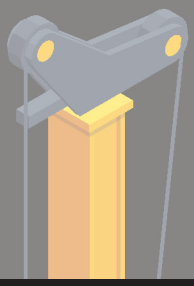
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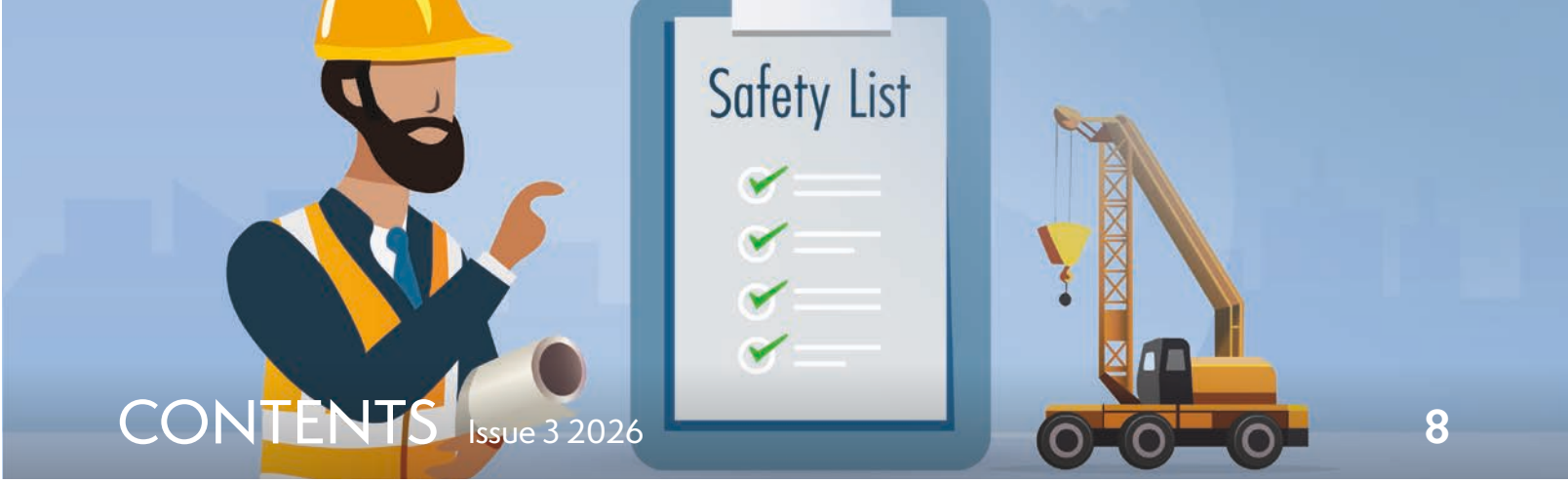
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## ON THE COVER

Safety in deep foundations is not about adding more policies, but about consistently controlling the specific high-risk activities most likely to cause serious injury or death, as outlined in the Canadian Construction Safety Council's "Critical Risks Guideline." Our cover story identifies key risk areas and emphasizes that these are routine parts of the job with well-known controls. The real issue is not a lack of knowledge, but inconsistent execution in the field. Read the full article on page 8.

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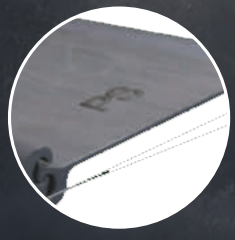



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# Where Safety Lives

Welcome to another issue of *Piling Canada*. This time, we're exploring a theme that sits at the core of every project in this industry: safety.

While preparing this issue, I learned that in deep foundations, safety is not abstract. It is not confined to procedures or paperwork. It is embedded in every lift, every excavation, every interaction between people and equipment. While safety programs continue to evolve, the reality is that outcomes are shaped by how consistently risks are identified, managed and controlled in the field.

One of the key features in this issue examines the Canadian Construction Safety Council's "Critical Risks Guideline," which identifies 13 categories of work with the highest potential for serious injury or fatality. Rather than expanding safety systems, the guideline shifts focus toward consistently managing the risks that matter most, from ground disturbance and hoisting to working around mobile equipment and energy isolation. Turn to page 8 to explore how this framework is reshaping safety conversations across the industry.

You'll also find an interview with Team Foundation Systems' owner Grant McKinney where he reflects on a career built around solving complex foundation challenges. From residential remediation work to large commercial projects, McKinney shares how advances in helical pile technology, combined with a commitment to quality and adaptability, continue to shape the company's approach. Read more about his journey and insights on page 31.

Innovation also plays a critical role in improving safety and efficiency on today's jobsites. In this issue, we highlight Soilmec's Blue Tech Plus system, a new approach to hydraulic architecture that reduces fuel consumption, lowers emissions and simplifies machine operation. By rethinking how energy is managed within drilling rigs, the system helps contractors improve performance while reducing jobsite complexity – a key factor in maintaining safer operations. Learn more about the technology on page 43.

These are just a few of the many stories you'll find in this issue, and I hope you enjoy reading them as much as we enjoyed putting them together.

As always, don't forget to follow us on LinkedIn and Facebook and subscribe to our monthly e-newsletter for industry news and features delivered straight to your inbox.

Until next time,

**Ligia Braidotti**



# Où la sécurité prend vie

Par Ligia Braidotti | Traduit par Audrey Lemire

Bienvenue dans cet article de *Piling Canada*. Cette fois-ci, nous nous concentrons sur un thème fondamental pour chaque projet dans notre secteur: la sécurité.

En préparant cet article, j'ai réalisé que, dans le domaine des fondations profondes, la sécurité ne se limite pas à un concept abstrait. Elle ne se résume pas à des procédures ou à de la paperasse. Elle est profondément ancrée dans chaque levée, chaque excavation et chaque interaction entre les personnes et l'équipement. Bien que les programmes de sécurité continuent d'évoluer, il est essentiel de comprendre que les résultats dépendent de la manière dont les risques sont identifiés, gérés et contrôlés de façon systématique sur le terrain.

Une des caractéristiques marquantes de cet article porte sur les Lignes directrices concernant les risques critiques du Conseil canadien de la sécurité dans la construction. Celles-ci identifient treize catégories de travaux présentant le plus grand potentiel de blessures graves ou de décès. Plutôt que d'élargir les systèmes de sécurité, ces lignes directrices recentrent l'attention sur la gestion cohérente des risques les plus significatifs, qu'il s'agisse de perturbations du sol, de levage, d'interactions avec l'équipement mobile ou d'isolement énergétique. Consultez la page 8 pour découvrir comment ce cadre redéfinit les discussions sur la sécurité au sein de l'industrie.

Vous trouverez également une entrevue avec Grant McKinney, propriétaire de Team Foundation Systems, qui partage son parcours consacré à la résolution de défis complexes en matière de fondations. Des travaux de réhabilitation résidentielle aux grands projets commerciaux, McKinney explique comment les avancées dans la technologie des pieux hélicoïdaux, alliées à un engagement indéfectible envers la qualité et l'adaptabilité, continuent de façonner l'approche de son entreprise. Pour en savoir plus sur son parcours et ses réflexions, rendez-vous à la page 31.

L'innovation joue également un rôle clé dans l'amélioration de la sécurité et de l'efficacité sur les chantiers d'aujourd'hui. Dans cet article, nous mettons en lumière le système Blue Tech Plus de Soilmec, une nouvelle approche de l'architecture hydraulique qui réduit la consommation de carburant, diminue les émissions et simplifie l'opération des machines. En repensant la gestion de l'énergie au sein des foreuses, ce système permet aux entrepreneurs d'améliorer leurs performances tout en réduisant la complexité des chantiers, ce qui est crucial pour maintenir des opérations plus sûres. Découvrez cette technologie à la page 43.

Ce ne sont là que quelques-unes des nombreuses histoires que vous trouverez dans cet article, et j'espère que vous prendrez autant de plaisir à les lire que nous en avons eu à les rassembler.

Comme toujours, n'oubliez pas de nous suivre sur LinkedIn et Facebook, et de vous abonner à notre bulletin électronique mensuel pour recevoir des nouvelles et des articles de l'industrie directement dans votre boîte de réception.

À la prochaine,

**Ligia Braidotti**

IMAGE: B DESAIN28/SHUTTERSTOCK







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## EVENTS TO KEEP ON YOUR CALENDAR

**2026 MAY**

### MAY 17–22
**3rd International Conference on Coastal Engineering**
**Galveston, Texas**
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### MAY 18–20
**ASDSO Northeast Regional Conference**
**Buffalo, N.Y.**
ASDSO

**2026 JUNE**

### JUNE 1–3
**Geohazards 9**
**Edmonton, Alta.**
CGS

### JUNE 2–5
**Engineering Mechanics Institute Conference 2026**
**Boulder, Colo.**
ASCE

### JUNE 3–5
**CSCE Quebec 2026**
**Quebec City, Que.**
CSCE

### JUNE 15–18
**UCA North American Tunneling Conference**
**Anaheim, Calif.**
UCA

### JUNE 24–28
**SuperPile 2026**
**New Orleans, La.**
DFI and ADSC

**2026 JULY**

### JULY 7–9
**PDCA 26th Annual Conference and Expo**
**Orlando, Fla.**
PDCA

### JULY 13–16
**2026 NAFSMA Annual Meeting**
**Annapolis, Md.**
NAFSMA

### JULY 13–17
**U.S. National Conference on Earthquake Engineering**
**Portland, Ore.**
EERI

### JULY 19–22
**Summer Meeting 2026**
**Chicago, Ill.**
ADSC

**2026 AUGUST**

### AUG. 4–7
**12th International Conference on Short and Medium Span Bridges**
**Vancouver, B.C.**
SEI - ASCE

### AUG. 30 10–11
**45th International Conference on Ground Control in Mining**
**Charleston, W.V.**
SME

### AUG. 30 11–13
**S3: Slopes, Support and Stabilization**
**Charlotte, N.C.**
DFI

# INDUSTRY EVENTS

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**2026 SEPTEMBER**

## AUG. 30–SEPT. 3
**Dam Safety**
**Raleigh, N.C.**
ASDSO

## SEPT. 12–16
**Geo-Quebec 2026**
**Quebec City, Que.**
CGS

## SEPT. 13–17
**13th International Conference on Geosynthetics**
**Montreal, Que.**
IGS

## SEPT. 13–19
**AEG 2026 69th Annual Meeting**
**Chattanooga, Tenn.**
AEG

**2026 OCTOBER**

## OCT. 5–9
**18th Multidisciplinary Conference on Sinkholes and the Engineering and Environmental Impacts of Karst**
**Albany, N.Y.**
NCKRI, Arcadis, Pela GeoEnvironmental

**2026 NOVEMBER**

## NOV. 2–5
**51st Annual Conference on Deep Foundations**
**Orlando, Fla.**
DFI

**2027 MARCH**

## MARCH 1–5
**ASCE 2027: The Infrastructure and Engineering Experience**
**Philadelphia, Penn.**
ASCE G-I

**2027 APRIL**

## APRIL 15–17
**GBA 2027 Annual Conference**
**Vancouver, B.C.**
GBA

**2027 MAY**

## MAY 11–14
**IFCEE 2027**
**Grapevine, Texas**
ADSC, DFI, G–I, PDCA

## MAY 12–14
**CPT 2027: International Symposium on Cone Penetration Testing**
**Vancouver, B.C.**
ISSMGE TC102

**2027 JUNE**

## JUNE 6–9
**9th International Conference on Unsaturated Soils**
Boston, Mas.
ASCE G–I, Unsaturated Soils Committee

BACKGROUND: THEEVENING/123RF

# CONTROLLING WHAT MATTERS MOST

*The Canadian Construction Safety Council's Critical Risks Guideline identifies the activities most likely to result in serious injury or fatality*



# CONTRÔLER CE QUI COMPTE LE PLUS

*Le Conseil canadien de la sécurité dans la construction a établi des lignes directrices sur les risques critiques qui identifient les activités les plus susceptibles de causer des blessures graves ou des décès.*



KATE3155/SHUTTERSTOCK

By Ligia Braidotti

There is nothing abstract about safety on a deep foundations project.

It is not theoretical. It is not a policy document. And it is not solved by adding another checklist to a binder. It is physical, immediate and unforgiving.

Safety in deep foundations is often discussed in broad terms such as programs, policies and procedures. But risk is tied to specific activities: drilling into the ground, lifting heavy materials, working around equipment and managing energy sources – each with specific particularities.

The Canadian Construction Safety Council (CCSC) is bringing clarity to this reality through its "Critical Risks Guideline," a framework that identifies 13 categories of work with the highest potential to result in serious injury or fatality.

As the guideline states, these are risks that, "if not safely executed, [have] the potential ... to seriously harm or kill someone." For contractors, many of these risks are not occasional – they are part of daily operations.

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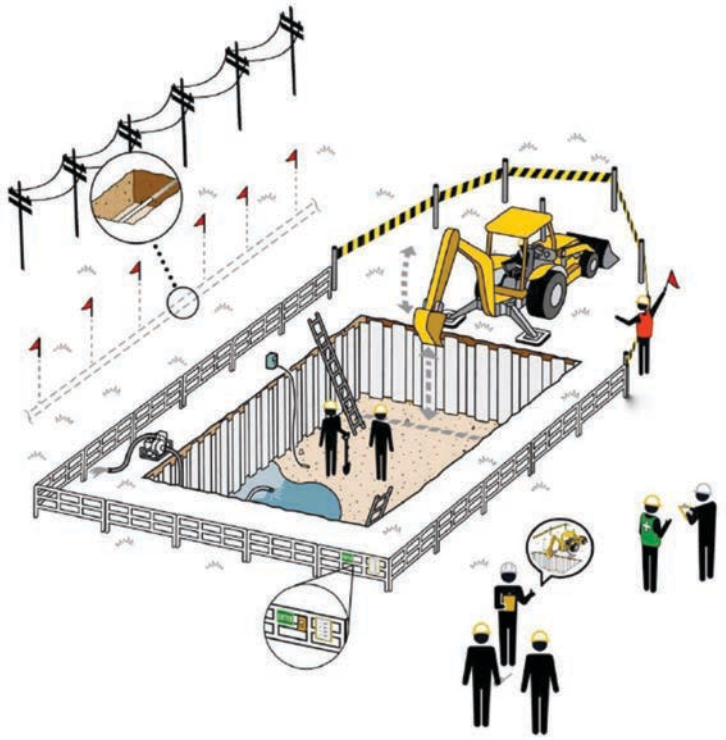
Par Ligia Braidotti | Traduit par Audrey Lemire

La sécurité sur un projet de fondations profondes ne se limite pas à un concept abstrait. Elle ne se résume pas à des procédures ou à de la paperasse.

Cette notion est profondément intégrée dans chaque levée, chaque excavation et chaque interaction entre les personnes et l'équipement. Dans ce domaine, bien que les programmes de sécurité continuent d'évoluer, il est essentiel de comprendre que les résultats dépendent de la manière dont les risques sont identifiés, gérés et contrôlés de façon systématique sur le terrain.

Le Conseil canadien de la sécurité dans la construction (CCSC) offre une clarté précieuse à cette réalité grâce à ses Lignes directrices sur les risques critiques, qui identifient treize catégories de travaux présentant le plus grand potentiel de blessures graves ou de décès.

Plutôt que d'élargir les systèmes de sécurité, ces lignes directrices recentrent l'attention sur la gestion cohérente des risques les plus significatifs, qu'il s'agisse de perturbations du sol, de levage, d'interactions avec l'équipement mobile ou d'isolement énergétique.



Safe Start Checks for ground disturbance and excavation includes obtaining authorization before performing excavation, trenching or ground disturbance activities, confirming where underground utilities and structures are located, de-energized or protected, confirming excavation hazard controls and confined space entry, and monitoring for changing conditions
⚜ Les vérifications de départ sécuritaire pour la perturbation du sol et l'excavation incluent l'obtention d'une autorisation préalable avant d'effectuer des travaux d'excavation, de tranchage ou de perturbation du sol, la confirmation de la localisation des services publics et des structures souterraines, leur mise hors tension ou leur protection, ainsi que la vérification des contrôles relatifs aux dangers d'excavation et à l'entrée dans des espaces confinés, tout en surveillant les conditions changeantes

## From general safety to critical risk focus

The guideline introduces a key distinction that not all hazards carry the same consequence. A critical risk is defined as one that "has the potential to cause a [serious injury or fatality] accident."

This framing shifts attention toward the relatively small number of activities that account for the most severe outcomes.

For deep foundations work, several of these categories are particularly relevant:

- Ground disturbance and excavation
- Hoisting and rigging
- Working around mobile equipment
- Energy isolation
- Working at heights

Each represents a routine part of project execution. Each also carries a well-documented set of controls. The implication is that reducing serious incidents depends less on identifying new hazards and more on consistently managing known ones.

CONTINUED ON PAGE 12

## D'un focus général sur la sécurité à un focus sur les risques critiques

Les lignes directrices introduisent une distinction essentielle: tous les dangers n'entraînent pas les mêmes conséquences. Un risque critique est défini comme celui qui « a le potentiel de causer un accident [de blessure grave ou de décès]. »

Cette définition recentre l'attention sur le nombre relativement restreint d'activités qui sont à l'origine des résultats les plus graves.

Pour les travaux de fondations profondes, plusieurs de ces catégories sont particulièrement pertinentes:

- Perturbation du sol et excavation
- Levage et gréage
- Travail autour d'équipements mobiles
- Isolement énergétique
- Travail en hauteur

Chacune de ces activités représente une facette routinière de l'exécution des projets et est assortie d'un ensemble de contrôles bien documentés. Cela implique que la réduction des incidents graves dépend moins de l'identification de nouveaux dangers et davantage de la gestion cohérente de ceux déjà connus.

SUITE À LA PAGE 12

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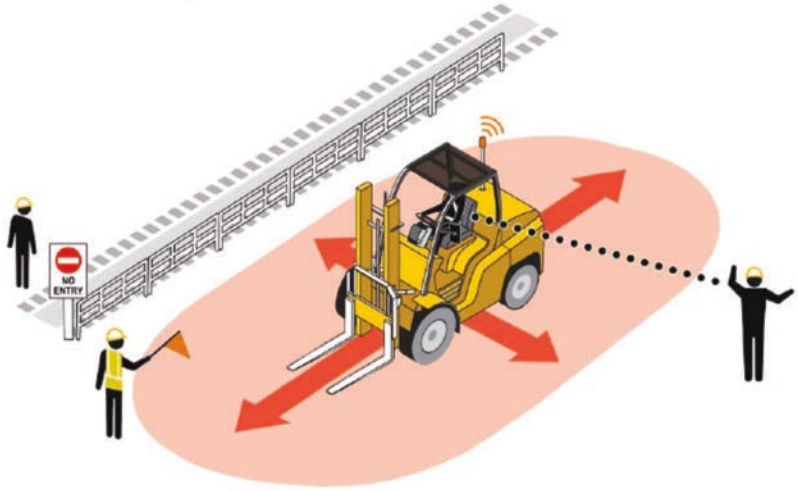
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## *Ground disturbance: planning below the surface*

Few activities are more central to deep foundations than ground disturbance. The guideline defines it as "any work that results in a disturbance of the earth, or that results in a reduction of the initial installation cover over a buried facility."

The associated risks include utility strikes, ground instability, trench collapse and unexpected conditions.

To address these risks, the guideline outlines several core safeguards, including:

- Notification, location and marking of underground utilities
- Development of an excavation plan
- Use of protective systems such as sloping, shoring or trench boxes
- Ongoing monitoring of changing conditions

It also emphasizes authorization and verification before work begins. Contractors must ensure they "obtain authorization prior to performing excavation/trenching/ground."

In practice, incidents in this category are often linked not to a lack of procedures, but to incomplete information or deviations from planned controls once work is underway.

## *Perturbation du sol: planification sous la surface*

Peu d'activités sont aussi centrales aux fondations profondes que la perturbation du sol. Les lignes directrices la définissent comme « tout travail qui entraîne une perturbation de la terre, ou qui entraîne une réduction de la couverture d'installation initiale sur une installation enterrée. »

Les risques associés incluent les frappes de services publics, l'instabilité du sol, l'effondrement de tranchées et des conditions inattendues.

- La notification, la localisation et le marquage des services publics souterrains
- L'élaboration d'un plan d'excavation
- L'utilisation de systèmes de protection tels que le talutage, le soutènement ou les caissons de tranchée
- La surveillance continue des conditions changeantes

Elles soulignent également l'importance de l'autorisation et de la vérification avant le début des travaux. Les entrepreneurs doivent s'assurer qu'ils « obtiennent l'autorisation avant d'effectuer des activités d'excavation, de tranchage ou de perturbation du sol. »

En pratique, les incidents dans cette catégorie sont souvent liés non pas à un manque de procédures, mais à des informations incomplètes ou à des écarts par rapport aux contrôles prévus une fois le travail entamé.

There is nothing abstract about safety on a deep foundations project.

La sécurité sur un projet de fondations profondes ne se limite pas à un concept abstrait.

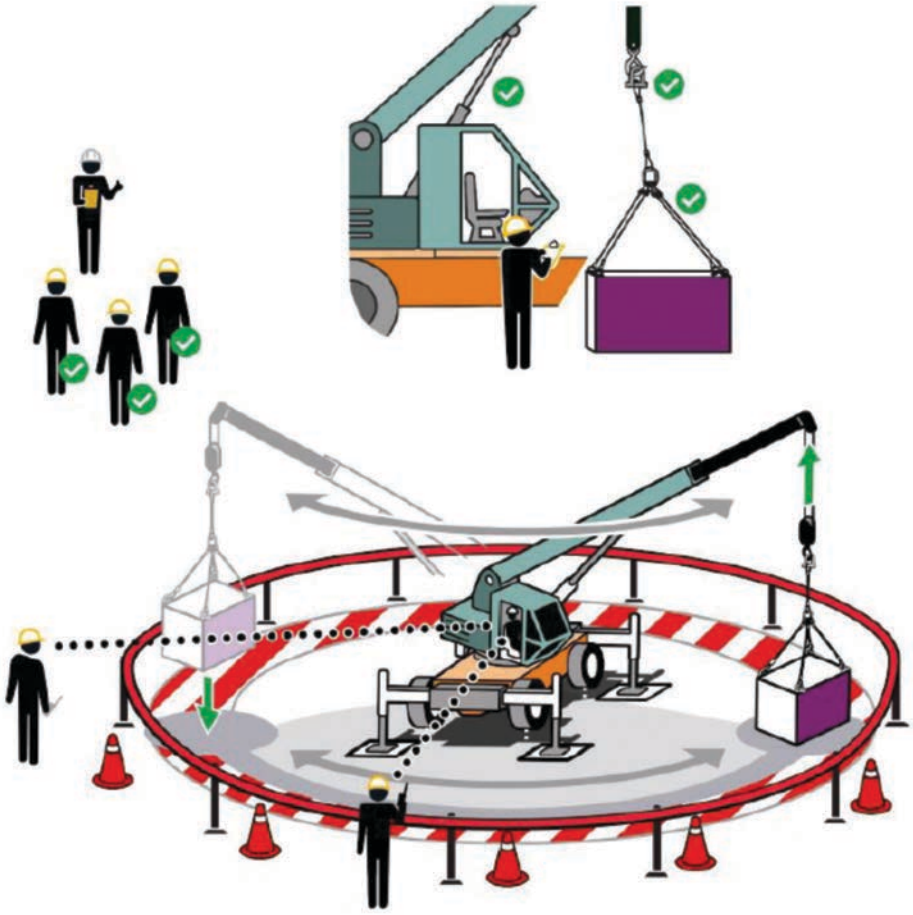
### *Équipements mobiles: gérer l'interaction et la visibilité*

Travailler autour d'équipements lourds constitue une autre catégorie de risque critique ayant une pertinence directe pour les opérations de pieux. Les lignes directrices la définissent comme « tout travail où une personne pourrait potentiellement être frappée par un équipement mobile ou ses accessoires. »

Les contrôles sont bien établis et comprennent:

- La séparation physique par des barrières et des zones d'exclusion définies
- La communication entre les opérateurs et le personnel au sol
- L'utilisation de systèmes de détection de visibilité et de proximité
- La désignation d'observateurs dédiés lorsque nécessaire





Safe Start Check for hoisting and rigging include understanding lift plan, confirming that equipment and load have been inspected, only operating qualified equipment, establishing and obeying barriers and exclusion zones, never walking under a suspended load, and establishing and maintaining communication with lifting and rigging personnel ⚜ Les vérifications de départ sécuritaire pour le levage et le gréage comprennent la compréhension du plan de levage, la confirmation que l'équipement et la charge ont été correctement inspectés, l'utilisation exclusive d'équipements qualifiés, l'établissement et le respect des barrières ainsi que des zones d'exclusion, le fait de ne jamais marcher sous une charge suspendue et l'établissement d'une communication claire avec le personnel de levage et de gréage

## *Mobile equipment: managing interaction and visibility*

Working around heavy equipment is another critical risk category with direct relevance to piling operations. The guideline defines it as "any work where a person could potentially be struck by mobile equipment or its accessories."

The controls are well established:

- Physical separation through barriers and defined exclusion zones
- Communication between operators and ground personnel
- Use of visibility and proximity detection systems
- Dedicated spotters when required

The guideline reinforces an essential principle: "See and be seen; maintain a safe distance." On complex sites where multiple pieces of equipment operate simultaneously, maintaining that separation requires planning and consistent enforcement.

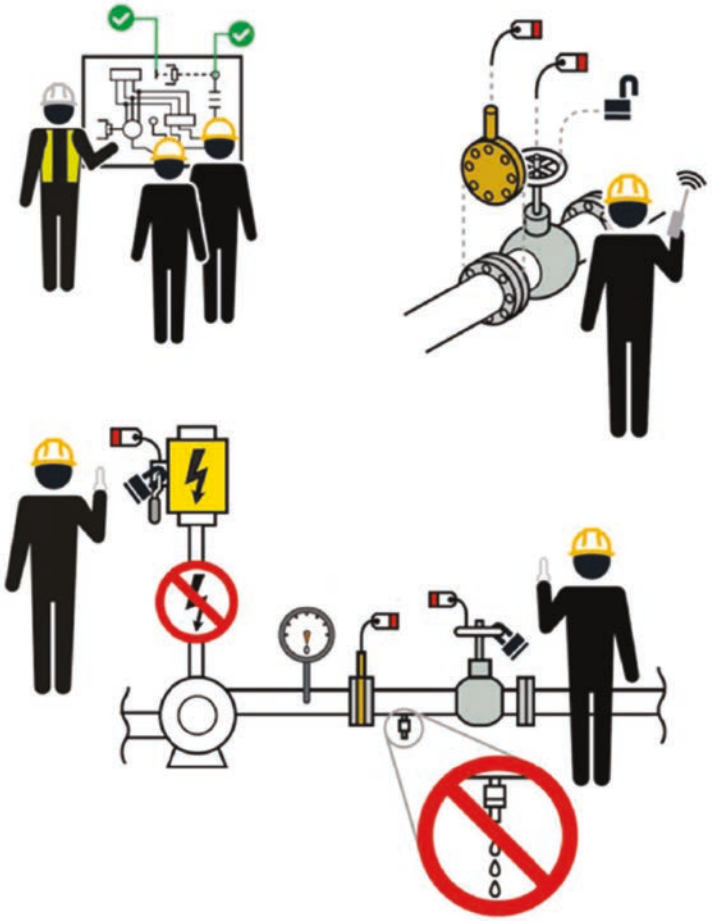
Les lignes directrices renforcent un principe fondamental: « Voir et être vu; maintenir une distance sécuritaire. » Sur des sites complexes où plusieurs équipements fonctionnent simultanément, le maintien de cette séparation nécessite une planification rigoureuse et une application cohérente.

## *Levage et gréage: contrôler la levée*

Les opérations de levage sont essentielles au travail de fondations profondes, que ce soit pour placer des tubes, manipuler des cages de barres d'armature ou déplacer des équipements. Le CCSC identifie cela comme une catégorie de risque critique liée à « tout travail impliquant une opération de levage avec un dispositif de levage. »

Les lignes directrices soulignent l'importance de la planification et de la coordination:

- Établir et revoir les plans de levage
- Inspecter les équipements et le gréage
- Définir des zones d'exclusion
- Maintenir une communication claire entre les membres de l'équipe



Safe Start Check for energy isolation includes identifying all energy sources, confirming hazardous energy sources have been isolated, locked and tagged, checking there is zero energy, testing for residual or stored energy, never removing or tampering with energy control devices and confirming equipment is back to safe operating condition before re-energizing ⚜ Les vérifications de départ sécuritaire pour l'isolement énergétique englobent l'identification de toutes les sources d'énergie, la confirmation que les sources d'énergie dangereuses ont été isolées, verrouillées et étiquetées, la vérification qu'il n'y a pas d'énergie résiduelle, les tests pour détecter l'énergie résiduelle ou stockée, le fait de ne jamais retirer ou manipuler les dispositifs de contrôle de l'énergie, et la confirmation que l'équipement est revenu à un état de fonctionnement sûr avant de rétablir l'énergie

## *Hoisting and rigging: controlling the lift*

Lifting operations are integral to deep foundations work, whether placing casing, handling rebar cages or moving equipment. The CCSC identifies this as a critical risk category relating to "any work involving a lifting operation with a lifting device."

The guideline emphasizes the importance of planning and co-ordination:

- Establishing and reviewing lift plans
- Inspecting equipment and rigging
- Defining exclusion zones
- Maintaining clear communication among crew members

One of the most fundamental safeguards is "I never walk under a suspended load" and "plan lifting operations and control the area." In many cases, incidents occur when lifts deviate from plan or when site conditions change without corresponding adjustments to controls.

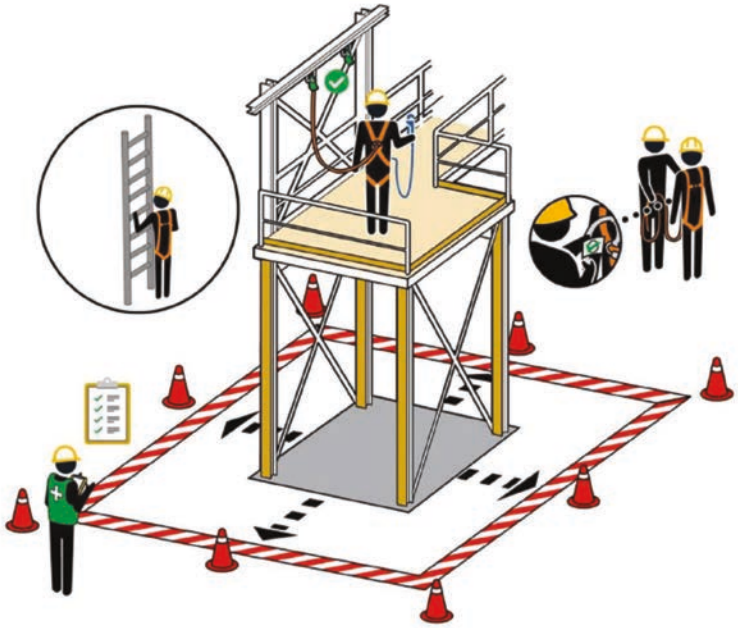
Une des mesures de protection les plus fondamentales est « Je ne marche jamais sous une charge suspendue » et « Planifiez les opérations de levage et contrôlez la zone. » Dans de nombreux cas, les incidents se produisent lorsque les levages s'écartent du plan ou lorsque les conditions du site changent sans ajustements correspondants aux contrôles.

## *Isolement énergétique: vérifier l'absence d'énergie*

L'isolement énergétique est souvent moins visible mais tout aussi critique. Il s'applique aux travaux impliquant des systèmes électriques, hydrauliques, mécaniques ou sous pression. Les lignes directrices définissent cette catégorie comme l'exposition à des dangers lors de travaux sur ou à proximité de systèmes sous tension.

Les mesures de protection requises suivent une séquence structurée:

- Identifier toutes les sources d'énergie
- Isoler, verrouiller et étiqueter ces sources
- Vérifier l'absence d'énergie



Safe Start Checks for working at heights include inspecting fall protection equipment before use, securing tool and materials to prevent dropped objects, tying-off to approved anchor points and following safe work practices when climbing, descending or working from ladders ⚜ Les vérifications de départ sécuritaire pour le travail en hauteur incluent l'inspection de l'équipement de protection contre les chutes avant son utilisation, la sécurisation des outils et des matériaux afin de prévenir les chutes d'objets, la liaison à des points d'ancrage approuvés, la validation d'un sauvetage rapide et le respect des pratiques de travail sécuritaires lors de l'escalade, de la descente ou du travail à partir d'échelles

## *Energy isolation: verifying zero energy*

Energy isolation is often less visible but equally critical. It applies to work involving electrical, hydraulic, mechanical or pressurized systems. The guideline defines this category as exposure to hazards when working on or near energized systems.

The required safeguards follow a structured sequence:

- Identify all energy sources
- Isolate, lock and tag those sources
- Verify zero energy
- Confirm safe conditions before re-energizing

The guideline suggests contractors "confirm that hazardous energy sources have been isolated, locked and tagged," and check that there is zero energy, and test the jobsite for residual or stored energy.

Verification is a critical step. Without it, isolation measures may provide a false sense of security.

## *Working at heights: maintaining basic controls*

Working at heights remains one of the most common sources of serious injury in construction. The guideline defines it as "any work where a person could potentially fall and seriously injure themselves."

The controls are well known:

- Use of fall protection systems
- Securing tools and materials
- Establishing rescue plans
- Maintaining tie-off requirements

- Confirmer des conditions sécuritaires avant de rétablir l'énergie

Les lignes directrices suggèrent aux entrepreneurs de « confirmer que les sources d'énergie dangereuses ont été isolées, verrouillées et étiquetées » et de vérifier qu'il n'y a pas d'énergie résiduelle ou stockée sur le chantier.

La vérification est une étape cruciale. Sans elle, les mesures d'isolement peuvent donner un faux sentiment de sécurité.

## *Travail en hauteur: maintenir des contrôles de base*

Le travail en hauteur demeure l'une des sources les plus courantes de blessures graves dans la construction. Les lignes directrices le définissent comme « tout travail où une personne pourrait potentiellement tomber et se blesser gravement. »

Les contrôles sont bien établis et incluent :

- L'utilisation de systèmes de protection contre les chutes
- La sécurisation des outils et des matériaux
- L'établissement de plans de sauvetage
- Le respect des exigences de liaison

Les lignes directrices soulignent l'importance de se protéger contre les chutes lors du travail en hauteur.

Bien que ces contrôles soient largement appliqués, le maintien d'une conformité constante demeure un défi, particulièrement dans des environnements de travail dynamiques.

The guideline reinforces the expectation: "protect yourself against a fall when working at heights."

While these controls are widely implemented, maintaining consistent compliance remains a challenge, particularly in dynamic work environments.

## The role of Safe Start Checks

Across all critical risk categories, the guideline introduces Safe Start Checks as a consistent structure. These are not intended as administrative steps, but as verification points to confirm that safeguards are in place before work begins.

The document repeatedly emphasizes workers "confirm these controls/safeguards are in place and verified prior to starting work." This approach reflects a broader shift in safety management, from reacting to hazards as they arise, to ensuring that conditions are controlled in advance.

For deep foundations contractors, the CCSC guideline does not introduce unfamiliar concepts. The risks and controls it outlines are already reflected in most safety programs. By identifying the activities most likely to result in serious injury or fatality, the guideline provides a basis for focusing resources, supervision and planning where they matter most.

This may include:

- Strengthening pre-task planning for ground disturbance and lifting operations

## Le rôle des vérifications de départ sécuritaire

Dans toutes les catégories de risque critique, les lignes directrices introduisent les vérifications de départ sécuritaire comme une structure cohérente. Celles-ci ne sont pas destinées à être des étapes administratives, mais des points de vérification pour confirmer que les mesures de protection sont en place avant le début des travaux.

Le document souligne à plusieurs reprises que les travailleurs doivent « confirmer que ces contrôles/mesures de protection sont en place et vérifiés avant de commencer le travail. » Cette approche reflète un changement plus large dans la gestion de la sécurité, passant d'une réaction aux dangers au fur et à mesure qu'ils surgissent, à une garantie que les conditions sont contrôlées à l'avance.

Pour les entrepreneurs en fondations profondes, les lignes directrices du CCSC n'introduisent pas de concepts inconnus. Les risques et les contrôles qu'elles décrivent sont déjà intégrés dans la plupart des programmes de sécurité. En identifiant les activités les plus susceptibles de causer des blessures graves ou des décès, ces lignes directrices fournissent une base pour concentrer les ressources, la supervision et la planification là où cela compte le plus.

Cela peut inclure :

- Renforcer la planification préalable des tâches pour la perturbation du sol et les opérations de levage
- Renforcer les zones d'exclusion et les protocoles de communication autour des équipements





GOLDEN SIKORKA / SHUTTERSTOCK

**The guideline reinforces the expectation: "protect yourself against a fall when working at heights."**

**Les lignes directrices renforcent un principe fondamental: « Voir et être vu; maintenir une distance sécuritaire. »**

- Reinforcing exclusion zones and communication protocols around equipment
- Standardizing verification processes for energy isolation
- Ensuring consistent application of fall protection requirements

In each case, the goal is not to expand safety systems, but to ensure that critical controls are consistently applied.

## A question of consistency

The CCSC's work highlights the gap between defined procedures and field execution as a persistent issue in construction safety.

The risks are known. The safeguards are documented. The challenge lies in applying those safeguards reliably, under changing conditions and production pressures.

For the deep foundations sector, where many of the highest-risk activities are inherent to the work, that consistency is essential. Because in these environments, safety outcomes are rarely determined by whether a risk exists, but by whether it is controlled before the work begins.

DIAGRAMS: CANADIAN CONSTRUCTION SAFETY COUNCIL

- Standardiser les processus de vérification pour l'isolement énergétique
- Assurer une application cohérente des exigences de protection contre les chutes

Dans chaque cas, l'objectif n'est pas d'élargir les systèmes de sécurité, mais de garantir que les contrôles critiques soient appliqués de manière cohérente.

## Une question de cohérence

Le travail du CCSC met en lumière l'écart entre les procédures définies et l'exécution sur le terrain, un problème persistant dans la sécurité de la construction.

Les risques sont connus. Les mesures de protection sont documentées. Le défi réside dans l'application fiable de ces mesures de protection, dans des conditions changeantes et sous la pression de la production.

Pour le secteur des fondations profondes, où de nombreuses activités à haut risque sont inhérentes au travail, cette cohérence est essentielle. Car dans ces environnements, les résultats en matière de sécurité ne dépendent que rarement de l'existence d'un risque, mais de la capacité à le contrôler avant le début des travaux.

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# Foundations of Compliance

## *Navigating stop work orders, administrative penalties and convictions*

By Ligia Braidotti

In any construction project the margin for error is measured in millimetres and megapascals. Yet, beyond the physical complexities of soil mechanics and pile integrity lies a regulatory landscape that has become increasingly stringent. Understanding the tiered escalation of enforcement, from the immediate halt of a stop work order (SWO) to the financial sting of administrative penalties (APs) and the reputational devastation of a conviction, is no longer just a legal consideration. It is a fundamental operational necessity.

To maintain industry leadership, construction companies must recognize that proactive compliance serves as the bedrock of a successful operation.

### The immediate freeze: SWOs

The SWO is the most immediate and visible tool in a regulator's arsenal. Whether issued by provincial Occupational Health and Safety (OHS) officers or municipal building officials, an SWO is a preventive measure designed to halt activities that pose an immediate danger to workers or the public. These orders can stem from unstable excavations, such as inadequate shoring or trenching during pile cap preparation, or visible defects in equipment integrity involving crane cables, hydraulic leads and rigging gear. Geotechnical deviations, such as proceeding with installation when soil conditions vary significantly from the approved report without a revised plan, can also trigger these halts.

An SWO is not merely a temporary pause. The financial implications of an idle rig, standby labour costs and damages for schedule delays can reach tens of thousands of dollars per day. Also, an SWO remains on a contractor's permanent regulatory record, often appearing in pre-qualification audits for major infrastructure projects and potentially inflating insurance premiums.

When an officer issues an SWO, the burden of proof shifts to the contractor, who must demonstrate not just that the immediate hazard has been removed, but that a system is in place to prevent its recurrence before work is allowed to resume.

### The financial lever

Unlike traditional fines that require a lengthy court process, APs are issued directly by regulatory bodies, such as WorkSafeBC or Ontario's Ministry of Labour. They are designed to be deterrents to non-compliance. In many Canadian jurisdictions, these penalties operate on a model nearing absolute liability. This means the regulator doesn't need to prove intent or gross negligence. The mere fact that a regulation was breached, such as a worker being unhooked while working at heights or a piece of machinery missing a guard, is enough for a penalty to be levied.

APs often target systemic failures rather than isolated incidents. For example, failing to maintain up-to-date maintenance logs for a rotary drill rig or lacking verified training records for a swamper are prime targets for administrative enforcement. These penalties are often public record, meaning a company's safety performance is visible to clients and competitors alike.

### Convictions and criminal liability

The most severe type of enforcement is a conviction under provincial or federal law. This typically follows a workplace fatality or a catastrophic structural failure where an investigation reveals reckless disregard for



safety standards. Under the Canadian Criminal Code, Section 217, organizations and individuals can be held criminally liable for workplace negligence. For a piling company, this means that if a supervisor or senior officer fails to take reasonable steps to prevent bodily harm, the company can face criminal charges.

The consequences of a conviction are often irreversible. Unlike APs, which are often capped, criminal fines can reach into the millions of dollars, potentially bankrupting smaller firms. Project managers, site supervisors and executives can face personal jail time if found criminally negligent.

Beyond the legal penalties, a criminal conviction is often the end point for bidding on provincial or federal infrastructure projects. Most Tier 1 contractors and government bodies have a zero-tolerance policy for firms with criminal records, effectively blacklisting them from the most lucrative contracts in the industry.

## The regulatory escalation pyramid

Understanding the relationship between these three tiers is essential for risk management. Regulatory enforcement generally follows a pyramid structure where the base consists of SWOs, which are frequent, corrective and focused on immediate jobsite safety. The middle section contains APs, which are systematic, financial and focused on broader regulatory adherence. At the highpoint are convictions, which are rare but punitive, focused on serious negligence or loss of life.

This structure illustrates that while SWOs are more common, they serve as the early warning system. If a firm treats an SWO as a mere nuisance rather than a systemic warning, it risks moving up the pyramid into the territory of heavy penalties and, eventually, the courtroom.

## Strategic compliance

To navigate this landscape, companies must commit to digital documentation and real-time reporting, as the prevailing rule in any dispute is that an action not documented effectively did not happen. Construction companies are moving away from paper logs toward digital platforms that allow for real-time tracking of pre-use inspections, daily safety briefings and geotechnical sign-offs.

These companies must also prioritize the due diligence defence by proving they took every reasonable precaution to avoid an event. Robust subcontractor oversight is critical. In an industry that relies on third-party testers and specialized labourers, the prime contractor often bears ultimate responsibility. Ensuring that subcontractors meet or exceed the firm's own safety standards is a vital shield against APs.

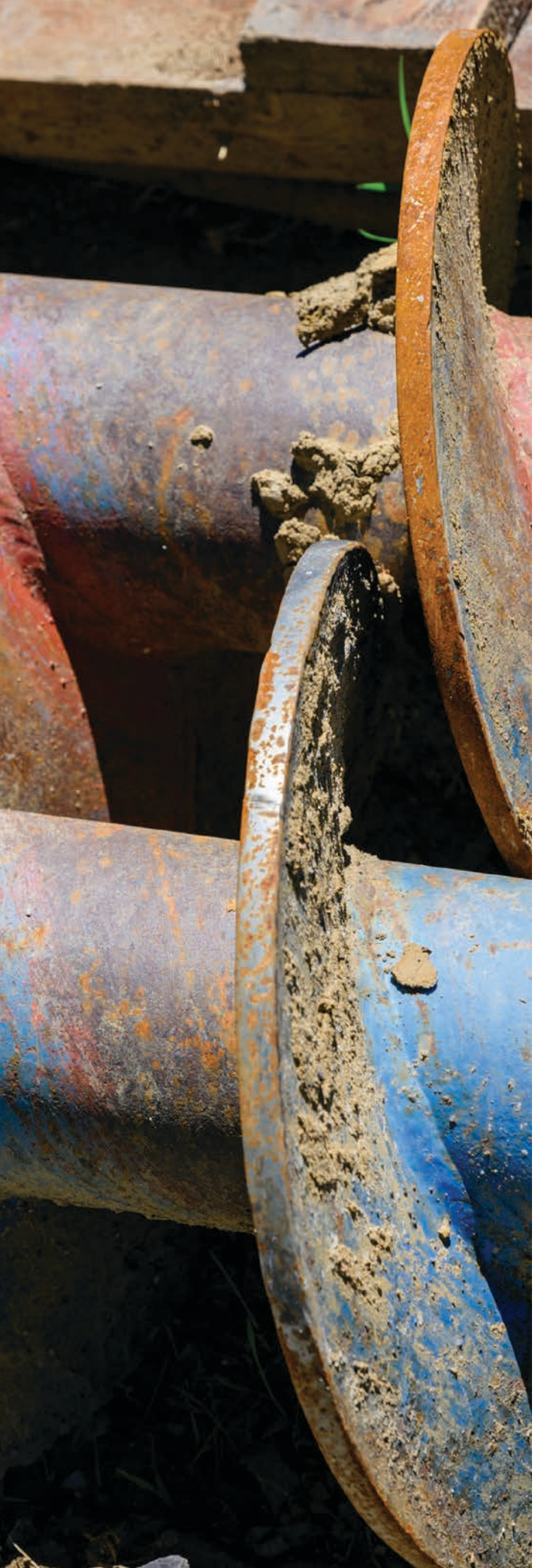
## The authority of excellence

As Canada moves into an era of increased infrastructure investment, addressing problems only as they arise is no longer viable. By respecting the power of the SWOs, understanding the mechanics of APs and recognizing the finality of a conviction, piling contractors can protect their employees, their assets and their reputations.

Regulatory mastery is not a burden – it is a competitive advantage. The companies that lead the next generation of deep foundation projects will be those that view compliance as a hallmark of professional authority and operational excellence.

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# BUILDING BELOW THE SURFACE, THINKING BEYOND THE HORIZON

*How Canada's deep foundations industry is rising to meet the challenge of sustainable construction*

By Ligia Braidotti

There is a quiet shift happening in Canada's push toward net-zero – and it's happening underground.

As the country accelerates its clean energy build-out, the conversation is no longer just about what gets built. It's about how. Because every wind turbine, every transmission tower, every energy storage system starts the same way: below the surface.

And increasingly, the sector is being asked to do more than deliver performance. It is being asked to deliver responsibly.

## Foundations for a renewable nation

Canada's clean energy ambitions are massive and they are moving quickly.

Roughly 79 per cent of the country's electricity already comes from low-carbon sources. But getting to a net-zero grid by 2035, and a net-zero economy by 2050, will require a level of construction activity that Canada has never seen before.

In 2025 alone, the country added another wave of wind, solar and energy storage capacity, bringing total installed capacity to approximately 25 gigawatts. That number is expected to grow by another 50 to 60 per cent by 2035.

Alberta may have led early procurement, but Quebec is now targeting a tripling of its wind and solar capacity, while British Columbia is planning to quadruple its own, and every one of those projects depends on foundations.

For the deep foundation industry this is an opportunity that comes with the pressure to not just build fast, but to build differently.

## The green foundation's best friend

Helical piles are quickly becoming one of the sector's clearest responses to that pressure.

Their advantage is that they go into the ground with less disruption and come out cleaner on the other side.

Unlike traditional driven or cast-in-place systems, helical piles are installed by rotation, minimizing soil disturbance. More importantly, they often eliminate the need for concrete altogether.

Cement production accounts for roughly seven per cent of global greenhouse gas emissions. Reducing reliance on concrete isn't a marginal gain, it's a meaningful shift in how projects carry their carbon footprint from the start.

There's also a life cycle advantage. Helical piles can be removed and reused, which fundamentally changes how we think about temporary and long-term infrastructure.

On battery energy storage projects, like Ontario's Oneida facility, those benefits become practical, not just environmental. Crews can install 20 to 30 piles per day without waiting for curing. And the systems adapt well to Canada's varied soil conditions.

## Decarbonizing the equipment fleet

The equipment used to install those foundations has historically been one of the biggest sources of emissions on a jobsite.

That's starting to change.

Junttan has introduced the PMx2e, the first fully battery-powered electric pile driving rig. Equipped with two detachable battery packs, the machine can operate for up to 13 hours without diesel.

The benefits include lower emissions, reduced noise and improved energy efficiency. In practice, operators are also reporting better responsiveness, thanks to instant torque from the electric drivetrain.

Junttan estimates the rig can reduce $CO_2$ emissions by up to 47,000 kilograms per year compared to its diesel equivalent, a 95 per cent reduction over its life cycle when powered by renewable electricity.

In a country where most of the grid is already low-carbon, electrification is not a future concept. It is a present-day decision. And it is forcing contractors to rethink what standard equipment looks like on Canadian jobsites.

## The embodied carbon imperative

Even where concrete remains unavoidable, the conversation is shifting.

The federal government has committed to reducing the embodied carbon of structural materials in major projects by 30 per cent starting in 2025. Environmental product declarations are now required for concrete on projects over $5 million, and procurement policies are beginning to favour lower-carbon alternatives.

For the deep foundation sector, that changes the rules.

Large-diameter shafts and concrete-filled piles are still essential for heavy infrastructure. But how that concrete is specified and what goes into it is now under scrutiny.

Supplementary cementitious materials, optimized mix designs and performance-based specifications are no longer niche considerations. They are becoming part of the baseline expectation.

**The companies that will lead over the next decade are not just the ones who can build efficiently. They are the ones who can build with awareness of materials, of emissions, of long-term impact.**

The shift is subtle, but significant. It moves the industry away from "this is how we've always done it" toward "this is what performance allows."

## Permafrost: where climate meets engineering

In northern Canada, the stakes are even higher.

For decades, permafrost has served as a stable bearing medium for foundations across Yukon, the Northwest Territories, Nunavut and northern Quebec.

As temperatures rise, permafrost is thawing faster than many designs anticipated. Research published in 2024 highlights a critical gap: there is still no national design code specifically addressing foundations in permafrost conditions.

Engineers are being forced to rely on experience, judgment and increasingly complex modelling to manage thermal effects and long-term performance. Buildings, roads and utility corridors are at risk as the ground shifts beneath them.

In response, the industry is developing more rigorous thermal models, integrating thermosyphons and insulation systems, and pushing for the national standards that would bring consistency to these designs.

This is an active challenge that is reshaping how foundations are designed in some of the country's most vulnerable regions.

## The industry's moment

Taken together, these shifts point to something bigger than incremental change.

The deep foundation industry is being pulled into a new role where technical performance is no longer enough on its own.

Clients are asking different questions. Governments are setting new expectations. And the projects, whether in renewable energy or northern infrastructure, are exposing the limits of old approaches.

The companies that will lead over the next decade are not just the ones who can build efficiently. They are the ones who can build with awareness of materials, of emissions, of long-term impact.

Because what happens below the surface is no longer invisible.

And the decisions made there are starting to define what sustainable construction actually looks like.



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# CONEXPO-CON/AGG ROUND-UP

## Check out what *Piling Canada* was up to during the conference in Las Vegas



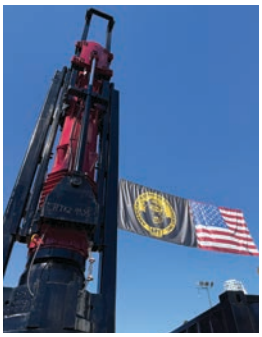





It was incredible to be part of the energy at ConExpo-Con/Agg 2026 in Las Vegas this past March – and what an event it was! This year's show drew more than 140,000 construction professionals from 128 countries. Spanning more than three million square feet of exhibit space with over 2,000 exhibitors, the scale of the show was truly something to behold. For the *Piling Canada* team, it is always a highlight to reconnect with familiar faces and forge new relationships – and Conexpo-Con/Agg 2026 did not disappoint. From towering cranes and earthmovers to cutting-edge automation systems, the show served as the ultimate platform for manufacturers, contractors, engineers and industry leaders to connect, collaborate and explore what's next in construction.


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Junttan
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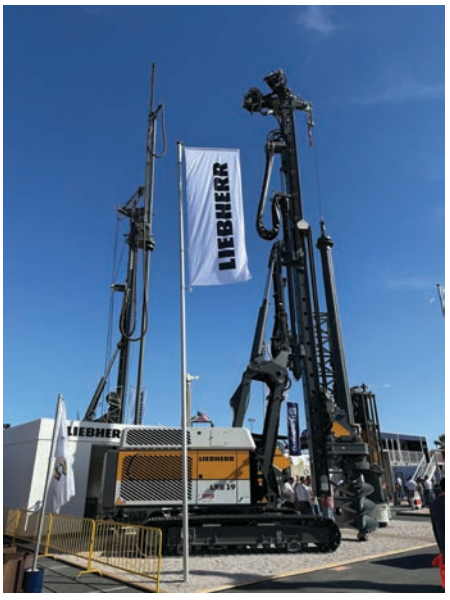

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# A LEADER IN CONSTRUCTION REMEDIATION

## *Grant McKinney and Team Foundation Systems offer solutions to foundational problems*

By Lisa Kopochinski

Team Foundation Systems is a certified dealer installer for Chance helical piles. Located in West Kelowna, B.C., the company specializes in new construction and remedial work.

From the smallest projects in local neighbourhoods to large commercial ventures, such as the Kelowna Grand Casino expansion, the company works with homeowners and insurance companies, as well as general contractors and restoration companies to offer a viable solution to many foundations and soils concerns.

*Piling Canada* recently had the opportunity to sit down with Grant McKinney, Team Foundation Systems owner and project manager, to talk about the piling industry and his company's success.




Grant McKinney is the owner of Team Foundation Systems, a privately owned foundation piling company with a service area covering all of British Columbia

# "Our mantra is to provide the very best materials on the market for intended applications and stand behind our work 100 per cent."

– Grant McKinney, Team Foundation Systems

## Please tell us how you first got into the foundation and ground engineering industry? What drew you to this type of work?

**Grant McKinney:** Back then, I was busy working as a Red Seal Carpenter in and around Kelowna, B.C., for Team Construction (TC) on a variety of great projects in the 1990s. One day, while forming a suspended slab, I stepped into a slab band wrong and blew out my ACL. Long story short, the doctor said my knees were in very bad shape and to choose another career. The timing was just right, and my boss asked me to run Team Foundation Systems Ltd. (TFS), essentially another division of TC at that time. I was immediately drawn to this field of work. Although I enjoy building new, I also very much enjoy "fixing" problems. This was a real challenge that I found very fulfiling.

## What experiences early in your career helped shape the way you approach foundation solutions today?

**GM:** Because the trade itself is about building something, there were and are always issues that need to be resolved to reach the end goal. Possible unforeseen issues are a concern. There are also times when building new, or even during a remediation project, the soil parameters are less than ideal, so how are we going to work around that? What do we need to do to build this or repair that? These experiences early on, and throughout my career, have always kept me interested in the game.

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## How has the helical pile industry changed since you first started, both in terms of technology and how the solutions are used in the field?

**GM:** The industry in and of itself to me is the same industry and, as always, we continue to offer solutions to foundational problems that occur for whatever the reason. There are more outfits out there suppling similar piling products as well as offshore options for some willing to go that route. Tooling and installation equipment have improved. For example, we don't read hydraulic pressure gauges. We have electronic torque monitors that log data in real time giving accurate progress readings we all rely on now.

## What was your vision for TFS?

**GM:** Gordon Wilson started TFS in 2004 under the TC umbrella, and I was already [their] employee. As for TFS, I worked for him just after the start, until I eventually bought the company 14 years ago. The vision, and our mantra was, and is, to provide the very best materials on the market for intended applications and stand behind our work 100 per cent. We enjoy all projects and love what we do, but the more challenging projects keep my adrenaline up and that keeps it exciting.



Grant McKinney was immediately drawn to this field of work as he enjoys the challenges of being a part of the solution on his projects







**TFS works on everything from small residential projects to major commercial work like the Kelowna Grand Casino expansion. How has your work evolved as the company has grown?**

**GM:** Thankfully over all the years TFS has been around here in the central region of British Columbia, we've had the opportunity to work with pretty much everyone big or small. The casino was a great project but that was years ago. Over the years, we have worked at [the Kelowna] International Airport, we have worked for the City of Kelowna projects, for the University of British Columbia, as well as Okanagan University College. Projects for homeowners, due to a flooding event, for example, become personal as they just want their home back the way it was after the flood or the fire.

As for how we have evolved, I would say that today's world is a lot faster. Timelines seem as tight as ever and, honestly, the competition has never been higher. We have won and even lost five- or six-figure jobs by a grand or two. That's just a reality. Overall, we adapt to current conditions and try to fulfil the needs of our clients.

**You are a certified dealer installer for Chance helical piles. How did that partnership come about, and why did you choose helical piles as a core solution for your projects?**

**GM:** I was asked if I would be interested in becoming a distributor years ago by [Chance Foundations Solutions]. I consulted with others in the industry about their thoughts on the opportunity and quickly said sure! We then started up Western Helical Supply Ltd. Helicals just seemed like it checked a lot of boxes for us here in the Okanagan with the soil conditions and water tables we have. I think having the ability to install a helical pile without disrupting the neighbourhood with pounding or massive vibrations causing damage to existing structures was a major factor.

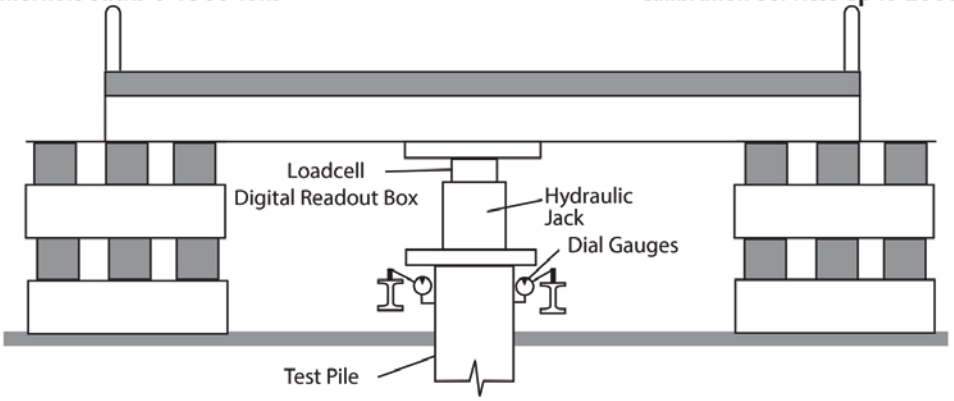
**Much of your work involves remedial and repair projects. What are some of the most common foundation or soil issues you encounter in your region?**

**GM:** About 70 per cent of our work seems to be remediation. We're currently working on a large multifamily wood-framed four-storey structure that was constructed on less-than-ideal soils. Over the years, soils consolidated and settlement occurred. Other projects we have are homes that have negative sloping ground towards




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> **"We adapt to current conditions and try to fulfill the needs of our clients."**
>
> – Grant McKinney, Team Foundation Systems

the foundation and water again has caused settlement. In many projects, the rainwater leaders (downspouts) are plugged or they may be evacuating six inches from the edge of the foundation.

We have a lot of clays here in the valley. Glaciolucustrine deposits are a heavy clay, and we also have expansive or plastic clays. These materials are prone to shrinking and swelling seasonally.

### Your clients include homeowners, insurance companies, general contractors and restoration companies. How does working with such a diverse group influence how you approach projects?

**GM:** My thing has always been to try to remember to keep it basic and every project – no matter the size to us – is always a big project to my client, no matter who it is. Talking with homeowners and general contractors, restoration outfits and insurance companies, etc., all require different hats. That is part of what makes going to work exciting and challenging at the same time.

### Looking back over your career, is there a project or moment that stands out as particularly meaningful or challenging?

**GM:** I never planned to retire before 65 because I love the purpose and reason every day. However, I was diagnosed with Bulbar ALS in June 2025 and was told by two neurosurgeons to go take that trip I always put off. I left everything and was gone for three months. I just got home the first week of March. During my time away, my crew ran everything. I gave this question a lot of thought and my problem is, all my projects stand out. There are no two alike. They are all very meaningful, purposeful and challenging for a million reasons in their own ways.

### What advice would you give to someone considering a career in foundation repair or installation today?

**GM:** My advice is you need to love what you do. If you want to be a part of a solution in the construction remediation industry, then this work is fulfiling, but it's also hands on. I always do my best to be transparent and am available to everyone 24/7. People love that, because if it matters to you then it matters to me, and I'm happy to drill down to get the solutions you need.



# A Cut Above: Universal Cutting Systems Oy

*With its innovative mechanized cutting systems, Universal Cutting Systems Oy is changing how the world cuts reinforced concrete, steel piles and other demanding materials*

By Paul Adair

Founded in 2024 and headquartered in Ylöjärvi, Finland, Universal Cutting Systems Oy (UCS) is a cutting equipment manufacturer that specializes in advanced systems for cutting reinforced concrete, steel piles and subsea flexibles. Despite its youth as a company, UCS has quickly established a reputation for engineering innovation and is transforming the way industries cut reinforced concrete, steel piles and other challenging materials.

For more than 10 years prior to the company's founding, the core UCS team had firsthand experience with many of the challenges facing the pile-cutting industry today. They recognized that the more traditional methods of cutting deep foundation piles tend to be labour-intensive and carry significant risks, including dust, sparks, falling debris and unpredictable material behaviour.

This is what inspired them to develop innovative solutions that are safer, more consistent and increasingly efficient.

"The old way of cutting piles is causing illnesses to workers – something that we wanted to change," said UCS CEO Marko Tamminen. "We started thinking about and developing a new solution that could truly address the issues crews face. Our solution was an automated cutting system that could perform the work safely and quickly from inside the excavator cabin, so that workers would no longer be exposed to dust, flying debris or sparks."




## On-site innovation

In its nearly two years of operation, the company has developed systems that are designed for both excavator-mounted applications and standalone shop-floor use, giving contractors flexibility across a wide range of environments. Its expansive product portfolio covers steel pile cutting and – more recently – concrete pile cutting, with both product lines representing the highest levels of automation and worksite safety.

"Our cutting technologies are designed specifically for cutting steel and reinforced concrete piles in demanding jobsite conditions and can cut virtually any type of steel or concrete piles," said Andy Korhonen, vice president at UCS. "This versatility allows our products to be used in a broad range of structural demolition applications, such as cutting bridge piles, or anywhere else that on-site cutting is required."

The UCS portfolio covers all the most common steel and concrete pile sizes, which are used in piling, foundation removal and structural demolition, and the company's technology is built around practical, patent-pending innovations that address key jobsite challenges. Its products provide an all-in-one system, including an integrated tilt-rotator that allows the cutter to manoeuvre smoothly in multiple directions, giving the operator significantly greater flexibility.

UCS's SP-12 Steel Pile Cutter and the CS-24 Concrete Pile Cutter have been the company's most-used products in North America to date, with both machines and cutting blades offering exceptional strength and durability. This is especially true with the steel pile cutter, where a single blade can cut hundreds of piles

> **"We offer a significantly safer and faster alternative to traditional cutting methods, as well as a clean and precise cut that greatly reduces the amount of finishing work required on site without compromising the cost or quality."**
>
> **– Andy Korhonen, Universal Cutting Systems Oy**




– increasing efficiency and reducing the overall cost per cut. Then, once the pile is cut, the machine uses a built-in pile-lifting function to safely lift the cut section, avoiding tension build-up on the blade and significantly lengthening the blade's longevity.

"This lifting function is unique in the pile cutting industry," said Korhonen. "The double grabble system securely holds the cutter in place to ensure smooth-cutting operations and easy cut-off handling after the pile has been cut. We offer a significantly safer and faster alternative to traditional cutting methods, as well as a clean and precise cut that reduces the amount of finishing work required on site without compromising the cost or quality."

## The UCS advantage

Replacing the heavy, manual labour traditionally used to cut steel piles, UCS provides a modern, mechanized system that represents a major step forward in efficiency and time savings. The company's SP-12 attaches directly to an excavator and is fully operated from the cabin, where a single operator can safely cut an eight-inch steel pile in



under two minutes and a five-inch round pile in about 40 seconds – roughly five times faster than manual cutting.

"The same machine lifts and places the cut sections exactly where needed, without exposing workers to danger," said Tamminen. "What once caused stress and disruption has now become a reliable, precise and predictable process. Jobsites feel calmer, safety on-site has significantly improved and fire risks are reduced thanks to the cutting blade guard. Teams are now in control of their schedule and work with confidence."

As a real-world example, on large solar farm projects, contractors will often need to cut tens of thousands of piles and – historically – this work has been done manually, which is a time-intensive process where cutting a single steel pile by hand takes up to 15 minutes. The UCS solution can make the same cut in under two minutes.

| | Manual Cutting | UCS Cutters |
|---|---|---|
| Operator control | Hand tools | Operated from excavator cabin |
| Cutting speed | ~15 minutes per pile | <2 minutes (8" steel pile) |
| Safety | PPE, exposed to hazards | Operator protected in cabin |
| Handling cut piles | Separate crane required | Integrated lift & placement |
| Cut quality | Uneven | Clean, precise cut |

This was the experience of the U.S.-based heavy civil and industrial construction company, BHI, which adopted the UCS SP-12 steel pile cutter to shift its operations to a fully controlled, excavator-based model.

Vice president at BHI, Mike Duncan, said, "Steel pile cutting should not slow your project down. That is why we bring the UCS SP-12 mobile cutter to the jobsite. It is fast, precise and operated safely from inside the cab. No safety trade-offs, with time and money saved."

## Looking ahead

The North American market is a major focus for UCS, and the company is committed to a culture of continuous improvement. While its machines are not yet in use in Canada, the company is having positive discussions with Canadian contractors and, whenever they are ready to move forward, the UCS team is fully prepared to support them through its sales office in Boston and its headquarters in Finland.

Thanks to the efforts of its team, UCS product development is fast, efficient and customer-driven, and the company takes pride in delivering tailored equipment with flexible delivery schedules and continuous innovation.

"We have no intention of stopping with just our current pile cutting machines," said Tamminen. "In fact, we are already exploring the development of a railway beam cutting machine, driven by growing interest in that sector. By combining advanced engineering expertise with real-world project insight, we create intelligent solutions that solve complex challenges with precision, control and purpose. Our goal is to empower contractors with tools that are not only safer and faster – but also adaptable to the evolving demands of modern construction and demolition."

PHOTOS: UNIVERSAL CUTTING SYSTEMS OY



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# SOILMEC DEVELOPS BLUE TECH PLUS

*This new technology offers a smarter, cleaner and more cost-efficient approach to energy management in drilling rigs*

By Lisa Kopochinski

Over the past decade, contractors have faced a combination of rising fuel costs, stricter environmental regulations and increasingly complex jobsite conditions. Traditional hydraulic systems simply weren't efficient enough anymore – they wasted energy through long oil circuits, unnecessary flow circulation and complex component layouts.

At the same time, the industry was asking for machines that could deliver high productivity with fewer interruptions and lower operating costs.

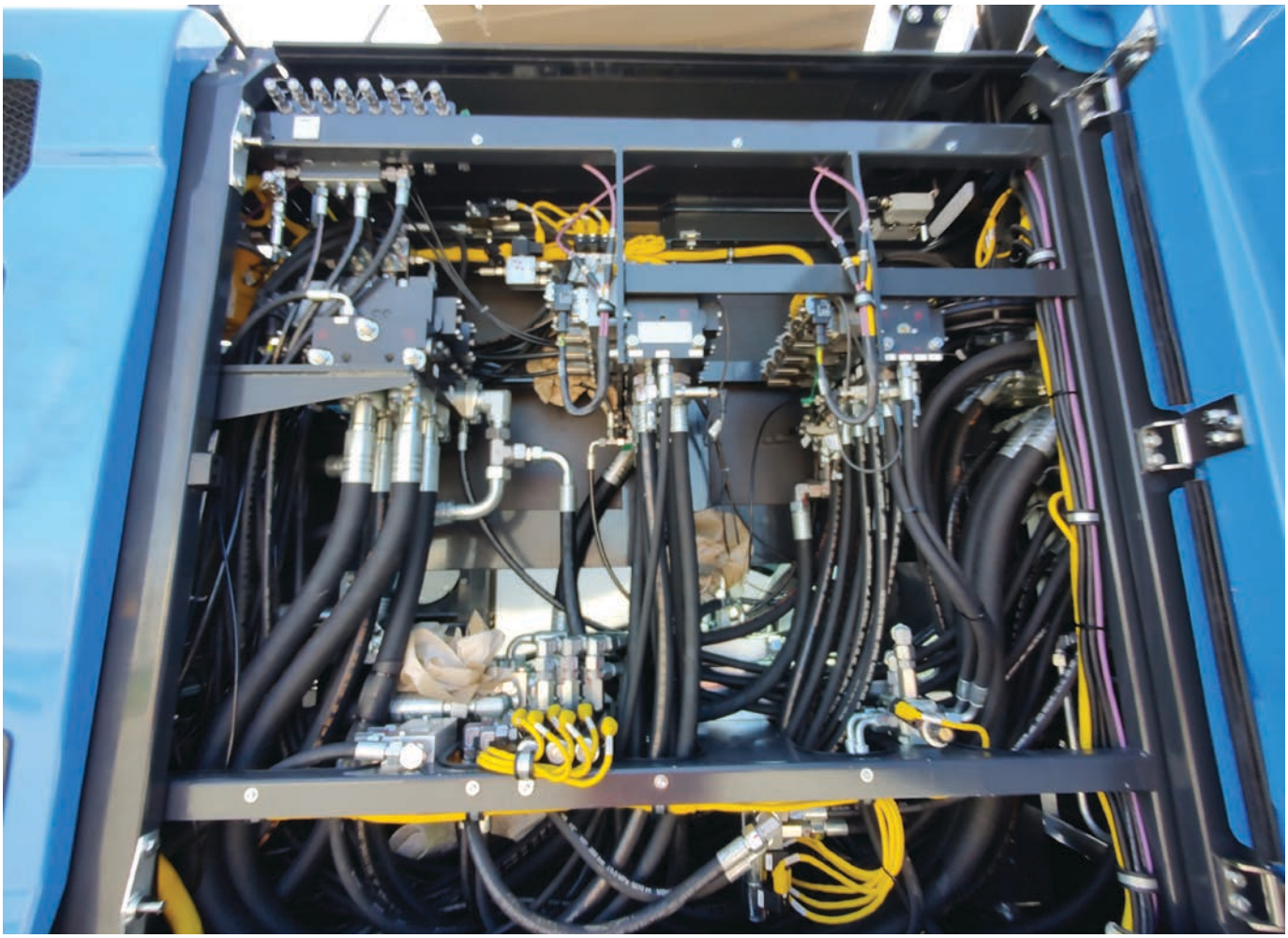
Soilmec developed Blue Tech Plus to address these pressures. It offers a smarter, cleaner and more cost-efficient approach to energy management in drilling rigs.

This international company is a leader in design, manufacture and distribution of equipment for the ground engineering industry. Established in 1969, the company has 400 employees and seven locations in France, England, North America, Colombia, Brazil, Australia and Japan.

Since its inception, Soilmec has developed safe, innovative and cutting-edge technologies that have provided the construction




Blue Tech Plus series is engineered from the outset to allow quick and intuitive conversion between different drilling technologies, both mechanically and hydraulically



The SR-45 Blue Tech Plus reduces fuel consumption by up to 30 per cent and cuts maintenance costs significantly

industry with a full spectrum of equipment solutions.

The Blue Tech Plus hydraulic architecture improves energy efficiency and reduces fuel consumption compared with previous SR-series rigs, Soilmec North America business manager Enzo Masciandaro says the improvement comes from completely rethinking how hydraulic power is managed.

"Instead of multiple pumps – a traditional setup that increases mechanical friction, builds up heat and ultimately accelerates oil degradation in the system, generating excess flow – Blue Tech Plus uses an innovative high-tech pump that sends oil only where it's actually needed. This eliminates waste, reduces heat and dramatically improves efficiency."

The architecture is also simpler, he says, with shorter hydraulic lines and fewer components, which lowers energy losses. Combined with DMS-controlled torque-to-speed management and smart features like automatic low idle, the rigs achieve fuel savings of around 31 per cent in Kelly bar and up to 38 per cent in continuous flight auger work.

"That's a big shift for contractors who monitor every litre of diesel on site," Masciandaro said.

## Integrated system

Blue Tech Plus is described as an integrated system rather than a single component upgrade. This means that it is much more than a single upgrade. It is built around four interconnected areas that work together: a simplified hydraulic system, an advanced 2.0 electrical architecture, the full DMS 4.0 digital ecosystem and a redesigned operator interface featuring the Blue Tech Plus cab and electro-proportional joysticks.

"Each element strengthens the others," Masciandaro said. "The hydraulics minimize energy waste, the electrics improve reliability, DMS fine-tunes performance in real time and the operator interface enables precise and efficient control. Working in synergy, these components create a unified system that optimizes the entire drilling cycle rather than enhancing just one part."

The SR-45 Blue Tech Plus also reduces fuel consumption by up to 30 per cent and cuts maintenance costs significantly. As for the engineering changes that make these improvements possible, Masciandaro says several smart innovations contribute to this.

"The first – and the one that customers feel the most – is how hydraulic power is now managed. Instead of generating excess flow and then restricting it at the distributor, as traditional systems do, Blue Tech Plus controls power directly at the pump. This means the rig produces only the hydraulic energy required, avoiding the extra heat,

friction and oil stress typical of older multi-pump setups," he said.

For operators, this translates into lower fuel consumption, reduced emissions, more stable performance and longer oil life. This upstream efficiency is further supported by the new pressurized hydraulic tank, which holds only 79 gallons (about 300 litres), reducing the total cost of ownership.

In addition, the new RD-160 rotary head automatically adjusts torque and speed based on soil resistance, thereby improving penetration without increasing fuel use. And finally, the new electrical architecture – with a multi-PLC layout and simplified diagnostics – helps reduce downtime.

"When you combine all these improvements, you get a rig that is far more efficient, cheaper to maintain and easier to service," he said.

"DMS is one of the most valuable tools contractors have today. On the rig, DMS On Board gives operators real-time visibility into drilling parameters, alarms, setup configurations and performance. For engineers and supervisors, DMS PC provides detailed reporting, data export and analysis."

At the fleet level, DMS Manager – the cloud platform – offers complete visibility across multiple rigs: utilization rates, idle time, alarms and energy performance trends. This helps standardize productivity between crews, anticipate maintenance needs and

> "Blue Tech Plus uses an innovative high-tech pump that sends oil only where it's actually needed. This eliminates waste, reduces heat and **dramatically improves efficiency.**"
>
> – Enzo Masciandaro, Soilmec North America


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This international company is a leader in design, manufacture, and distribution of equipment for the ground engineering industry

provide documentation for QA/QC or client reporting.

"In other words, DMS turns raw operating data into actionable insights," he said.

## Lower emissions and fuel use

Blue Tech Plus rigs are designed to maintain high productivity while lowering emissions and fuel use. This means that sustainability and environmental performance in today's foundation equipment market is essential.

"Contractors are under pressure to reduce fuel consumption, comply with stricter emission rules and operate quietly in dense urban areas," Masciandaro said. "Blue Tech Plus directly addresses these requirements with substantial fuel savings, lower $CO_2$ emissions, [Hydrotreated Vegetable Oil] diesel compatibility, biodegradable oil options and reduced noise levels."

In addition, Masciandaro says that Blue Tech Plus gives operators the ability to choose between different operating modes – similar to the "Eco" and "Sport" profiles found in modern automotive systems.

"This allows the rig to prioritize either maximum efficiency or higher responsiveness, depending on the jobsite requirements. When allowed, the machine reduces fuel use and when necessary, the machine reduces noise, giving contractors extra savings and smoother operation in sensitive areas."

He adds that sustainability today is not just a regulatory obligation – it's a competitive advantage.

"Clients increasingly prefer equipment that minimizes environmental impact, and contractors benefit from lower ownership costs and fewer jobsite restrictions."

## Global use

The SR-65 Blue Tech was one of the first machines to introduce the Blue Tech concept, marking Soilmec's entry into a new generation of energy-saving drilling architecture. It was developed as an efficient, power-optimized rig designed to reduce hydraulic losses and make better use of available energy. This early innovation became the foundation on which the later Blue Tech Plus system was built.

"Thanks to its simplified hydraulic layout, characterized by optimized oil paths and reduced complexity, the SR-65 delivers more consistent torque, particularly in demanding soil conditions," Masciandaro said.

At the same time, the DMS system automatically manages torque and speed, allowing operators



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to maintain stable penetration rates even in challenging geology. The overall effect is smoother drilling, greater operational continuity and higher productivity throughout the working day.

## Deadlines and schedules

It is no surprise that contractors often face tight schedules and complex logistics. As for how features like single-load transport and rapid mobilization benefit foundation contractors in real projects, he stresses that contractors working under tight deadlines gain a clear advantage with the SR-35, SR-45 and SR-65.

"Their unique design allows each rig to travel as a single load with the Kelly bar already installed, eliminating extra setup steps and cutting mobilization time dramatically. Safe loading and unloading via radio-remote control reduces manpower, minimizes risk and speeds up every operation. For those who still need to reduce overall weight, a dedicated kit is available for the SR-65 to achieve a single transport configuration under 50 tonnes (approximately 110,000 pounds)," Masciandaro said.

In addition, thanks to the rigs' quick rigup configuration, he adds that they go from the truck to first pile in about 30 minutes, giving contractors more productive hours from the very first day on site.

"For the customer, the benefits are immediate: lower operating costs, fewer delays, faster project starts and higher daily output – all essential advantages when competing in time-sensitive, logistics-heavy foundation projects," he said.

Soilmec also emphasizes versatility across drilling methods such as large diameter pile,, CFA and segmental casing. As for how Blue Tech supports multi-technology drilling and adaptability on site, he explains that the SR-35, SR-45 and SR-65 are engineered from the outset to allow quick and intuitive conversion between different drilling technologies, both mechanically and hydraulically.

"Many components are preconfigured to work across multiple setups without needing to be replaced, while the parts that do require changes are designed for fast, easy connect and disconnect operations, minimizing downtime and simplifying jobsite activities," Masciandaro said.

He adds that a clear demonstration of this efficiency is the Kelly to CFA conversion on the SR-45. During an official demonstration at its test field, in front of an international delegation, the entire process was timed at under four hours, proving the real speed of the system.

"This conversion is achieved through simple mechanical replacement and configuration changes within the DMS – with no need to modify or intervene on the hydraulic system. For the customer, the advantage is immediate: a single machine capable of handling different drilling applications, offering greater flexibility on site, reduced downtime and the ability to manage complex drilling programs far more efficiently."

PHOTOS: SOILMEC




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# Seeing What's Underground

## How PDI's SHAPE tool is changing drilled shaft inspection

By Ligia Braidotti

For decades, the construction industry has relied on indirect methods to assess the quality of drilled shafts. Drilling logs, concrete volumes and integrity testing have long been the standard toolkit. But a growing body of evidence suggests these methods leave a troubling blind spot as they often cannot tell engineers what the shaft actually looks like underground.

Pile Dynamics, Inc. (PDI) developed the Shaft Area Profile Evaluator (SHAPE) to address exactly that gap. The tool provides a continuous, 3D picture of a drilled shaft's as-built geometry and verticality, giving engineers and contractors direct measurement data where indirect inference used to be the only option.

### The problem beneath the surface

Drilled shaft construction is inherently complex. Soil conditions change with depth. Drilling tools can deflect. Unstabilized borehole walls can collapse or deform. The result is that the shaft as designed and the shaft as built are not always the same thing.

"The most common irregularities in drilled shafts are necking, bulging, inclusions and deviations from verticality, often caused by soil instability and changing soil conditions," said Wayne Dalton, P.E., director of product development and engineering at PDI. "Out of verticality typically occurs due to variable ground conditions, tool deflection or improper alignment, introducing uncertainty in capacity and durability by affecting load alignment."

These are not minor cosmetic concerns. A shaft that deviates from vertical, even subtly, can introduce eccentric loading that the original design never accounted for. Necking reduces cross-sectional area and therefore load capacity. Inclusions compromise structural integrity. Yet for most of the industry's history, these issues have gone largely undetected until a problem emerges.

"Irregularities often go undetected because conventional QA/QC methods rely on indirect data such as drilling logs, concrete volumes or integrity testing," Dalton said. "These approaches typically do not capture deviations from verticality or full geometry, leaving alignment issues unquantified."




SHAPE provides a visual representation of a drilled foundation excavation prior to concrete pour in wet or dry conditions

The consequences, he says, are frequently underestimated by contractors in the field.

"Poor shaft geometry or misalignment can lead to reduced capacity, unintended eccentric loading and increased stresses that are not accounted for in design. These issues often result in unexpected performance problems, costly remediation or delays."

### How SHAPE works

SHAPE is deployed into the drilled shaft after drilling is complete and before concrete is placed, a critical window when the geometry of the borehole can still be measured and any issues addressed.

The tool uses a combination of measurement technologies to build a complete picture of the shaft.

"SHAPE is deployed in the shaft and uses differential pressure to determine depth, ultrasonic transducers to measure radius along the shaft and ultrasonics to

continuously measure the wave speed to ensure accuracy along the entire length of the shaft," Dalton said. "These measurements provide a full 3D representation of the as-built shaft, enabling engineers to validate geometry, alignment and capacity assumptions against actual conditions."

A key differentiator from conventional sonic caliper tools is the continuous nature of SHAPE's measurements. Traditional tools require the operator to stop at discrete elevations to take readings, a process that is time-consuming and leaves data gaps between measurement points. SHAPE collects data continuously during deployment, eliminating those gaps.

"SHAPE provides continuous measurements along the full shaft during deployment, eliminating the need to stop at discrete elevations and enabling a faster, more accurate 3D representation of both geometry and verticality," Dalton said. "This approach, combined with real-time ultrasonic wave speed compensation for fluid density changes, improves accuracy while reducing time on site, helping contractors save both time and cost."

The real-time wave speed compensation is particularly important on active jobsites, where drilling fluid properties can vary with depth and temperature. By continuously calibrating for these changes, SHAPE maintains accuracy even in variable borehole conditions.

## Reading the results

The output from a SHAPE inspection is designed to be actionable, not just informational. The system generates a comprehensive report showing shaft profiles from all cardinal directions, along with critical dimensions, verticality data and bearing information.

"This enables engineers to evaluate as-built geometry, directional alignment and impacts on load transfer and performance," Dalton said.

The data can also be integrated with project records and design models, supporting a more comprehensive digital construction workflow.

"SHAPE fits into a digital construction workflow by providing high-quality, as-built foundation data that can be integrated with project records and design models," he added. "This enables a more data-driven approach where engineers and contractors can validate construction in real time and maintain a traceable record of foundation performance."

## Integration into the field workflow

One of the practical challenges with any new inspection technology is adoption, specifically, how easily it fits into an existing construction operation without adding cost, complexity or schedule risk.

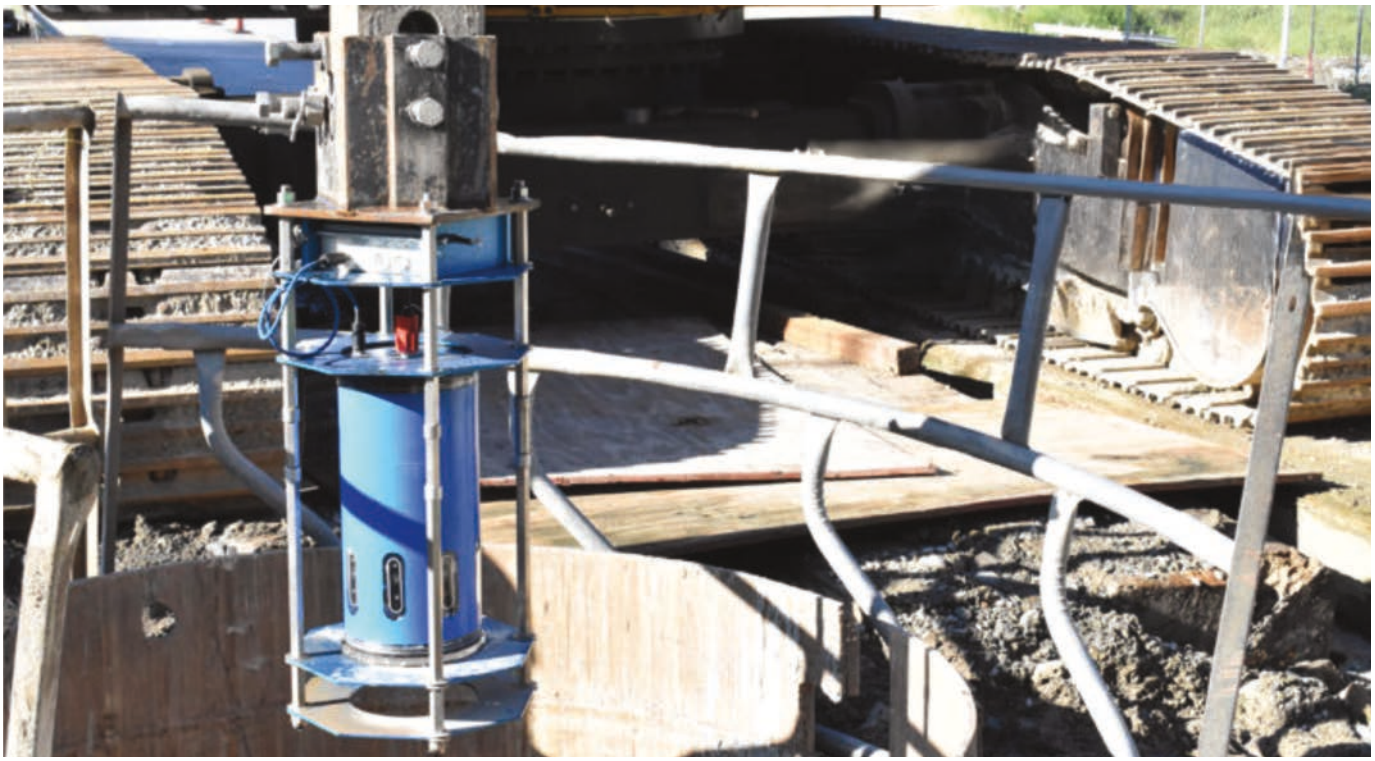
PDI designed SHAPE with this in mind. The tool can be attached to the drill string or deployed independently using a battery-powered winch, giving field crews flexibility depending on site conditions and equipment availability.

"SHAPE is designed to integrate seamlessly into existing workflows, requiring minimal additional setup and fitting naturally between drilling and concrete placement," Dalton said. "Its flexible deployment allows it to be quickly attached to the drill string or deployed with a battery-powered winch, providing valuable data without disrupting production or impacting schedule."

The learning curve for field personnel is also intentionally low. Basic training is sufficient for deployment



SHAPE offers a quick connection to a Kelly bar or can be used with a top mount winch system



SHAPE characterizes the 3D shape of drilled shafts, bored piles and other excavated deep foundation elements

and data collection, and the processed outputs are structured so engineers can efficiently evaluate geometry and alignment without extensive post-processing.

## A case for routine use

Perhaps the most important message PDI wants to convey is about when SHAPE should be used – not


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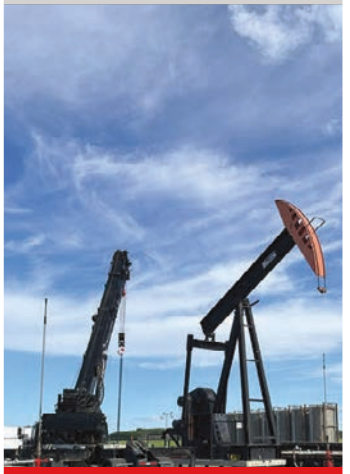
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> **"Relying on outdated or incomplete inspection methods means accepting uncertainty in what was actually built, particularly in terms of geometry and alignment. That uncertainty can lead to hidden defects, reduced performance and increased risk of costly remediation or long-term issues."**
>
> **– Wayne Dalton, Pile Dynamics, Inc.**

just on test shafts or when problems are suspected, but as a standard part of every drilled shaft installation.

"Contractors should use SHAPE immediately after drilling and before concrete placement, and ideally as a standard practice throughout all stages of drilled shaft installation, not just on test shafts," Dalton said. "This approach enables early and consistent identification of issues, helping reduce risk, minimize rework and improve overall project outcomes."

Dalton says that the industry's tolerance for uncertainty in foundation quality carries real risk – risk that is often invisible until it becomes expensive.

"Relying on outdated or incomplete inspection methods means accepting uncertainty in what was actually built, particularly in terms of geometry and alignment," he said. "That uncertainty can lead to hidden defects, reduced performance and increased risk of costly remediation or long-term issues.

"Quality control should focus on verifying the as-built condition, including both geometry and verticality, rather than relying solely on indirect indicators. Direct measurement is critical to reducing uncertainty and validating design assumptions."

PHOTOS: PILE DYNAMICS, INC.

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# Utility Strikes Aren't an Awareness Problem. They Are an Execution Problem.

*Utility strikes are still one of construction's most preventable hazards – here's how to close the gap between knowing what to do and actually doing it*

By Conexpo-Con/Agg




L A HAZELET/SHUTTERSTOCK

Every excavation project starts the same way: a crew, a plan and a patch of ground that looks like any other. What's harder to see, and far more dangerous, is what lies beneath.

Utility strikes remain one of the most persistent jobsite risks. Across the U.S., hundreds of thousands of utility damages are reported each year, many of them avoidable, according to the Common Ground Alliance (CGA).

That's what made April's National Safe Digging Month more than a reminder. It's a reality check.

"The time for incremental change has past and the choice is clear: invest in transformation or accept that utility damages will follow pace with construction activity," says CGA president and CEO Sarah Magruder Lyte.

Recent data shows that as construction activity increases, so do utility damages. The issue isn't awareness. It's execution, said CGA president.

So why are damages still happening? In many cases, it comes down to inconsistent execution of the basics before, during and after excavation.

Here's what you need to know to be prepared before digging.

## Start with culture, not compliance

Avoiding utility strikes isn't just a process – it's a mindset that must be reinforced from the top down.

On jobsites where damage prevention is treated as a checklist item, crews are more likely to skip steps or rely on assumptions. But when leadership consistently reinforces that no ticket means no digging, behaviour shifts.

In practice, that shows up in small but important ways:

- Pre-task conversations that include underground risks
- Supervisors who pause work when markings are unclear
- Teams that understand the consequences of getting it wrong

## Plan for what you can't see

The most effective damage prevention strategies start before a shovel ever hits the ground.

CGA's Best Practices Guide lays out more than 160 industry-approved practices that walk through the entire process from design and planning to excavation. Many contractors already reference it, but the difference comes in how deeply it's integrated into everyday workflows.

A single missed step can delay projects and put crews at risk. That's why contractors must treat underground risk the same way they would any other major project risk.

Best practices include:

- Identifying conflicts early
- Co-ordinating with utility owners ahead of time

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- Clearly defining responsibilities before work begins

## Make training stick

Training is often treated as a one-time requirement, but damage prevention depends on repetition and reinforcement.

Operators looking to learn the critical aspects of safe digging in excavators can use CGA's free online damage prevention educational modules.

Leadership can watch the Next Practices Leaders in Mapping video series for insights from forward-thinking executives who have successfully made facility maps the centre of their damage prevention program.

The contractors seeing the best results are reinforcing training in the field through toolbox talks, shared lessons learned and consistent expectations across every crew.

## Learn from every incident

Even with strong processes in place, incidents and near misses still happen. What separates leading contractors is what they do next.

Through CGA's Damage Information Reporting Tool, companies can submit data on damages and near misses and compare trends across the industry. The value isn't just in reporting; it's in identifying patterns and adjusting before the next project begins.

When teams take the time to investigate what went wrong and share those insights across crews, they turn isolated mistakes into organization-wide improvements.

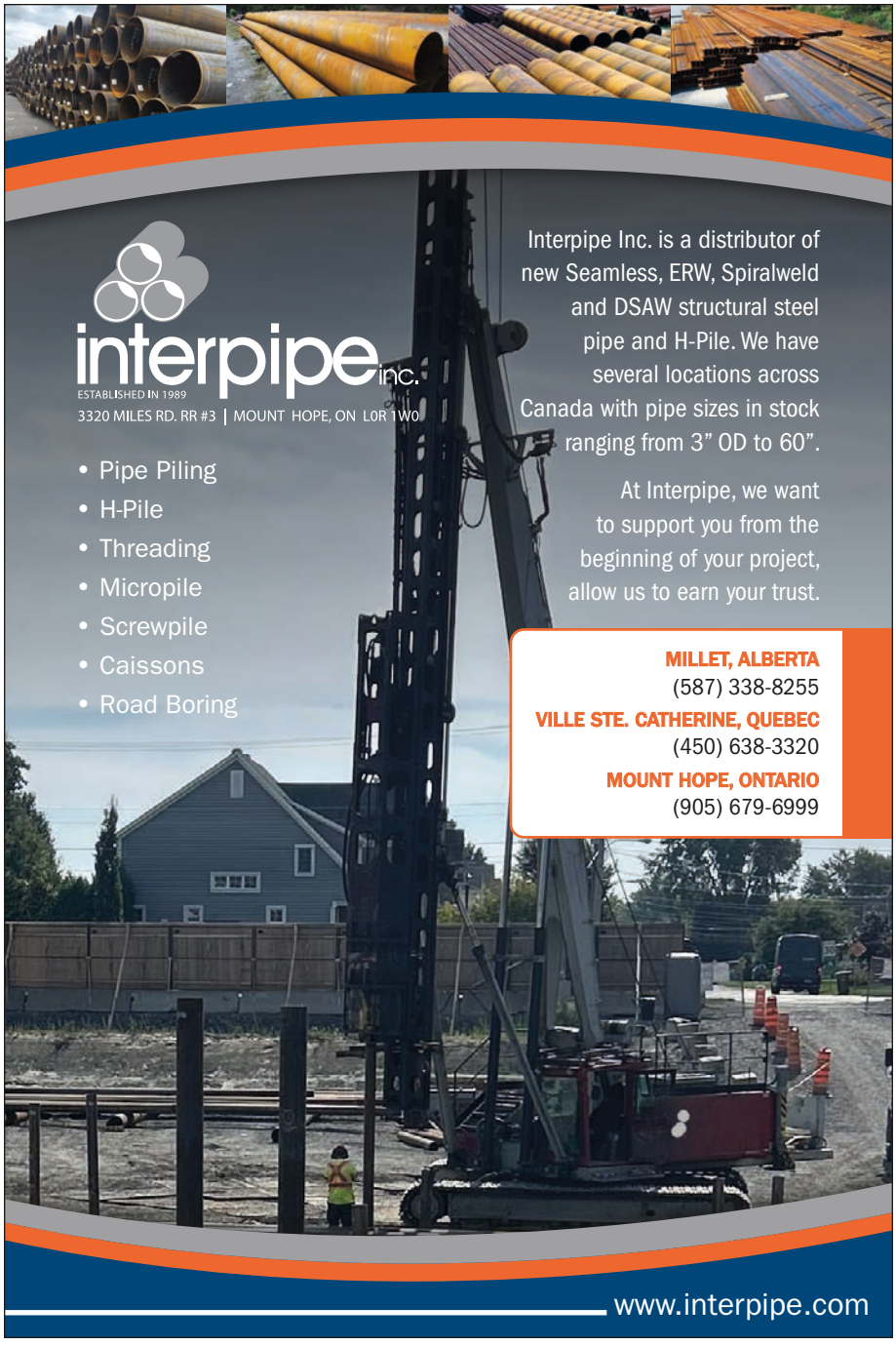
## Turning awareness into action

Safe Digging Month put a spotlight on a problem the industry already understands. The challenge now is execution.

For contractors, the opportunity isn't to reinvent the process. It's to close the gap between what's known and what's done on every jobsite.

*This article was originally published on conexpoconagg.com and is reprinted here with permission.*

**A single missed step can delay projects and put crews at risk. That's why contractors must treat underground risk the same way they would any other major project risk.**




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# Targeted Ground

## As deep foundation projects grow in scale and complexity, so does their exposure to cybercrime

By Scott Birmingham, C.E.T., C.I.M.

It shouldn't come as a surprise that the entire construction sector lags behind other industries when it comes to cybersecurity, with 80 per cent of construction executives reporting one or more incidents in the past year.

Couple this with the fact that industrial control systems such as PLCs and SCADA systems are more difficult to protect from cyberattack than standard IT systems, and it is the perfect playbook for blackmail and extortion of asphalt and aggregate producers.

It also shouldn't come as a surprise that cybercriminals are already targeting construction. And while these companies don't have massive databases of lucrative personal data, like health care, legal or accounting firms, criminals know there's a far more valuable prize to chase.

Because all companies have what criminals really want: money.

They know that their payday is in the substantial dollar amounts involved in contracts, projects and construction cash flow. Whether it's piling for major infrastructure, shoring for urban excavations, or deep foundation work on residential and commercial developments, the money involved makes for a lucrative target.

Conversations about cybersecurity tend towards the trifecta of fear, uncertainty and doubt (FUD). When we look beyond FUD, cybercrime has real-world impact.

Based on a report filed with the Office of the Maine Attorney General, in August 2022, an Arizona construction company detected suspicious activity in their computer network. Their investigation determined that personal information of 7,884 people was accessed. As a result, the company posted a notice of breach and sent data breach letters to affected individuals.




DIGINEER STATION/SHUTTERSTOCK

Little else was publicly disclosed, so details about exactly what happened are not available. However, we do know that the company provided 24 months of credit monitoring and identity theft protection, deployed improved cybersecurity measures and reviewed their security policies.

The total cost to them is unknown, but we can estimate the cost for 24 months credit monitoring and identity theft protection for 7,884 people:

| | |
|---|---|
| Credit monitoring & ID theft protection: | ~$20/month/person |
| Duration: | 24 months |
| # of people: | 7,884 |
| Total cost: | $3,784,320 |

This amount doesn't account for the investigation, remediation and security improvements mentioned in the Maine disclosure, however, it would probably be safe to say the total cost would be at least $3.8 million.

All we can hope for is that the company's cyber insurance policy covered at least a portion of that amount.

## How a construction company almost lost $1 million

In one lesser-known attack, another construction company lost $1 million in cash flow. And that was off peak season – if it had occurred during peak construction season, it would have been between $10 million and $15 million.

Unlike the first example, we know exactly what happened.

An accounts receivable employee looked through her junk folder. She noticed an email from her boss requesting a spreadsheet listing customers with outstanding balances and customer contact information for payment approvals.

She salvaged the email from her junk folder and did what was asked: she exported the information from the accounting system and replied to her boss.

When she asked her boss if he had everything he needed, they both realized something was wrong: she had sent the list to a cybercriminal who had impersonated her boss.

The subsequent investigation revealed the following:

- The email came from a free Gmail account, not a company email.
- The spam filter worked correctly and put the email into the junk folder.
- The email system correctly identified the email as originating outside the company by adding a warning to the message: "Caution! Email is from an external source."

So, the determined cause of attack? Human error. But it wasn't a simple oversight like accidently clicking on a link.

Despite being enrolled in a security awareness training program to teach people to identify fraudulent emails, the employee hadn't completed the training or testing.

To make matters worse, even though a security awareness training was in place, the company didn't have a policy in place requiring employees to participate.

CONTINUED ON PAGE 63



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**With cybercrime on the rise, the entire construction sector must evolve to meet the current threat and adapt to future, more sophisticated, threats.**

Based on these findings, the company concluded that the technical controls (spam filter and external banner) worked properly. However, the administrative controls didn't work as expected, and security awareness training was ineffective.

With no policy for security awareness training, the company had little legal recourse to discipline the employee (the company is not in an "at will" jurisdiction). Also, despite complying with cyber insurance requirements by having security awareness training, the lack of an enforceable policy and the employee's poor participation record meant that any claim for losses would most likely be denied.

The company understood their plight:

- The criminal(s) would likely contact customers to redirect payments.
- The stolen information might also be used for blackmail: "Pay us to stay quiet or we'll ruin your company's reputation by showing the world how easy it was to scam you."

Sure enough, one week after the mishap, customers received legitimate-looking payment change notices supposedly from the company. The criminal(s) had purchased a domain name near identical to the company, making distinguishing between legitimate and fraudulent email difficult.

Thankfully, none of the customers fell for the scam because they had been warned about what happened and what to expect. The company reported the fraudulent domain, which led to its removal and they implemented a new service to monitor for newly registered domains similar to theirs.

## What about jobsite protection?

Neither of the previous examples mention production equipment; so let's revisit the first example. We don't know if production was affected at their jobsite. However, if one of their SCADA computers was hacked, criminals could have easily wreaked havoc on production through an outright shutdown, formula manipulation, inventory manipulation or some other way – all with the intent of extorting money to release control of the plant back to the owner.

For even a small plant, a cyber-forced shutdown would cost over $150,000 per day in revenue, not to mention remediation costs, contract penalties or ransom payments.

## Top 5 security recommendations

No two businesses have the same risk profile or resources to manage it. But regardless of a company's risk profile and resources, the following recommendations can be used to mitigate risk.

1. Conduct regular security risk assessments (at least annually).
2. Don't treat information security as a one-and-done project. As cybercrimes become more sophisticated, security must evolve as part of a company's continuous improvement strategy.
3. Create a security culture within your company through training, policies and procedures.
4. Think, "It's not a matter of if we'll experience a cyberattack, it's when," and create multiple layers of protection, including physical or logical isolation of vulnerable production equipment if you're a producer.
5. Create and rehearse an incident response plan (IRP). To draw on a sports analogy, teams practice plays so that they know how to execute on game day. Do the same with your IRP.

While construction companies may not seem like obvious targets, the reality is their involvement in large financial transactions makes them lucrative targets for fraud, extortion and other criminal activities.

Because of the common belief the industry is not as susceptible to cybercrime as other industries, firms allocate few resources to truly evaluate and protect against threats.

As seen from the two examples examples, the financial and non-financial risks are significant, potentially affecting everything from cash flow to reputation. Fortunately, an effective risk management strategy using proven controls will help.

With cybercrime on the rise, the entire construction sector must evolve to meet the current threat and adapt to future, more sophisticated, threats.

*Scott Birmingham leads a team of information security professionals serving clients in a wide spectrum of industries, including heavy civil construction.*




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# SILENT FOUNDATIONS

## How the built environment lost its memory



By Trevor Vick, CEO of UMIP Inc.

Picture the final day of a major construction project. Thousands of hours of engineering work, including system specifications, structural calculations and commissioning data, get bundled into a closeout package and transferred to the new owner. The owner deposits the files into a folder, a server or a cabinet. Two ownership cycles pass. The folder is gone. Not destroyed intentionally. Simply orphaned – scattered across the drives of firms no longer involved, locked inside obsolete software or residing only in the recollection of a facilities manager who left the organization years ago.

The structure endures. Its institutional memory does not.

### The gap predates the digital age

The construction sector has poured enormous resources into digital modernization over the past 20 years. Collaborative project platforms, cloud-hosted document repositories and real-time co-ordination tools have reshaped how structures are conceived and delivered. The volume and granularity of data produced on a contemporary project would have been unimaginable a generation ago.

Almost none of it survives beyond the project's conclusion.

The culprit is not inadequate software. It is an architectural flaw – the complete absence of a durable identity layer tethering digital records to the physical asset those records describe. Information about a building is categorized by project, by vendor platform or by the organization that commissioned it. When any of those containers disappears – project closes, platform sunsets, organization restructures – the records evaporate alongside them.

What the industry lacks is not smarter data management workflow. It lacks a permanent, asset-anchored identifier that survives every platform migration, project boundary and ownership transfer.

Fragmented asset documentation drives more than $750 billion in estimated annual life cycle inefficiencies in the U.S. alone, contributing to a projected $2 trillion global economic drag from the infrastructure identity gap across the built environment each year.

### Handover is where continuity breaks down

The project closeout package represents the richest cross-section of building knowledge that will ever exist in one

ANDYCH/SHUTTERSTOCK

place – every system's engineering rationale, component installation records, test results and regulatory compliance evidence. It is a complete portrait of the asset. From the moment it changes hands, that portrait begins to blur.

Ongoing maintenance logs accumulate in facility management platforms that tag equipment by asset number rather than by any reference traceable to the original design record. The thread connecting an installed component to its engineering specification is cut immediately.

Renovation scopes are captured in project files organized around a contractor's billing structure rather than the building's longitudinal history. Pre-existing conditions and post-construction changes exist in separate silos, unconnected to everything that preceded them.

Insurance claims are catalogued in underwriting systems that have no channel to the technical documentation that would give a loss event context. A claims adjuster reviewing a roof failure cannot readily access the original material specifications or the service history that might clarify how the failure occurred.

## What fragmentation costs the industry

The design and construction trades absorb costs from this disconnection that rarely get traced to their actual origin. When a renovation team cannot locate original structural drawings and is forced to fund new engineering analysis, that expense is a direct consequence of identity fragmentation. When a contractor's legal defence hinges on unearthing installation records from a decade-old project, the difficulty of that search stems from the same structural gap. When a carrier disputes a claim because ongoing maintenance compliance cannot be documented, the delay and financial exposure lead back to the same root cause.

This industry generates some of the most technically rigorous documentation produced in any professional discipline. That it routinely vanishes within 10 years of a project's conclusion is not a reflection of the industry's competence.

## PIID: a new foundation

Solving this problem requires intervention at the identity layer, not the application layer. Rather than patching together existing platforms through integrations, the emerging approach treats identity itself as foundational infrastructure: a permanent, globally unique identifier assigned to every physical asset at the moment of its creation and sustained across its complete operational life.

This concept – Persistent Infrastructure Identity (PIID) – is grounded in precedents that have operated reliably for generations. The automotive sector has assigned vehicle identification numbers since the 1950s, maintaining a continuous longitudinal record across manufacturers, dealers, insurers and owners. Aviation assigns registration codes that persist through operator changes and cross jurisdictions for the life of an aircraft. Capital markets use standardized securities identifiers to track instruments across institutions and ownership structures without interruption.

A persistent infrastructure identifier gives every physical asset a stable reference point that belongs to no platform, depends on no organization and survives every ownership transition. Engineering documents, construction records, maintenance logs, inspection reports and renovation filings all point to the same underlying identifier – forming an unbroken chain of custody that follows the structure itself rather than the succession of parties who have managed it.

## What it means for design and construction professionals

Sustained documentation continuity means that engineering records produced during design and construction remain attached to the asset throughout its lifetime rather than becoming effectively inaccessible at project close.

Defensible liability chains become possible when a persistent, append-only record documents what was designed, built, installed and inspected – and that record remains accessible decades after project completion. The ambiguity that makes construction litigation costly is a direct consequence of fragmentation, and persistent identity directly addresses it.

Long-term asset value increases when buildings carry continuous, verifiable documentation. Structures with transparent histories are more attractive to insurers, more financeable by lenders and more valuable to prospective buyers. As capital markets begin pricing the risk premium associated with undocumented assets, professionals who establish those records at project inception will have made a quantifiable contribution to life cycle value.

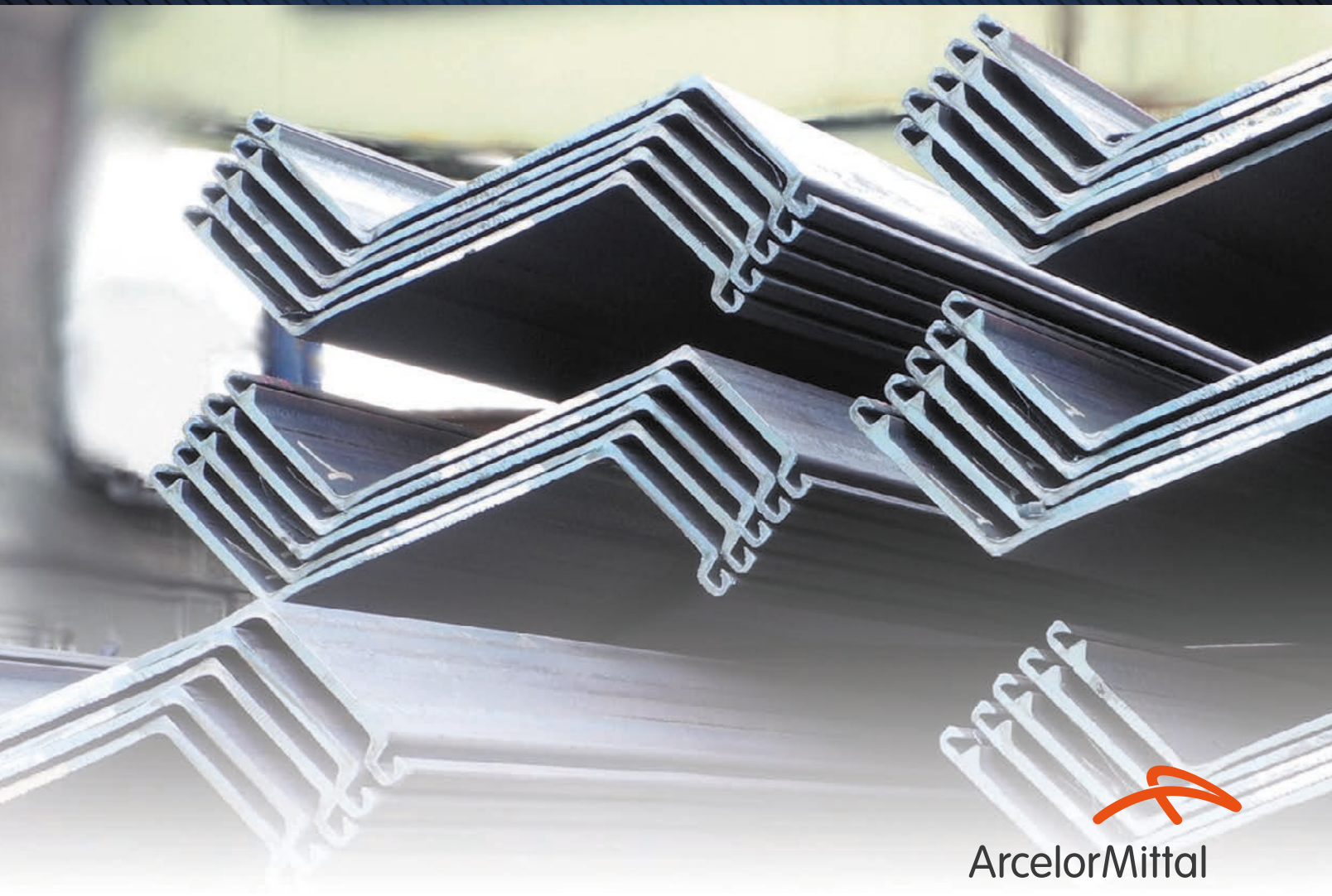
## The industry that creates every building's first record

Design and construction professionals occupy a singular position: they produce the most complete documentation a building will ever have. No subsequent owner, operator or insurer will ever know the structure as thoroughly as the team that built it. Establishing persistent identity at that origin moment – at creation, not retroactively – is the most logical and highest-leverage point to address a problem costing the global built environment trillions of dollars each year.

Buildings carry the weight of the people who rely on them. They should also carry their own history.

*Trevor Vick is the CEO of UMIP Inc., the founder and originator of PIID, operating the Global Infrastructure Identity Initiative and advancing the PIID framework as the foundational identity layer for the built environment.*

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# News Pile

## Redefining leadership for women in high-stakes industries

A new leadership experience designed for women operating in high-stakes, industrial environments will launch in Vancouver on May 13. The event will take place at The Vancouver Club.

Calibrated: A Leadership Experience for Women Who Build brings together senior women leaders from technical and industrial sectors – including infrastructure, building, energy, water, environment and resources – for a one-day immersive program focused not on simply inspiring leadership capacity but resourcing it.

Unlike traditional women's leadership conferences that emphasize motivation or visibility, Calibrated addresses a critical gap facing women in operationally intense environments: the lack of practical, physiological and systems-level tools to facilitate leadership under sustained pressure, without burnout.

"After years of attending women's events that lacked real solutions for leaders in male-dominated industries. I knew we needed a change," said Corinne Lynds, co-founder, Calibrated and chief content officer, SiteMedia. "Calibrated is designed for women who are ready to stop 'fitting in' and start leveraging their natural superpowers to lead high-functioning teams with confidence."

### *From endurance to expanded capacity*

At the core of Calibrated is a shift away from the sentiment of resilience, grit and grind, toward a deeper understanding of how leadership performance is shaped by physiology, nervous system regulation, hormonal health and embodied presence.

Rather than asking women to push through pressure, Calibrated equips participants with practical tools to expand their capacity, regulate stress in real time, and lead with greater clarity, authority and sustainability.

Participants will explore:

- Why high-performing leaders often encounter burnout as their impact scales – and how to interrupt the cycle
- How the nervous system, vagus nerve, gut-brain axis and hormonal shifts directly influence focus, decision-making and communication
- Executive presence as a physiological and relational skill, not a performative one
- How intuition and embodiment function as strategic assets in complex, high-risk environments

The Calibrated agenda blends expert-led sessions, facilitated integration and applied connection, all designed to ensure insights translate into achievable action.

Program highlights include:

- **Keynote:** The Expansion Shift: Leading Beyond the Capacity Ceiling with executive coach Shauna Moran, examining the leadership constriction cycle and how to lead at scale (without depletion)
- **Workshop:** Command the Room: Executive Presence & The Art of Connection with communications expert Lucas Mattiello, focused on authority, clarity and shifting patterns of minimization so women leaders can expand beyond them
- **Workshop:** The Biological Edge: Mastering Your Internal Dashboard with clinical nutritionist Emma Ford, bridging neuroscience, hormonal health and real-time regulation
- **Panel Discussion:** The Blueprint of Power: Leading with Intuition and Authenticity, featuring senior executives across industrial sectors
- **Closing Integration:** A facilitated session translating the day's insights into a structured 90-day leadership action plan

Throughout the day, participants will also have access to The Activation Lab – a series of curated, one-on-one consultations designed to support leadership presence, alignment and grounding into professional identity.

"We created Calibrated because women in high-pressure industries need more than just inspiration – they need a roadmap and real tools that will make tangible [results] in their life and leadership," said Shauna Moran, co-founder, Calibrated and founder, Shauna Moran Coaching. "Every element of the day is designed to offer leaders real tools to expand their capacity, master presence and lead with confidence."

Calibrated is designed to foster meaningful connection, not surface-level networking. A facilitated networking lunch will group participants by shared goals and leadership contexts, ensuring conversations are relevant, candid and strategically valuable.

It is open to women in senior leadership, executive and technical roles across industrial and infrastructure sectors. Attendance is intentionally limited to preserve depth of experience.

For registration updates and event details, visit calibratedevent.com.

BACKGROUND: BLUEMOON1981/123RF

## Pomerleau announces it has been named as the general contractor for the Stevenson Memorial Hospital Phase I Redevelopment project

Pomerleau has finalized contract negotiations with Infrastructure Ontario and The Stevenson Memorial Hospital, and has been awarded the Stevenson Memorial Hospital Phase I Redevelopment Project in New Tecumseth, Ont.

This strategic and crucial redevelopment is a clear example of Pomerleau's commitment to modernizing health-care infrastructure in the Greater Toronto Area and the province's continued investment in the health and well-being of its communities.

"The expansion of the Stevenson Memorial Hospital is an important component to addressing the health-care needs of Ontarians," said Sean Smithson, Pomerleau's regional vice president. "We are proud to partner with Infrastructure Ontario and the team at the Stevenson Memorial Hospital to deliver a safe, modern facility that will help the community access the critical care they need when they need it."

The project involves the construction of a new L-shaped expansion that will be adjacent to the existing hospital. At approximately 147,100 square feet, this expansion will house clinical specialties such as the emergency department, laboratory, surgical suite and birthing unit. This project also includes significant site regrading and implementing new traffic flow and utility connections, while the existing hospital maintains current 24/7 operations.

Pomerleau Inc. mobilized on site in March, with construction expected to begin shortly thereafter. Construction is expected to be completed in late 2028.

## Marine Equipment Solutions announces the MES 50: hydraulic innovation for heavy-duty winching

Marine Equipment Solutions recently launched the MES 50, developed in partnership with Timberland Equipment Limited. This collaboration combines the expertise of Rasmussen Equipment, a MES Company established in 1936. The companies combined bring together over 130 years of industry experience.

The MES 50 seamlessly combines the strength and durability of traditional friction units with cutting-edge hydraulic drive technology and precision controls. This innovative system significantly enhances performance, delivering improved efficiency and power for demanding marine and construction applications. By blending the strengths of traditional winching with modern technology, the MES 50 is well-equipped to meet the evolving needs of the marine construction industry.

Key features of the MES 50 winches:

- **Enhanced performance:** Designed to improve efficiency and power, the MES 50 excels in demanding tasks across various environments, allowing operators to select between high and low speeds for optimal performance.
- **Hydraulic power system:** The winches can be powered by either diesel or electric hydraulic power units (HPUs). By utilizing Tier 4 engines and electric HPUs the MES 50 contributes to a more environmentally friendly operation.
- **Enhanced control and precision:** Equipped with hydraulic controls, the MES 50 allows for precise operation, improving handling and finesse in lifting and pulling applications. The MES 50 provides smoother control and greater efficiency compared to traditional friction winches.
- **Durability and longevity:** Constructed with all-steel welded components, the MES 50 is built to withstand tough conditions, ensuring consistent performance in challenging marine environments.
- **Integrated safety features:** Equipped with multiple safety mechanisms, such as spring-applied brakes and mechanical locking dogs, the winch enhances operational safety for both operators and equipment.
- **User-friendly operation:** The intuitive joystick control system simplifies operation, significantly reducing the learning curve for new operators.
- **Modular design:** The winch offers modular options including subframes with integrated fleeting sheaves, allowing for flexible configurations tailored to specific projects.
- **Dust and water protection:** IP56-rated electric motors provide reliable protection against dust and water, making the MES 50 suitable for harsh environments.
- **Standardized fleet and components:** The MES 50 is designed with uniform parts across the fleet, simplifying maintenance and reducing downtime while providing operators with consistent training resources for efficient operation and service.

## Canadian Construction Association announces 2026–2027 board of directors, welcomes new chair

The Canadian Construction Association (CCA) announced changes to its board of directors following its 2026 Annual General Meeting on March 9.

CCA welcomed Trevor Doucette who has been appointed chair of the board of directors for the 2026–2027 term. CCA would like to thank its outgoing chair, Francis Roy, for his leadership and dedication to Canada's construction industry.

Looking forward, Doucette shared his vision for the association over the next term.

"We must remain steadfast in our mission, embrace innovation and strengthen our connections with our stakeholders, our clients and our industry," said Doucette. "Together, we can build on our success, learn from our challenges and chart a course that will leave a lasting impact as we navigate the ever-changing landscape of construction."

Joining Doucette on CCA's 2026–2027 Board of Directors are the following:

- Cory Richter, Quorex Construction Services (Sask.), vice-chair
- Sara Becker, Ideal Construction Services Ltd. (Alta.)
- Bill Black, Calgary Construction Association (Alta.)
- Derek Brown, The Cahill Group of Companies (N.L.)
- Steve Drummond, Capilano Highway Services Company (B.C.)
- Frank Faieta, Trisura Guarantee (Ont.)
- Peter Grose, Westland Construction Ltd. (Man.)
- Marty Harris, Aecon (Ont.)
- Cathy Kent, Black & McDonald Limited (Ont.)
- Tina Larson, Amrize (Man.)
- Daniel Lessard, Pomerleau (Que.)
- Allan MacIntosh, Marco Group Limited (N.S.)
- Anthony Minniti, CGI Constructors (B.C.)
- Sam Sanderson, Construction Association of Prince Edward Island (P.E.I.)
- Amber Sandhu, Liberty Mutual Canada (Ont.)
- Brad Scott, Basin Contracting Limited (N.S.)
- Bruce Thomas, Ron Eastern Construction Ltd. (Ont.)
- Ali Torabi, Ed Brunet & Associates Canada Inc. (Que.)
- Rick Wagner, Maxwell Floors (B.C.)

CCA thanks these leaders for their commitment to our industry and to support CCA's advocacy to support and strengthen our industry, from coast to coast to coast.

## Pinnacle Drilling Products and IDE give pride of place to NPC Pile Croppers at ConExpo-Con/Agg



PHOTO: NATIONAL PILE CROPPERS

National Pile Croppers (NPC) exhibited the enormous and highly productive Quadzilla and a selection of other hydraulic Quad pile croppers at ConExpo-Con/Agg in Las Vegas. The equipment was shown as part of the total solutions offering of NPC 's partners in North America, Pinnacle Drilling Products and IDE Drilling Equipment.

IDE displayed the NPC Quad series at the show which has proved to be highly popular with American and Canadian customers. IDE's NPC Quad Large 750 Cropper for one is designed to be used for the reduction of augured piles up to 30 inches (750 millimetres) in diameter, whilst at the Pinnacle Drilling Products booth, a true giant of pile cropping was exhibited – Quadzilla. These both use four powerful fully synchronized rams with specially designed blades, with the cropper being developed to hold the cut pile section safely for removal to a designated safe area.

The mighty Quadzilla, shown at the Pinnacle Drilling Products booth is a true pile cropping behemoth, designed and developed to deal with piles of between 36 and 48 inches (900 and 1,200 millimetres) in size. Weighing in at a mighty 8,100 pounds (3,775 kilograms), it is best used on an excavator of at least 31 tonnes in weight. Although big, Quadzilla is still easy to use, with operation being simplicity itself. As with its smaller siblings, the cropper is simply lowered to the ideal height, with the jaws then being closed until pile sections "pop" free. The broken pile section then can be easily removed for recycling to a dumper or a specified area.

NPC sales director Scott Fitchett said of the show in Las Vegas and the relationship with its partners in North America, "Pinnacle Drilling's and IDE's (along with NPC's other North American partners) vast local market knowledge, industry expertise, vision, ethos, values and drive make them the perfect choice for the NPC Group. This will enable us to provide customers in the U.S. and Canada with the benefits of our comprehensive range of pile croppers.

"We were truly amazed at the reception our pile croppers received at ConExpo-Con/Agg, with many North American contractors showing interest in this customer and application focused solution that is ideal for use in America and Canada. We would like to thank Pinnacle Drilling Products and IDE Drilling Equipment for hosting us and the NPC hydraulic pile croppers."

## Practical Guidance from DFI's Technical Committees

Three Deep Foundations Institute's (DFI) technical committees have released new publications, now available as complimentary downloads from the DFI Publication Store at dfi.org. Each report addresses a design or construction challenge and translates current research into clear, practical guidance for the field.

The Seismic and Lateral Loads Committee supported the research report titled "Design Guidelines for Characterizing the Residual Strength of p-y Curves for Rock" by Arash Khosravifar, Ph.D., P.E., of Portland State University. Funded through the DFI Committee Project Fund, the report provides a framework for modelling brittle and post-peak behaviour in rock-socketed drilled shafts under extreme loading.

"The industry relies on sophisticated computer models to analyze complex soil-structure interaction," said committee chair Jon Sinnreich, P.E., GRL Engineers. "Accurately capturing post-peak rock behaviour is essential for both safety and economy. Khosravifar's report demonstrates the way forward to model the behaviour of rock-socketed drilled shafts accurately. The Seismic and Lateral Loads Committee is proud to support this vital research."

From the Ground Improvement Committee comes "Polymer Grouting: An Alternative to Cementitious Materials" by Jie Huang, Ph.D., P.E., The University of Texas at San Antonio – also funded through the Committee Project Fund program.

"The DFI Ground Improvement Committee has sponsored several valuable research projects over the years," said committee chair Miriam Smith, Ph.D., P.E. "This research report provides application guidance for water-activated polymer as an alternative to cementitious grouts in soils with high fines content. The report is an excellent resource for practitioners looking for techniques to expand the groutable spectrum of soils for ground improvement applications."

The Subsurface Characterization for Deep Foundations Committee has issued a "Position Statement on Geotechnical Baseline Reports" (GBRs) to help owners and project teams better understand when and how GBRs add value.

"GBRs are a proven tool for identifying, communicating and managing geotechnical project risks, yet they remain underused in our industry," said committee chair Scott Walker, P.E., G.E., Langan. "This position statement outlines key considerations for GBR implementation and strongly endorses their use on geotechnical and geostructural projects."

## Liebherr delivers Ryan Mining Inc. its first HS 8300.2 dragline




PHOTO: LIEBHERR USA

From left to right: Justin Sobie, Star Ranch Enterprises, Patrick Ryan, Ryan Mining Inc., Marc Barnell, Ryan Mining Inc. and Wolfgang Herzog, Liebherr USA, Co.

Ryan Mining Inc. has taken delivery of its first Liebherr HS 8300.2 dragline. This acquisition not only marks the beginning of a strong partnership between Ryan Mining Inc. and Liebherr, but it notes an important milestone in Ryan Mining's continued investment in high-performance mining equipment.

The dragline will be deployed at Ryan's Star Quarries, operating with a 135-foot boom and a 12 cubic yards dragline bucket to support increasing mining requirements. Ryan Incorporated Mining is a heavy construction firm with extensive experience in site development and mining operations, and the addition of the Liebherr HS 8300.2 duty cycle crawler crane further strengthens the company's operational capabilities and long-term fleet strategy.

"We chose the Liebherr HS 8300.2 because of its exceptional reliability and productivity, which perfectly match the demands of our growing operations at Star Quarries. This machine represents a major step forward for our team and reinforces our commitment to delivering high-quality mining results efficiently," said Marc Barnell, vice president of Ryan Mining Inc.

The HS 8300.2 duty cycle crawler crane is purpose-built for heavy-duty applications. This powerful machine is designed for material handling and can be operated with dragline buckets or different grabs with enormous volume capacity. It also delivers outstanding power, efficiency and performance while prioritizing operator comfort, thus improving operator safety.

Advanced electronic control systems enable smooth, simultaneous movements and precise control, which are critical when handling large dragline buckets. To further increase performance, the machine can be equipped with the innovative hybrid drive Pactronic®. This increases the turnover performance significantly and reduces fuel consumption at the same time.

## DFI Educational Trust awards 10 scholarships

DFI Educational Trust, the charitable arm of DFI, recently awarded 10 scholarships totalling $47,750 to students pursuing careers in civil and geotechnical engineering.

The scholarships went to the following recipients:

**Charles J. Berkel Memorial Scholarship Fund ($5,000):**
- Laura Viera, junior, University of California, Berkeley

**LANGAN Engineering & Environmental Services Legacy Scholarship Fund ($6,250 each):**
- Ella Berkowitz, junior, is the recipient of the Bernard F. Langan Scholarship at Purdue University.
- Caroline Evans, graduate student, received the Donald J. Murphy Memorial Scholarship at NYU Tandon School of Engineering.
- Daisy Jung, senior, was awarded the George P. Kelley Memorial Scholarship at Drexel University.

**Manuel Fine Civil Engineering Scholarship Fund ($4,000 each):**
- Rishav Jaiswal, graduate student, McMaster University
- Charlotte Trainor, junior, University of Waterloo

**Penn State Scholarship Fund ($4,000 each):**
- Diana DeLeon, senior
- Aavash Ghimire, graduate student

**University of Pittsburgh Scholarship Fund ($4,000 each):**
- Samantha Achille, senior
- Jemma Sikora, sophomore

Since 2006, the Trust has awarded $2.7 million in scholarships and grants to more than 700 individuals.

To donate to these and other scholarship funds, visit trust.dfi.org.

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