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A look at the Global Aggregates Information Network

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GAIN-ing momentum

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Big shows alive and kicking

While being able to turn the page on another winter season is favourable to many in our industry, it also means we are nearing the end of one of my favourite times of the year: trade show season.

Over the years I’ve really enjoyed attending all of the massive trade shows and conferences that take place within the construction and resource sectors between January and March. My first introduction to these shows was as an assistant editor attending World of Concrete back in 2012.

I still remember showing up for my first day of the show dressed for the office (silly me), while busting up a chunk of concrete with a Hilti demolition hammer, then jumping into a Case CE 621F wheel loader to take part in one stage of the Case Construction Triple Threat Rodeo Competition, which showcased skilled excavator and wheel loader operators from around the world running obstacle courses.

While I was able to successfully complete the course without damaging the wheel loader or any part of the course (with a little guidance assistance from Case’s marketing team), I was almost certainly the slowest operator that day (Fun note: A Canadian operator from Ancaster, Ontario won the competition that year).

While I was excited to see all the various pieces of equipment and technology on display at that show, I remember feeling a little overwhelmed by the sheer size of it. The combination of having over 50,000 people attend a single show, and the show’s huge footprint really awed me at the time. Then, years later, I was introduced to CONEXPO/CON-AGG. Wow.

The sheer size of shows like the World of Concrete, World of Asphalt/AGG1 (record attendance of 10,063 this year in Indianapolis), the National Heavy Equipment Show (Canada’s largest heavy equipment show, which averages about 13,000 attendees), CONEXPO-CON/AGG, and bauma and Hillhead overseas, show how much importance professionals within the construction industry place on shows like these for making new contacts, catching up with clients, checking out the latest technologies and services for optimizing operations and keeping informed with the latest education sessions.

Although some organizations have attempted online versions of these shows in the past, there really isn’t a replacement for the face-to-face experience you get from a well organized and managed trade show or conference; particularly for the construction sector where being up close and personal with the people and the equipment is so vital.

These shows are equally vital for trade press editors such as myself, who want to stay on top of the latest technologies and projects in the sector and meet with all the great people within the industry.

Personally, I’m really looking forward to another CONEXPO/CONN-AGG year in 2020.

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**Pattullo Bridge Replacement Project moves forward**

The Province of British Columbia has selected three pre-qualified bidding teams to participate in the competitive selection process to design and construct the new toll-free Pattullo Bridge that will deliver a safer crossing and easier connections into Surrey and New Westminster.

The three bidding teams are Fraser Community Connectors, Flatiron/Dragados/Carlson Pattullo JV and Fraser Crossing Partners.

The $1.377-billion Pattullo Bridge Replacement Project will create a new four-lane crossing that will replace the existing Pattullo Bridge and will have wider lanes and better connections to road networks on either side of the bridge, which will help traffic flow more efficiently. It will provide safer connections for commuters, commercial vehicles and first responders. The new bridge also features dedicated pedestrian and cyclist lanes separated from traffic by a barrier on both sides of the bridge.

The project will be funded and owned by the Province of British Columbia. It will be delivered on behalf of the Province by the Transportation Investment Corporation. Construction of the new Pattullo Bridge will be facilitated by the Province’s Community Benefits Agreement. Community benefits include job and training opportunities for people in the local area and the increased participation of apprentices and workers traditionally under-represented in the construction trades.

The request for proposals for the project will be posted on the project website.

The approved budget of $1.377 billion represents the full cost to complete the project, including procurement, project management, construction, removal of the existing bridge and interest during construction. It is expected to open in 2023.

*Source: B.C. Ministry of Transportation and Infrastructure.*

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**Quarry Tech showcases latest pit and quarry technologies**

The latest technologies and techniques for optimizing quarry and pit operations were featured during Rock to Road’s Quarry Tech forum in Vancouver on March 6.

Attendees were treated to presentations and case studies from industry experts covering a wide variety of topics, including: simple, effective aggregate automation; measuring for success; processing fines within the crushing circuit; hybrid crushing technologies; wash screen optimization; key benefits of modular washing solutions and water management systems; the connected quarry; a new occupational health and safety toolbox; updates on Canadian drone regulations, compliance management, and training; modernizing aggregate dispatch for subcontracted haulers; and a look at the Volvo CE/Skanska Sweden electric site quarry project.

The next Quarry Tech forum will take place on April 25 in Moncton, N.B. For all the details or to register, visit: www.quarrytech.ca.

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**Demag Mobile Cranes sold**

Terex Corporation has agreed to sell its Demag Mobile Cranes business to Tadano Ltd. for an enterprise value of about $215 million. The Demag Mobile Cranes business manufactures and sells all terrain cranes and large crawler cranes. Included in the sale are the manufacturing facilities in Zweibrucken, Germany and multiple sales and service locations. The sale is targeted to close in mid-2019.

Terex will continue to manufacture Terex Utilities products at its Watertown, S.D. facilities. Terex will also continue to manufacture Terex Rough Terrain Cranes for the global market in Crespellano, Italy, Terex tower cranes in Fontanafredda, Italy, and Terex pick and carry cranes in Brisbane, Australia.

*Source: Terex Corporation.*
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In May 2018, I had the pleasure of attending a conference for the Global Aggregates Information Network (GAIN) in Barcelona, Spain. I received an invitation to attend and participate in this conference by Jim O’Brien, the founder and coordinator of GAIN. GAIN is a voluntary network of national and/or regional aggregates associations.

Its mission is to openly share experiences and best practices while its vision is to promote greater sustainability and performance of the aggregates industry across the globe. GAIN was founded in 2010 and meetings are held every two years. With only a handful of countries at the first meeting, it has since grown to host representatives from 35 countries in 12 regions in five continents.

The conference in Barcelona began with GAIN members each
presenting updates of their respective associations, including national statistics, major challenges, and any special programs that are unique for that country or region. GAIN members present at the conference included the United States (NSSGA), Canada (represented by Norm Cheesman, OSSGA and myself representing the ASGA), Australia (CCAA), South Africa (ASPASA), China (CAA), Japan (JCSA), India, Argentina (CEMINCOR and CAMARADELPEDRA), Brazil (ANEPAC), Colombia (ASOGRAVAS), and Europe (UEPG, which in itself is a collection of independent aggregates associations representing some 30 member countries).

The conference later shifted focus to case studies highlighting countries that offer good examples of following GAIN’s key priorities, giving an opportunity for other countries to openly ask questions and learn from their success. In turn, separate case studies were brought to the forefront where members who are facing extreme challenges could ask the international community how they may approach or try to address major issues they are facing in the industry in their respective countries.

There are 10 key priorities for GAIN, which formed separate topics of discussion at the conference. They are:

1. Planning access to resources;
2. Curbing illegal extraction;
3. Developing manufactured sands;
4. Pursuing digitization to 4.0;
5. Thinking big for the future;
6. Recycling where economic;
7. Minimizing water usage;
8. Ensuring health & safety;
9. Promoting biodiversity and restoration; and
10. Communicating and lobbying.

The two-day conference for GAIN was conveniently scheduled together with the European Aggregates Association’s (UEPG) annual meeting, so as a GAIN member, I could voluntarily sit in as an observer and see how the UEPG is structured, and how European countries and associations work together to address key industry priorities. They discussed their 2020 Vision for a sustainable aggregates industry, stressing that the industry will continue to increase efforts towards environmentally friendly and resource-efficient extraction and production; towards an excellent health and safety record; towards good neighbourhood policy; and affording attractive careers for young people. This goes hand in hand with streamlined and smart regulation that will foster renewed economic and construction growth in Europe.

The UEPG has four committees each with various task forces, involving members of the industry from countries across Europe. Two committees follow similar agendas to what we may expect to find here in Canada with one
focused on health and safety, and the other on environmental priorities. I found the other two committees rather interesting as it was evident they each play a very important role for the industry.

The first is an economic committee which focuses on quantifying, representing, and promoting the overall economic impact of the industry, while the second is a technical committee, which is a highly influential body for reviewing aggregate quality standards, recycling, as well as aggregates research and development. Finally, a separate public relations and communications task force also reported to the UEPG Board on actions related to internal (members/associations/companies) and external (decision-makers/partners/stakeholders/large public) targets.

WORLD LEADER

In December 2018, I was later invited by Mr. Hu Youyi, the president of the Chinese Aggregates Association (CAA) to attend and participate in their international conference in Shanghai. China is GAIN’s largest member producing an estimated 20 billion tonnes of aggregates per year, representing an astounding 40 per cent of global aggregates demand. With the theme of “Green development and building the future together,” this conference welcomed guests from all over the world to deepen international cooperation in the aggregates industry and share innovation achievements to jointly realize progress and development. GAIN is unique in bridging cultural and political differences with a truly valuable exchange of experiences for all parties.

China elaborated on the transformation happening across the country and how the attention to aggregates has grown significantly. For a long time, Chinese buildings used very little aggregates, however there has been a sharp increase in large infrastructure projects with the emergence of urbanization, roads, bridges, etc., and the demand for aggregates grew exponentially. Meanwhile, as China continued to enhance the protection of its ecological environment, thousands of traditional aggregate enterprises have closed, and by November 2018, for the first time in history, there had been a nationwide aggregate shortage.

The shortage resulted in a sharp rise in the price of aggregates and the delay of many large infrastructure projects creating huge losses for firms, with failed project implementations and failed contract performances. Today, the annual output value of aggregates in China is over 2 trillion RMB (or $400 billion CDN) and the transportation cost is over 500 billion RMB ($100 billion CDN), accounting for
1/40th of its national GDP. It is a huge industry! Although the construction of urbanization and infrastructure in China is at a stage of rapid development, the high demand for aggregates is not expected to increase, however it is expected to remain constant over the next 10 years.

While the conference in Shanghai focused very much on technological advancement in the aggregates industry, green mining, and innovation, it also welcomed presentations from GAIN international members, including Europe (UEPG), India, Malaysia, New Zealand (AQA), Canada, and GAIN's newest member (and first from the Middle East), the United Arab Emirates. The UAE presented an overview of what very well could be the largest aggregates export operation in the world (Stevin Rock), with an annual output of 80 million tonnes.

After attending these conferences and having returned to Alberta, the question that began to cross my mind was why Canada does not have its own association, and should this be something we begin to explore.

Along with India and Argentina, Canada were the only members of GAIN without a national aggregates association.

Now, no one in Canada will debate that we are geographically challenged, and that most legislation is seen at the provincial level, but seeing first-hand what other countries and regions have been able to accomplish in improving both the image and the performance of our industry (such as Australia, Europe, or the United States, to name a few), this can and should also be possible here in Canada. Canada has three provincial associations with Ontario (OSSGA), Alberta (ASGA), and British Columbia (BCSSGA), along with sub-committees representing aggregates interests within Roadbuilding and Heavy Construction associations in other provinces, including Saskatchewan, Manitoba, Quebec and the Maritimes.

Having spoken with each of the associations and industry representatives in the other provinces, it is fair to say there is a lot of interest to get everyone together, and although we can only expect a small informal gathering in the beginning, a simple exchange of experiences between provinces can only help us grow and strengthen the performance of our industry within our own backyards and across the country.

For more information on this article or on GAIN, please visit the GAIN website (www.GAIN.ie) or contact Brent Morrey at bfmorrey@gmail.com.

Brent Morrey served as a member of the ASGA Board of Directors from 2015 to 2018. He represented Canada last year at the GAIN international conference in Barcelona, and at the Chinese Aggregates Association’s international conference in Shanghai. Brent has extensive industry experience in operations and management in major market areas across Canada. He has also supported aggregate operations and new aggregate developments in over 20 countries across the globe. Brent graduated with an Honours Bachelor of Commerce degree and a Diploma of Operational Research at the University of Ottawa. He also holds a Post-Graduate in Quarry Management from the University of Leeds in the United Kingdom.
Walker Industries has been producing stone, sand and gravel for over 130 years and creating vineyards and beehives along the way. Through the company’s aggregates division, with quarry operations in Ontario’s Niagara, Simcoe and Essex regions, Walker has fulfilled its commitment to rehabilitation and then some.

Land rehabilitation is a requirement of the Ministry of Natural Resources and Forestry. All Ontario quarries must have a comprehensive rehabilitation plan set out in the initial approval process and as part of their ongoing site management.

Quarry rehabilitation gets creative in Niagara Region

> BEDROCK TO BOTTLE
For Walker this means progressively rehabilitating sites throughout the life of a quarry, returning the land to an approved or better state than it was prior to operations, in order to support the needs and character of the community. For Walker’s Vineland quarry in the Niagara region this meant supporting Ontario’s thriving wine industry.

Edgerock Vineyard was a quarry rehabilitation project started in 1999 through a partnership between Walker Industries and the University of Guelph. The goal was to create a successfully functioning vineyard on extracted land as part of a research project for agricultural rehabilitation.

For John and Norris Walker who were running Walker Industries at that time, “They wanted to revolutionize quarry rehabilitation and were willing to experiment creatively to do so,” explains Frank Kielbowich, general manager for Walker Aggregates Niagara Region and the Western Greater Toronto Area.

In Phase 1 of the experiment, the quarry overburden was moved and regraded to shape the vineyard’s south-facing slope. The unique depth of the slope allowed for an increase in sunlight for the vineyard as well as the moderation of wind and temperatures on the land. This made it possible to grow a variety of grapes not typically grown in the area at the time including Sangiovese, Syrah, Petit Verdot, Cabernet Sauvignon, Cabernet Franc and Merlot.

During Phase 2, soil was tested and amended and a cover crop was established.

Phase 3 began in 2000 with the planting of 12,000 vines. By the end of the growing season that year, the vines were well established with the vineyard’s first harvest in October 2002.

The next 15 years saw an additional 16 acres of plantings, improvements including a drip irrigation system, and the introduction of a new compost product (produced by Walker’s sister company, Walker Environmental) to enhance the growing process.

Over the years, grapes from Edgerock Vineyard have been used by many local wineries, some of whom are neighbours to the quarry. Vineland, Ont.-based Megalomaniac Wines, for example, formed a partnership with Walker Aggregates in 2018 and purchased the vineyard’s entire harvest that year. This enabled Megalomaniac to secure local grapes for its wines while allowing Walker to contribute to the local community and economy in a new and innovative way. The once experimental vineyard has become an agricultural success and a benchmark for rehabilitation practices in the industry.

Walker Aggregates has implemented other rehabilitation projects that, like the Niagara vineyard project, make sense for the communities they are located in. Take for example the company’s efforts to provide pollinator habitats by dedicating a section of land at its Duntroon Quarry for local beekeepers to store their bees over the winter. Other examples include planting native grasses, flowers and fauna to encourage pollinator repopulation, and establishing newly forested areas with native species and tree composition near the Bruce Trail in Simcoe to delight hikers and outdoor enthusiasts for years to come. Wherever the location, Walker makes quarry rehabilitation work for its communities.

Walker Aggregates is one of seven companies operated by Walker Industries, which has over 900 employees across Canada and the United States. This family-owned Canadian company has operated from its base in the Niagara region for over 130 years. All of the company’s divisions are bound by the values that drive their belief in supporting the environment and communities they operate in. To learn more about Walker Industries visit: www.walkerind.com.
PaveTech comes to Vancouver!

Smart roads conference highlights latest industry technologies and techniques

Roadbuilding professionals descended on Vancouver on March 5 to learn about some of the latest technologies available for optimizing their operations at Rock to Roads inaugural PaveTech: A Smart Roads Conference. PaveTech is a one-day educational forum focused on the optimization of paving and related roadbuilding practices and procedures.

Attendees enjoyed case studies and presentations on a variety of industry-related topics, including fibre reinforced asphalt pavement; fundamentals of intelligent compaction; a tool for battling silica dust; how infrared heaters are changing how paving contractors create new, and maintain old, pavements; modernizing aggregate dispatch through solutions built for subcontracted haulers; an update on Canadian drone regulations, compliance management and training; and technology and training advancements to assist with a less experienced workforce; as well as exhibitors showcasing their latest technologies and services.

PaveTech: A Smart Roads Conference was sponsored by Platinum Sponsors ADM, BC Road Builders & Heavy Construction Association and Great West Equipment; Gold Sponsors Gencor Industries, Nilex and Wirtgen Group; and Lunch Sponsor Tread.

The next PaveTech: A Smart Roads Conference will take place in Calgary in 2020. PaveTech will be co-located with Quarry Tech, a one-day forum exclusively for quarry and pit owners and operators that will offer attendees case studies and panel sessions presented by industry experts covering a wide variety of topics.

Look for more information on future PaveTech forums at www.pavetech.ca.
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Many construction firms are sitting on mountains of data, but have little sense of how to use it.

> Big data, sometimes touted to as “the new oil,” is one of the most popular technology buzzwords, and also one of the least precise. While there are some familiar examples, such as the gargantuan amounts of personal information retained by the likes of Google and Facebook, there is no accepted definition of what constitutes “big,” nor is there a general understanding of the value it can bring to an organization.

“Like many construction companies, we have a lot of ‘big data,’” says Brian Kmet, senior manager of data and analytics at Edmonton-based PCL Construction. “But I think the term is badly maligned and mis-characterized.”

As Kmet explains, the IT industry likes to describe big data in terms of what are called the four Vs: the sheer volume of data, the velocity with which data is being collected and transmitted, the variety of data types, and the veracity or reliability of the data.

“Those are just characteristics,” says Kmet. “The cause of big data in my opinion, electronically anyway, is that it is in fact cheaper to store data than to throw it away. So in our industry, we often collect a lot of data but do nothing with it.”
The latest technologies and techniques for optimizing quarry and pit operations were on display in Vancouver at Rock to Road’s Quarry Tech forum on March 6th.

Roadbuilding professionals descended on Vancouver to learn about some of the latest technologies available for optimizing their operations at Rock to Road’s inaugural PaveTech: A Smart Roads Conference on March 5th.
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TYPES OF DATA
For road construction companies, there are two categories of big data to consider: data connected with running the various aspects of the business, and data related to the GIS, video, and LIDAR-generated data gathered in site surveys, either by drone or ground-based equipment, or by GIS-controlled grading and earthmoving equipment.

“Our industry has always done a lot of record keeping, so our business practices generate very large volumes of data,” says Kmet. “The important thing is, what do you do with that data, how do you make it accessible, and do you even need it?”

The retention of some of this business data, such as health and safety records, is mandatory. Other components include drawings, submittals, RFPs, RFIs, change requests, change orders, and other project-related documents. Construction firms are at various stages of digitizing this information, complicating the chore of managing it.

The large amounts of site data now being gathered, on the other hand, are new to contractors.

“If you took a traditional surveyor 20 years ago, he’d go out and if he surveyed a thousand points in a day, that was a good day’s work,” says Alan Sharp, business area director for CEC Software Solutions for Trimble Navigation. “Now these modern day techniques using drones and mobile scanners can store millions if not billions of points an hour. So the volume of the data that you’re processing now is many times larger than the traditional survey approach.”

“In the LIDAR scanning situation, you’re collecting 800,000 points per second, and might be scanning a highway live at 80k per hour,” says Trevor Bergmann, CEO of Beechville, N.S.-based AeroVision Canada. “So you can imagine what the files would look like to scan 100 kilometres of a highway, whether from a drone or ground-based mobile system.”

MAKING THE INFORMATION USEFUL
Leveraging big data, in general, is about gathering, cleansing and consolidating data into a computing environment, and then applying analytic techniques, including artificial intelligence, to help business owners improve their forecasting, optimize their use of resources, anticipate project difficulties, or compare performance of different crews or regions.

Most vendors to the construction industry now provide data management services through the cloud, allowing users to ramp up quickly without upgrading their IT infrastructure, and also, to use user-friendly tools, often available on a smartphone, to analyze the data.

AeroVision, for example, provides, along with site surveys and other drone-based data-gathering services, a cloud-hosted software interface for displaying and analyzing 3D site maps.

Trimble provides, among other software products, a hosted software solution called VisionLink, which brings data together from multiple equipment vendors to enable owners to manage
On the business data side, the job often involves consolidating data from multiple cloud providers.

“As a cloud-first company, big data for us means the ability to get at data easily and readily,” says Kmet. “Because all of our applications are scattered through various cloud vendors, we have to be able to coordinate that data and get to that data.”

The technical approach PCL uses, which is similar to many larger companies, is to deploy a series of Application Programming Interfaces (APIs), which allow users to consolidate diverse data sources into a single computing environment.

**ADOPTION TRENDS**

With demand for data growing “every week, literally” at PCL, Kmet has hired a team of young data experts, typically fresh out of school. In addition to the required data handling skill sets, Kmet looks for people with the right mindset.

“You need people who have a passion for data,” he says, “and are analytically inclined. For me the ideal is not just the technical skills, but the aptitude and the curiosity to see what can be done with data.”

The interest in site-related information has not been as strong, Sharp notes.

Although many Canadian contractors now use machine control, most don’t utilize the data the machines collect, and instead, often send surveyors out to gather the same information, creating unnecessary costs and safety hazards.

“When you have the data coming off the machines, why not use it?” says Sharp. “It uses the same GIS, so it’s just as accurate. And you’re collecting that data continuously as the machine operates.”

Interest in drone surveys of highway infrastructure projects, according to Bergmann, is also at very early stages. However, he notes a recent event that might signal a change in attitudes – the highly successful publicizing of the Big Lift Project, which involved the re-decking of the MacDonald Bridge between Halifax and Dartmouth.

“It was documented like crazy,” says Trevor Bergmann, “and it was shared on social media, with updates left, right and centre. Nothing goes to plan 100 per cent of the time, but as a result of having that awareness, people really seemed to roll with the punches a lot better.”

The fact is, the more people know about a project, the better their relationship to it. As governments seek better transparency in the delivery of public projects, this might turn out to be the best case yet for collecting and sharing site-related big data.
When the contractor began repaving Toronto Pearson International Airport’s Runway 06L/24R on April 23, 2018, the Greater Toronto Airports Authority (GTAA) expected the job to be completed sometime that autumn. But thanks to good organization and skillful work by the GTAA and contractor, they finished the project on May 16.

Like a highway in not-too-bad condition, an airport runway may only need to be milled down a few inches and repaved – sometimes called a shave and pave – to return it to good condition. That was the case last year with Pearson’s 9,697-foot (2,956-metre) Runway 06L/24R, 21 years after its last such rehabilitation.

The general contractor was Pave-Al Limited and Gazzola Pav- ing Limited, operating as Pave-Al, Gazzola, Pearson Airport Joint Venture (2018). GEM Ontario Inc. provided the quality assurance.
The project included milling off 861,100 square feet (80,000 square metres) of asphalt. More precisely, 32.8 ft. (10m) on both sides of the runway centreline, measured 3.28 ft. (1m) from centreline, for a total width of 72.12 ft. (22m), to an average depth of 2.8 in. (70 mm).

“Two metres of asphalt – one metre on either side of the centreline – remained in place to avoid impacting the centreline lighting and thus minimizing the nightly scope,” says Samantha Pinto, Airfield Capital Program, Airport Development and Construction.

As well, parts of Taxiways D and D6, plus the holding bays for 06L and 24R, got the shave-and-pave treatment.

The contractor used four milling crews and two paving crews.

“Time was of the essence, so the decision to use four milling crews was based on the design width of pavement restoration,” explains Jerry McLaughlin, project manager, Pave-Al. On average, they milled and repaved an area 33 ft. (10m) wide and approximately 2,461 ft. (750m) long each night.

The contractor used Wirtgen models W50, W220 and W2200 milling machines, with milling widths ranging from 1.64 ft. (500 mm) to 12.3 ft. (3.75m). Twenty-five-tonne Roadtec and Weiler asphalt material transfer vehicles fed a total of 16,640 short tons (16,000 tonnes) of asphalt to CAT AP1055D paving machines.

Tristar Electric Inc., as a subcontractor, handled the electrical work, including the replacement of approximately 175 inset lights. Airlines Pavement Markings refreshed approximately 32,290 square feet (3,000 square metres) of pavement markings.
Miscellaneous work included replacing a runway incursion sensor on hold bay 06L, and replacing pipe, conduit and base cans on taxiway C2. In some of the high-traffic areas, the contractor surrounded inset fixtures with 2-ft. (0.61m) diameter cast-in-place concrete to protect and strengthen the light can extensions.

The GTAA chose to do this project at night, to minimize disruption of commercial air traffic. It closed Runway 06L/24R to air traffic, except for runway crossings, between 10 p.m. and 6 a.m.

“For the first time ever [at Pearson], we [did] a runway restoration program using an overnight closure methodology,” said Natalie Moncur, senior advisor, external relations, GTAA, in late 2018.

Every night was carefully organized to fill the eight hours with as much construction time as possible.

“A series of decision-making conference calls were held both in the morning and again in the evening, to gather input from stakeholders (NavCanada and airlines), to determine whether the weather forecast met paving requirements for temperature and precipitation, and to brief the contractor,” Moncur explained.

Since crews could not enter the active airfield until the start of the runway closure, organizing them for each night’s work was critical for making the most of the time available.

“The contractor had all equipment and trucks staged in a convoy, sequenced in order of use, up to an hour prior to the start of closure, so that once the surface was available, they could immediately set up,” Pinto explains.

The contractor briefings ensured that they understood clearly where the work area would be. The GTAA also gave the contractor a delineation drawing each evening that showed the work area, access and egress routes, flagging for active crossings, and escort requirements. Experienced guards showed the way for the equipment drivers.

As many as 160 personnel and approximately 100 vehicles moved out onto the airfield every night. Their ranks included the two paving crews and four milling crews, electrical crews, a pavement marking crew, a sewer cleaning and inspection crew, and quality assurance/quality control. There were also guards, escorts and GTAA staff, including field electricians, field maintenance, aviation services staff, and the project manager.

A typical night’s equipment convoy included two asphalt pavers, two asphalt material transfer vehicles (shuttle buggies), six asphalt rollers, five asphalt milling machines, a tack coat spray truck, sewer inspection equipment, light towers, and specialty equipment for airfield lighting installation.

An average of 50, 30-tonne Flowboy trailers brought in asphalt from two off-airport plants every night.

“This redundancy [was] part of the risk mitigation strategy to ensure the surface reopened on time [each morning],” McLaughlin explains.

Twenty-tonne triaxles hauled away the milled asphalt to the contractor’s recycling facility to be processed for reuse in MTO Granular A and some binder course asphalt mixes.

To efficiently close out each night’s work, equipment that was no longer needed was removed, and, like mopping backwards and out a door, the last acts of a shift were carefully considered.

“As many as 160 personnel and approximately 100 vehicles moved out onto the airfield every night. Their ranks included the two paving crews and four milling crews, electrical crews, a pavement marking crew, a sewer cleaning and inspection crew, and quality assurance/quality control. There were also guards, escorts and GTAA staff, including field electricians, field maintenance, aviation services staff, and the project manager.

A typical night’s equipment convoy included two asphalt pavers, two asphalt material transfer vehicles (shuttle buggies), six asphalt rollers, five asphalt milling machines, a tack coat spray truck, sewer inspection equipment, light towers, and specialty equipment for airfield lighting installation.

An average of 50, 30-tonne Flowboy trailers brought in asphalt from two off-airport plants every night.

“This redundancy [was] part of the risk mitigation strategy to ensure the surface reopened on time [each morning],” McLaughlin explains.

Twenty-tonne triaxles hauled away the milled asphalt to the contractor’s recycling facility to be processed for reuse in MTO Granular A and some binder course asphalt mixes.

To efficiently close out each night’s work, equipment that was no longer needed was removed, and, like mopping backwards and out a door, the last acts of a shift were carefully considered.

“By the time compaction started, most equipment had been removed from the site, except lights. The contractor towed the light towers in front of sweepers to both illuminate the area and remove them from the field,” Pinto says. “The surface opened at [six o’clock] daily, which was typically two-to-three hours after asphalt placement and compaction. In general, we tried to allow the asphalt surface to cool to about 40°C before opening to aircraft traffic.”

Between the high degree of planning and the discovery that the contractor could indeed work faster than the work plan developed by the GTAA, crews quickly got ahead of schedule.

“In planning, production was based on a very conservative estimate of what the contractor could achieve, given the anticipated challenges associated with mobilization and demobilization [at night] to a site where the location changed every shift,” Pinto says. “We worked with the paving contractor to understand their production capability (milling, paving and line painting). If there was no impact to safety and operations, depending on the direction of traffic and where the paving operation was scheduled, and if the contractor was comfortable that they could turn over a larger area, we allowed the contractor to proceed based on their production capabilities.”
Any contractor that has worked in remote areas across Canada will tell you that getting materials to a site isn’t a walk in the park. So when Lafarge Canada was hired to supply materials for the construction of the 16-MW Run of River Hydroelectric Power Station south of Smooth Rock Falls, Ont. – a partnership between Boralex and First Nation partners Taykwa Tagamou Nation (TTN) and the Mattagami First Nation – they knew there would be some challenges. Building the power station that was designed to generate 87,000 megawatt-hours of renewable energy annually (enough to power about 12,000 average Ontario homes) meant supplying 20,600 cubic metres of ready-mix concrete over nine months (Fall 2016 to Spring 2017), while managing the work through a harsh Northern Ontario winter and a small resource road for de-

Lafarge Canada manages isolated project in extreme weather

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delivering the aggregate materials to the site. The construction site for the Run of River Hydroelectric Power Station project was a remote area northeast of Timmins about 90 minutes, through a small resource road located deep in the bush.

The project required high-quality concrete for mass pours, including during the unforgiving winter months, which meant trucking anything to the site would be extremely challenging. The project had foreseen to construct an ice road to transport materials across the river, but the weather was not stable enough to ensure safe crossing. To ensure the concrete could be delivered without creating delays, Lafarge chose to install a portable plant at the project site; and staffed it with a dedicated team to ensure smooth operation of the plant and on-time delivery of the concrete. The plant took 10 working days to erect and five days to dismantle.

“Through the winter of 2016-17, we set up a concrete plant there and delivered concrete within a couple hundred metres of the dam. It all worked out,” says Andrew Stewart, general manager for Lafarge Canada’s North & Central Regions, including projects and mobile solutions. In the end, the project ran so smoothly it was awarded the 2018 Infrastructure Award at the Ontario Concrete Awards. That said, Stewart’s team still had to overcome challenges associated with the harsh climate. One of the biggest challenges was keeping a strong supply of water running throughout the plant.

“At -40°C water lines froze, the river froze, the weather was very much up and down,” Stewart recalls, adding there was extreme temperature fluctuation over the course of the winter forcing his crews to
adapt to whatever was thrown at them. "It was a really bizarre winter. One week I was there it was a little above 0°C, and then the next week it was -42°C."

To combat the cold, Lafarge used heat tracing a great deal for any line that could be frozen; created building enclosures to try and keep the machines warm; a heated garage so maintenance could be done indoors; and the ready-mix concrete plant was completely enclosed, insulated, and heated with a boiler system.

To supply the on-site plant, concrete aggregates were transported via subcontracted haulers from two locations: a concrete sand pit eight kilometres from the construction site, and a concrete stone quarry 45 kilometres away.

During the winter months, the resource road was the only way in and out of the project site.

"Everything had to come through a very narrow, single-lane logging road, about 27 kilometres off the main road," Stewart says. "Luckily there were no incidents, which we were happy about – there were no safety incidents at all on site, which is pretty awesome. The general contractor did a great job of maintaining the roads over the course of the project. People could get out relatively well, and were good at communicating where trucks were. There was no truck-on-truck interaction on the road, which is what you want… big trucks could fit through, just not two at a time."

GOOD PEOPLE ARE KEY

Lafarge’s team did a great deal of planning and took special measures to ensure successful delivery of the concrete on this project, but none of these measures were as vital to the operation as the people working on the site, according to Stewart. "We have resilient Ontarians to do the work, which was probably the biggest key to the success," he says.

In addition to offering employment opportunities to local First Nations communities, the company also created a scholarship managed by Indspire that provided $48,000 in post-secondary training and education for Indigenous youth across the north in the construction industry.

"There were a decent number of scholarships given out that focused on studies predominantly in the construction sector – civil technicians, that type of thing," Stewart says. "This was especially good for people who want to work outside of towns… anywhere we can try and get people more interested to merge with our needs is a good opportunity."

Lafarge’s Projects & Mobile Solutions team offers the company a big advantage when dealing with projects of this nature. "We’re always having portable concrete plants set up and delivering in special places," Stewart says. "The team in place is very experienced. Having that team in place takes away a lot of the risks and concerns you have. Yes, we have challenges with winter conditions and accessing the site with the small road… but having the team there with the experience, they were issues they could overcome rapidly."

So, what kind of individuals are great fits for a special team like this one?

"You’re looking for a combination of people who are adventurous, but competent, very safety focused, and have created a life around themselves that allows them to do these amazing things," Stewart suggests.
The Canadian Truck King Challenge (CTKC) celebrated its 12th anniversary by crowning the 2019 GMC Sierra 1500 Denali as its champion. Sierra beat out five other challengers for the crown, marking the first time that General Motors has won in the half-ton (1500) category. Previously, GM has won the title in the heavy-duty (HD) category, including winning the challenge in 2018 with the Chevrolet Silverado 2500 HD.

CTKC is unique in that it tests the trucks using real-world situations. Trucks are driven empty, with payload, and with trailers. The way the trucks would be used in the real world. Also, an off-road course is used to test each truck’s off-road capabilities. All-in-all, the two days of testing allowed for over 4,000 kilometres of total seat time for the five AJAC judges, who then scored each truck using 20 subjective test categories.

> GMC Sierra is Canada’s Truck King
The field of 2019 half-ton pickups was as competitive as ever this year, with brand new trucks from GM and RAM, while the F-150 received major upgrades, including offering a 3.0L diesel engine, that we ran back-to-back with gas engines from RAM, GM, Toyota and Nissan. Towing is where the diesel feels best, but the raw horsepower of GM's 6.2L V8 is hard to ignore," said judge Stephen Elmer, TFL Truck. "The performance exhaust on the Toyota Tundra TRD Pro barks when you accelerate, while Nissan's 5.6L V8 has a strong exhaust note with loads of power. In the end, the GMC Sierra came out on top, and the honours are well deserved for such a smooth riding, comfortable, quiet pickup."

This year, OEMs that took part were: General Motors with its GMC Sierra 1500 Denali and Chevrolet Silverado 1500 LTZ; Ford with the F-150 Diesel Lariat; FCA with the RAM 1500 Limited; Nissan with the Titan PRO-4X; and Toyota with the Tundra TRD Pro.

Both the Sierra and Silverado were equipped with a 6.2L V-8 engine with Dynamic Fuel Management and mated to a 10-speed automatic transmission. The F-150 was equipped with a 3.0L Power Stroke V-6 diesel engine mated to a 10-speed automatic transmission. Ram 1500 featured a 5.7L HEMI V-8 engine mated to an eight-speed automatic transmission. Tundra offered a 5.7L V-8 engine mated to a six-speed automatic transmission. The Nissan Titan was equipped with a 5.6L V-8 engine mated to a seven-speed automatic transmission. All trucks were 4x4 models.

“As always, the Canadian Truck King Challenge provides the unique opportunity to evaluate the trucks in real-world use. Unlike typical road tests and reviews, this event provides the rare experience of evaluating each entry as a working truck – not simply driving it around empty, but with a hefty payload and significant towing load,” said judge Clare Dear, Autofile.ca. “This year, the format helped reveal characteristics that might otherwise have gone unnoticed, such as the towing capabilities of Ford's new 3.0L diesel engine and the RAM's unique load-levelling air suspension. For anyone considering the purchase of a new truck, the findings of the Truck King Challenge are a must-see resource.”

Third-party company, FleetCarma, used data recorders on each of the six vehicles to measure real-world fuel economy. The recorders sent data to FleetCarma with a final report showing the results for each vehicle under each part of the challenge (empty, payload and towing).

The winner of the Fuel Economy Challenge for 2019 was the Chevrolet Silverado 1500 with 6.2L V-8 that had the best fuel economy of all the trucks.

With trucks that are all new, trucks that offer new engine options, and trucks that offer new packages, there has never been a better time to be a pick-up truck customer, as the differences between them are getting smaller and smaller. The days of one truck being much better than another are over. Today, it’s a matter of fit-for-purpose: what are you going to use the truck for, and what is of utmost importance to each individual buyer?

“This has to be the most difficult Truck King Challenge ever. I could not find a favourite at first glance,” said judge Éric Descarries, Auto 123. “Each vehicle is really a modern piece of equipment. This time, the winner has to be the consumer.”
New F-Class portable plant

Haver & Boecker has launched the new Tyler F-Class portable plant that includes several new technologies to improve setup time and extend equipment longevity in quarry and mining operations.

The portable plant features a new custom-built chassis equipped with six hydraulic run-on jacks that quickly level the plant, eliminating the need for cribbing. The run-on jacks also ensure the chassis stays level during operation, which minimizes equipment wear. Producers can move and set up the portable F-Class in less than 30 minutes. The chassis’ hydraulic system raises the vibrating screen to its inclined operating position—usually 20 degrees. Take-down is even faster, requiring less than 20 minutes to lower the unit so it can move to the next location.

In addition to run-on jacks and hydraulic walkways, several other features offer enhanced durability and minimize maintenance.

The portable plant offers as many as three screen decks. Its feed conveyor, cross conveyor and fines conveyor are hydraulically operated for precise material placement.

Satellite Silo Storage System

Astec, Inc., an Astec Industries company, offers satellite silo storage systems. Stand-alone mix storage systems allow operators to establish a retail location within a transportation radius of the parent plant.

These storage systems enable users to expand into a location that does not yet justify a plant, while the smaller footprint of the silo system can accommodate installation at small sites that can’t support a full plant. Satellite Silo Storage System components include truck unloading hopper (to receive mix from the trucks in order to fill the silos); inclined drag conveyor; long-term storage silos with anti-segregation batchers; traverse conveyors to deliver mix into the selected silo; and controls.

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A Canada-wide aggregates association

Why not create a national voice for the aggregates industry?

As a nation with vast natural resources in aggregates, it might come as a surprise to those not in the know in the sand and gravel community that Canada has no national aggregates association. While the idea around the creation of a national Canadian aggregates association has been floated around by some in the community before, the reality is that there has been no real driving force or main issue to push for the creation of such an organization.

Indeed, even within the ranks of the Alberta Sand & Gravel Association (ASGA) the question can be a polarizing one. Alberta’s aggregate sector and certainly the rest of Canada’s are highly localized, designed to be as efficient as possible in terms of having a good and steady supply close to projects and demand. This means that issues are generally local in nature, and best dealt with at the municipal or provincial level. However, the idea of more provincial cooperation is generally welcomed within the ranks of the ASGA, even though it might not mean the creation of a national organization – although this is something that should at least be talked about becoming a possibility down the road.

ASGA president Dale Soetaert, who serves as land manager of northern Alberta and B.C. for Lehigh Hanson Materials Limited out of Edmonton, welcomes the idea in principal of a national association, noting the only real downsides he sees are maybe a few economic competitive sensitivities and the fact that most provinces do not even have local associations.

“Why not create a national voice for the aggregates industry? Others have had. Why not now?” Soetaert said.

Soetaert notes that the ASGA already has great relations with the other aggregates associations that currently exist, namely the Ontario Stone, Sand & Gravel Association (OSSGA) and the British Columbia Stone, Sand & Gravel Association (BCSSGA). He feels that perhaps the first thing to do is come up with a strategy to educate the general public about the importance of aggregates, which might help spur more interest at the local level.

“I think the start of a basic strategy would be an education program that informs the general public on the existence of aggregates in infrastructure all around them, and the financial impact of our industry on all the economies, local, provincial and national,” he said. “With the existence of provincial associations in every province, the potential to lobby for a wider range of regulatory changes, potentially federally, might become possible. Think of it as an attempt to recognize the value of the industry across the country, and the need (recognition) for aggregates to be available for the economic prosperity of Canada.”

Both the OSSGA and the BCSSGA have collaborated with the ASGA on many occasions, a recent example being BCSSGA first vice-president Tyson Craig giving an address at the 2019 ASGA AGM & Tradeshow.

Overall, the ASGA Board of Directors is positive about increased cooperation between the provinces and sees very little downside to it. When it comes to a national organization, however, more practical issues come up, such as staffing resources, as well as ensuring that provincial issues always take top priority.

“Care would need to be taken to ensure that the appropriate balance is struck between achieving value for our members for the necessary time and resources invested in fostering those relationships. Other associations would rightfully expect access to our own insights and programs, which all take time to provide. Meanwhile, the issues that our members face in Alberta continue to need time and attention from the association,” notes ASGA past-president Travis Coates, who works as the land and resource manager for BURNCO Rock Products out of Calgary.

> Whether or not a national aggregates association for Canada is formed one day, the idea of increased cooperation can only benefit all parties involved.
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Coates also notes that, in his opinion, creating a national Canadian aggregates association might be a step too far; however, increasing cooperation between the associations is a good and needed first step.

"Perhaps a national association is something that could be looked at in the future. I think the best thing we can do on this front is to lead by example. If a successful gravel strategy can be developed in Alberta, we could then look to share that with others," he said.

Whether or not a national aggregates association for Canada is formed one day, the idea of increased cooperation can only benefit all parties involved and is a topic the ASGA is not afraid to discuss openly. With growing regulatory burdens and application times for new projects taking an ever-increasing amount of time, the aggregates sector is always looking for ways to help move things forward, and not get stuck in an un-changing cycle.

"Yes, the aggregate industry should not sit idle and assume that threats will go away and that we will always have access to material," says ASGA director Joe Hustler, who works for Knelsen Sand and Gravel based out of Grand Prairie, Alta. "We see industries such as dairy, oil and gas, agriculture and tourism creating national campaigns to promote their industry. The aggregate industry would benefit from getting ahead of issues and having a network to support industry should we need it."

Anthony Murdoch is the communications and events coordinator for the Alberta Sand & Gravel Association.

Renewal time for ASGA Truck Registry program!

Producers, gravel season is gearing up, and now is a good time to get ready by registering your trucks and those of your transportation partners.

The ASGA Truck Registry isn't just important to gravel producers who need to know how their trucks behave on the roads, it's important to all Albertans who want to travel on safe highways.

Get started in the member section of the ASGA website at: www.asga.ab.ca/membership.asp.

ASGA's Member Services administrator Lyndsay Kiefer is ready to help you with any questions or assist you with an off-line order. She can be reached at 780.435.2844 x 3 or lyndsay.kiefer@asga.ab.ca. Her office hours are 9:30 to 2:30, every weekday.

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