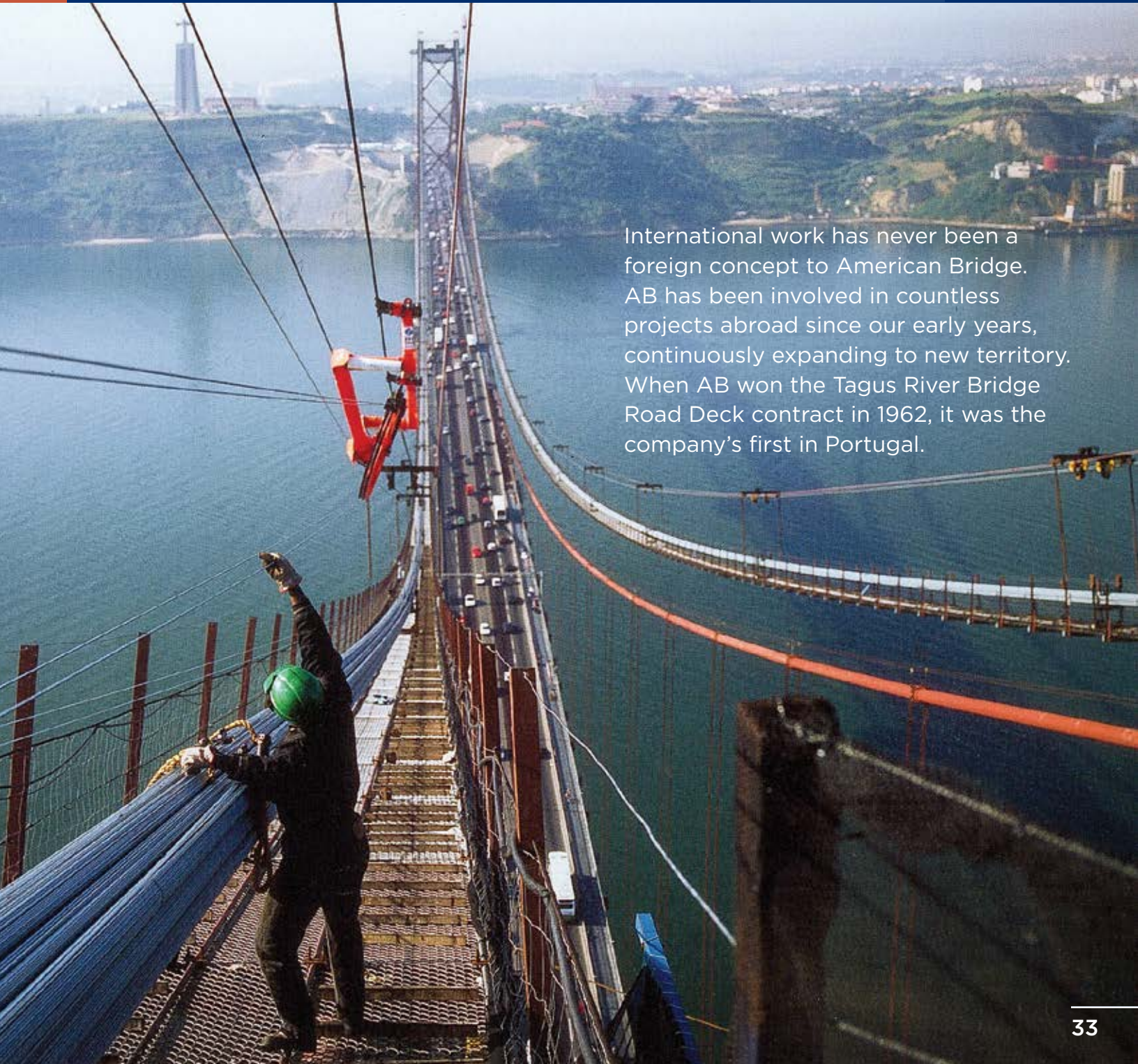
On Thursday, May 12<sup>th</sup>, several members of the American Bridge team participated in the Cornell School District's STEAM event. The Cornell District is local to AB's Coraopolis, Pennsylvania headquarters. Representing science, technology, engineering, arts, and math, the STEAM movement is gaining traction with educators as a way to engage students of all ages with relevant subjects and possible careers in those industries.

Events of the day included a showcase of creative science projects by elementary school classes (including a very creative bridge), a tour of the high school's engineering lab and broadcast journalism studio, and a question and answer session with participants. At the conclusion of the event, the AB staff felt very confident that some future engineers were spotted! 



# HISTORIC AND RECORD-BREAKING PROJECT

## BRINGS AB TO PORTUGAL—TWICE



International work has never been a foreign concept to American Bridge. AB has been involved in countless projects abroad since our early years, continuously expanding to new territory. When AB won the Tagus River Bridge Road Deck contract in 1962, it was the company's first in Portugal.



Although a bridge spanning the Tagus River had been a dream for more than 100 years, it wasn't until the mid-1960's that bridge would take shape over the water. The Tagus River Bridge, also known as the 25 de Abril Bridge, was built over its namesake river, a busy waterway that serves as the main navigational entrance to the Port of Lisbon.

Construction on the bridge itself began in 1963 and included the design and construction of the suspension bridge and the Alcantara Viaduct. AB's second stint on the bridge began 30 years later in 1996 and included the addition of a rail deck, as well as upgrades to the existing structure.

The first phase of the project was undertaken by a consortium led by the USSI unit of United States Steel Corporation, of which American Bridge was a division at the time. USSI arranged for the financing and managed the overall contract, including the subcontracting of the viaduct design to Tudor Engineering of San Francisco and viaduct

construction to the Portuguese firm SOPOL. American Bridge and Morrison Knudsen took primary responsibility for the suspension bridge, with Morrison Knudsen focusing on the foundations and anchorages and American Bridge focusing on the superstructure. The steel bridge permanent design was subcontracted mainly to Steinman (now Parsons).

The 10,573-foot crossing included a 14-span, 3,100 foot segmentally cast in place concrete viaduct over the Alcantara District of Lisbon and a six-span, 7,474-foot steel truss bridge over the river, leaving 230 feet of vertical navigational clearance below the bridge. This included a three-span suspended structure of 6,495 feet, with a mainspan of 3,323 feet.

The two steel suspension bridge towers were 588 feet tall. The towers and the truss were fabricated both in the United States and in Portugal, and erected on site by American Bridge. The total weight of structural steel for the project was 52,422 tons.



## TAGUS RIVER BRIDGE ROAD DECK

**Location:** Lisbon, Portugal

**Completion Date:** Road Deck – 08/06/1966; Rail Deck – 02/15/1998

**AB Order #:** Road Deck – V-7600-79; Rail Deck – 451410

The two main cables are 23¼ inch diameter made from 37 strands of airspun parallel wires.

The trusses for the suspended spans were preassembled at a 16 acre site in Lisbon just west of the bridge alignment, and floated or transported to their erection point. The trusses for the three backstay spans were erected in place with stiffleg travelers, with steel pieces delivered to the hook by trucks.

Construction of the first phase took three years and nine months and the bridge was opened to traffic on August 6, 1966, four and a half years after contract award date.


Planning for the second phase was already on the horizon as the first got underway. Accommodations were made in the first phase so that a double-track railway could be installed when it was considered necessary.

In 1996, 34 years after the first phase was completed, the second phase was awarded to a consortium consisting of Dillinger Stahlbau, American Bridge, Wayss and Freytag, and Sociedade Lisbonense de Metalização. This project was essentially a bridge built within an existing bridge; it involved the upgrading of the towers, bents, and truss to accommodate a railroad on the bottom chord of the stiffening truss and the widening of the existing roadway deck to increase vehicular capacity.

Originally, the bridge was built with a light rail system in mind, however, 34 years later, the government wanted to add a two-lane railway that could accommodate both freight and commuter rail trains. Freight trains weigh more than double what the original bridge was designed for, therefore the bridge needed to be strengthened and the original plan was not viable. However, the preparation during the original construction enabled a reservation of space for the trains and also minimized

the additional load carrying capacity that was necessary. The physical space necessary for the rail addition had been provided in the 1966 project, and the foundations had sufficient capacity. However, the towers, cable bents, main cables and main deck truss required additional capacity, and an entirely new steel rail deck had to be constructed beneath the concrete segmental Alcantara viaduct. This project was designed by Parsons, and overseen by Luiz Canto do Moniz, a highly competent Portuguese engineer who had been involved with the 1966 project. Therefore, of the rail deck project included the addition of two new main cables, additional suspender ropes, the strengthening of the truss to accommodate the rail track, the reinforcement and increase of the tower height, the reinforcement of the cable bents, new anchorages, the launching of the steel girder railroad structure through the Alcantara viaduct structure, the installation of the track, and the transfer of the additional load to be shared by the new and old cables.

This was among the most complicated bridge strengthening projects ever undertaken. The existing bridge remained fully operational throughout construction; only two one-hour closures were allowed throughout the project duration. Cables were also spun over the live bridge—an unprecedented feat. Because of the challenges the team faced and overcame during the second phase of this project, the George S. Richardson Medal was awarded for a “Single Recent Outstanding Achievement Demonstrating Significant Improvement or Advancement of Bridge Technology” in 2001 and was accepted by Engineer Canto do Moniz.

This project was completed ahead of schedule and the first train crossed the bridge on November 15, 1998. 

# FLASHBACKS



## WEST END BRIDGE

**Location:** Pittsburgh, Pennsylvania

**Completion Date:** 9/12/1931

**AB Order #:** G-3850-6



## CLARION RIVER BRIDGE

**Location:** Clarion, Pennsylvania

**Completion Date:** 9/30/1988

**AB Order #:** P-510NB

85 years ago, American Bridge fabricated and erected the West End Bridge, a four lane, steel trussed through tied arch bridge with steel cable suspenders. The overall length of the bridge is 1,889 feet with a main span of 780 feet. Falsework was used to support the arch chords during construction and the bridge was erected with arch travelers. The West End Bridge is still a busy corridor today crossing the Ohio River near downtown Pittsburgh, Pennsylvania.

American Bridge was a subcontractor for the arch erection of this 870-foot, two lane deck arch bridge, which was completed 28 years ago. The Clarion River Bridge, located over its namesake river in Pennsylvania, has a main span of 500 feet and an arch rise of 60 feet. The erection of the bridge was performed using barge mounted cranes.



## RIO ISABELLA BRIDGE

**Location:** Dominican Republic

**Completion Date:** 1/1/1941

**AB Order #:** H-3000-02

American Bridge was the general contractor, fabricator, and erector for the Rio Isabella Bridge, a crossing of the Villa Mella Highway in the Dominican Republic. Built 75 years ago, this bridge is a cantilevered deck truss with 234-foot anchor arms, 134-foot cantilevered arms, and a 101 foot suspended span.




## NEW RIVER GORGE BRIDGE

**Location:** Fayetteville, West Virginia

**Completion Date:** 10/21/1977

**AB Order #:** K-5867-81

39 years ago, American Bridge performed all temporary works engineering and was also the general contractor, fabricator, and steel erector for this 3,030-foot, two hinged deck arch bridge located over the picturesque New River Gorge in Fayetteville, West Virginia. The arch on this four lane bridge was erected by cableway and tieback operations and weighed 10,533 tons. Another 11,470 tons of steel was used to complete the superstructure. This bridge is the centerpiece of the annual Bridge Day, a day dedicated to rappelling, skydiving, and BASE jumping 800 feet from the bridge down into the gorge. 



# SAFETY WEEK 2016 BRINGS FOCUS TO TEAMWORK




In May, American Bridge, along with over 50 other contractors and organizations, participated in **Safety Week 2016**, an industry-wide effort to keep safety at the forefront of everyone's mind. Safety Week, which ran from May 2<sup>nd</sup> through 6<sup>th</sup>, unites those in the construction industry to work together towards a common goal—decreasing and eliminating injuries and fatalities that can happen at work and at home. This year's theme “We are Stronger and Safer, Together” emphasized the responsibility of each individual to remain vigilant in the pursuit of a zero-incident workplace.

Over the course of the five days, American Bridge employees took part in daily activities, ranging from jobsite talks to live demonstrations of safety equipment. Particular attention was paid to fall prevention. According to the Occupational Safety and Health Administration (OSHA), falls are the leading cause of fatalities in the construction industry. Additionally, improper fall protection is the number one OSHA citation to date. So on Thursday, May 5<sup>th</sup>, the AB Headquarters hosted a Lunch and Learn program titled “Preventing Slips, Trips, and Falls.” Led by Health & Safety Manager Jody Porterfield, the presentation covered common

hazards at home, in the office, and on the jobsite—often lurking under the guise of a perceived shortcut, or a brief lapse in best practices.

Following the presentation, which was broadcast live to all AB offices and jobsites, employees were educated on the best practices when using harnesses, lanyards, and ladders. To demonstrate proper use of harnesses and lanyards, a fall simulator was brought in to give attendees a first-hand look at equipment and procedures. Everyone from seasoned field staff to summer interns were taught how to put on a harness, which was a unique opportunity for those typically working in the office. The demonstration concluded with a live fall simulation, so attendees could see exactly how the harness and fall restraint systems should work.

AB employees across the globe took part in the week's program. As a pledge to continually place safety at the forefront of their jobs, every employee signed a banner—a tangible symbol of their dedication. Banners were hung up for all to see, and to serve as a constant reminder of AB's unwavering commitment to safety. 





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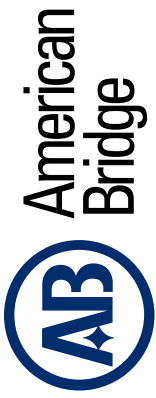
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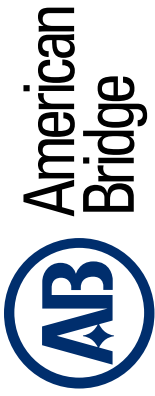
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