

CAPABILITY STATEMENT

SUBJECT

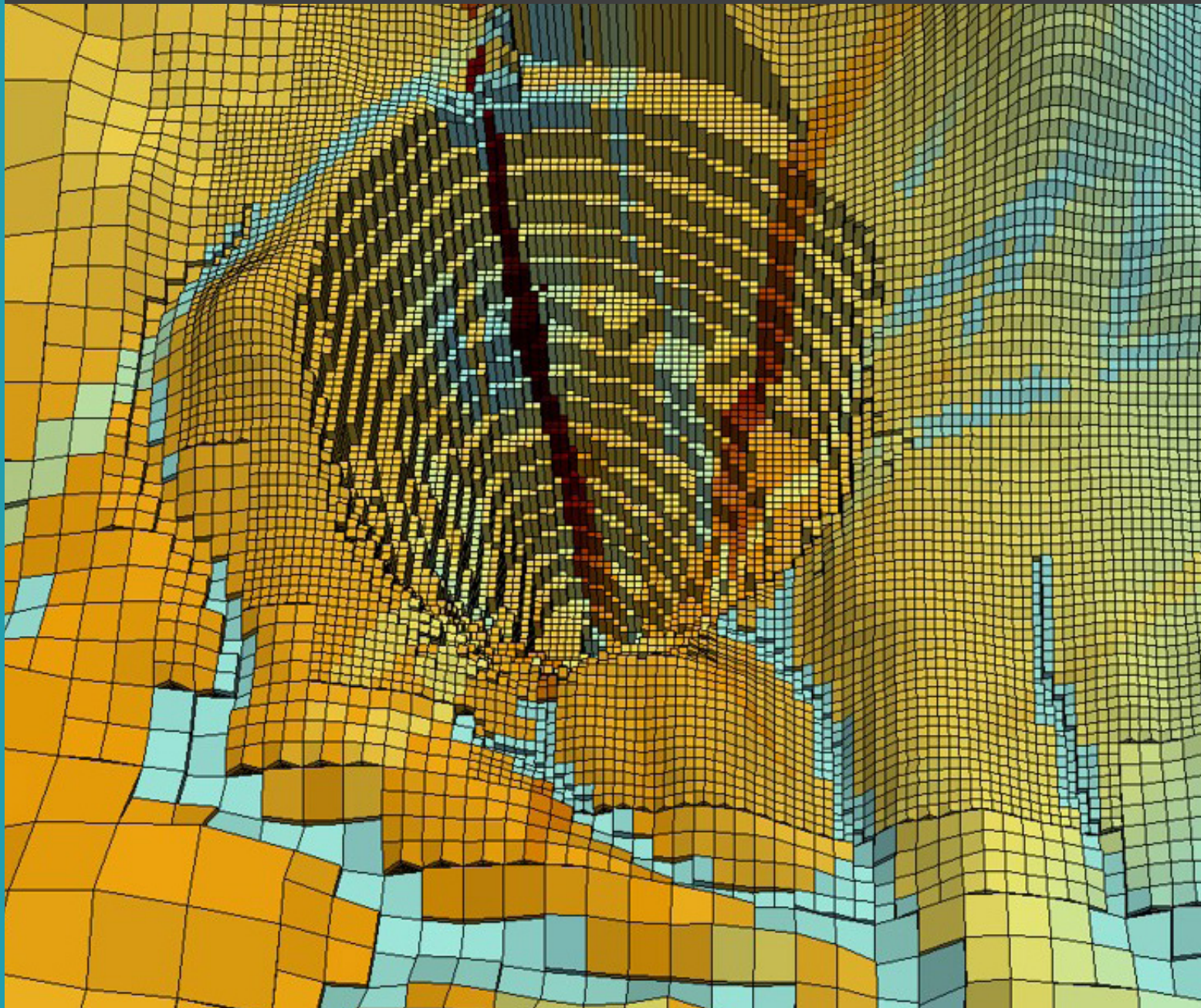
Geotechnical Modelling and Analysis

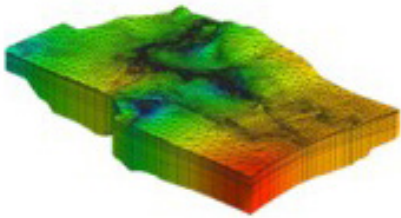
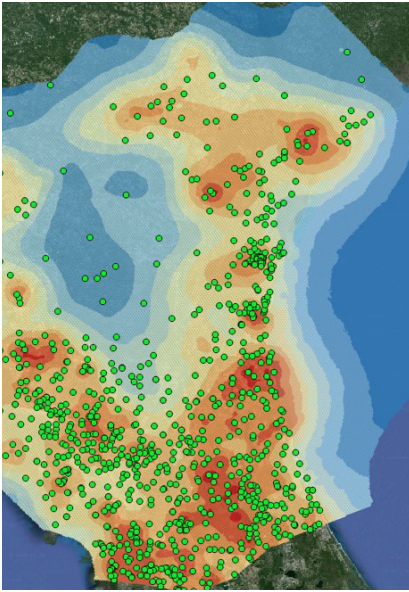
MARKETS

Feasibility and Mine Planning | Mine Operations | Mine and Quarry Closure
Rehabilitation, Monitoring and Research

ISO

9001:2015 | 14001:2015 | 45001:2018





Geotechnical Modelling and Analysis

Optimising geotechnical analysis and models to simulate stability and deformation trends in the field helps risk-inform mining operations. This allows effective decision-making to mitigate incipient hazards or change designs to avoid unwanted, costly, reputation-damaging failures.

Progressive and dynamic technological advances are reshaping the mining industry. The primary advantage of these changes is the unlocking of mining potential, allowing exploration of more resources in an efficient, sustainable, and safe manner. This is an exciting time for the industry, with technology paving the way for new opportunities and improved practices.

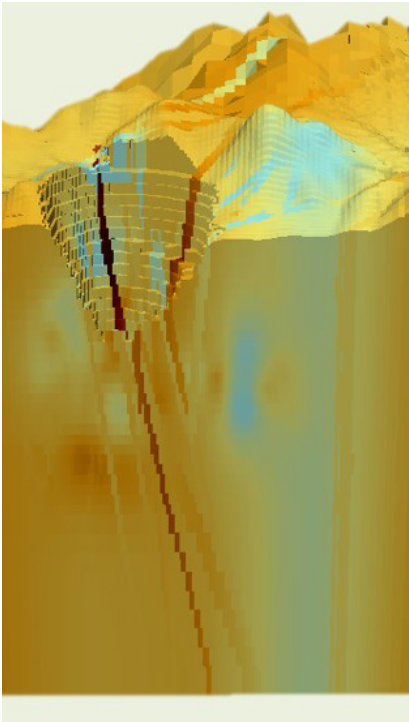
Geotechnical analysis is an important component in ensuring that these benefits are achieved. We can better predict the behaviour and response of structures, excavations, or slope loading through geotechnical analysis and modelling. These analyses assist in predictive analysis, which aids decision-making on risks and how to mitigate them.

Several modelling techniques are undertaken for different geotechnical issues, provided representative input parameters are used. The specificity of input parameters to site-specific conditions allows the deduction of site-specific solutions to specifically address spatial and temporal variables.

With legacy issues and personnel turnovers in operations, obtaining relevant information to support geotechnical modelling and analysis can be daunting and, in many cases, unachievable. We formulate integrated teams that work with the client to ensure that relevant data is obtained. With the capability to undertake site investigations and conduct laboratory tests, we can bridge the gap to ensure that projects are completed to high standards with more appropriate information, and data used in geotechnical models.

Key considerations

- 1. Dynamic Technology:** With robust and dynamic technological advancement, there is a need to continuously upskill to be able to use the positive aspects brought about by changes. Using leading laboratory and geotechnical analysis technologies, we provide more updated analytical capabilities to meet project demands.
- 2. Geotechnical Analysis:** We conduct high-standard geotechnical analysis supported by our in-house laboratory and field testing capabilities. Input parameters are analysed in a controlled manner from collection to application, minimising uncertainties and transformation errors.
- 3. Site-specific Solutions:** With controlled site conditions in most mining operations, utilising site-specific input parameters in models to simulate characteristic conditions as close to field conditions is critical to be able to conduct predictive analysis.



4. Dynamic Adaptation: Dynamic adaptation involves staying agile and responsive to changing geotechnical conditions and project demands. Continuous monitoring and real-time data analysis enable engineers to adjust strategies promptly, ensuring projects remain on track and perform optimally despite unforeseen developments.

5. Future-Proof Mine Engineering: Futureproofing involves planning with long-term impacts in mind, from development through to closure. By integrating forward-looking strategies, projects can achieve both immediate efficiency and long-term stability, addressing future challenges and minimising risks throughout the mine life cycle.

Approach

SGME's approach to engineering solutions emphasises the importance of expertise, innovation, and proactive engagement. Understanding project-specific challenges deeply and leveraging advanced technologies and rigorous data analysis are crucial for developing effective strategies. Collaboration with clients to tailor solutions enhances safety, minimises risk, and optimises operational efficiency throughout all phases of infrastructure development. Integrating these capabilities with ongoing monitoring and adaptive management practices ensures resilient and sustainable project outcomes.

Outcomes

When engaging SGME for engineering needs, the focus is on delivering tailored strategies that address unique project challenges. Our commitment to safety, risk management, and environmental stewardship highlights the importance of efficient and sustainable operations. Strategic planning and proactive stakeholder engagement are essential for fostering collaboration and achieving positive project outcomes, ensuring that all operations meet regulatory standards and support long-term success.

Working with SGME

Engaging SGME as a collaborative partner delivers numerous benefits:

- **Improved return on investment (ROI):** Our expertise maximises ROI to satisfy investor expectations.
- **Reduced mine closure risks and disruptions:** Our strategies minimise complex closure risks to ensure a smooth future land use transition.
- **Addressing environmental, social, and governance (ESG) risks:** We focus on ESG criteria to mitigate environmental impacts and meet regulatory standards.
- **Enhanced strategic insight:** Collaboration boosts your performance through strategic planning.
- **Industry collaboration:** We foster partnerships with mining experts, staying abreast of technology and regulatory advancements.
- **Future risk vigilance:** Our proactive approach anticipates future risks to aid informed decision-making.
- **Innovative solutions for safe execution:** Our expertise delivers innovative solutions to ensure safe execution.

Our proactive approach ensures adaptability, sustainability and responsible development to safeguard the mining industry creating enduring value.

CONTACT

HEAD OFFICE

3/37 McDonald Road
Windsor, Qld, Australia, 4030

info@sgme.au

RESEARCH AND DEVELOPMENT

20/37 McDonald Road
Windsor, Qld, 4030

research@sgme.au

t: (+61) 7 3148 6288

sgme.au