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Construction WORLD

Infrastructure and skills crises to top the agenda at surveying conference

Embedding climate change into the DNA of engineering practice

SA'S DAM CONSTRUCTION PROGRAMME: PROGRESS, CHALLENGES, AND THE ROAD TO 2030

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ON THE COVER

In October 2025, GEOCIV Group proudly marks a major milestone in its journey: the establishment of its new Cape Town base in Joostenbergvlakte Kraaifontein. Perfectly positioned just off the N1 and only 12 kilometres from the site earmarked for the future Winelands International Airport, this new yard and office facility underscores GEOCIV's commitment to serving the Western Cape with innovation, precision and excellence.
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In construction, it is easy to focus on what rises above ground: towers, bridges, highways, dams. Yet, what often determines the success of these projects is what lies beneath. Geotechnical engineering - the discipline that investigates and designs for soil, rock, and groundwater conditions - remains one of the most critical, yet sometimes undervalued, pillars of South Africa's built environment.

The industry here is established, with strong consulting practices, active professional bodies like the Geotechnical Division of the South African Institution of Civil Engineering (SAICE), and universities driving research and training. Firms such as Jones & Wagener, Southern Geotechnical Engineering, and others continue to deliver specialist services across the country, while conferences like the Southern African Geotechnical Conference keep knowledge-sharing alive.

Still, the sector faces a host of challenges. Chief among them are South Africa's tricky ground conditions - expansive clays, dolomite, soft soils, and high groundwater - which demand expertise and thorough investigation. All too often, however, budget or time constraints push geotechnical investigations and monitoring down the priority list. The result can be expensive remedial work, delays, or, in worst cases, failures that undermine both safety and public confidence.

Standards and design methodologies also vary widely. Deep excavations, retaining walls, and foundation systems are not always approached with consistent codes of practice, leaving room for uneven quality across projects. Add to this the pressure of a skills shortage - with experienced engineers retiring and fewer young professionals gaining field exposure - and it is clear the industry must invest in training, mentorship, and knowledge transfer.

At the same time, there are encouraging trends. The geotechnical instrumentation and monitoring market is growing, with sensors and real-time data systems becoming more affordable and widely adopted. The market for geotechnical services in South Africa is projected to grow steadily, from about USD43-million in 2024 to over USD62-million by 2030. This growth is underpinned by infrastructure demand, from housing to transport to water and sanitation, and a growing awareness of the need for resilient, climate-ready design.

Technology is also reshaping practice. Advanced modelling software, drones, remote sensing, and data-sharing platforms allow for more accurate predictions and safer, more cost-effective designs. Coupled with the rising emphasis on sustainability, geotechnical engineers are being asked to consider not just stability and cost, but also carbon footprint, material reuse, and long-term resilience in the face of climate variability.

For South Africa, the opportunity is clear: invest properly in the ground, and projects will stand the test of time. Cut corners below surface, and the risks multiply. To seize this moment, the industry needs stronger and more consistent regulations, wider adoption of monitoring, and above all, recognition from clients and developers that geotechnical engineering is not an optional add-on but the foundation of success.

The ground beneath us may be invisible once a project is complete, but its role is unmistakable. In the years ahead, how we manage, investigate, and design with our soils and rocks will shape not only the skyline but the resilience of South Africa's infrastructure.

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By Eli Msimanga, Regional Safety, Health, and Environmental (SHE) Lead, WSP in Africa

Embedding climate change into the DNA OF ENGINEERING PRACTICE

For engineering firms, climate change has been much more than a distant environmental concern for many years. As we design engineering solutions to complex challenges, advise clients in both the public and private sector and seek to future proof a built environment in which society can thrive, climate change is a defining reality. ***By Eli Msimanga, Regional Safety, Health, and Environmental (SHE) Lead, WSP in Africa***

The question of how climate change considerations are embedded into our own operational management frameworks is increasingly central to our credibility, competitiveness, and long-term sustainability.

At WSP, we often emphasise that being a responsible company is not just about what we put in our sustainability reports, but about how those commitments translate into daily practice. The integration of climate change into management systems cannot be abstract. It must touch the way we work and report, the risks we account for, and the opportunities we pursue.

Understanding the footprint

We can't manage what we can't measure. WSP is measured against three ISO standards: ISO 9001:2015 for quality management, ISO 14001:2015 for environmental management, and ISO 45001:2018 for occupational health and safety. Climate change is considered under ISO 14001 and is often framed through the lens of greenhouse gas emissions, waste management and resource efficiency. For an engineering consultancy, our direct (scope 1) emissions are relatively modest because we are not a manufacturing entity. Scope 2, which includes electricity consumption, is more material. Here in South Africa,

where grid power is still overwhelmingly coal-based, we cannot escape the reality that every kilowatt-hour carries a significant carbon cost.

Though shifts are happening, only 17% of South Africa's electricity comes from low-carbon sources and household solar PV installations account for 6.8 GW of this. Though we have seen a strong push towards decarbonisation in our energy sector, we must seek out other ways to mitigate the climate impact of our electricity consumption. We see reduced commuting as a positive contributor to lowering our footprint, and this is one of the reasons we have adopted a hybrid-working approach.

Scope 3 emissions, linked to supply chains and business travel, remain relevant but relatively contained in our business model. Still, they remind us that even simple daily habits such as how we manage office waste, the lifecycle of products we consume, or our travel choices form part of the wider emissions story.

Risk and opportunity in equal measure

Every operational framework must manage both risks and opportunities, and climate change is no exception. For example, South Africa's energy insecurity, which was characterised by loadshedding for over a decade, has been viewed largely as a power reliability issue. But it is also a symptom of an ageing, coal-dependent infrastructure. Here, the risk of disruption also creates an opportunity: to reimagine power generation.

When we are called to assess whether coal-fired stations can be refurbished or upgraded, the answer is not just about technical feasibility. As visioneers, we also have an obligation to question whether doing so would perpetuate a carbon-intensive past. Increasingly, the opportunity lies in repurposing such sites into renewable or nuclear alternatives. WSP is already supporting projects in this space, advising on the conversion of an end-of-life coal-fired power station to a small modular reactor (SMR). This underscores how climate considerations are embedded into the choices we make, not only in design but in advising on energy strategy.

Frameworks that drive accountability

Our sector benefits from internationally recognised standards and frameworks that ensure climate considerations are not optional add-ons but embedded requirements. ISO standards, environmental impact assessments, and sustainable finance principles are now part of the normal operating environment for engineering firms, and for our clients. For example, before major developments even begin, our environmental teams conduct impact assessments that explicitly consider climate risks and long-term sustainability.

Internally, frameworks such as the Plan-Do-Check-Act (PDCA) cycle place management at the centre of emissions control and reduction. But success is not the responsibility of leadership alone. Each person, from switching off unnecessary lights to rethinking material use, contributes to the overall compliance picture. Embedding climate change in operational frameworks means embedding responsibility across every level of the organisation.

The role of technology and knowledge

Digital solutions, including artificial intelligence (AI), are increasingly being applied to help monitor emissions, manage resources, and optimise sustainability outcomes. Yet technology alone is insufficient. Embedding climate change considerations requires equipping people with the knowledge and skills to interpret frameworks, implement changes, and innovate solutions.

For many South African organisations, including ours, the formation of ESG teams often draws expertise from health, safety, legal, and governance functions in the absence of specifically-trained ESG professionals. Though this demonstrates a positive shift towards integrated, cross-disciplinary approaches, it also means that additional learning opportunities may be needed to empower these newly formed ESG teams. For professionals in related spheres to thrive, it is important that organisations support their growth as they work to supplement their existing expertise with new knowledge and skills.

The road to 2050

Globally, the Paris Agreement sets a clear ambition: achieving NetZero by 2050. Achieving this requires a relentless focus on continual improvement, measurable progress, and the pursuit of both low-hanging fruit and systemic change. For engineering firms, our role is twofold: to lead by example in our internal operations and to help clients and governments design and deliver climate-resilient, low-carbon solutions.

Embedding climate change into operational management frameworks is not just about compliance. It is about leadership. As engineers, we are trained to solve problems. Climate change is the defining problem of our time, and the extent to which we embed it into our daily practice will define not only the future of our industry but also the legacy we leave for generations to come. ⊙

A QUARTER CENTURY OF IMPACT

In a sector long recognised as male dominated, Amelia Keefer, Group Marketing and HR Executive at GVK-Siya Zama, has steadily shifted the status quo. Stepping into the company's Cape Town office in 2000 as Marketing Communications Manager, Amelia was instantly drawn to GVK-Siya Zama's reputation for restoration work, an area that had long captured her interest.

At the time, her role centred on events and client engagement, which not only made the work dynamic but also gave her the opportunity to meet clients and begin shaping the company's image.

As GVK-Siya Zama grew, so did Amelia's responsibilities, and by 2002, her position had evolved to a national level, with a sharper focus on brand strategy and communication. Over the years, she led several brand refreshes to ensure GVK-Siya Zama's continued relevance in a changing market, while also championing its transition into the digital era. From building a credible online presence to engaging on professional platforms and strengthening the company's employer brand, Amelia's work has positioned GVK-Siya Zama as both a trusted industry player and an employer of choice.

"Throughout the years, the company has offered me incredible opportunities for growth. Looking back, I realise how much each phase of the company's journey has mirrored my own development. It's never been static, and there has always been something new to learn, new ground to cover, and new people to collaborate with," explains Keefer.

A defining moment came in 2015, when a management buy-out marked a turning point for the company and Amelia's development. It not only unlocked opportunities across new industry sectors, but also accelerated Amelia's personal growth, culminating in her invitation to join the group executive committee by CEO, Eben Meyburgh.

"Joining the EXCO meant stepping into a space where my voice carried weight in shaping the future of the company. I was able to challenge conventional ways of thinking and bring a broader perspective to what had been a traditionally construction-focused leadership mindset," adds Keefer.

Her leadership responsibilities continued to expand beyond strategy and communications. Most notably, Amelia assumed the Human Resources portfolio, thereby deepening her connection with employees across the business. She is recognised for spearheading inclusivity, promoting collaboration, and mentoring future leaders - responsibilities she sees as both a privilege and a duty. She says she is particularly energised by the ambition and curiosity of younger colleagues, which, in turn, inspires her to embrace new ways of thinking and future-focused ideas.

Yet, Amelia is just as intentional about finding balance outside of work, enjoying a long-standing dedication to yoga, a love for travel, family life with her husband and their animals, and a close-knit circle of beloved friends.

"Reflecting on my 25-year journey with GVK-Siya Zama, the most meaningful impact has been creating a space for others, particularly women, to grow and thrive. While I'm far from drawing the curtain on my role within the company, I hope that my legacy will be defined by the people whose paths I helped shape, most notably the colleagues who felt seen, supported, and inspired to reach their full potential," concludes Keefer. ⊙

GVK-Siya Zama has officially completed the restoration of 96 Rissik Street in Johannesburg, delivering Transnet's new head office while safeguarding one of the city's most prominent Edwardian landmarks.

Infrastructure and skills crises to top the AGENDA AT SURVEYING CONFERENCE

The South African Council for the Quantity Surveying Profession (SACQSP) is collaborating with the University of Cape Town (UCT) to present the 15th SACQSP International Research Conference. It will be held in Cape Town from 11 to 13 November and will provide a platform for local and international built industry experts.

"Our partnership with UCT reflects our shared commitment to advancing academic research as a catalyst for innovation, transformation and resilience in South Africa's built and infrastructure sectors," says SACQSP President Arthur Quphe.

This year's conference will show how evidence-based research is helping quantity surveyors respond to unprecedented challenges, from digital transformation to sustainability imperatives, while shaping smarter infrastructure and more resilient economies.

Theme reflects reality

Set against the backdrop of South Africa's deteriorating public infrastructure, growing project inefficiencies, and a deepening socio-economic crisis, the conference theme is *Quantity Surveying and the Built Environment: Navigating Disruption, Collaboration and a Sustainable Future.*

Western Cape Provincial Minister of Infrastructure MEC Tertius Simmers welcomes the SACQSP and UCT collaboration to advance research that responds directly to the country's infrastructure and economic challenges.

"Academic insights are key to building smarter, more resilient infrastructure," says Simmers. "This is especially relevant in the Western Cape where sustainable development and service delivery are top priorities. The conference represents a critical opportunity to align professional innovation with public sector needs".

Worldwide recognition

The conference is recognised globally as a platform for academics, postgraduate researchers and practitioners across Africa and beyond. It showcases the profession's growing intellectual capital and promotes the generation of knowledge that can guide infrastructure policy, procurement innovation and professional development.

"This conference is more than an academic exercise," says Quphe, "it is a strategic intervention to ensure the quantity surveying profession remains relevant, equipped, aligned to national priorities, and in step with global best practice. Convening top minds from academia and practice enables us to co-develop solutions that directly impact people's lives".

UCT's role

As academic partner, UCT will play a central role in providing academic support and shaping the research agenda, ensuring that the conference reflects both global standards and local relevance. The partnership strengthens SACQSP's long-standing commitment to fostering knowledge exchange between academia and industry.

"UCT is proud to collaborate with SACQSP to create a platform that elevates research as a strategic tool for development," says Professor Manya Mooya, Head of UCT's Construction Economics and Management Department. "In a country grappling with service delivery backlogs, skills shortages and infrastructure decay, academic insight can and must inform how we build our future".

The conference programme

Quphe points out that research in quantity surveying is no longer confined to cost management. "It now informs policy, guides investment and shapes inclusive infrastructure planning," he says.

It makes sense then that this year's conference will highlight how quantity surveyors are contributing to multidisciplinary solutions that address:

- Infrastructure underperformance and cost overruns,
- Skills gaps in the built environment,
- The integration of sustainable building practices and
- The urgent need for digital transformation in construction.

These topics will be delivered through the presentation of academic papers, keynote addresses by global built environment experts, and panel discussions addressing South Africa's infrastructure and economic recovery.

The conference will also provide a platform to showcase emerging African quantity surveying research talent and innovations.

BCE MDP FUTURE-PROOFS ENGINEERING LEADERSHIP, CELEBRATES CLASS OF 2024

As artificial intelligence (AI) starts to automate more and more tasks in the consulting engineering realm, the spotlight shifts to what technology can't replicate: human insight, strategic decision-making, innovation management, and stakeholder engagement. This makes the cultivation of non-technical, critical skills not just valuable, but vital, for engineers navigating the future of the business of consulting engineering.

Consulting Engineers South Africa (CESA) through its School of Consulting Engineering (SCE), this week celebrated the graduation of the Business of Consulting Engineering Management Development Programme's (BCE MDP's) Class of 2024 – yet another cohort after more than ten years since its inception.

The BCE MDP is uniquely equipped to meet the industry's future challenges, through a blend of management and leadership training, coupled with essential critical thinking skills.

"The modern consulting engineering industry extends well beyond technical expertise. The reality is that automation and AI can rapidly transform, and in some instances, commoditise technical processes that were once the exclusive domain of highly trained engineers. Though we would at all times encourage that such processes never be totally left to such pursuits in the absence of experienced human technical oversight. The pressure to be more and more efficient with the demands for cost effective professional services, however, does risk reducing the perceived value of the human element in engineering and challenges firms to demonstrate its use of technology as a means to achieve these objectives," says CESA CEO, Chris Campbell.

The BCE MDP stands in stark contrast to these threats, as it is fundamentally designed to develop skills AI cannot replace. Encompassing over 60 modules, it focuses on topics such as strategic leadership, interpersonal and client management, an introduction to the principles of law and the legal system, financial skills, contractual principles, people and communications skills, ethical decision-making and accountability and enhancing professional value, the BCE MDP acts as future-proof investment in talent and leadership.

"We are entering an era where automation and AI are rapidly transforming our industry. As we face increasing competition – not just locally, but from global and even non-traditional players with powerful AI-enabled tools – it is vital that we differentiate ourselves. The programme allows engineers to connect multidisciplinary dots and innovate in the face of complexity.

"For the industry to thrive, we need well-rounded professionals who can bridge technical skills with strategic leadership. The BCE MDP alumni have repeatedly proven their ability to excel – whether by ascending to senior roles in their firms or by creating successful consulting ventures that contribute to the broader industry and country," Campbell states.

AECOM Senior Civil Engineer Michelle Lawrence notes that since completing the BCE Management Development Programme, she has become a team manager. "I have also completed my professional registration with ECSA and have been promoted to senior engineer, while being nominated and a finalist for the CESA Young engineer of the Year Award in 2022. In 2023, I won the Emerging Extraordinary Woman in BIM. The programme helped me achieve these goals, it is invaluable and expands your knowledge beyond just technical aspects and gives a wholistic view of consulting engineering," she adds.

"AI and automation are undoubtedly shaping the future of engineering, but it is our ability to innovate coupled with critical thinking that sets us apart. While machines can quickly process data and offer recommendations, they cannot replicate the human ability to navigate uncontrollable factors, exercise judgment and solve ambiguous, real-world problems. It's these skills that define true consulting engineering practitioners, which is what BCE MDP graduates become over a short period of time after a their initial exposure in the employ of their respective consulting engineering companies and after completing their engineering studies. We congratulate each one of you," Campbell concludes. ⊙

MONITORING LANDFILLS KEY TO KEEPING GROUNDWATER CLEAN

The contamination risk that landfill leachate poses to groundwater can be effectively managed through diligent monitoring practices and timeous intervention. This is becoming increasingly important as the country relies more on precious groundwater resources to supply a growing population resulting in expanding urban areas, which may encroach on landfills, according to SRK Consulting South Africa (SA).

Richard O'Brien, Principal Environmental Geochemist and Partner at SRK Consulting SA..

"However, all too often, groundwater monitoring is mainly done just to comply with legislation as opposed to being used to effectively manage the groundwater resource," said Richard O'Brien, Principal Environmental Geochemist and Partner at SRK Consulting SA. "It is essential that groundwater monitoring is conducted scientifically and diligently – and that the data is technically analysed so that any required action can be taken."

SRK monitors groundwater around landfill sites on behalf of several municipalities and waste-management organisations. This is to provide municipal managers and operators with insight into contamination risks emerging from potential leachate plumes arising from these facilities.

O'Brien emphasised that it is essential for sampling to be performed consistently and accurately to ensure the collection of comparable data of a known quality; the results are then interpreted by experts to detect changes in groundwater chemistry, which could indicate signs of groundwater contamination.

Accurate groundwater sampling

However, collecting accurate samples that represent groundwater as it occurs in an aquifer is not a simple process as it is dependent upon well-maintained monitoring infrastructure. This is not always the case on a typical South African landfill site where monitoring well headboxes are often damaged allowing dust and debris ingress into the monitoring well.

As part of one of the company's monitoring contracts, SRK Consulting SA is also maintaining monitoring infrastructure to ensure integrity of results. For instance, the accumulation of silt in a well can negatively impact the sample chemistry and restrict sampling depth.

"Use of internationally applicable groundwater sampling methodologies is critical for the collection of representative groundwater samples. Groundwater samples taken from 'standing water' which has contact with the atmosphere will undergo chemical changes such as oxidation. As such, they will not deliver an analytical result that accurately reflects the aquifer chemistry," said O'Brien.

Consistent and comparable results

Another important consideration when monitoring groundwater is sampling depth in relation to the water table.

"When installing the monitoring pump, we ensure that it is positioned in the target zone so that results are consistent and comparable over time. We monitor electrical conductivity, indicating the level of dissolved salts in the water, and measure indicators like pH, redox potential, dissolved oxygen, temperature and drawdown," he said.

The company executes detection monitoring protocols by diligently collecting samples, testing them at accredited laboratories, and interpreting the results. In this way, municipalities and waste-management organisations can determine if they comply with the parameters laid out in regulatory licenses for landfills, and if operations are impacting groundwater quality and increasing risk.

Broad expertise deployed

An effective monitoring programme requires broad expertise, including sampling technicians and scientists who are, in turn, led by a professional geohydrologist, environmental geologist, or geochemist.

Outside of the landfill context, O'Brien encourages the private sector to also implement sound groundwater monitoring practices – in the interests of compliance and risk mitigation to timeously identify sustainable solutions, if necessary.

"There is tremendous value in groundwater data, in terms of understanding and minimising the impact of every industrial operation; and this impact, of course, is the key indicator that all companies should be working to reduce."

Michelle Kerr, a Director of MDA Attorneys.

WARNING - NEW STANDARD FORM CONSTRUCTION CONTRACT OPTION NEEDS PROPER PREPARATION

South Africa's construction industry is preparing for change with last week's release of the General Conditions of Contract (GCC) 2025, which aims to improve how construction projects are managed and disputes are resolved.

Construction law specialists MDA Attorneys say that the new GCC contract from the South African Institution of Civil Engineering (SAICE) brings changes that could catch contractors and employers off guard if they're not properly prepared.

Michelle Kerr, a Director of MDA Attorneys, says, "The GCC is widely used in South African construction projects, so these changes are relevant to many players in the industry who choose GCC 2025 as a standard form contract. Some of the new provisions that have been introduced could have serious financial consequences for those who don't understand them."

Kerr unpacks the new GCC 2025 and its potential implications

Perhaps the most comprehensive changes relate to how disputes are handled. The new system introduces a two-stage claims process, giving contractors more time to prepare detailed claims. However, it also gives stricter deadlines for the employer's agent to rule on claims, introducing an automatic rejection of claims if responses aren't provided on time by the employer's agent.

"The dispute process is becoming more structured but also more complex," notes Kerr. "Parties will need to be much more disciplined about meeting deadlines and following procedures."

Another significant new provision means that parties who fail to comply with adjudication decisions will lose their right to challenge those decisions in subsequent proceedings until they've complied. This change is designed to strengthen the enforcement of adjudicator's decisions.

The grounds for terminating contracts have also been expanded to include failure to comply with an adjudicator's decision.

The changes reflect lessons learned from recent challenges, including the COVID-19 pandemic, with provisions covering government-declared states of emergency and disaster as valid reasons for project delays.

"These updates show SAICE has been listening to industry feedback and addressing real-world problems," says Kerr. "However, the devil is in the details and will determine how these provisions will work in practice."

With the GCC 2025 expected to become the standard for many new projects, industry players are advised to familiarise themselves with the changes and consider updating their internal processes accordingly.

"The key is preparation," concludes Kerr. "Companies that understand these changes and adapt their procedures will have a significant advantage over those caught unprepared." ⊙

ZUTARI RANKED AMONG WORLD'S TOP 100 DESIGN FIRMS IN 2025 ENR LISTING

Zutari, a leading buildings and infrastructure engineering and advisory firm, has been recognised among the world's leading companies in the Engineering News-Record (ENR) 2025 Top 225 International and Global Design Firms Awards, securing the 99th position globally by revenue. The report, released on 22 August, highlights international leaders in design and infrastructure delivery across multiple markets.

With a proud legacy of more than 90 years across Africa and the Middle East, Zutari partners with clients throughout the infrastructure lifecycle, delivering innovative, digitally enabled solutions in buildings, water, mining, energy, transport and sustainability. More than just designing infrastructure, Zutari creates possibilities, unlocks futures, and shapes living legacies that uplift communities and redefine what is possible for generations to come.

The ENR Top 225 International Design Firms ranking is a significant global benchmark, measuring firms by international design revenue and recognising the companies that are reshaping industries in the face of global challenges. According to ENR, design firms worldwide are being driven by pressing issues such as sustainability, ESG integration, artificial intelligence, and resilient infrastructure.

The World Economic Forum estimates a USD15 trillion investment gap for global infrastructure by 2040, with an annual USD3.3-trillion needed to support anticipated global economic growth. Therefore, Zutari is proud to be a strategic sponsor of the 2025 FIDIC Global Infrastructure Conference at the Cape Town International Convention Centre from 21 to 23 September. "We believe that global forums like FIDIC are vital spaces for building alignment across geographies, disciplines, and sectors," comments Group CEO Teddy Daka.

Zutari's inclusion in the top 100 reflects its growing international footprint, with projects across the United States, the UAE, Kuwait, Oman, Qatar, Saudi Arabia, Australia and New Zealand. It also underscores the company's ability to deliver world-class solutions while remaining grounded in local relevance and impact.

With 2050 seen as a key deadline for net-zero emissions for the global energy transition, Top 225 firms involved in the energy sector say they are seeing firsthand how reimagined production is driving market innovation. ENR states that the Top 225 firms cited building information modelling, digital twins, reality capture, and carbon management tools among the technologies they are integrating into their operations to extend the capabilities of their companies and add value for clients. ⊙

Rhys Evans, Managing Director at ALCO-Safe.

When last did your workplace update its DRUG TESTING POLICY?

South Africa's drug laws are changing and, with the recent Cannabis for Private Purposes Act, businesses need to make sure their drug testing policies are fit for purpose – both legally and for workplace safety. Ignoring these changes can expose companies to significant legal risks and undermine employee relations, as highlighted by Enever v Barloworld Equipment South Africa.

By Rhys Evans, Managing Director at ALCO-Safe

Bernadette Enever's dismissal for private cannabis use, subsequently ruled unfair by the Labour Appeal Court, serves as a warning for employers to urgently revisit and adapt their substance policies to reflect the current legal realities with an emphasis on demonstrable on-duty impairment. This isn't just about ticking a legal box; it's about ensuring policies are relevant, defensible, and respectful of employee rights in this new era.

The Barloworld case - a wake-up call for businesses

The landmark case of *Enever v Barloworld Equipment South Africa* illustrates the dangers of relying on a blanket zero-tolerance approach to substances in the workplace. Bernadette Enever, an employee of Barloworld, faced dismissal after testing positive for cannabis, which she openly admitted to using in her private time. Despite a long and unblemished 15-year work record and the concession that she was never impaired at work nor held a safety-critical position, Barloworld's zero-tolerance policy led to her termination.

However, the Labour Appeal Court (LAC) delivered a decisive ruling in Enever's favour, deeming her dismissal automatically unfair. The court's judgement brought attention to a critical principle - a positive cannabis test alone, particularly when the employee admits to private use and shows no signs of on-duty impairment, is insufficient grounds for disciplinary action. The LAC emphasised the need for concrete evidence demonstrating actual impairment on duty to justify such measures. The court went on to point out that because cannabis metabolites can remain detectable in the body long after the psychoactive effects have worn off, traditional urine tests are unreliable indicators of current impairment.

Based on its finding, the LAC ordered Barloworld Equipment South Africa to compensate Ms. Enever with 24 months' remuneration, which amounted to a substantial payout, reported to be over R1-million. In short, the court's order held Barloworld accountable for relying on an outdated and overly broad drug testing policy that unfairly

penalised an employee for legal, private cannabis use without any evidence of on-duty impairment.

Time to update policies and procedures

As a result of this case, there is now an urgent need for companies across South Africa to revisit their workplace drug testing policies. Relying on outdated protocols not only exposes businesses to potential legal challenges and costly compensation payouts, as experienced by Barloworld, but also infringes upon employees' rights to privacy and dignity.

A policy that punishes employees for legal, private conduct unrelated to their work performance is not only unfair but also potentially discriminatory. This decision makes it clear that a strict zero- tolerance approach is no longer legally acceptable because it fails to differentiate between private, responsible use and workplace impairment. Furthermore, given that the court pointed out that traditional urine testing is insufficient to prove impairment, it is necessary for organisations to rethink their testing procedures at the same time as their policies.

Here, investing in advanced drug testing technologies is a necessity for businesses committed to maintaining a safe and legally compliant work environment. Modern testing equipment has made significant strides, and mobile testing systems enable accurate, on-site assessments of current impairment with sophisticated technology that can detect a broad spectrum of substances in oral fluid. These instruments can provide results that correlate more closely with recent use and actual impairment, typically within a 2-6-hour window for cannabis, which allows employers to differentiate between recent consumption that could impact workplace safety and residual traces from off-duty use.

Balancing workplace safety with employee rights

By investing in advanced testing technology and proactively updating their drug policies, businesses can take a smarter, legally sound route. This forward-thinking approach brings key advantages: reduced legal trouble by aligning drug policies with the Enever ruling and fairness/privacy laws, and increased safety at work by concentrating on tests that show actual impairment rather than just past use, as well as more productive teams through fair and clear policies coupled with respectful testing, which reduces employee worry and resentment.

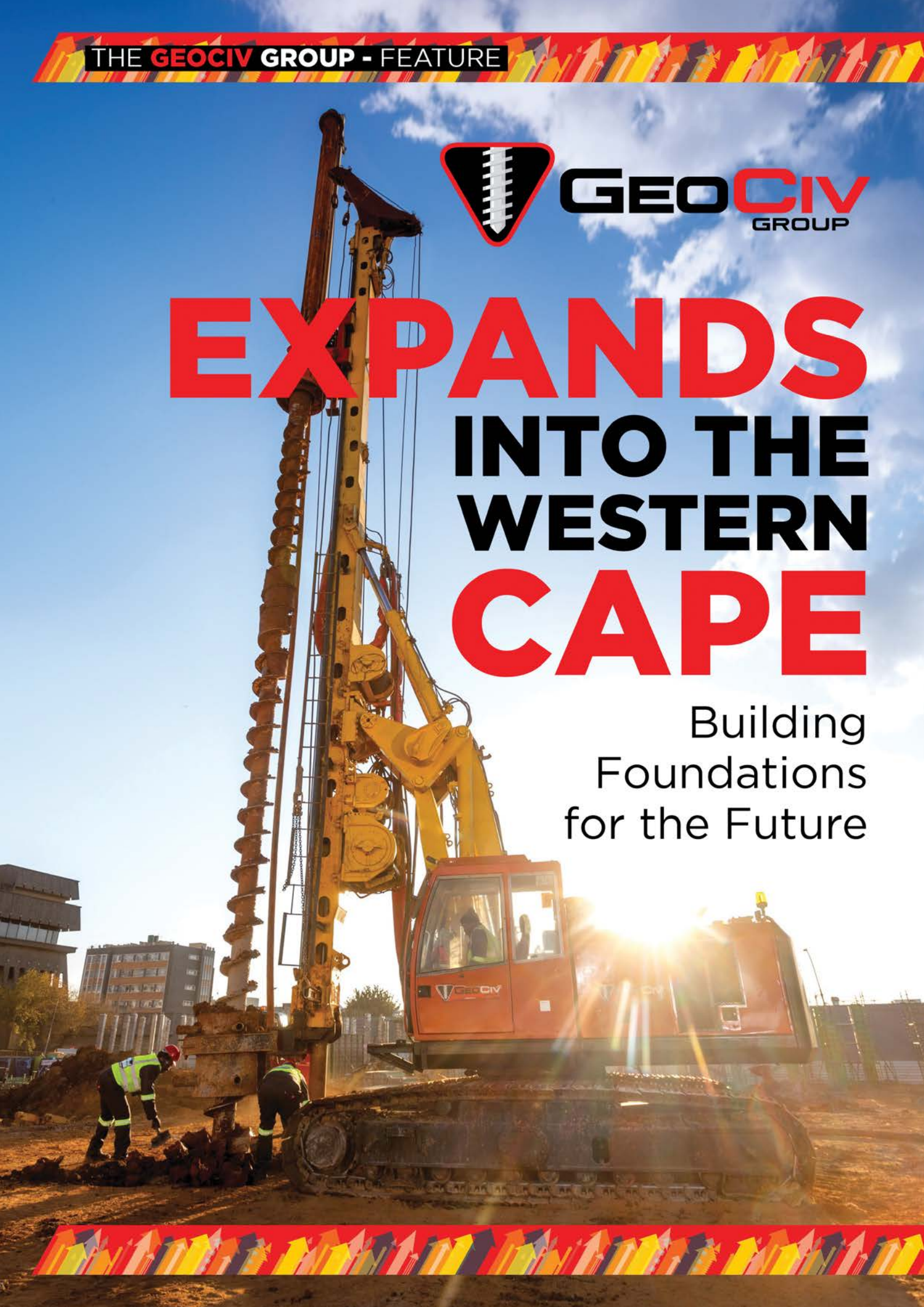
However, quietly updating workplace policies and purchasing new equipment is not enough. Education and awareness play a vital role in ensuring employees understand updated drug policies. Clear communication from employers on the rationale behind the policy, the testing methods that will be employed, and the consequences of on-duty impairment is critical, as it is important to address misconceptions and provide accurate information in order to gain acceptance and compliance from the workforce. For instance, employees need to understand that whilst private cannabis use is decriminalised, being impaired at work remains unacceptable and can lead to disciplinary action. It is also advisable to provide clarity on the detection windows of different testing methods to help employees understand the implications of their off-duty conduct.

Moving beyond zero tolerance to modernise drug testing

The *Enever v Barloworld Equipment South Africa* ruling serves as an important turning point in how South African employers address workplace drug testing. It is clear that outdated, zero-tolerance policies are no longer adequate, and for businesses to operate effectively and ethically, a proactive stance must be taken. This means updating policies, considering advanced impairment testing technologies and prioritising employee understanding and buy-in.

By embracing this approach, companies will not only protect themselves legally and ensure a safer workplace but also build a more equitable and respectful culture that benefits everyone and contributes to a more productive and harmonious work environment.

It's high time for every organisation to reflect on its current drug testing policy and consider the necessary changes. ⊙



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Building Foundations for the Future

A NEW CHAPTER IN CAPE TOWN

In October 2025, GEOCIV Group proudly marks a major milestone in its journey: the establishment of its new Cape Town base in **Joostenbergvlakte Kraaifontein**. Perfectly positioned just off the N1 and only 12 kilometres from the site earmarked for the future **Winelands International Airport**, this new yard and office facility underscores GEOCIV's commitment to serving the Western Cape with innovation, precision, and excellence.

The move is more than just a change in geography. It represents the next step in the evolution of a company that, since its founding in **1996**, has grown from humble beginnings into one of South Africa's leading names in geotechnical and foundation engineering.

"For us, Cape Town is not just an expansion - it's a commitment," says Greg Whittaker, Founder and Group Managing Director. "We believe in the future of the Western Cape and want to be at the heart of its growth story."

FROM HUMBLE BEGINNINGS TO NATIONAL PRESENCE

The GEOCIV Group story began in 1996, with a vision of delivering geotechnical solutions with uncompromising standards. In its early years, the company faced the challenges typical of a small, specialized firm—limited resources, high competition, and a market that demanded resilience.

Through perseverance and an unwavering focus on innovation, GEOCIV Group steadily built a reputation for solving complex foundation and soil stability challenges. By the early 2000s, the company was contributing to landmark projects across South Africa.

"We didn't have it easy in the beginning," recalls Whittaker. **"There were tough jobs and long nights, but every challenge made us sharper, stronger, and more determined to succeed."**

Nearly three decades later, GEOCIV continues to embody that entrepreneurial spirit while operating with the scale and expertise of a mature market leader. The new Cape Town facility is both a celebration of that history and a launchpad for the future.

WHY CAPE TOWN, WHY NOW?

The Western Cape represents one of the most dynamic construction markets in the country. With large-scale residential, commercial, and infrastructure projects reshaping the region, the demand for reliable geotechnical expertise is at an all-time high.

GEOCIV's decision to establish a permanent presence in Cape Town was driven by three factors:

- **Proximity to Growth Nodes:** The new yard sits strategically near both Cape Town and the proposed Winelands International Airport site, enabling fast mobilisation to projects across the province.
- **Commitment to Clients:** Many of GEOCIV's long-standing partners are investing heavily in the Western Cape. Being physically present strengthens relationships and ensures faster service.
- **Confidence in the Market:** With resilient growth and bold urban regeneration underway, the province offers fertile ground for GEOCIV's expertise.

"For years we've had clients saying, 'When are you coming to Cape Town?" says Whittaker with a smile. "Now we can look them in the eye and say: we're here, and we're here to stay."

NEXT LEVEL

SHOWCASE: Projects in the Western Cape

GEOCIV's track record in the province is already impressive, even before opening its Cape Town base.

TERACO DATA CENTRE CT2.2:
In 2021, GEOCIV completed the TERACO CT2.2 Data Centre in Brackenfell, installing an extraordinary 1,200 Continuous Flight Auger (CFA) piles. The large-scale foundation package demanded meticulous planning and flawless execution.

"The TERACO project was a real milestone for us," explains Jean Breedt, Operations Director. "It proved that GEOCIV had the capability and expertise to handle one of the largest piling contracts of its kind in South Africa. That project gave us the confidence to say, Cape Town is part of our future"

DEVENBOSCH:
Set in the Stellenbosch winelands, Devenbosch is a master-planned mixed-use precinct blending residential, commercial, and lifestyle spaces. GEOCIV's role in its foundation work ensures the development rests on engineering as solid as its vision.

THE GRANGER:
GEOCIV is about to break ground at The Granger, a development featuring a 4-level basement—a technically demanding scope requiring precision in Excavation, Lateral Support, Piling, and Waterproofing.

"Every basement we build is more than excavation and support," notes Whittaker. "It's about creating space in environments where every square metre matters — and doing so safely and sustainably."

419 MAIN ROAD, SEA POINT:
In the heart of Sea Point, GEOCIV is leading the geotechnical works for 419 Main Road, another 4-level basement project commissioned by the Solomon Brothers Group. With tight urban constraints and the need for meticulous execution, the project is a clear demonstration of GEOCIV's ability to deliver under pressure.

CONRADIE PARK :
Conradie Park is one of Cape Town's most ambitious regeneration projects. Commissioned by the Divercity Group, this mixed-use development blends housing with community facilities and retail amenities. GEOCIV's contribution ensures that the foundations of this transformative space are secure and future-proof.

"The Western Cape has some truly visionary developments underway," says Whittaker. "We're honoured to be part of them, helping shape spaces that will serve communities for generations to come."

THE GEOCIV DIFFERENCE

Every construction company can promise quality, but GEOCIV's record shows it consistently delivers. The Group sets itself apart through:

- **Innovation in Technique:** From advanced piling methods to bespoke lateral support solutions, done on a "Design and Supply" basis.
- **Excellence in Delivery:** Projects completed on time and to the highest standard.
- **Safety First:** Rigorous protocols ensure safe, sustainable sites.
- **Client Partnerships:** Working hand in hand with clients, not just as a contractor but as a partner.

Breedt emphasises: **"Our teams in the field are the reason we succeed. The Cape Town expansion allows us to support them better, mobilise quicker, and give clients confidence that we're invested here for the long haul."**

Whittaker echoes this: **"Our greatest strength is not the machines or the methods — it's our people. We've built a culture that thrives on innovation, collaboration, and pride in a job well done."**

LOOKING AHEAD

With Cape Town as its new base, GEOCIV Group is expanding its role in South Africa's construction ecosystem. The company's vision is to become the **"go-to geotechnical partner in the Western Cape"**, applying nearly three decades of experience to deliver results in this fast-evolving market.

With the proposed **Winelands International Airport** poised to spur regional growth, and sustained demand for housing and infrastructure, GEOCIV is ideally placed to seize opportunities.

"We're standing on nearly 30 years of experience, but our eyes are firmly on the future," concludes Whittaker. "Our goal is simple: to leave behind foundations that are not only physically strong, but that also strengthen the communities we build in."

GEOCIV GROUP

"DELIVERING INNOVATIVE GEOTECHNICAL SOLUTIONS"

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16 Canary Street, Joostenbergvlakte, Cape Town

TECCO mesh is being installed.

COASTAL PROTECTIONS INCREASE AS SEA LEVELS RISE

People in coastal regions have always had to protect their coasts from the forces of the sea. Whether from the tides, from the surf, from recurring storms or from erosion caused by heavy rainfall events. In recent years, the effects of climate change have been added to this list: extreme weather and steadily rising sea levels increase these problems today and will do so in the future.

The vast coast of Africa has become a area of concern given that a large number of the population lives within 100 km of the coast with valuable assets being located right on the coast. Furthermore, the economic influence of the coast and harbours around Africa, being at risk, is of high value and requires protection.

Engineers are aware of this problem and are pursuing various protection concepts. For example, rock armour is often used to protect damaged sections of beach from the sea. This is also the case in the UK at Beesands Beach, South Devon. Locally, Beesands is neighboured by Hallsands, the village infamously swept away by the sea in 1917, to the south and Slapton Sands, a barrier beach protecting a freshwater lagoon, to the north. The community at Bees ands were under threat of losing their village green and several houses located inland due to coastal erosion and flooding.

Initially, rock armour was proposed as a solution for the majority of the area needing remediation. However, an alternative solution requiring less maintenance than rock armour and geotextiles was requested. As well as improving coastal erosion protection to the village green and inland properties, the objective of these works was to provide aesthetic improvements to the area.

Stones and stainless steel mesh resist the storms

These requirements led to the development of an innovative low-profile solution: High-tensile stainless steel mesh is quickly and efficiently constructed to form a ‘cell’ with fill material, bracing/tensioning components - all installed on site. The system is called TECCO CELL and offers minimal impact on the landscape yet gives maximum protection to the interface between the beach and its surroundings. TECCO CELL is a system designed to be modular, durable against coastal erosion that can withstand even extreme weather events.

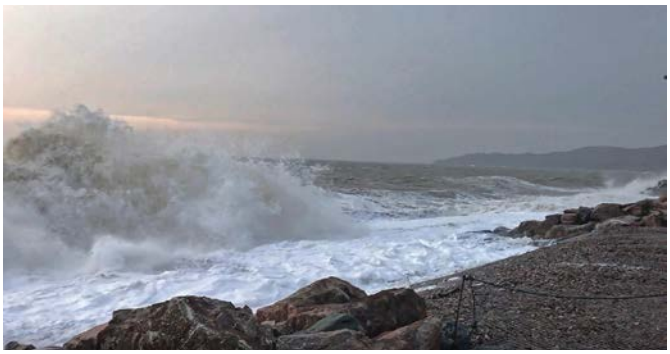
Over time it has become evident that the system offers

various benefits over conventional solutions:

- The mesh dissipates wave energy, preventing cut back erosion and erosion behind the defences. This is in sharp contrast to the splash action and erosion caused by wave impact on irregularly shaped rock armour/hard concrete walls/geotube.
- Maximum flexibility of the cell to move with changing beach levels, improving the anchoring ability of the cell over time.
- Minimum impact on environment during construction and when completed: No components that can be released into the environment, material can be recycled if cells are ever to be removed from site.
- Easily adapted to whichever coastal environment or morphology it is installed – i.e. planting or incorporating solutions for beach access to be maintained.
- Modular design allows for small areas as well as large stretches of coastline to be protected
- Resilience - monitoring of the performance of the existing solution installed at Beesands includes. testing on the corrosion of the material. Over a 4-year period there is absolutely no sign of corrosion on the stainless steel mesh material.

Economic advantages

A further 70 m of TECCO CELL solution has been installed in January 2021 at Beesands to protect the rest of the frontage of the village green and inland properties at a cost of £350 000. A costing exercise was undertaken to estimate the savings TECCO CELL solution provides over more traditional rock armour approach. It has been calculated that should a rock armour approach have been used on this section instead, the cost would be in excess



Storm Darcy pushes massive waves onto the beach protected with TECCO CELL.

The cells are easy to see from the bird's perspective.

Established system at the beach.

of £525 000. In addition to this, rock armour has a maintenance cost which equates to approximately £10 000 per year. This is what has been spent at Beesands to recover rock armour that has moved due to the action of the sea since 2017.

Public Acceptance of TECCO CELL

This solution has been well received by the local community. There has not always been agreement regarding possible solutions for the coastal defences. However, locals state their preference for the TECCO CELL as a 'sensible and extremely effective' approach to the issues they are facing. Finally, they were very pleased with the extension of the TECCO CELL defences a further 70m along the northern frontage of the beach.

Weathering the Storms – The First Endurance Test

The first installations of these systems took place in 2016. These 1:1 field tests have proven the long-term durability of all elements. Following the storm "Darcy" which hit Beesands beach in early 2021 more information has been gathered from South Hams Council. Wave monitoring at Beesands showed that for over 24 hours the wave height exceeded the storm threshold, which was set at 3 m. From 12:30 pm to 3:00 the wave height was consistently even at over 7 m. Organisations such as the Environment Agency have given positive feedback on the TECCO CELL solution and are proposing installation at other key sites, with projects due to start this year. ⊙

Innovation by experts in their fields

In 2020, patents for TECCO CELL designs were filed by Shore Defence Ltd - a company comprised of team members who were instrumental in the design of this solution. The marine grade high-tensile stainless steel mesh is supplied by Geobrugg as the global leader in this technology. The solution 'TECCO Cell' is a product available for clients to purchase from Geobrugg, with consultation and support available for projects at each stage of the design and construction process. Currently the contractor Landmarc Environmental Engineering has carried out the installations at Beesands, these are also the designers of the TECCO CELL.

Since the original solution section was installed at Beesands, there have been considerable design improvements worked on by the designers and producers of the materials to improve buildability and resilience. This includes Geobrugg changes to their manufacturing machines to produce different sized mesh to enable improvements on the design and buildability.

Beesands and the section of the coast known as 'Start Bay' in South Devon have been a significant research area for teams at the University of Plymouth studying the effects of coastal erosion. They have monitored the installation of TECCO Cell since 2106 when the first section was constructed. The team has noted the reduction of erosion impact on the area behind the beach where TECCO CELL is installed compared with the sections of the beach that are not currently protected.

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FROM SLIP TO GRIP: FRANKI AFRICA SECURES THE KLOOF ROAD SLOPE

High above Cape Town's glittering Atlantic seaboard lies Nettleton Road, one of the most sought-after addresses in South Africa. Its sweeping views of Clifton and the Twelve Apostles are matched by some of the country's most valuable real estate. But beneath this luxury lies a persistent challenge: steep, weathered slopes prone to instability when heavy rains strike.

In July 2020, this risk became reality. A section of embankment below Nettleton Road gave way after prolonged rainfall, dislodging debris and threatening properties. The slope failure was triggered by water infiltration into the slope, which reduced the soil's strength and caused a portion of the embankment to fail. Authorities immediately cordoned off the area on Kloof Road, located directly below Nettleton Road, thus protecting residents and visitors from potential hazards.

Temporary measures, such as covering exposed soil to reduce further water ingress, and placing barriers, were carried out in 2021 to stabilise the situation. These stopgap measures provided enough time for authorities to appoint specialist consultants and contractors to devise a robust, long-term solution.

A collaborative approach

The design was entrusted to HHO Consulting Engineers, a leading infrastructure engineering company that has been operating for more than 90 years in South Africa.

At the heart of remedial solution was the installation of grouted soil nails to reinforce the slope. The soil nails were drilled deep into the slope, then grouted to bond them securely to more competent underlying material.

Collaboration and teamwork, recipe for success.

These soil nails act like reinforcing rods, tying unstable soil back into stable ground and providing restraint to future movement.

Soil nails alone do not address surface erosion. To protect the slope from shallow slips and erosion, a layer of reinforcing mesh was fixed to the surface, followed by a sprayed concrete covering applied to over the surface. This shotcrete skin prevents loose soil from washing away, while also distributing loads to the anchors beneath. Together, anchors, mesh, and shotcrete form a composite system which prevents surface erosion and mitigates against future slope instability.

Franki Africa, South Africa's leading geotechnical contractors, known for its ability to tackle challenging and complex projects, was appointed to carry out this work.

Overcoming the access challenge

The logistics of working on a steep, confined site was one of the biggest challenges on this project. Conventional drill rigs were too large and heavy to be used safely. To solve this, Franki Africa imported a Comacchio MC 3D drilling rig from Italy. Compact yet powerful, the rig was ideal for operating in elevated environments where access is limited. A unique feature of this drilling rig is that the power generating components are housed in a stand-alone power pack, connected to the drilling unit with hydraulic hoses. This means that the load on a scaffold platform is significantly reduced, as the power pack can remain on ground level. This approach allows for lighter and more efficient temporary works.

A bespoke steel platform, supported on scaffold, was designed and erected, and the drilling rig was then hoisted onto this platform, allowing crews to carry out precise drilling operations directly into the embankment. This was necessary to overcome logistical constraints and allowed work to proceed safely in an environment where conventional solutions would have been impossible.

Backfilling and quality control

The eroded section of the slope needed to be rebuilt with engineered fill that was placed behind a newly build wall, the wall being aligned on a slight offset from the toe of the slope. Franki Africa used G7 sand as backfill material, which was imported and placed in layers. The selection of sand enabled compaction by means of vibratory equipment which provided efficiencies in the confined spaces while also eliminating safety hazard associated with normal compaction equipment in restricted locations. Each layer was compacted and tested for density, ensuring that the fill achieved the specified strength and stability. Rigorous testing was carried out at every stage, verifying that the embankment rebuild would perform as designed.

This backfilling process was not just about replacing lost material; it was integral to the structural stability of the slope. Proper compaction reduced the risk of settlement, ensured the soil nails would perform as intended, and extended the overall life of the slope.

Reaching new heights, no compromise on safety and quality.

Tackling drainage

One of the main triggers of the failure was water infiltration. Without improved drainage, even the most advanced structural measures could fail in the future. Recognising this, the designers incorporated new measures to facilitate drainage and surface runoff. Subsurface drains were installed to intercept groundwater, while surface channels were reshaped to safely divert rainwater away from the embankment.

These drainage measures are critical for long-term performance. By lowering water pressures within the soil mass, they help maintain stability, reducing the likelihood of future slope failures during increasingly intense rainfalls seen in the region.

Environmental sensitivity and finishes

Clifton's dramatic setting demands careful attention to aesthetics. Residents were understandably concerned about the visual impact of the rehabilitated slope. To address this, the designers incorporated natural sandstone cladding on selected sections of the slope. This finish blended the remedial works into the surrounding landscape, reducing visual intrusion and preserving the character of the area.

Dust, noise, and environmental disturbances were also carefully managed throughout construction. Mitigation measures ensured that the works respected both the natural environment and the needs of the local community.

Restoring road and services

The rehabilitation works extended beyond the embankment itself. The slope failure had disrupted utilities and roadside infrastructure. As part of the project's final phase, affected services were reinstated, and roadside parking bays reconstructed. The parking bays will be resurfaced with new asphalt, returning full functionality to this section of road and restoring convenience for residents and visitors.

Conclusion

From the moment the embankment failed, the story of Kloof Road has been one of rapid response, thoughtful design, and innovative construction. What began as a hazardous collapse has been transformed into a model of slope stabilisation.

With soil nails locking the slope into place, shotcrete skin preventing it from erosion, and drainage controlling the water that triggered the slip, the slopes on this section of Kloof Road now stand secure. Finished with natural stone and new asphalt, the project is a reminder that even in the face of natural challenges, engineering can deliver solutions that are safe, resilient, and respectful of the environment.

For Clifton's residents and visitors, the project has restored peace of mind. For Cape Town, it offers a blueprint for protecting its hillside roads against the growing threats of climate and terrain. In every sense, the Kloof Road project represents the move *from slip to grip.*

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ECO-FRIENDLY SOLUTIONS TO PROTECT STRUCTURES SUSCEPTIBLE TO SOIL EROSION

Fibertex Nonwovens SA has recently collaborated with a leading construction company - through the supply of an eco-friendly geosynthetic solution, designed to combat soil erosion at a new solar power plant in South Africa.

"This project involved the supply of the Fibertex Greencell system and assistance with technical designs for the natural vegetated drainage channels constructed to keep water away from solar panel structures," explains Riaan Rademeyer, Sales Engineer, Fibertex Nonwovens - specialists in nonwovens and performance-based materials. "Greencells are a cost-effective cellular containment system manufactured from UV stabilised, coated slit film woven geotextile strips, which are alternatively stitched to form a continuous honey-comb square mat. "This Greencell cellular mat structure was filled with a 3% cement stabilised soil and is used to stabilise the base course and drainage canals at the power station. Advantages of the lightweight Greencell system are its tear resistance, ease of installation and long service life. Other notable features are resistance to the alkalinity of concrete and the flexibility of manufacture to exact specifications, including precise height, cell size, cell density and panel dimensions for specific installation."

Fibertex Greencells are manufactured from woven

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polypropylene tapes coated with polyethylene, ensuring ultimate tensile strength at low elongation. Joints in the fabric are stitched with a high strength multi-filament polypropylene thread. Although cell walls are impermeable, they can be perforated to allow for the free drainage of liquids. One side of the structure is textured and the other side is smooth, thereby improving the friction and sheet strength of the concrete. As the material is allowed to deform in the vertical plane, it does not allow the blocks to punch through. Fibertex specialists also recommend the installation of Fibertex SlopeSaver 292 – a biodegradable geojute, designed for use as a surface stabiliser for pre-vegetated slopes.

This environmentally-friendly product is manufactured from woven natural jute fibres, to form a mesh of approximately 10 mm x 10 mm in aperture, that is staked at 1 m^2 intervals. After installation, the jute eventually degrades into an organic mulch, by which time, the planted vegetation has developed its own rooting system.

Short term stability of the covered areas is achieved by

planting a fast-growing form of vegetation, while long term stability of the covered area requires the planting of a deep-rooted form of vegetation.

Typical applications for Greencells and SlopeSavers include farm dams, embankments, river banks, sand dunes, base courses and canals, as well as protection of embankments on HDPE materials.

Fibertex Nonwovens manufactures an extensive range of geosynthetic products to suit various construction applications. The Fibertex geosynthetics range encompasses nonwoven and woven geotextiles, gabions and mattresses, drainage pipes, erosion control and cellular confinement solutions. The company also supplies soil reinforcing products, including geogrids and geocells, as well as geosynthetic clay liners as part of composite lining systems in modern landfills. The company's continued focus on quality and a commitment to meeting exact customer needs, has led to significant expansion of business operations.

Global support guarantees the edge on product design, impeccable manufacturing standards, cost efficiency, safety and reliability of every material. Fibertex products are manufactured to consistent quality standards at all production facilities around the world.

Apart from the supply of high-quality products, Fibertex Nonwovens offers a dependable technical advisory and support service throughout Africa. The local team provides cost-effective solutions to design engineers and contractors, for innovative, efficient and safe use of all Fibertex materials. ⊙

Fibertex Nonwovens SA has recently collaborated with a leading construction company - through the supply of an eco-friendly geosynthetic solution, designed to combat soil erosion at a new solar power plant in South Africa.

THE FUTURE IS BUILT ON FOAM

Other earthen fills have largely dominated the construction industry for ages. The familiar, and inexpensive, nature of these materials has made them the preferred option for the construction industry over the years.

However, since their characteristics can vary depending on their excavation source and can thus change according to factors like weather and availability these conventional fills are significantly unpredictable, which has led the industry to seek more stable and sustainable alternatives.

Once a lightweight curiosity in the construction world, geofoam a block form of closed-cell Expanded Polystyrene (EPS), has become a sophisticated, essential tool for modern civil engineering. Its story is a quiet revolution, transforming how we approach construction. Geofoam is no longer just a fill-in; it is a foundational, cost-effective, and surprisingly sustainable solution to some of the industry's most persistent challenges.

At its core, geofoam is an engineered, ultra-lightweight fill material, with a density of about 1% that of soil. This property offers its most dramatic advantage: minimising vertical and lateral loads. This prevents or significantly decreases settlement, which can be a costly and time-consuming issue with traditional construction.

But geofoam's utility extends far beyond simple weight reduction. Its versatility addresses a broad spectrum of engineering problems:

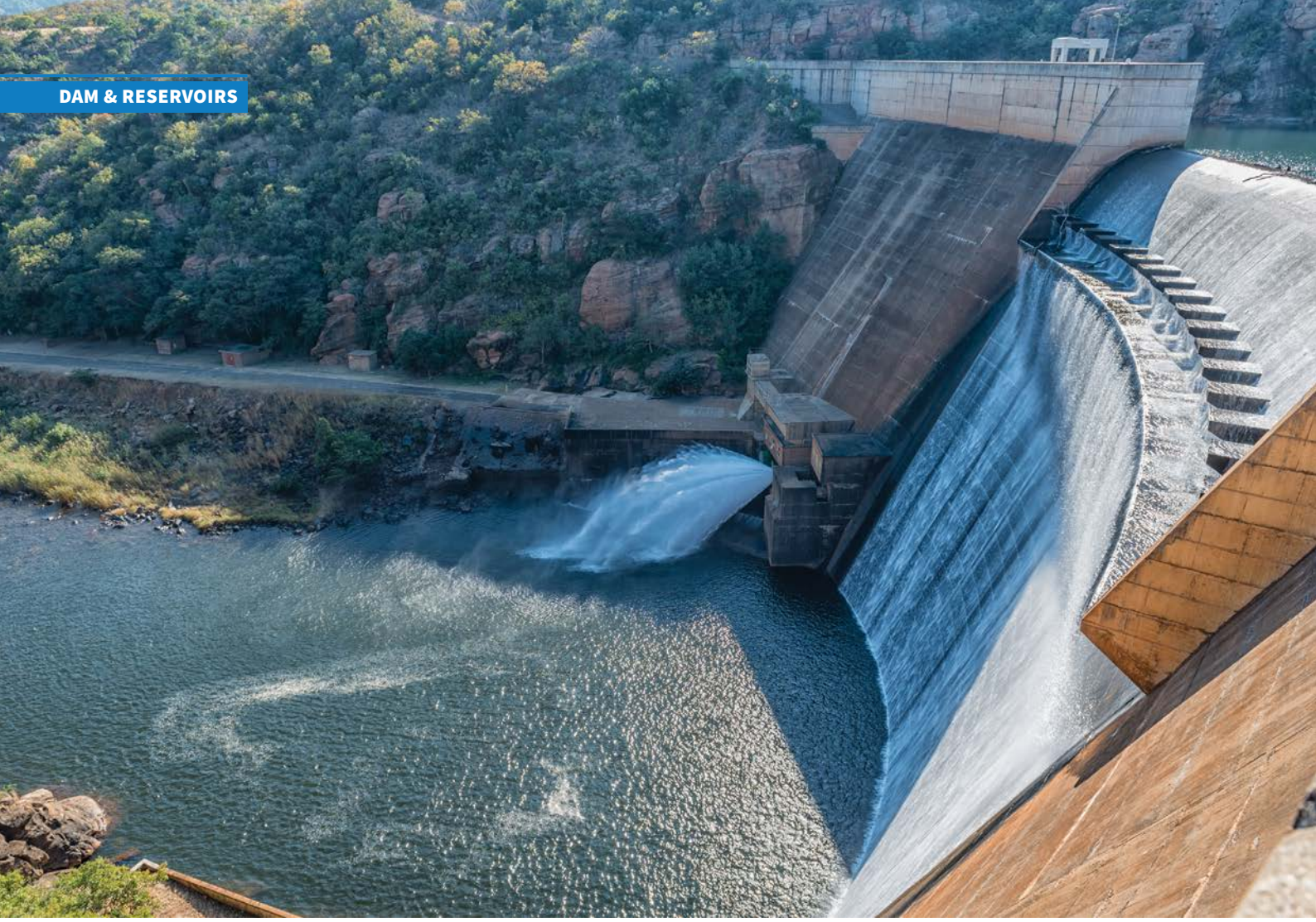
- **Road & rail embankments:** reduce settlement on soft soils.
- **Bridge approaches:** minimising 'bump at the bridge' from differential settlement.
- **Buried structures:** protect tunnels, culverts, pipelines.
- **Void fill:** quick backfill solution for irregular or large voids.
- **Retaining walls:** Their lightweight nature mean less pressure on retaining walls, allowing for less robust, and therefore less expensive, structural designs.
- **Seismic protection:** Acting as a compressible buffer, it dissipates energy from seismic events, protecting foundations and underground utilities from movement and damage.
- **Frost heave prevention:** In colder climates, geofoam's thermal insulation properties are used to prevent frost from penetrating and expanding in the soil beneath

pavements and foundations, improving structural longevity.

- **Slope stabilisation:** For sites prone to landslides, replacing heavy soil on steep slopes with geofoam reduces gravitational forces, significantly increasing stability.
- **Urban construction:** As cities build up, geofoam provides a high-strength, lightweight option for landscaping and creating structures like stadium seating or rooftop gardens without stressing the building's structural integrity.

While its benefits in terms of construction efficiency and load management are clear, geofoam also presents a compelling, albeit complex, environmental profile. Proponents highlight that its light weight reduces the number of truckloads needed for transport, leading to fewer emissions and less road wear. The material is also chemically inert, meaning it won't leach pollutants into the groundwater. Furthermore, it is 100% recyclable, and its manufacturing process can incorporate recycled material, reducing landfill waste.

Ultimately, geofoam is a quiet powerhouse in modern construction. Its applications showcase a shift in engineering philosophy—from relying on sheer mass and reinforcement to using smart, tailored materials that reduce loads and mitigate risks from the ground up. As the industry continues to push toward more cost-effective, efficient, and sustainable practices, geofoam will undoubtedly remain a cornerstone of innovation. ⊙



SA's dam construction programme: **PROGRESS, CHALLENGES, AND THE ROAD TO 2030**

In a country where rainfall is unevenly distributed and drought is a recurring reality, water infrastructure remains central to South Africa's economic and social resilience. Dams are the backbone of that infrastructure: they store and regulate water for households, agriculture, mining, industry, and power generation. Since 1994, the Department of Water and Sanitation (DWS) reports that 62 dams have been built across the nine provinces, adding more than 4,45 billion cubic metres of storage capacity.

Yet despite this progress, the sector today is defined as much by delays and budget overruns as by achievements. Major projects such as the raising of Clanwilliam Dam in the Western Cape or Tzaneen Dam in Limpopo are years behind schedule, while costs continue to escalate. On the other hand, successful delivery of projects like Hazelmere Dam in KwaZulu-Natal show what can be achieved when planning, funding, and execution align.

As South Africa faces intensifying climate pressures, population growth, and industrial demand, the next five years will be decisive in shaping whether the country's dam infrastructure keeps pace with national water security needs.

The state of play: major projects

Tzaneen Dam wall raising – Limpopo

The Greater Letaba Water Augmentation Project (GLeWaP) includes the raising of the Tzaneen Dam wall by 3 m, boosting storage from 157 million m^3 to 193 million m^3. The project also incorporates a new labyrinth spillway to increase discharge capacity and improve dam safety.

Originally targeted for completion in March 2025, the project is now at 46-47% progress and revised for completion by March 2026. The additional capacity is critical in a province that has faced persistent droughts, with agriculture, households, and industry competing for limited resources.

Clanwilliam Dam wall raising – Western Cape

Few projects better illustrate both the urgency and difficulty of South Africa's dam programme. The Clanwilliam Dam, part of the Olifants-Doorn River Water Resources Project, is undergoing a 13 m wall raising designed to expand storage and secure water for agriculture and municipalities.

But progress has been painfully slow. After starting with an estimated cost of around R2–3-billion, the project has ballooned to R5,6-5,7-billion, with completion only expected by 2028 or 2029. As of mid-2025, progress stands at just over 20%. The project has also had safety implications: in 2022 the Dam Safety Office rated Clanwilliam as "F", requiring urgent upgrades. For construction firms, this project highlights the importance of robust project management, realistic costing, and streamlined procurement —-all areas where the sector has struggled.

Polihali Dam – Lesotho Highlands Water Project Phase II
South Africa's reliance on cross-border water infrastructure is evident in the Polihali Dam, part of the second phase of the Lesotho Highlands Water Project. Designed to hold 2 325 million m^3 of water over 5 000 ha, the dam will increase transfers into Gauteng and bolster hydropower output.

Construction is about 30% complete, but the scale and complexity of the works mean that full delivery will extend well into the late 2020s. The project demonstrates the regional dimension of water security and the opportunities for South African contractors and suppliers involved in cross-border infrastructure delivery.

Hazelmere Dam Raising – KwaZulu-Natal
In contrast to the delays seen elsewhere, the Hazelmere Dam raising has been a success story. At a cost of R820-million, storage capacity has been increased from 23,9 million m^3 to 43,6 million m^3, significantly improving supply to eThekwini and surrounding communities. The project underscores the value of synchronising construction with upgrades to treatment works, ensuring that added storage translates directly into improved service delivery.

Future Pipeline Projects
Beyond these major schemes, the DWS has flagged several projects in planning or design phases, including Ntabelanga Dam, Foxwood Dam, Coerney Balancing Dam, Nwamitwa Dam, and Zalu Dam. These are concentrated in water-stressed provinces such as the Eastern Cape and Limpopo. While timelines stretch to 2029-2030, these projects form part of a long-term programme to balance supply and demand nationally.

Key challenges facing the sector

Cost escalation
Construction inflation remains a central problem. Materials such as cement and steel have seen sharp price increases, compounded by rising fuel and logistics costs. Cost underestimation at planning stage has also been a persistent weakness. The Clanwilliam Dam escalation from R2-3-billion to nearly R6-billion is emblematic of a wider pattern that undermines public trust and strains budgets.

Procurement and funding bottlenecks
Slow tender processes, legal disputes, and delayed release of funds have stalled projects nationwide. Even where budgets exist, administrative inefficiencies in procurement create gaps between planning and execution. Covid-19 added to these delays by disrupting supply chains and limiting on-site work.

Engineering and safety demands
Raising dam walls involves complex geotechnical challenges, spillway upgrades, and strict safety compliance. Older structures, some of which date back to the mid-20th century, require reinforcement before modification. Inadequate assessments can lead to redesigns and costly delays.

Social and environmental constraints
Dams inevitably affect communities and ecosystems. Land acquisition, resettlement, compensation, and environmental mitigation measures often slow progress. With increasing public awareness and legal scrutiny, social licence to operate is becoming as critical as technical capability.

Integration with downstream infrastructure
In several cases, storage capacity increases are not matched by upgrades to treatment works and pipelines. Hazelmere illustrates how parallel upgrades ensure benefits flow to end-users; without such integration, new storage can sit underutilised.

Government policy and industry implications

In its 2025/26 budget vote, the DWS reaffirmed dam construction and rehabilitation as strategic priorities. The department also acknowledged that traditional funding models are insufficient, calling for public-private partnerships and blended finance to close the gap.

For contractors, consultants, and suppliers, this shift opens new opportunities - but also demands greater financial discipline and risk management. Engineering firms must demonstrate climate-resilient design capabilities, as

Jet Demolition used cranes to lower the demolition excavator onto the Hazelmere dam wall.

more intense droughts and floods reshape design criteria. Environmental specialists are increasingly integral to project teams, ensuring compliance and minimising ecological impacts.

Outlook: 2025–2030

The next five years will be decisive for South Africa's dam construction landscape. If projects like Tzaneen and Clanwilliam are successfully delivered, and if Polihali continues on track, the country could see a substantial improvement in water security across key provinces and metropolitan areas.

However, the risks are considerable. Cost escalation, funding constraints, and climate variability will remain persistent threats. A failure to deliver could exacerbate water shortages, undermine agricultural output, and constrain industrial growth.

For the construction industry, the sector represents both risk and opportunity. Large dam projects are technically complex, capital-intensive, and politically visible. Firms that can deliver efficiently, within budget, and in compliance with environmental and safety standards will strengthen their position as preferred partners for future infrastructure. Conversely, those unable to manage delays or cost overruns risk reputational damage in a high-stakes sector.

South Africa's dam construction programme is a story of contrasts. On one hand, successful projects such as Hazelmere demonstrate what is possible when funding, planning, and execution align. On the other, the drawn-out delays and escalating costs of Clanwilliam underscore systemic weaknesses in project management and procurement.

Looking to 2030, the country's ability to balance these outcomes will be critical. Water security cannot be postponed indefinitely: without reliable storage and distribution, agriculture, industry, and households will face growing stress. For the construction industry, the challenge is clear - deliver durable, climate-resilient, and cost-effective infrastructure that ensures water security for the future. ⊙

CONCOR NURTURES KAROO BIODIVERSITY AT KARREEBOSCH WIND FARM PROJECT

Mitigating the environmental impacts of construction work needs careful planning and meticulous execution, especially in areas like the Karoo - where vegetation can be more sensitive to disruption and take longer to recover.

Survey poles demarcate the road servitude at the Karreebosch Wind Farm facility, reinforcing Concor's commitment to sustainable development and environmental stewardship.

The 140 MW Karreebosch Wind Farm, being developed by Cennergi Holdings and G7 Renewable Energies between Matjiesfontein and Sutherland, will supply power to a private off-taker. The project will feature 25 turbines, each 100 m high with blades over 84 m long.

Environmental management has centred on protecting local watercourses and biodiversity, says Kevin Booth, Environmental Officer for Concor. While the rivers in this region are generally small and ephemeral or intermittent rivers they play a vital role as biodiversity hotspots.

"We design the layout of our working areas specifically to mitigate our environmental impact, particularly where the watercourses are," Booth says. "This is done in compliance with both the project's environmental management plan (EMP) and its water use licence (WUL)."

The WUL permits construction work within 32 metres of a watercourse, provided specific requirements outlined in the licence are met. All environmentally high-risk activities, however, must observe this buffer zone – such as refuelling which carries the risk of spillage and contamination.

"Our on-site environmental care must always prioritise the soil, organisms, plants, animals and the riparian environment of the watercourses," he explains. "To achieve this, we limit our construction footprint as far as possible."

The road network – to reach the sites where wind turbine towers will be placed – is one of the main infrastructural elements of the project, with the roads themselves occupying a width of 6 to 9 metres. The environmental impact assessment (EIA) allowed a total laydown area of some 18 hectares, but the Concor team strategically planned its laydown zones to reduce the area required, thereby minimising the footprint as far as possible.

Before any construction began, Concor's surveyors demarcated the working area with surveying poles, ensuring that all activity is conducted within these zones. He highlights that earthmoving equipment moving outside of this area can severely damage the plant life.

"Within these servitudes, we carry out a formal 'search and rescue' process to preserve diversity," he continues. "This means identifying those plants that are sensitive and moving them out of harm's way to where they can continue to thrive."

Each province issues a biodiversity permit that prescribes how the work is to be conducted. As the project traverses both the Western Cape and Northern Cape, the developer secured permits from both provincial authorities, with Concor responsible for executing the permit requirements.

"After removing the identified plants from the working areas, we place them in an on-site nursery to help them recuperate before they are transplanted back into the surrounding area," Booth says. "The sites for transplanting must be carefully selected as the new position must have comparable topography and geological conditions."

The search and rescue phase focuses on plants that need protection, as defined by ordinances from national and provincial environmental authorities. The Concor team – including botanical specialists – then prepares a detailed report on the plant relocations for the client and the authorities, so that the area can be effectively monitored over time.

"We conduct this monitoring to ensure that the search and rescue process is successful," he says. "All this work is carried out in accordance with our onsite environmental monitoring and inspection plan."

After the removal of sensitive vegetation, a clear-and-grub is done to remove topsoil – the ecologically important layer containing organic matter and its own seed bank. Once construction is completed; this material can be returned during

Topsoil is preserved along a road servitude at the Karreebosch Wind Farm facility, ensuring environmental care during construction.

rehabilitation - to ensure that indigenous vegetation can regrow.

Stormwater management is another critical element of preserving the environment, Booth explains, especially the separation of clean from 'dirty' water. While clean water refers to rainfall that lands on natural ground and flows off normally, there is also water that picks up sediment from the disturbed ground in the construction areas.

"Our priority is to limit the runoff from the construction areas – using strategies including silt traps and sandbags," he says. "This prevents muddy water from leaving the work areas and finding its way into natural drainage lines."

The Concor site team follows a dedicated stormwater and erosion management plan, which aligns with the requirements of the WUL. The plan details exactly how the work will be carried out, specifying the drainage systems, cut-off berms and other infrastructure as well as culverts, gabion baskets and rock packing.

With the movement of trucks, excavators and other vehicles on the site and road network, dust invariably becomes an environmental issue. Booth points out that this is mitigated through the application of a dust management plan – including the regular spraying of roads.

"To conserve water in a responsible manner, however, we carefully target our water spraying activity for optimal effect," he says. "This helps to limit any detrimental impact of dust on communities, vegetation or workers on site."

He highlights that managing waste is also an ongoing concern for Concor on the Karreebosch Wind Farm project and is governed by a dedicated waste management plan.

Communicating all these plans is as important as drafting them, he emphasises, explaining that the environmental aspects of the project also form part of the induction process for both Concor people and subcontractors.

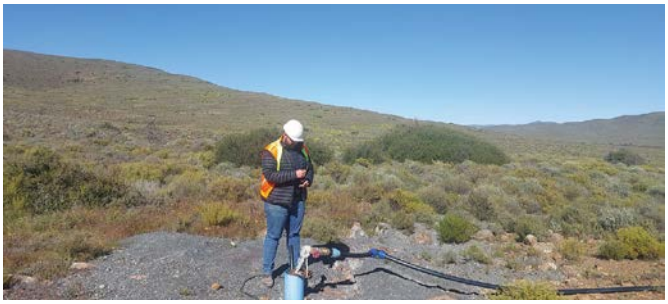
"Everyone who comes to site undergoes an environmental induction, so that they are aware of management's requirements and understand what we want to achieve with our planning," he says. "It is critical that all stakeholders are on the same page; all our foremen also have copies that they can refer back to when checking for technical details."

In addition to the main work site where the turbines will be located, the project also includes a 9 km powerline between the wind farm and the connection substation to the main grid. This too required the investment of considerable time and environmental expertise.

"While the distance of the powerline itself was less than 10 km, the specialist botanist and her team covered a distance of 150 km over 10 days – searching for sensitive plants and removing them from the working area," he says.

He notes that construction clients are increasingly conscious of on-site environmental obligations and value Concor's proactive detail-driven approach to ensuring full compliance while safeguarding natural resources. ⊙

At the Karreebosch Wind Farm facility, Concor ensures careful management of the road servitude close to the water body.



Regularly checking water levels at the Karreebosch Wind Farm facility forms part of ongoing monitoring to safeguard natural resources during construction.

A sandbag silt trap is installed at the watercourse crossing on the Karreebosch Wind Farm facility to safeguard the environment during construction.

Protecting biodiversity at the Karreebosch Wind Farm facility includes relocating delicate species such as the Forest Lily.

Can investing in engineers' Continuous Professional DEVELOPMENT SECURE SOUTH AFRICA'S WATER?

South Africa is facing a mounting water infrastructure crisis, with the Department of Water and Sanitation estimating a R400-billion backlog across 105 distressed municipalities struggling to provide reliable water services.

CESA CEO Chris Campbell.

Despite substantial financial support exceeding R100-billion over the past five years, problems persist due to ageing infrastructure, capacity constraints, and governance challenges, leading to widespread community protests, especially in Gauteng.

Against this backdrop, Consulting Engineers South Africa (CESA) emphasises the critical importance of continuous professional development (CPD) in building the engineering capacity needed to overcome these challenges. Through its School of Consulting Engineering (SCE), CESA is rolling out new targeted courses focusing on water and wastewater treatment solutions, equipping engineering professionals with up-to-date knowledge and practical skills crucial for delivering sustainable results.

"South Africa's water crisis is complex and urgent. While funding is necessary, it alone is not enough. Skilled engineering professionals, well versed in the latest treatment technologies, regulatory frameworks, and operational practices, are essential to turning the tide," says CESA CEO Chris Campbell. Continuous learning, he explains, is therefore essential in helping engineers to design, maintain and upgrade critical water infrastructure effectively, directly impacting service delivery and community wellbeing.

The Biological Wastewater Treatment Principles and Design course equips participants with the knowledge to design and optimize sustainable systems using microbial processes and advanced technologies like membrane bioreactors and anaerobic digestion. The Introduction to Drinking Water Treatment course provides foundational insight into water source assessment, treatment methods, and regulatory compliance, including the application of SANS241 in Water Safety Planning. The Introduction to Wastewater Treatment course covers core principles, municipal and decentralized systems, and guides learners through compiling a Wastewater Risk Abatement Plan with practical, case-based learning.

Recent protests in Gauteng, including in Westbury, Coronationville, Ebony Park, Tsakane, and Vlakfontein, have highlighted the social and economic impact of unreliable water supply, manifested in disruptions to daily life, health risks and economic losses, likely just as prevalent in many other towns and provinces throughout our country. "While it is commendable that government officials have intensified their efforts to coordinate interventions across departments and municipalities, the persistent technical and capacity gaps underline the urgent need for professional development," Campbell adds.

"Addressing the R400 billion infrastructure backlog requires more than just money, it demands competent professionals who understand intricacies of water systems and can innovate under constraints. By investing in CPD, South Africa's engineers become leaders in delivering infrastructure renewal and transformation, ultimately securing safe and sustainable water access for all communities," he added.

The SCE's CPD validated courses also support engineers in meeting ECSA's professional development requirements, ensuring skills remain current amid evolving technical and regulatory landscapes. The flexible online delivery enables broad participation across the country.

South Africa's water crisis is not only an engineering challenge but a profound social issue that demands collective responsibility. Enhancing engineering capacity through continuous learning is a vital step toward restoring trust in municipal services, preventing protests, and advancing national development priorities.

"Continuous professional development is indispensable in our industry, ensuring our engineers are able to meet the modern day challenges head on. These new courses on water and wastewater treatment underscore our commitment to advancing sustainable solutions that safeguard public health and environmental integrity," Campbell concludes. ⊙

UNLEASH THE PEAK PERFORMANCE OF FUCHS FRICOFIN LL 50

From the scorching heat of the Northern Cape to the breezy peaks of the Drakensberg, South Africa's roads are as diverse as they are demanding, and require reliable engine performance. FRICOFIN LL 50, a long-life, high-performance coolant by FUCHS LUBRICANTS SOUTH AFRICA, ensures your vehicle is up to the task.

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Approvals

- CAT / MWM TR 0199-99-2091
- DAF 74002
- DEUTZ DQC CB-14
- DTFR 29D110 (MB 326.3)
- MAN 324 TYPE SNF
- MTU MTL 5048

Key Advantages of FRICOFIN LL 50

- Ready-to-Use: Comes pre-mixed with demineralised water.
- Comprehensive Protection: Offers superior defense against freezing, overheating, and corrosion.
- Extended Drain Intervals: Designed for the longest change intervals, reducing maintenance downtime and costs.
- Heavy-Duty Application: Successfully tested for heavy-duty applications without requiring an initial filling of Supplement Coolant Additive (SCA).
- Compatibility: Safe for use with seals, plastics, and non-ferrous metals, minimising wear and tear.
- Safety Feature: Contains a bittering agent to prevent accidental ingestion.

"Our commitment to developing innovative solutions drives the mobility of tomorrow - efficient, sustainable, and reliable," says Gregory Tarr, the Application Engineers Manager at FUCHS LUBRICANTS SOUTH AFRICA. "FRICOFIN LL 50 exemplifies this promise, offering technology that not only protects your engine but also adds value through reduced maintenance costs and enhanced vehicle performance." Tarr adds.

As with all coolants, it is crucial to observe the manufacturers' compatibility and recommendations. ⊙

First New Generation Volvo A40 ADTs DELIVER THE GOODS FOR M CIVILS

Having become the first recipient of the new generation Volvo articulated dump trucks (ADTs) in southern Africa, M Civils has deployed its 12 Volvo A40 units to undertake a newly-awarded chrome mining project. Particularly impressed by the fuel efficiency, quick cycle times and operator comfort, M Civils has placed an order for 12 more A40 units.

Established in 1997, M Civils started in construction, with particular focus in road building and infrastructure development. Over the years, the Rustenburg headquartered company has diversified its business to include contract mining.

Its latest project is a greenfields chrome mining contract to produce 90 000 tonnes (t) of run-of-mine chrome per month for the next five years. To execute this project, ADTs were deemed ideal for the operating conditions, where seams dip at 10-12 degrees on average, confirms site manager Mpho Ramalepe.

After careful consideration, the company opted for Volvo Construction Equipment (Volvo CE) haulers, placing an order for 12 new generation A40 units, which were delivered in early June this year. Due to the urgent nature of the contract, Babcock, the sole Volvo CE dealer in Southern Africa, delivered the machines to M Civils well ahead of the 26 June official launch event.

Choosing Volvo CE

Central to the buying decision, explains Reino de Kock, COO at M Civils, was Volvo CE's interface kit, which facilitates for the integration of Level 9 Proximity Detection Systems (PDS)/ Collision Avoidance Systems (CAS) technology from any third-party supplier.

"The biggest benefit of an OEM Level 9 interface is seamless integration, which reduces compatibility challenges, a common issue when using third-party interfaces," says Reino De Kock.

Another key attraction for M Civils was the Haul Assist with On-Board Weighing, a Volvo CE system that provides real-time payload data, aiming to increase productivity, efficiency and reduce wear and fuel consumption by preventing underloading and overloading.

Key considerations

Apart from feature-related interests, M Civils also placed value on total cost of ownership (TCO) and the aftermarket support behind the Volvo CE product. The TCO approach to M Civils' procurement decisions factors all costs associated with the operation, maintenance and eventual disposal over the entire lifecycle, which justified the decision to go with Volvo.

"Every good product is only as good as its support. In Babcock, the Volvo CE product is supported by a reputable dealer in southern Africa. Strong aftermarket support is crucial for the success of our operations – it minimises costly downtime, extends equipment lifespan, reduces TCO and improves operational productivity through expert technical support, timely parts delivery and a proactive maintenance regime," says De Kock.

Delivering the goods

The 12 Volvo A40 units have been deployed to haul both waste and ROM material from the newly-opened pit to the designated waste rock dumps and ROM pads. Working 12-hour shifts, the haulers have already clocked between 600 and 700 hours, delivering the goods as per M Civils' expectations.

Ramalepe has been impressed by how quick these haulers are, even over challenging terrain, which affords faster cycle times and ultimately greater productivity.

Vincent de Kock has been particularly impressed by the fuel efficiency. "Fuel consumption to date ranges between 10 litres per hour, when running with overburden, and 14 litres per hour, when loading chrome, which by its nature is heavy due to its specific gravity, typically between 4,5 and 4,8," he explains, adding that these figures might change in future as mining conditions become tougher.

Based on the performance of the ADTs to date, M Civils has placed an order for 12 more A40 units. "As we ramp up production, we are looking forward to receiving another 12 A40 units, which we will deploy on the same project," concludes Reino. ⊙

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