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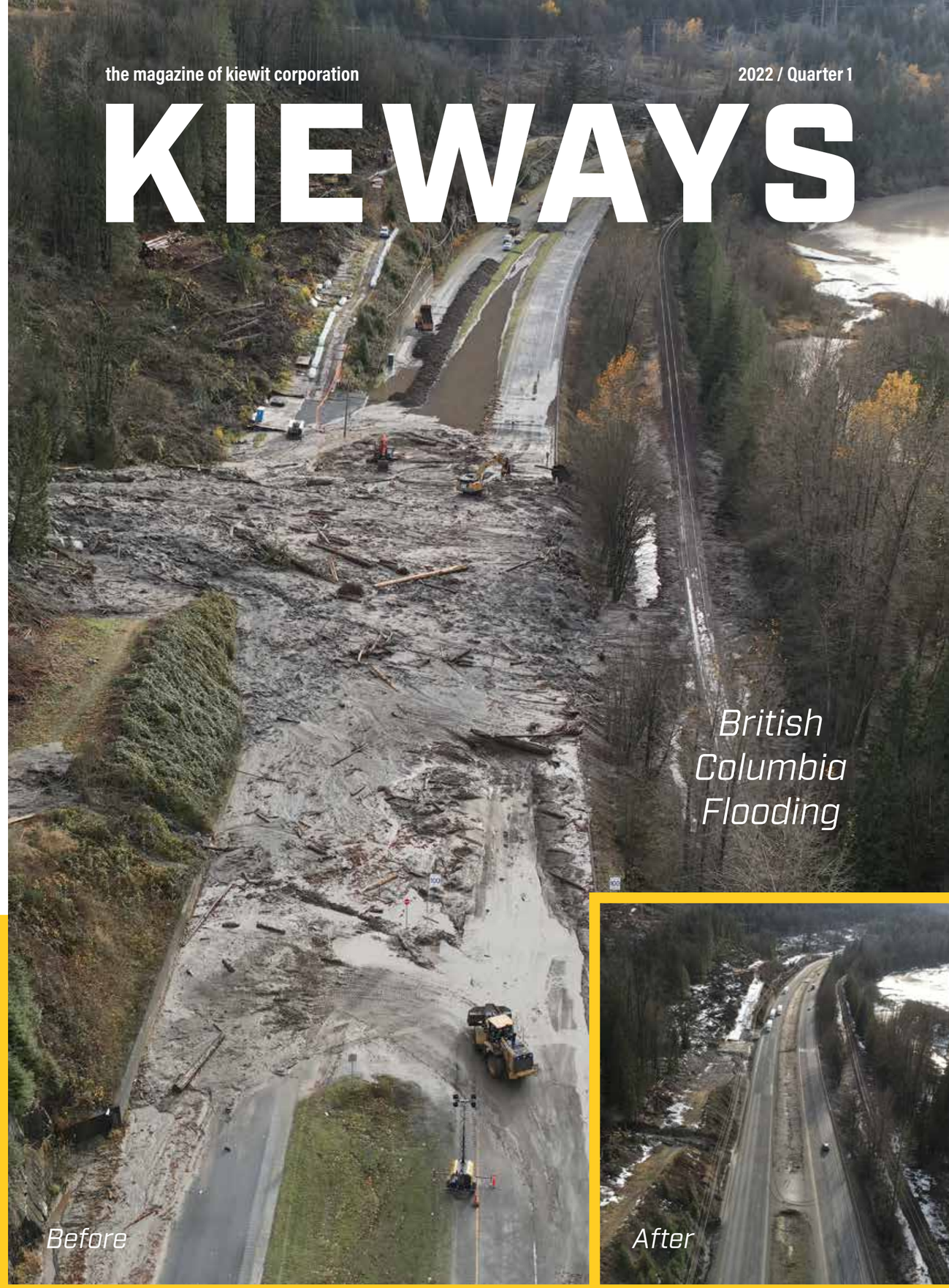
SINCE 1884

the magazine of kiewit corporation

2022 / Quarter 1

KIEWAYS



BRINGING THE POWER
The Niles Energy Center team gathers onsite for safety training. With over 1.5 million man-hours worked, there has not been one recordable incident. Read more beginning on Page 20.

KIEWIT TEAMS TACKLE COMPLEX CHALLENGES

The tougher the challenge, it seems, the harder our Kiewit teams work to find the right solutions that help clients to successfully finish their projects on time and within budget. It's the Kiewit way. We go the extra mile, run at problems and find a road to success.

In this issue of Kieways, readers will find stories about Kiewit teams that faced some unexpected challenges and joined forces with clients and partners to keep the projects on track.

One of the best examples is the five-year, $1.4 billion South Terminal project at the Orlando International Airport in Florida. The pandemic had a huge impact on available funding, as the airport experienced a dwindling number of passengers. On Page 10, read about how this team helped find ways to cut the budget but still deliver an expanded airport.

When massive flooding severely damaged bridges and highways in British Columbia, Canada, before the holidays last year, Kiewit immediately answered the call for help. On Page 16, read about how teams quickly mobilized to help impacted communities and to make complex emergency infrastructure repairs.

A craft shortage, high water tables and contaminated soil couldn't stop the Niles Energy Center team in Michigan from completing its job. They worked through these challenges, managing the water issues, incorporating innovative techniques and delivering a perfect safety record. Read about it on Page 20.

Finally, this Kieways issue includes a feature about a program we're very proud of at Kiewit. On Page 6, learn about how the Kiewit Scholars Program is helping to develop the builders of tomorrow with scholarships, mentoring and hands-on training.

I hope you enjoy this latest issue of Kieways. Thank you to our clients, partners and employees for all you do. Stay healthy and safe.

RICK LANOHA
President and Chief Executive Officer

Kiewit

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 organization operates through a network of subsidiaries in the United States, Canada and Mexico. Kiewit offers construction and engineering services in a variety of markets including transportation; oil, gas and chemical; power; building; water; industrial and mining. Kiewit had 2021 revenues of $12.1 billion and employs 28,800 staff and craft employees.

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KIEWAYS
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PREPARING FOR TAKEOFF
Five years after a Kiewit joint venture was awarded a first contract to construct a new terminal for Orlando International Airport, flights are set to take off in the summer of 2022. Read about it on Page 10.

ON THE COVER

ALSO INSIDE

KIEWIT NEWS

What began in 1884 with two hard-working brothers has grown into a construction and engineering industry leader. As a multi-billion dollar organization, Kiewit can tackle projects of all sizes, in any market. Here's a brief collection of recent news and information from around the company.

OUR MARKETS:

- BUILDING
- INDUSTRIAL
- MINING
- OIL, GAS & CHEMICAL
- POWER
- TRANSPORTATION
- WATER

OUR VALUES:

- PEOPLE
- INTEGRITY
- EXCELLENCE
- STEWARDSHIP

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NEW BOARD MEMBER JOINS KIEWIT

On Feb. 1, Neil Duffin joined Kiewit's board of directors following a distinguished, successful 41-year career at ExxonMobil, most recently serving as president of ExxonMobil Global Projects Company. In that role and several other executive leadership positions before it, Duffin was responsible for the development, delivery and operations of key construction projects globally. His passion for and commitment to safety and quality, as well as his extensive global experience overseeing operations and production in Europe, Africa, Asia and North America, will provide Kiewit with access to innovative ideas and valuable insights into strategies to grow and strengthen the business.

KIEWIT SCHOLARS AT IOWA STATE AND PURDUE

The company recently launched Kiewit Scholars Programs at Iowa State University and Purdue University, two key partners and regular contributors of outstanding talent at Kiewit. Both programs will include scholarship support and annual programming focused on leadership, team building and professionalism for students in the universities' Colleges of Engineering who have a passion for the construction industry.

"Kiewit is proud of our long relationships with these leading engineering universities," said Jim Rowings, vice president of technical development at Kiewit. "These programs are excellent examples of the steps we're taking to ensure we have the great talent we need to design and build exciting, important projects across North America."

Read more about the Kiewit Scholars Program on Page 6.

KIEWIT LEADER NAMED AN ENGINEERING NEWS-RECORD TOP 25 NEWSMAKER

Kiewit's Chris Frieberg is an Engineering News-Record Newsmaker for his leadership on the Hernando de Soto Bridge Emergency Repairs project. The bridge reopened just 83 days after it closed following discovery of a cracked tie beam, thanks to a lot of hard work and the collaboration prioritized by the project's construction manager/general contractor (CMGC) model.

Ted Kniazewycz, director of the Tennessee Department of Transportation's structures division, called Frieberg "a steady leader" who brought "an attitude of safety, innovation and teamwork to a very complex and critical infrastructure project."

You can read more about the project in the 2021 Q4 issue of Kieways.

TRANSFORMING GREATER TORONTO'S TRANSPORTATION NETWORK

Toronto's Union Station Enhancement Project will transform Greater Toronto's transportation network. ONTrack Alliance signed a Project Alliance Agreement with Metrolinx to deliver the project. This is a first-of-its-kind job using the alliance contract model, which emphasizes a collaborative process to develop the design, schedule and cost of the project.

ONTrack Alliance includes:

- Constructors: Kiewit – Alberici Union General Partnership
- Designers: WSP Canada Inc.
- Signalling Work: Mass. Electric Construction Canada Co. – a subsidiary of Kiewit Corporation

The project will increase the capacity of Union Station and includes construction of new platforms, tracks, concourse areas, stormwater management and other building systems. Benefits include reduced congestion, greenhouse gas emissions, fuel consumption and daily travel times. Construction is anticipated to begin early this year and be completed in fall 2025.

Olivier Beaulieu

Anayeli Martinez Real

TWO KIEWIT EMPLOYEES NAMED TO 40 UNDER 40 LISTS

Olivier Beaulieu earned a spot on On-Site Magazine's 40 Under 40 in Canadian Construction list. Over his 16-year Kiewit career, Beaulieu has worked in Québec, Newfoundland and Ontario, and is currently assigned as a project manager in British Columbia. He's worked on many notable projects, including the recently completed Turcot Interchange in Montreal.

Midlands Business Journal named Anayeli Martinez Real to its 40 Under 40 list. The list recognizes leaders from the Greater Omaha, Nebraska, area. Martinez Real has worked at Kiewit for over 14 years in project management roles and is a leader in large company initiatives, including Women in Kiewit and the company's Diversity, Equity and Inclusion Steering Committee.

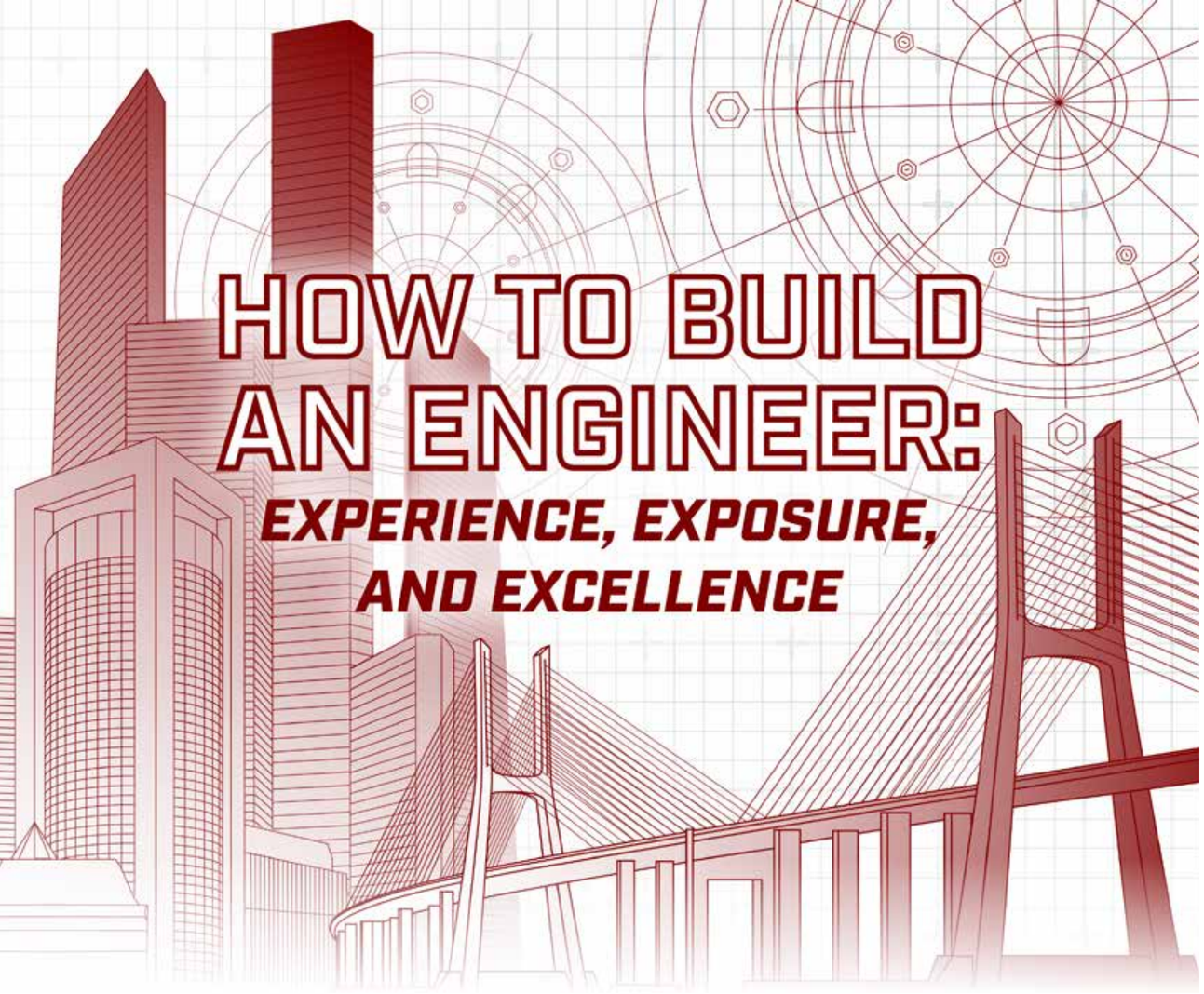
PROGRESS TOWARD THE NATION'S FIRST WIRELESS CHARGING INFRASTRUCTURE ON A PUBLIC ROAD

Kiewit will be a part of the project team that will implement the nation's first wireless charging infrastructure on a public road in the U.S., which is being led by Electreon, the State of Michigan and Michigan Department of Transportation (MDOT).

As part of the project team, Kiewit will work with Electreon and the MDOT during preconstruction to refine the scope of construction and advise on potential efficiencies that could drive the cost of installation down. As the project develops, Kiewit's open book estimate process will be leveraged to create transparency around quantities and pricing based on the actual build opportunity, providing significant value to Michigan and the electrification industry.

KIEWIT TAPPED TO SUPPORT HYDROGEN AND CARBON BLACK PRODUCTION FACILITIES IN NEBRASKA

Monolith received Department of Energy conditional approval to expand its Olive Creek clean hydrogen and carbon black production facilities in Hallam, Nebraska. Kiewit will bring engineering, procurement and construction experience and skilled people to the Olive Creek plant expansion project, which will help Monolith commercialize a new, innovative technology to produce cost-effective, clean hydrogen and materials.



HOW TO BUILD AN ENGINEER: EXPERIENCE, EXPOSURE, AND EXCELLENCE

For most college students receiving a scholarship, their investor's involvement starts and ends at the university's financial aid office. Students may write a thank you letter after four years, meet briefly at a school event or never even know who is supporting their education. Kiewit saw this and believed there was a much more meaningful way to not only invest in students through significant scholarships, but to forge a long-term partnership with the young talent — and the universities they attend.

With a focus on providing tuition and textbooks for students, as well as impactful experiences in the engineering and construction industry, Kiewit is focusing on scholarship programs that set students up for long-term success in their careers. Direct contact with the company and employees is integral to that mission.

"The classic engineering education will only take you so far," said Bruce Grewcock, chairman of Kiewit's Board of Directors. "We want programs that create opportunities for students to understand the complex world we work in." This complex world requires a complex program to prepare students for success in their careers. Outside of the technical knowledge it takes to graduate, students in Kiewit scholarship programs will be expected to cultivate their leadership and professional skills during college.

The universities that Kiewit wants to partner with must have an expectation of excellence that is foundational to Kiewit careers.

"These programs allow us to put our Kiewit DNA into the curriculum they are being taught," said Doug Glaser, Kiewit executive vice president. "Students learn our tools and processes, the way we think and do business."

A HOLISTIC APPROACH

One of the first partnerships out of the gate was with the University of Nebraska-Lincoln (UNL). Called the Kiewit Scholars Program, the partnership involves Kiewit employees not only funding the financial component of the program, but also serving as curriculum partners, mentors and guest speakers.

"This level of financial commitment, but perhaps more importantly, the time committed from these leaders in the field is impressive and very valuable for our UNL students," said Bonnie Shuda, director of Engineering Scholar Programs at the university.

Shuda teaches the Kiewit Seminar course, attended each semester by all students with scholarships in this program — they are called Kiewit Scholars. These students focus on leadership skills and regularly hear from Kiewit employees. In her opinion, this cohort is unlike any other.

"These students are so professional within a few weeks," said Shuda. "Simply being exposed to Kiewit folks, truly before they even start school, has influenced everything they do on campus." From club memberships to running for leadership positions across the university, Kiewit Scholars are challenged to practice their leadership skills outside of the classroom and among their peers.

The 2021 Kiewit Scholars cohort consists of 10 engineering students — seven women and three men — with majors ranging from civil and mechanical engineering to construction engineering and management. Each student was selected through a series of applications and interviews.

"For the University of Nebraska-Lincoln, one of the key elements that sets this Kiewit Scholars Program apart from

The University of Nebraska-Lincoln 2021 Kiewit Scholars are all freshmen in the College of Engineering.

The whole package

The University of Nebraska-Lincoln Kiewit Scholars Program provides financial assistance for students in several areas. The College of Engineering's complete engineer program merges with Kiewit's holistic approach to students' education to touch on all areas of student success.

- Full-tuition scholarship for four years
- $750 textbook stipend
- Freshman year housing and meals covered
- Leadership curriculum and industry mentorship-focused seminar, each semester
- $2,500 study abroad stipend
- Two all-expense-paid immersive learning trips
- Guaranteed Kiewit internship

"The world is always going to need engineers and will always be changing and improving. The opportunity to be a part of the growth in our society really excites me."

TAYLOR HOSICK
Kiewit Scholar
University of Nebraska-Lincoln

A strong foundation

Since joining forces with the University of Colorado Boulder, it is not uncommon to find a Kiewit employee speaking to a class or a student on a job site.

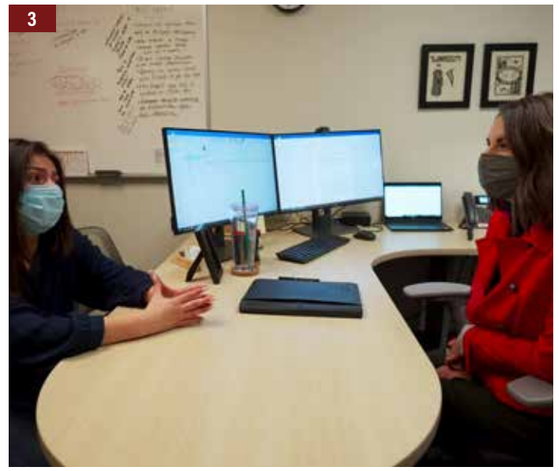
This industry exposure aims to develop students as confident, well-prepared leaders in the industry. "The hope is that these students will be ready to hit the ground running come graduation," said Grewcock.

Students who are part of the Kiewit Design-Build Program at the University of Colorado Boulder — another hands-on partnership between Kiewit and students at a leading university — will receive financial aid, regularly interact with company executives and frequently visit Kiewit job sites on tours and through internships.

Additionally, students have access to Kiewit employees as professional one-on-one mentors throughout their education. These interactions allow students to learn about their future careers outside of the classroom setting, ask questions and gain exposure to Kiewit operations.

Through this program, Kiewit supports up to 40 students each year within the College of Engineering and Applied Science.

- Visit job sites
- Participate in discussion forums
- Work on service-learning projects
- One-on-one mentorship
- Financial aid
- Network with industry



1. During their first semester at college, Kiewit Scholars visited the Riverfront Revitalization Project site in Omaha, Nebraska. 2. Taylor Hosick, a Kiewit Scholar at University of Nebraska-Lincoln, is majoring in construction engineering. 3. Felicity Sierra (left), a Kiewit Scholar at University of Nebraska-Lincoln, meets frequently with Bonnie Shuda, the director of Engineering Scholar Programs.

others is the heavy industry involvement," said Shuda. "Kiewit has been hands on from the inception of the program."

For some students, this Kiewit Scholars Program has made all the difference.

THE BUILDERS OF TOMORROW

Felicity Sierra, a freshman mechanical engineering student and Kiewit Scholar, always knew she wanted to go to college and study engineering. Growing up in a working-class home with four older brothers, Sierra understood early on that scholarships would play a vital role in her ability to attend a university.

"I refused to go somewhere that would be a burden on my family," said Sierra. "With Kiewit Scholars, I thought, this is my opportunity." Sierra is the first in her family to attend college and she intends to make every experience count.

During their first semester in the program, students visited the Riverfront Revitalization Project in Omaha, Nebraska. It was after this event that Sierra changed her major from computer engineering to mechanical engineering. "I never expected to do that," said Sierra. "To get work boots, have the hard hat on, it was definitely eye-opening."

"These students see the reality of their degree right away," said Shuda. "They are able to hear from the project manager, tour the site and truly see their major in action, perhaps before their peers do."

Outside of the school year, students will be able to experience Kiewit on a national scale through internships. All University of Nebraska-Lincoln Kiewit Scholars will intern with the company at least once during their college years. And while most students are from the Midwest, these internships can take place across the country.

"We provide those opportunities for them to go and see other places," said Glaser. "And hopefully they all come work for us. As we keep this thing going, they can be testimonials to the importance and value of these programs."

Programs like this also serve Kiewit from a recruiting standpoint by getting students excited about not only a career in construction and engineering but a career with Kiewit, a company dedicated to their success before they even receive their diploma.

Taylor Hosick, who is a freshman construction engineering student and Kiewit Scholar, believes the opportunity will be a valuable challenge. "They have such high expectations of excellence, which I feel prepares me for my career."

This holistic approach of mentorship, industry experiences, curriculum and financial aid has been intentionally aimed at doing just that. Kiewit programs lend themselves not only to creating meaningful careers but future success for the industry as a whole. The builders of tomorrow are in the classroom today.

"Somebody helped shape me and mentor me and now that is what we get to do with these kids," said Glaser. "It's about giving that person a chance and I know it's going to be so rewarding to see these students grow over the years." **K**

WHEELS UP IN ORLANDO

After the equivalent of a flight with some not-so-minor turbulence, Kiewit is preparing for a smooth takeoff when the new South Terminal C at Orlando International Airport opens this summer.

Pre-pandemic, Orlando, Florida, was enjoying the distinction of being the top family vacation destination and most visited destination in the United States.

Home to seven theme parks, including Walt Disney World — and with 75 million visitors in 2019 — the Orlando area was hopping.

Orlando International Airport (airport code MCO) was equally busy: It reached a record 50.1 million passengers that year, making it the busiest airport in Florida.

WELCOMING MILLIONS OF TRAVELERS

The Greater Orlando Aviation Authority (GOAA) had a plan to relieve some congestion and accommodate more air service.

In late 2016, GOAA awarded Kiewit and its joint venture partner, Turner Construction, a Construction Manager at Risk (CMAR) contract to provide preconstruction phase services and construction management for the South Terminal C.

A $1.4 billion project, the South Terminal is the first phase of an expansion that will add a third, half-mile-long access point to the airport.

When it opens this summer, the terminal will have 15 additional gates, accommodating up to 20 aircraft. An estimated 10 to 12 million travelers will use it annually.

GOAA tapped Turner-Kiewit to oversee a range of projects, including a 932,000-gross-square-foot landside terminal building, a nearly 110,000-gross-square-foot ground transportation facility, six-level 402,000-gross-square-foot parking garage, and 96 acres of landside civil work.

The job also included site logistics relocation and constructing a central energy plant, emergency power generation plant, AOA Security Checkpoint Delta, a new taxiway and apron, tying into multiple active existing runways.

MANAGING THE GMP CONTRACTS

The massive scope of work gave the team an opportunity to divide the project into multiple Guaranteed Maximum Price (GMP) contracts, some of which Kiewit took on as self-perform work.

Breaking up the project into 31 GMPs and managing the

Kiewit shared the project worksite with more than 90 contractors and subcontractors, making daily coordination critical to meeting access and space needs. All parties worked together to ensure everyone had safe access to their parts of the program.

scope for each one was one of the biggest challenges for the project.

"Midway through construction, we managed a major change order to add three additional gates. We went through about a year of design input, change order processing and getting that out to the trades," said David Crane, project manager.

"Once the design is finished, under normal circumstances, they still have to incorporate changes from airlines. There are customizations they need inside the building, always something, which is what makes CMAR the right contract model for GOAA."

TAKING OVER A BIG PROJECT

The largest GMP contract — the airfield civil works, which included 566,000 square yards of concrete paving and construction of a drainage system — came later. GOAA switched from a previous construction manager to find more favorable pricing for the expanded package.

"They approached us and asked us if we would be interested in pricing the work," said Nick Sosa, who started as project manager on the CMAR and currently is area manager. "We did that, and we were successful. A big reason we got that work was our previous performance at the airport and their knowledge of Kiewit as a company."

Taking over the contract required a careful assessment of what had been done to date and what was left to do.

"The job team had to perform inventories and inspections of the on-site materials before the start of work, to avoid double-ordering, complete subcontractor and material contracts for the correct quantity, and to make sure they met specifications," said Sarah Schultz, project manager for the airfield civil work.

FRAMING THE PROBLEM, OFFERING SOLUTIONS

By the time the pandemic hit in spring 2020, Kiewit was already one year into the airfield civil project, and the work itself was already 40% complete.

But tourists were staying home. And GOAA needed to cut costs.

With changing financial projections, the owner directed the team to reduce, or "de-scope," large parts of the project.

The square footage of the concrete paving was reduced by 25%, from 566,000 square yards to about 423,000 square yards, which reduced that contract amount by about $20 million.

"The owner's funding sources are primarily through the revenues generated by the airport," said Kent Oberle, project sponsor. "I think the global impact and how that affected our team, our job, with the owner's revenue projections has been another big challenge to overcome in the past two years."

Ben Brown, senior construction manager and owner authorized representative for GOAA, credits Kiewit's collaboration and cooperation in setting budget limits while still making sure the airport would function for its intended purpose.

"I think that's where Kiewit does their best work, leading into those uncertain places and helping to really frame the problem and work together with us to offer solutions," he said.

"They were a big part of helping identify what ways we could save money while also rearranging their work to avoid completing anything that potentially would be de-scoped or deleted."

1. A segment of the job included overseeing construction of a six-level 402,000-gross-square-foot parking garage. 2. Crews construct the new landside terminal building, which is estimated to accommodate 10 to 12 million travelers annually. 3. Construction of the airfield civil works was a crucial part of the job and included 423,000 square yards of concrete paving and construction of a drainage system.

LOGISTICAL CHALLENGES

Through all the adjustments the team had to make throughout the project, it also had to share the site with over 90 contractors and subcontractors.

Between the contractors for baggage handling, passenger boarding bridges, airside building, car rental facility, rail, concessions and tenants, as well as GOAA operations, Security, Customs and Border Patrol, the area can get crowded.

Kiewit needed to strike the right balance of getting its work done — and sometimes slowing progress so other parts of the program could be supported.

"The dance they had to do probably set the tone for the whole program," said Brown. "Kiewit went out of its way to make sure we had safe access, and also to be thoughtful with their own work to make sure they prioritized access for the other parts of the program."

Understanding how to communicate and get along with this many other entities requires experience, patience, and above all, an ability to focus on the big picture.

"Just working and playing nice in the sandbox is a daily activity for us," said Schultz. "We have a weekly coordination meeting with all of the stakeholders and contractors on-site to try to get ahead of these issues. Because they have the same ultimate deadlines we do, we all have to work in tandem to meet the overall goals of opening the terminal."

'AN AWESOME SENSE OF PRIDE'

As the project nears completion, the Kiewit team is taking a moment to reflect on the job.

"I have an awesome sense of pride," said Crane. "For the rest of my life, anytime I'm flying out of Orlando, I'll be using this terminal as much as possible just to continue to reflect on that. There have been a lot of good memories over a five-year project."

"I think Kiewit's culture definitely shines through in the way they lead the projects," Brown added, "and the way that they've had a real focus on the end from the beginning. It's just a colossal task and the team was up for it." **K**

Orlando International Airport South Terminal C is on track to be completed in summer 2022 and will be home to 15 additional gates accommodating up to 20 aircraft at a time.

AFTER THE STORM

Kiewit completes emergency repairs in Canada.

Imagine: It's the month before Christmas and people are busy completing year-end tasks in preparation for the holidays. Suddenly, a weather pattern delivering record-breaking amounts of precipitation — a month's worth of rain in three days — causes widespread flooding, landslides, loss of power, internet outages and road closures that debilitate an entire region.

Sounds like the plot of a movie, right? Sadly, this was reality for many people that call British Columbia home. The province experienced unprecedented rainfall Nov. 13-15, 2021, that crippled infrastructure in the region. Mudslides and span breaks on critical bridges brought traffic to a halt. A town hit particularly hard was the District of Hope, a small municipality that was completely cut off from the Lower Mainland and the rest of British Columbia.

People were left stranded on highways and commerce was crippled. Resources were extremely limited and urgent response was needed.

In the midst of dire circumstances, Peter Kiewit Sons ULC was ready to step in to meet the significant challenge. Kiewit had 200 people working on a project in the area at the time of the flooding, and they became emergency response personnel almost overnight.

IMMEDIATE RESPONSE

After ensuring the safety of employees, Kiewit immediately took action to meet pressing needs in the community. Kiewit personnel helped staff the refugee center, providing shelter to those in need, helicoptering in supplies, and managing medical care for community members by establishing phoneline access to medical professionals. Kiewit played a critical role in the immediate efforts to ensure the town's residents were safe until road access was restored.

Simultaneously, Kiewit workers got to work. They helped clear mudslides and worked to restore road access, working from both ends of the highway. This included significant coordination from Kiewit engineering and construction teams, all at a rapid pace. The goal was to restore traffic flow on the Coquihalla Highway, the main commercial transportation route in the region, by the Christmas holiday.

In a lot of ways, it was very fortunate that Kiewit had such a large existing presence in Hope.

"We had people, equipment and fuel on site that were right there, and our people were qualified to start digging through all of this landslide material," said Kiewit Project Director Chris Dandurand. "Had we not been there, the community would have had to rely on external resources, which were limited."

ASSESSING THE DAMAGE

Kiewit Construction Manager Danny Harding described his first reaction upon arriving in the town of Merritt, which was the central location for response efforts in the north.

"Pulling in felt like a war zone. There was a base camp set up with helicopters flying resources south. There were four or five helicopters in the air at all times," he said. "The industry response was an all-hands-on-deck approach, and there was a lot of activity going on at all times."

One of the first priorities was assessing the damage caused by the storm. In addition to the closure of five main highways in the region — Highways 1, 3, 5 (also known as the Coquihalla Highway), 7 and 99 — four river crossings along Highway 5 were debilitated and rail lines were demolished. Highway 5 had over 25 impacted areas, including parts where the road completely washed out.

With mudslides still being cleared, Kiewit engineering teams were engaged to start working on solutions for

1. Two bridge spans collapsed in flooding on the Jessica Bridge.
2. Crews work on demolition of the Bottletop Bridge approach span. The embankment was determined to be salvageable once reinforced.

the significant infrastructure damage. Getting additional information was key. Kiewit personnel worked to obtain as many photos as possible to assess the damage, conducting drone photogrammetry and drone surveys to provide topographic data.

FORGING SOLUTIONS

Under the leadership of the British Columbia Ministry of Transportation and Infrastructure, Kiewit worked with multiple highway maintenance and First Nations contractors, as well as other stakeholders, to make repairs. Within two weeks, Kiewit mobilized 290 workers, 110 pieces of heavy equipment and 34 designers.

Kiewit played a key role by providing both construction and engineering support. The repair effort resembled a design-build model. "Construction was progressing literally at the same time as our designs," said Kiewit Engineering Operations Director Jorge Antunes. "It was difficult to stay ahead of construction. We would say it felt like a build-design project, not a design-build project."

There was also great urgency to reestablish traffic. "The quick mobilization was the number one challenge of the project," said Kiewit Area Manager Pat Wilson. "At Kiewit, we have a very detailed and established process for starting up a job, which typically takes months. Coming in and seeing the damage, we realized we were going to need to start things up in 12 hours."

Some of the most significant damage was at the bridges on the Coquihalla Highway. The Juliet, Bottletop, Carolin and Jessica bridges were hit particularly hard. All were in various states of disrepair. On the Jessica Bridge, there were two approach spans down that were not salvageable. Kiewit engineering and construction teams found ways to demolish those approach parts and build a Geo-synthetically Reinforced Soil (GRS) retaining wall along with a custom pre-cast concrete jump span as a temporary fix to restore traffic flow.

When asked about the keys to success, Antunes said, "The integration of our design and construction teams made this possible. We had phone calls every day, sometimes hourly. It was this kind of open, transparent discussion that allowed us to make informed decisions that were right for the project."

Whether it was a geotechnical concern for ground stability, a materials question on what could be used to reinforce embankments, or a structural fix needed to secure a bridge, Kiewit's engineering and construction teams were often working with sketches in notebooks or measurements taken by hand, while access to power and technology was still scarce.

After five weeks of around the clock work, a significant milestone was reached when the Coquihalla Highway reopened to commercial traffic and inter-city buses, before Christmas, and thanks in large part to the Kiewit teams in Western Canada and across North America.

Peter Kiewit Sons ULC Senior Vice President Ryan Tones said, "It was incredible to see everyone working together toward one common goal. Kiewit was uniquely qualified to complete this work as quickly as we did because of our fully integrated design and construction approach, which is unmatched in the industry. We operate as one unified team to solve problems and that was what allowed us to get Highway 5 opened so quickly."

COMING TOGETHER

The impact of the repair efforts and the speed at which they were completed cannot be understated. British Columbia Transportation Minister Rob Fleming said at a news conference that the reopening of Highway 5 was "one of the most remarkable engineering feats in recent memory in the province of British Columbia."

"We're grateful for the effort that Kiewit put in, pulling people from all over the place to come and work on the Coquihalla," said Jennifer Fraser, executive project director for the Highway Reinstatement Program for the British Columbia Ministry of Transportation and Infrastructure. "Given the fact that we were able to open a month ahead of when we originally anticipated, it is a testament of Kiewit's ability to mobilize at that scope and scale."

The impact of this atmospheric river event will be lasting. While temporary fixes have been implemented, the government is preparing permanent repair contracts that will rebuild sections of the many impacted highways and bridges. Kiewit has been pre-qualified in both engineering and construction and looks forward to assisting in the permanent repairs with the goal of restoring critical infrastructure to full strength. **K**

1. One of many significant mudslides on the Coquihalla Highway that made the road impassible is shown in photo 1 below. 2. This photo shows the highway after crews cleared debris and made road repairs to restore traffic. 3. Personnel relied on helicopters to reach numerous project sites that were otherwise inaccessible. 4. Kiewit employees Etienne Bossé and Stéphanie Massey supported the volunteer effort at the Hope refugee center, providing food and supplies to community members in need. 5. Kiewit Engineering Operations Director Jorge Antunes shares project plans with B.C. Ministry of Transportation and Infrastructure Engineering Director Kevin Weicker.

BRINGING THE POWER

With every job Kiewit takes on — like the Indeck Niles Energy Center in Niles, Michigan — success lies in looking at the big picture from new perspectives. This team has harnessed a special kind of power that's helped develop innovative and safer ways of working.

Located near the Michigan border, just north of South Bend, Indiana, the town of Niles will soon be home to a 2-on-1 combined-cycle electric generation station. It will be one of the most efficient energy centers of its kind in the state.

Two gas turbines feed two heat recovery steam generators (HRSGs). The HRSGs use waste heat to produce steam, which is then sent to a steam turbine to generate additional electricity.

When it goes online in March, the 1,085 megawatt plant operated by Indeck Niles LLC will supply power to the greater Midwest area. About 650,000 homes and businesses will benefit from the plant's efficient energy output.

The community will benefit, too: An estimated 21 high-paying permanent jobs will be added, and the center will generate millions of dollars in local tax revenue.

MOVING THE WATER AROUND

When Kiewit began work in August 2019 at the brownfield site, a former railyard, there were plenty of challenges for the team to tackle.

One happened early in the process, said Project Manager Tyler Jeziorski.

1

"The water table is roughly 8 feet below grade, so all of the underground utilities, pipe and electrical duct banks were all in that water table. When you have contaminated soil, you can't simply discharge water off the site.

"We had to essentially lower the water table locally and rotate it around the project while we installed the underground utilities and poured all the major foundations. To have adequate storage space to support these efforts, the team dug additional temporary retention ponds. It was a huge challenge for the job team to get that work done."

LOOKING BEYOND LOCAL

Another hurdle: finding workers to satisfy the baseline schedule and what was to come. For six months in 2021, the job employed 650 craft.

With shortages around the area, the team needed to look beyond local union halls to fulfill manpower numbers and keep the job on schedule.

Project Sponsor Brian Koller attributes success to word-of-mouth recruiting and staff and craft connections from previous projects.

"We got a lot of traction that way, just by people's personal relationships. So word of mouth got to them, then they called their friends or coworkers, people they knew, and said 'Hey, we've got a good job up here.' I would say that's a huge contributor to our success."

MOVING UP

Internally, Kiewit was creating and training its own workforce, young engineers like Johnathan Rychly. He came to the Indeck Niles project as lead field engineer for the HRSG with a few years of design engineering and construction experience under his belt.

Rychly said he's learned a lot about the business and operations. He's had a front-row seat to both the technical and project control sides of the business and developed a broader understanding of project cost and schedule.

It's been an invaluable training ground for the young staff. Among the group, 10 have moved up to leadership positions.

Rychly is now a general superintendent. On this job, he's gained "a solid foundation" to take his career in new or different directions, he said.

"There's not a set path here. Kiewit has a lot of open doors for whatever you want to do with your career to help the company."

AN 'OUTSTANDING' ACHIEVEMENT

Safety always takes center stage on any Kiewit project. For the Indeck Niles Energy Center, the team is proud to showcase several important safety-related accomplishments.

One is reaching 1.5 million man-hours without a recordable incident. It's a tremendous achievement, said Jeziorski.

"This business and this industry are inherently dangerous, so to accomplish that with 650 craft working day in and day out over the last year, it's great for everybody."

Another win involved the 47-cell Air Cooled Condenser (ACC), a part of the project that traditionally has required nearly 10,000 linear feet of overhead manual welding.

"It opens up a lot of opportunity for things such as eye injuries with some of the welding slag or particulate that

1. Crews install drilled piers to support the 345-kilovolt collector yard structures. 2. The steam distribution duct for the 47-cell Induced Draft Air Cooled Condenser (ACC) is 31 feet in diameter at its largest point. At full load, the duct distributes 2 million pounds per hour of steam to be condensed back into water.

2

"There's not a set path here. Kiewit has a lot of open doors for whatever you want to do with your career to help the company."

JOHNATHAN RYCHLY
Lead field engineer,
Indeck Niles Energy Center

you could get in your eye," Jeziorski said. "And ergonomic strains and injuries can be common just with the position of the work."

Area Manager Dan Rocole challenged the team to think outside the box to find a safer solution.

They came up with an innovative answer: an automated welding system with electronically controlled equipment that leaves little opportunity for defects or costly rework. Even better, the speed and accuracy of the equipment allows operations to be done three times faster than traditional techniques.

"I think it's outstanding," Rocole said. "We took a high-quantity, high-safety risk, repetitive process that goes on for probably 12 months of the job, and we've automated it and used the technology in our favor." **K**

More than luck

While the Indeck Niles project team was working on forward-thinking plans regarding safety, Kiewit was developing more robust ways of analyzing safety data. Two new safety data tools were released by the company in 2021.

The first, the Historical Incident Trends Dashboard, is a useful and proactive tool for front-line supervisors to use during their work planning process. The tool helps identify where the greatest risks for injuries can come from, based on variables such as job percent complete, market, time of day and type of operation.

The Safety Risk Forecast is an additional tool for leadership to use as a predictive model to identify high risks at a regional, district and project level. This dashboard helps to identify features that drive risk and recommends best practices, tools, programs and training to mitigate those risks.

The new tools are being used company-wide, providing true leading indicators that help Kiewit proactively mitigate safety risk.

USING HISTORICAL DATA TO IMPROVE SAFETY

"It's unique for Kiewit to be using data to try to predict how someone will get hurt and utilizing it as a tool to prevent someone from getting hurt," Jeziorski said.

"We say that luck is not what keeps our people safe. A lot of what breeds results is planning out our work and executing our work the way that we know how."