

the magazine of kiewit corporation

KIEWAYS





Kiewit is one of North America's largest and most respected construction and engineering organizations. With its roots dating back to 1884, the employee-owned company operates through a network of offices and projects in the United States, Canada and Australia. Kiewit offers construction and engineering services in a variety of markets, including: transportation; water/wastewater; power; oil, gas and chemical; building; and mining. Kiewit had 2014 revenues of \$10.4 billion and employs more than 25,700 staff and craft employees.

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KIEWAYS

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BUILDING THE FUTURE

Students at Kiewit's Building Construction Futures events participate in classroom and on-the-job training activities. Learn more about the program on Page 5.



LOOKING OUT FOR THE NEXT GENERATION

Most companies do their best to embed certain values or guiding principles into their culture. Typically, it's part of an internal conversation, unlike the words you might use in marketing or sales materials. But when you make an honest effort to commit to those values, they become part of your character — ideals that reflect from the inside out and not just a handful of buzzwords on a page.

You would be hard-pressed to find an issue of Kieways that doesn't project our core values: people, integrity, excellence and stewardship. But it's that last one that really shines through in this issue. Stewardship is defined as the responsibility and careful management of something worth preserving.

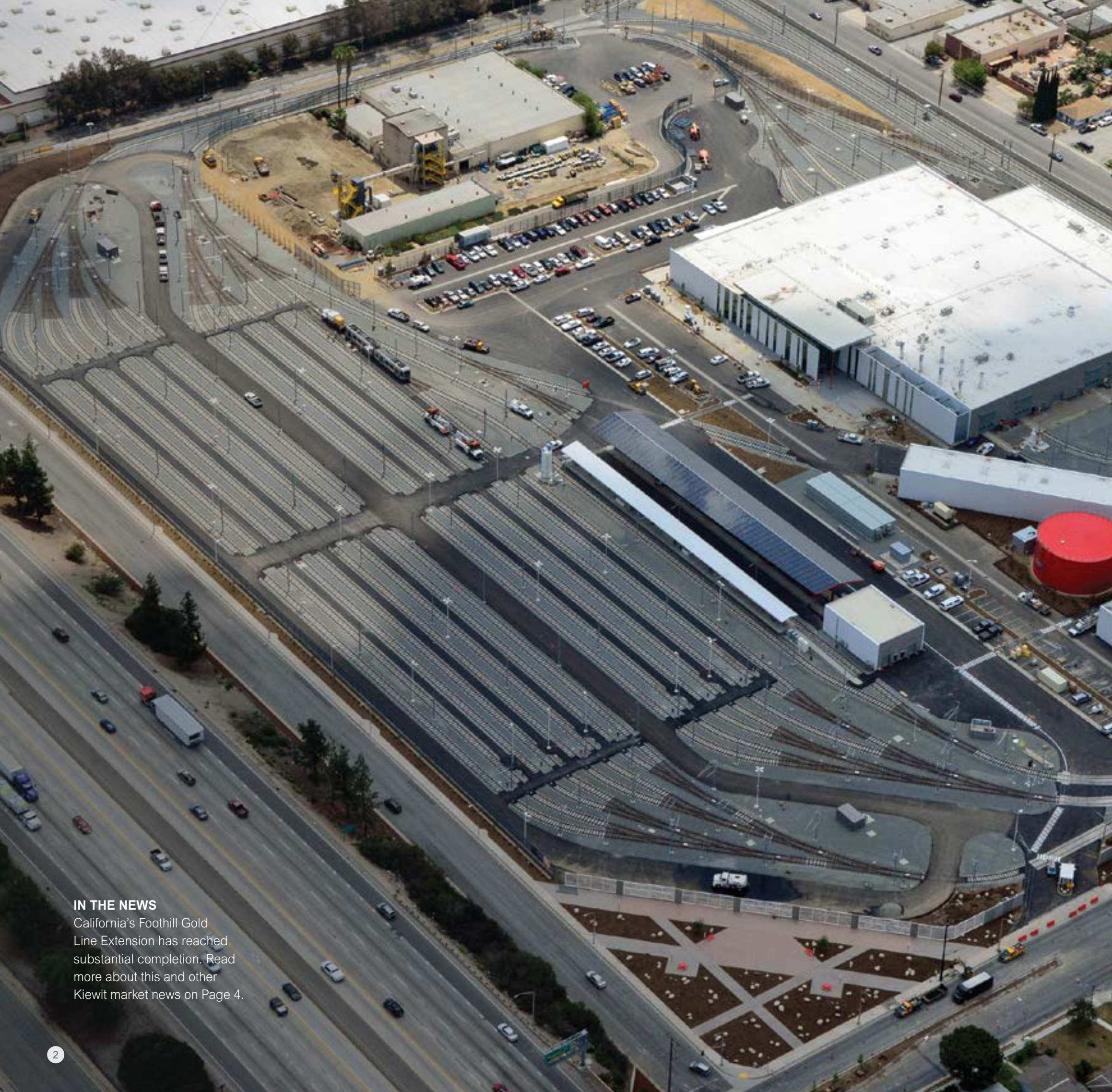
The people of New Orleans know a lot about preservation. The city has been working to hold onto their history ever since Hurricane Katrina hit one decade ago. On Page 18, you'll learn about the Kiewit project that will help the U.S. Army Corps of Engineers drastically reduce the risk of future flooding in that area.

Across Canada, we're working closely with First Nations communities to help preserve their culture while offering career training and job opportunities. On Page 8, find out how Kiewit and these important partners are working together toward one common goal.

You'll also see that Kiewit's commitment to stewardship reaches beyond the projects we build. On Page 5, learn why some of our employees are volunteering their time to work in isolated communities abroad. We'll also tell you about an annual event that's helping to change the industry landscape for women, plus the hands-on training programs that inspire youth, the unemployed and the underemployed to excel in the construction industry.

We can't predict the future, but we can do our best to look out for those who will be living and working in it.

BRUCE GREWCOCK
Chairman and CEO



IN THE NEWS

California's Foothill Gold Line Extension has reached substantial completion. Read more about this and other Kiewit market news on Page 4.

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OUR MARKETS

🏠 BUILDING
⚙️ MINING
🛢️ OIL, GAS & CHEMICAL
⚡ POWER
🚗 TRANSPORTATION
🚰 WATER/WASTEWATER

What began in 1884 with two hardworking brothers has grown into a Fortune 500 construction and engineering leader. As a \$10.4 billion organization, Kiewit can manage projects of all sizes, in any market. Here's a few interesting facts about Kiewit.

DID YOU KNOW?

Throughout the past 10 years, Kiewit has provided procurement, construction and start-up services for more than

280

public and private water-supply projects.



TOPPING OFF

A "topping off" ceremony was held in August at the **Fred & Pamela Buffett Cancer Center** in Omaha, Neb. The ceremony marked completion of structural framework for the \$323 million facility, which includes a 10-story research tower and an eight-story patient care area.

The 615,000-square-foot building is one of the largest projects undertaken in the state of Nebraska and is scheduled for completion in spring 2017. Kiewit is the construction manager and general contractor.



BIG RIGS

A common sight at any Kiewit mining site, the 797F is the largest haul truck made by Caterpillar.

The tires on these machines are

13

FEET TALL

and weigh nearly

12,000

POUNDS.



BERGEN-LINDEN CORRIDOR PROGRAM

Public Service Electric & Gas (PSE&G) selected Kiewit Engineering & Design Co.'s Power Delivery team to provide engineering and procurement services for the **Bergen-Linden Corridor Upgrade Project**, a \$1.2 billion investment to upgrade the transmission system to 345kV in part of New Jersey to improve reliability. Kiewit is providing designs to upgrade three existing substations (Linden, Bayway and North Ave.) and a new substation (Newark Airport). Kiewit's participation began in May 2014 and will be completed in February 2018.



In 1942, the U.S. and Canadian governments launched construction of a **pipeline** from an oil field in the Northwest Territories, Canada, across the Rocky Mountains to Whitehorse, Yukon, to establish a reliable oil supply to the Alaskan coast. Kiewit, in partnership with two other companies, accomplished the nearly 700 kilometer pipeline and transported more than 50,000 tons of equipment and supplies across Canada.



The \$1 billion **Foothill Gold Line Extension** reached substantial completion in late September. The five-year project in California extends light rail from east Pasadena to the Azusa/Glendora border. Learn more about Kiewit's work on the line and the impact the project will have on surrounding communities in the 2015 Quarter 3 issue of Kieways on kiewit.com/kieways.



OUR VALUES

PEOPLE | INTEGRITY | EXCELLENCE | **STEWARDSHIP**

For more than 130 years, Kiewit's culture has been built on a foundation of strong core values — People, Integrity, Excellence and Stewardship. These remain the cornerstone of how Kiewit runs its business.

STEWARDSHIP AT WORK

Kiewit realizes the roles the company and its employees have as stewards in its communities. Through events like the Women's Construction Leadership Seminar and Building Construction Futures, the company is developing new generations of leaders in the industry. It is also making a positive impact on the world through volunteer efforts such as Bridges to Prosperity.



BRIDGES TO PROSPERITY

A 407-foot bridge and \$25,000 make a huge impact

Over the past few years, Kiewit has participated in several projects with Bridges to Prosperity (B2P) to build footbridges over impassable rivers in remote communities, creating safe access to education, healthcare and economic opportunities.

This year, a team of Kiewit and Parsons Brinckerhoff engineers designed a 407-foot suspension bridge over a river dividing a small town in Bolivia. The town's river bed is used as a plantation field during the dry season, but during the rainy season, the river becomes 400 feet wide, separating parts of the community.

The team planned the project's construction, performed constructability reviews to develop work and safety plans, and traveled to Bolivia to build the structure.

The team faced many daily challenges, but worked together with community members to build and open the structure as planned. Kiewit donated \$25,000 towards the efforts. Read more about Kiewit's previous B2P work in the 2014 Quarter 2 issue of Kieways on kiewit.com/kieways.



BUILDING CONSTRUCTION FUTURES

Three events focused on training, development and empowerment

Kiewit, along with several of its subsidiaries and partners, recently participated in Building Construction Futures events across the United States. The organization works to educate communities, specifically the youth, unemployed and underemployed, about meaningful, life-long career opportunities in construction.

Between February and November this year, Kiewit participated in three different programs: a one-day Building Construction Futures Construction Club event; one-hour interactive presentations spanning the course of five weeks; and a Construction Readiness event, which is a week-long classroom and on-the-job training course.

"As contractors, our expertise is in construction and engineering," said Employee Relations Specialist Justine Montinola. "Our ultimate goal is to strengthen these communities by building relationships with local schools and organizations, empower people interested in our industry, and promote the skills needed for their development to become the next generation of construction and engineering leaders."



OUR VALUES

PEOPLE | INTEGRITY | EXCELLENCE | STEWARDSHIP



WOMEN'S CONSTRUCTION LEADERSHIP SEMINAR

50 students, two days and a top-notch experience

Kiewit's 8th Annual Women's Construction Leadership Seminar (WCLS) took place in October at the company's headquarters in Omaha, Neb. Fifty future leaders were selected to attend out of 147 applicants. Students represented 43 universities across North America.

Kiewit Chairman and CEO Bruce Grewcock kicked off the two-day event with a welcome speech in which he reflected back on a recent visit to his alma mater, Colorado School of Mines.

"I was pleased and a bit surprised that 31 percent of the freshman class at Colorado School of Mines is women," he recalled. "Women have been grossly underrepresented in our industry. We're not going to change the world all by

ourselves, but events like WCLS can help," he said.

The students participated in a variety of skill-building challenges, developed their leadership skills, toured current and recent Kiewit projects, and heard empowering presentations.

Sarah De Los Reyes, a Construction Management major at California Polytechnic State University-San Luis Obispo, applied for WCLS to gain skills and network with her peers.

"Hearing real-world experience and thoughts from women who are already in this industry was invaluable," said De Los Reyes.

A panel of Kiewit women serving as project managers, estimators, superintendents, and field and mechanical engineers also shared stories and advice with students.

Superintendent Necie Mitchell enjoyed sitting on the panel with other successful Kiewit women. She shared the wins and challenges of her career, plus her hopes for the future of young women in the industry.

"Give this industry a chance. Show your presence because the opportunities are waiting. Once you reach your goal, it's time to raise your standards," said Mitchell.

Engineer Katie Satrom also participated in the panel and was impressed by the students' enthusiasm and questions.

"It was so exciting to see this group of women who are excited about a career like mine," Satrom said. "Many of the questions they asked our panel were the same ones I had when I was starting my construction and engineering career. It was fun giving them the advice and information that would have been helpful to me when I was new to the industry. I hope to see many of them in our offices and on our projects in the years ahead."

“Hearing real-world experience and thoughts from women who are already in this industry was invaluable.”

SARAH DE LOS REYES,
CONSTRUCTION
MANAGEMENT
STUDENT



UNIVERSITIES REPRESENTED:

Arizona State University | Auburn University | Ball State University | Boise State University
Bowling Green State University | California Polytechnic State University-San Luis Obispo
California State University-Chico | California State University-Long Beach | Colorado School of Mines
Concordia University-Sir George Williams | Ecole Polytechnique de Montreal | Iowa State University
Michigan State University | Michigan Technological University | Milwaukee School of Engineering
Minnesota State University Moorhead | Missouri Science and Technology | Montana State University - Bozeman
New Jersey Institute of Technology | Northern Alberta Institute of Technology | Northern Arizona University

Oklahoma State University | Oregon State University | Pennsylvania State University | Purdue University
Southeastern Oklahoma State University | Texas A&M University | University of Akron
University of Alaska-Anchorage | University Of Calgary | University of Central Missouri
University Of Cincinnati | University of Colorado-Boulder | University of Kansas
University of Minnesota-Twin Cities | University of Missouri-Columbia | University of Nebraska-Lincoln
University of Southern California | University of Tennessee-Knoxville | University of Victoria
University of Washington | University of Wyoming | Washington State University

WI TASKI WIN

(Living together on the land in harmony)

WI TASKI WIN

From coast-to-coast, Canada is a country steeped in rich aboriginal culture. The Canadian constitution recognizes three distinct groups of aboriginal people — First Nations, Inuit and Métis, which includes 617 different “bands” or communities (according to Aboriginal Affairs and Northern Development Canada). Each group comes with its own unique history, language and beliefs. They also have a deeply rooted relationship with the land as displayed elegantly in the Cree Nation phrase *wi taski win*, which means “living together on the land in harmony” or “peace place.”

Kiewit has been operating in Canada since the 1940s with a long and successful history of consulting and engaging with the First Nations and other aboriginal groups. Across the country, Kiewit’s projects demonstrate the benefits that can be gained from a positive and productive relationship between industry and First Nations people.

“It has been humbling to see what can be accomplished when dedicated men and women work together towards a common goal — we have built friendships, businesses and careers,” said Simon Gagné, project manager with the

Kiewit-Alarie Partnership (KAP). The team is responsible for updating obsolete hydroelectric facilities at the Lower Mattagami River Project in northern Ontario and is a great example of how Kiewit’s partnerships with First Nations and other aboriginal groups have evolved to focus on lasting benefits to the communities in which we operate.

The strength and quality of the relationships between KAP, Ontario Power Generation (OPG) — the contractor and operator of the complex — and the Moose Cree First Nation have emerged as the driving force behind the project’s success. Lower Mattagami is located in Moose Cree traditional territory on the west side of James Bay in the heart of the Hudson Bay lowlands. It’s a testament to Kiewit’s belief that proactive First Nations and aboriginal engagement can create profound results. According to Gagné, “Working as one team, the Moose Cree, KAP and OPG have built an incredible infrastructure that will outlive all of us involved.”

THE AMISK-OO-SKOW AGREEMENT

The project is bound by The Amisk-oo-skow Agreement made between the Moose Cree and OPG. In the Cree language, *amisk-oo-skow* means “plenty of beaver.” The

name reflects the abundance of natural resources within the Moose Cree’s traditional territory and their fundamental belief in sharing the land and its resources. Signed in 2010, the agreement provides ongoing economic benefit to the Moose Cree community through equity ownership, employment and business opportunities. The Moose Cree see it as a way to honor their ancestors by continuing their practice of sharing — to give and receive while ensuring their traditional lands are protected through strict environmental rules and regulations.

SUCCESS STORIES

At the heart of this success story is the relationship between KAP and the Moose Cree, including Kiewit’s commitment to professional development of Moose Cree members who have worked on the project. Since it started in 2010, a total of 412 First Nations and aboriginal people from the Moose River Basin (including Moose Cree, Taykwa Tagamou, Mocrebec and Métis) have worked for KAP. An additional 255 First Nations and aboriginal people from outside the Moose River Basin have also worked on the project. Of particular significance, 95 First Nations members have taken part in apprenticeship and tradesperson/journeyperson programs, including



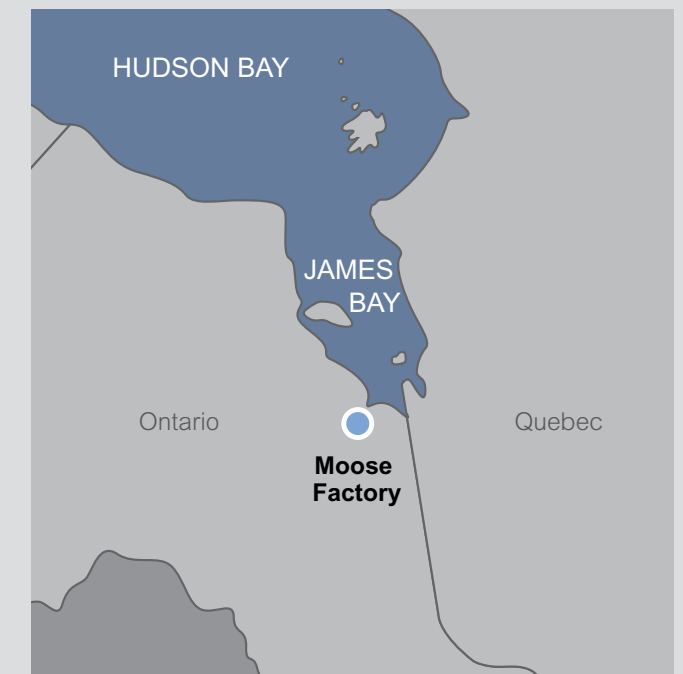
1. Aerial view of Smoky Falls Generating Station during construction (taken in 2013). 2. Inside the completed Smoky Falls Generating Station.



A plaque commemorating the first unit in service at the Little Long Generating Station reminds us of the importance of the Amisk-oo-skow Agreement to Kiewit’s relationships with the Moose Cree and OPG.

James Bay and the North American Fur Trade

As part of the vast Hudson Bay watershed, hundreds of rivers flow into James Bay. This network of lakes and rivers provided water access for the canoes of early First Nations people harvesting and preserving fish, berries and other food staples. It was also part of a strategic transportation network for fur traders. Spurred on by European demand for beaver pelts (used in making very popular wide-brimmed hats), the fur trade set the economic foundation for Canada. It also played a fundamental role in the country’s evolution, helping shape the relatively peaceful patterns of Aboriginal-European relations that the country benefits from to this day. In fact, Ontario’s oldest English-speaking settlement was a fur trading post built by the storied Hudson’s Bay Company on Moose Cree land in the town of Moose Factory in 1673.



Kiewit/First Nations Partnerships in Canada

Beyond direct partnerships and joint ventures, Kiewit has a track record of involving First Nations in employment and business opportunities, and has been committed to regional development, local hiring and local procurement for goods and services.



“This is a new experience for the Moose Cree. The successes we’ve achieved [with KAP and other corporate partners] are remarkable and we are proud to be a part of it.”

BRUCE NELSON
MOOSE CREE MEMBER

electricians, carpenters, plumbers, pipefitters, welders and heavy equipment operators.

Certain commitments were put in place to ensure Moose Cree members were benefiting from the direct and indirect advantages of employment, including specialized training programs from local community training centers, on-site and on-the-job training, and exposure to trade unions. KAP exceeded its employment commitments by more than doubling targeted “person-years” — a measurement of how much work or labor is used to perform a task — in this case, the person-years completed by Moose Cree members. KAP also surpassed subcontracting commitments of First Nations-owned enterprises with around 30 Moose Cree-owned businesses providing their services to the project with a total of \$333 million in contracts awarded. The economic benefit to the Moose Cree community as a result of the Lower Mattagami River Project has been substantial.

For all staff and craft labor on the project (both First Nations and non-First Nations), a cross-cultural two-way training initiative developed and helped promote a safe and respectful workplace that recognized the Cree culture. Marie-Lou Sutherland, a Moose Cree member and First Nations Relations Manager for the project, considers the program and relationship between KAP and the Moose Cree as “very good with a high degree of consultation and keeping the members aware.”

Along with professional development, personal lives can be positively affected while staying true to traditional values. Wendell Hardisty has lived in Moose Cree territory his entire life and is a long-time security staff member at the project. According to Wendell, “Exposure to benefits like life insurance, medical and dental coverage, taking care of yourself financially and considering savings and retirement has been eye-opening for a lot of members.”

KAP also offered an on-site program tailored to meet the needs of First Nations members interested in working toward their high school diplomas.

“The number of people that went through so many hours of training, apprenticeships, journey person certifications, Grade 12 continuing education, even the experience of working on the project, have all been benefits,” said Harry Rickard, First Nations relations manager, Aboriginal advisor for KAP and a Moose Cree Member. A foundation of skilled craftspeople has been built in support of social and economic development within the Moose Cree community.



Honoring Traditions

Ontario Power Generation, Kiewit-Alarie and the Moose Cree First Nation celebrated their partnership at the Lower Mattagami River Project on Feb. 23, 2015. After a traditional Cree meal, they took part in a traditional drum ceremony and raised the Moose Cree flag at the Smoky Falls Generating Station.

WHAT THE FUTURE HOLDS

The success of the Lower Mattagami River Project and the experience the Moose Cree First Nation has had with their corporate partners has led them to explore additional opportunities within their traditional lands. According to Moose Cree member Bruce Nelson, environmental assessment site coordinator for the Moose Cree First Nation, “This is a new experience for the Moose Cree. The successes we’ve achieved are remarkable and we are proud to be a part of it.”

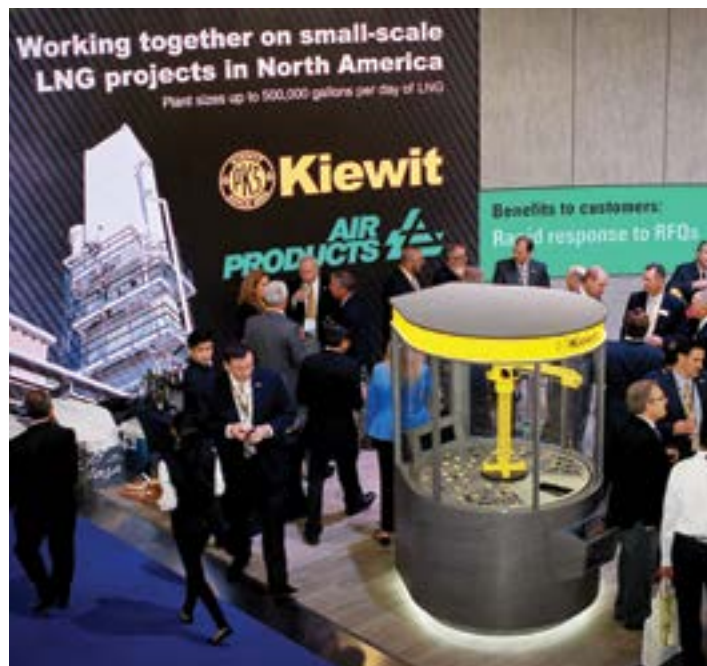
1. The Moose Cree divide the year into six seasons (Fall, Freeze up, Winter, Spring, Break up and Summer). The length of each season is determined by the weather, moon cycle, availability of animals for hunting and trapping, availability of berries and other food staples for harvesting, and the traditional activities that take place during each season. 2. The shaft of a turbine inside Smoky Falls Generating Station.

LNG ON THE MOVE

SPOTLIGHT ON GASTECH



Kiewit recently made an action-packed debut at the Gastech Conference & Exhibition in Singapore – the world’s largest gas industry event.



With roughly 20,000 attendees from across the globe, the event encompassed the latest trends, technologies and critical expertise on the ever-evolving gas industry.

Gastech provided Kiewit with a valuable opportunity to connect in-person with existing and prospective clients and partners as well as build awareness of the company’s capabilities.

“While the majority of our energy-related design and construction work is in North America and Australia, many of our clients operate on an international scale and are heavily dependent on global market forces,” said Dan Lumma, senior vice president for Kiewit Energy Group. “It is imperative that we think beyond geographic boundaries in order to bring our clients the most effective, innovative solutions.”


In addition to meetings and networking, the Kiewit exhibit provided an ideal venue to announce a newly inked agreement with Air Products, which will help meet the increased demand for smaller-scale liquefied natural gas (LNG) facilities. Through a streamlined approach, the collaboration offers clients a one-stop-shop for project management, engineering, liquefaction equipment design and supply, construction, and commissioning for facilities with production capacities of up to 500,000 gallons per day.

“Working jointly, Kiewit and Air Products can offer customers the best combination of performance, cost and delivery,” said Lumma. “We are strategically equipped with a rapid response to the design, construction and commissioning of projects — which is imperative in quickly moving gas resources to market.”

The increased demand for smaller scale LNG production is primarily driven by new applications, most notably in the transportation sector. When compared to diesel, LNG is becoming more cost-competitive and is a cleaner burning fuel.

For large heavy duty trucking fleets, LNG is a viable option for shipping companies and the gas industry itself. Large fleet operators can tap into LNG through strategically located, centralized re-fueling stations. Energy providers can expand distribution beyond the existing network of pipelines.

A more accessible supply chain is also opening doors to new marine shipping applications. Through new technological developments, marine vessels can be retrofitted to use LNG as bunker fuel. In addition to economic advantages, the use of LNG can help fleets comply with new regulations on emissions.

“LNG has traditionally been used for power generation and industrial applications, which requires large-scale production and robust pipeline distribution. We do not expect that to change,” said Lumma. “However, the innovation and ingenuity behind these new, smaller applications could have a substantial, cumulative impact on the industry. We are fully aligned with this evolution and well equipped to serve the gas industry for many years to come.” 

Kiewit LNG at-a-glance



COVE POINT LNG EXPORT

Lusby, Maryland

Engineering, procurement and construction of new liquefaction facilities and export terminal.



WHEATSTONE

Ashburton, Western Australia

Installation and maintenance of underground and aboveground utilities, construction and maintenance of roads and laydown areas, site support and procurement of materials.



ELBA ISLAND LNG EXPANSION

Savannah, Georgia

Marine and heavy civil construction for a terminal expansion.



Far left: The project's Craft Voice in Safety (CVIS) team discusses the upcoming day's work. Left: Summer work on the Orleans Avenue Canal site. Right: A view of the Orleans Avenue Canal from Lake Pontchartrain.



PCCP

BUILDS STAYING POWER FOR NEW ORLEANS

Do an Internet search for “New Orleans” and in the list of links about Mardi Gras, the French Quarter and Hurricane Katrina, you’re likely to find the word “resilience.”

It’s been 10 years since Katrina devastated the city with a wall of water — generating a 28-foot storm surge and 55-foot waves. It also took the lives of more than 1,400 people. A decade later it still ranks as the costliest natural disaster in the history of the United States.

Those who survived the storm will never forget the experience. But today there are signs of healing all around New Orleans.

A recent poll by the Kaiser Family Foundation and NPR showed that 82 percent of current residents have seen progress in repairing the levees. That’s a reflection of their faith in the efforts of city officials to react rapidly should it ever face these circumstances again.

At the center of those efforts is a \$14.45 billion project being carried out by the U.S. Army Corps of Engineers (USACE) to construct the area’s Hurricane and Storm Damage Risk Reduction System (HSDRRS).

Project snapshot



Client:

U.S. Army Corps of Engineers
New Orleans District

Contract:

\$615 million design-build

JV partners:

Kiewit, Traylor Bros. and MR Pittman

Description:

Three pumping stations and permanent gated storm surge barriers at the mouths of the 17th Street, Orleans Avenue and London Avenue outfall canals.

Facts:

- At least 379,000 residents of Orleans and Jefferson Parishes will be impacted by the risk reduction provided by the PCCP project.
- When fully operational, the three pump stations will be able to pump a combined 24,300 cubic feet per second (CFS). That's enough water to fill an Olympic-size swimming pool in 3.64 seconds, or New Orleans' Superdome in less than 90 minutes.
- The entire project will place 70,000 cubic yards of structural concrete — enough to cover the entire floor space of the Superdome with a slab over seven-feet thick.
- The 7,000 tons of reinforcing steel used on the project surpass the weight of the steel in the Gateway Arch in St. Louis by 1,000 tons.
- If laid end to end, the permanent pile used on the project would stretch almost 50 miles.

Since Katrina, teams led by the USACE have been working to construct and strengthen the levees, floodwalls, gated structures and pump stations that form the 133-mile Greater New Orleans perimeter system. They've also been improving approximately 70 miles of interior risk reduction structures.

The goal: A system that will reduce damage risks from a storm surge event that has a one percent chance of occurring in any given year, known as a 100-year storm surge.

LAST, BUT FAR FROM LEAST

The final major HSDRRS task is construction of the Permanent Canal Closures & Pumps (PCCP) project.

A \$615 million design-build contract was awarded to PCCP Constructors JV. The collaboration includes Kiewit, Traylor Bros. and MR Pittman.

Three permanent gated storm surge barriers and brick façade pump station structures — at the mouths of the outfall canals at 17th Street, Orleans Avenue and London Avenue — will replace the temporary closure structures that were completed before the start of the 2006 hurricane season.

Each station is designed to perform a critical role for the city: Prevent a storm surge from entering the canals, thus greatly reducing the risk of flooding in the highly populated interior areas of the city.

The PCCP project is the last item on the HSDRRS list, but far from the least. It is crucial for the entire city, said John Proskovec, project sponsor.

"The Corps planned all along to do this piece last. These three stations evacuate water that drains to them from all over New Orleans. For the most part, this provides a main protection for the city proper."

A GREAT COMMUNICATION PARTNERSHIP

Convincing residents of the importance of the project wasn't an issue. What could have been, though, was asking for residents' patience as the team prepared to place the pumps and build the stations.

The three pump stations all are located in or very near residential neighborhoods with destination parks and lakefront for Lake Pontchartrain. For those in the area, living with inconveniences like noise and truck traffic would

require another kind of resiliency.

"We recognized that it would be a challenge early on," said Dan Bradley, USACE senior project manager. "A lot of people had concerns about what the structures would look like, vibration, pile-driving and traffic impact to the neighborhood. We wanted to be very frank and upfront about that."

It was the job of the Public Affairs (PA) team, led by the USACE's PA office and supported by the PCCP PA team, to get the word out. They formed "a great team from the beginning," Bradley said.

"By conducting dozens of public information meetings, sending mailers and weekly email updates, and even going door to door, the PA team helped communicate the

anticipated impacts to the public very effectively," said Jay Proskovec, PCCP PA manager.

The team's efforts have been appreciated by residents and also recognized by peers. Last year, the PCCP Public Affairs team was awarded a top honor by the International Association of Business Communicators for Excellence for Strategic Public Engagement.

GOING TO UNPRECEDENTED DEPTHS

Another challenge early on came in creating a special form — the temporary cofferdams that would allow the team to set the pumps in place underwater.

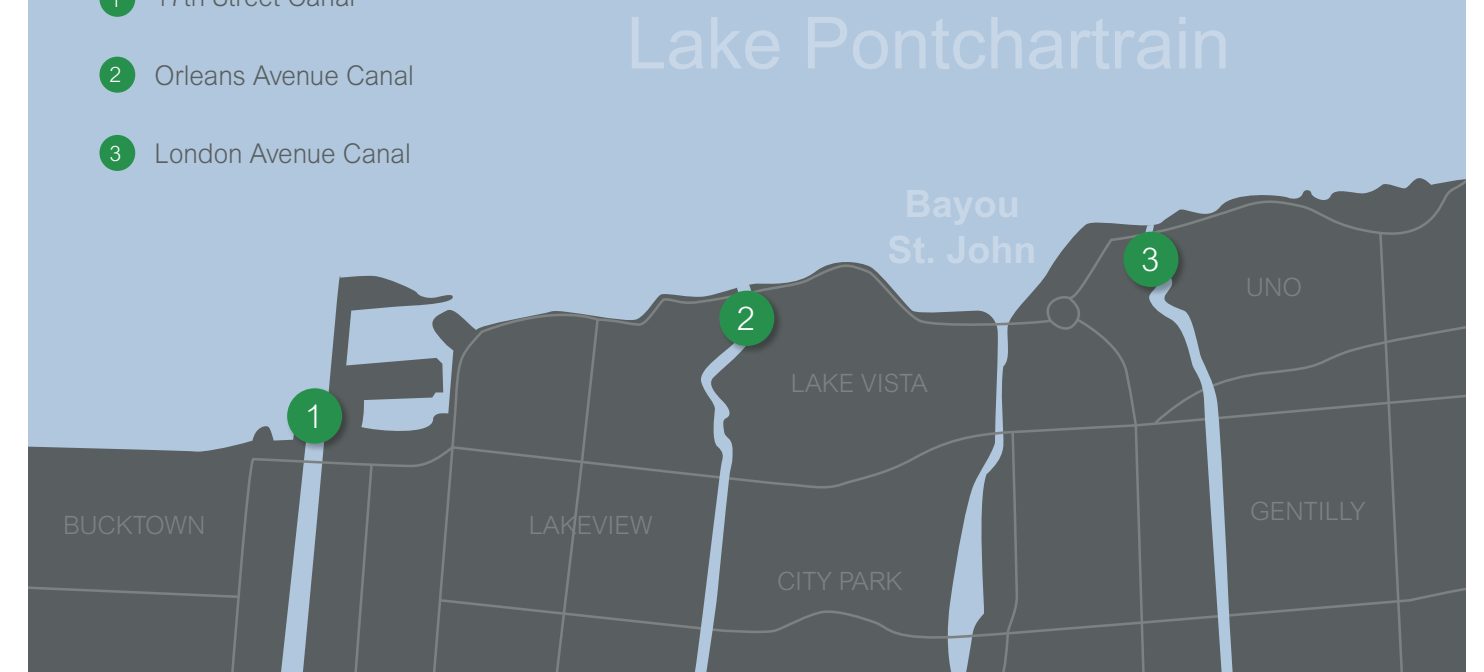
The twist was finding a way to convey city drainage from the old pump stations to the new ones, setting structural piles at a depth of an unprecedented 50 feet, and also dealing

Reducing the risk for New Orleans

During Hurricane Katrina in 2005, the water level in Lake Pontchartrain rose to well above normal levels. The storm surge caused three of the city's main drainage canals to back up and create undue pressure on the levee walls of the canals.

The Permanent Canal Closures & Pumps structures will provide a means to block future storm surges from entering the canals while the pump stations evacuate rain water being pumped into the canals from the city.

- 1 17th Street Canal
- 2 Orleans Avenue Canal
- 3 London Avenue Canal



A glance at PCCP



1. Like London Avenue, all the pump stations are located in or near a residential area. As a result, USACE and the PCCP Constructors hold public information meetings, send mailers and use weekly email updates to keep residents informed on construction progress and impacts. 2. This artist's rendering of the 17th Street bypass gates and pump station depicts the permanent gated storm surge barriers and brick façade structures replacing the temporary closure structures at each of the three outfall canals. 3. Crews pour the concrete pump station foundation at 17th Street. More than 70,000 cubic yards of structural concrete will be used before the completion of the project — enough to pour a 7-foot-thick slab of concrete over the entire flooring of the Superdome. 4. Crews take part in a morning Safety meeting. 5. An artist's rendering of the Orleans Avenue pump station, one of three being built. During a tropical weather event, each of the stations will move rainwater out of the canals, around the gates and into Lake Pontchartrain. Each pump will be equipped with a stand-alone emergency power supply to operate independently of any public utility.

with soil that was muddy and full of soft clay. The resiliency of the finished project depended on the design, materials and craftsmanship.

Crews spent two years digging out the earth. From there, they set piles two feet thick — ranging from 75 to 110 feet in length — and poured a six-foot-thick concrete foundation for the pumps.

“We started the planning for this a year before we started the project,” said Project Manager Travis Baumgartner. “We brought in our JV partner, Traylor Bros., and the Kiewit team for multiple brainstorming meetings.”

If any of the pile placement or concrete pour had failed, it would have had a dramatic, and detrimental, impact on the schedule and the financial outcome. The team ended up

with an open-cell design unique to the area, as well as to the U.S. and around the world.

“Getting these things right and doing it successfully exhausted a lot of the risk on this project,” Baumgartner says. “It really showed the value in joint-venture partnering, both internally and externally.”

PROUD TO BE A PART OF IT

Being a witness to where New Orleans was a decade ago and where it is today makes the Kiewit team especially pleased to be part of the transformation, especially considering how the city has bounced back with so much resilience, John Proskovec said.

“When we came here 10 years ago, there was devastation. Some of the people in the Corps that we’ve worked with

West Closure Complex takes on Hurricane Isaac

During the last week of August 2012, the USACE New Orleans District was tracking another potentially dangerous storm. Named Isaac, the slow-moving Category 1 hurricane was expected to make landfall by mid-week.

This would be the first test of the Gulf Intracoastal Waterway West Closure Complex during emergency conditions.

Another Kiewit-led project in the HSDRRS, the structure contains the largest navigable floodgate in the U.S. — 225 feet wide — and the largest drainage pump station in the world.

On Sunday, August 26, the Kiewit team got notice to take occupancy and shelter in the pump station starting Monday night. They were joined by the USACE team, other contractors and local authorities.

When the storm arrived and water elevation kept rising, the team was instructed to close all the gates and shut down the locks to completely encapsulate the whole city, says James Cochran, project quality control manager.

“Once we had all the gates secured and locked, the USACE gave us direction to turn on the pumps at a



safe water elevation. It was at our discretion to turn on the pumps to keep up with the storm surge to maintain it, but also to turn on other pumps to drain the canal at the elevation that was described.”

Was it an adrenaline rush to be in the heart of the storm? “It definitely was,” says Cochran. “Yet, it was truly remarkable to sit in the pump station safe house, understanding that you’re in the middle of a hurricane and you’re completely safe.”

In total, Isaac pummeled New Orleans with more than 20 inches of rain. But the West Closure Complex performed as designed to move the water out of the city and keep residents safe.


“It was truly a flawless operation,” Cochran says. “We know we have enough horsepower and capacity to fight another storm of that caliber, or even greater, with no issues.”

“It really motivates you to make sure you’re building the job right so these people don’t have to go through [Katrina’s devastation] again. You look back and you’re proud that you’re a part of it — to be part of a structure that adds so much value to the community.”

**TRAVIS
BAUMGARTNER,
PROJECT MANAGER**

had houses that were destroyed in Katrina. Today, you drive around and see houses being built everywhere.”

Baumgartner, who also worked on the HSDRRS West Closure Project, says that seeing the remnants of what Katrina left behind has had an impact.

“It really motivates you to make sure you’re building the job right so these people don’t have to go through that again. You look back and you’re proud that you’re a part of it — to be part of a structure that adds so much value to the community.” 





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