



staal

SOUTHERN AFRICAN INSTITUTE
OF STEEL CONSTRUCTION

Betterect (Pty) Ltd

Mogale Tailings Retreatment Project

THE PROJECT BRIEF

CLIENT: Mogale Tailings Retreatment Project

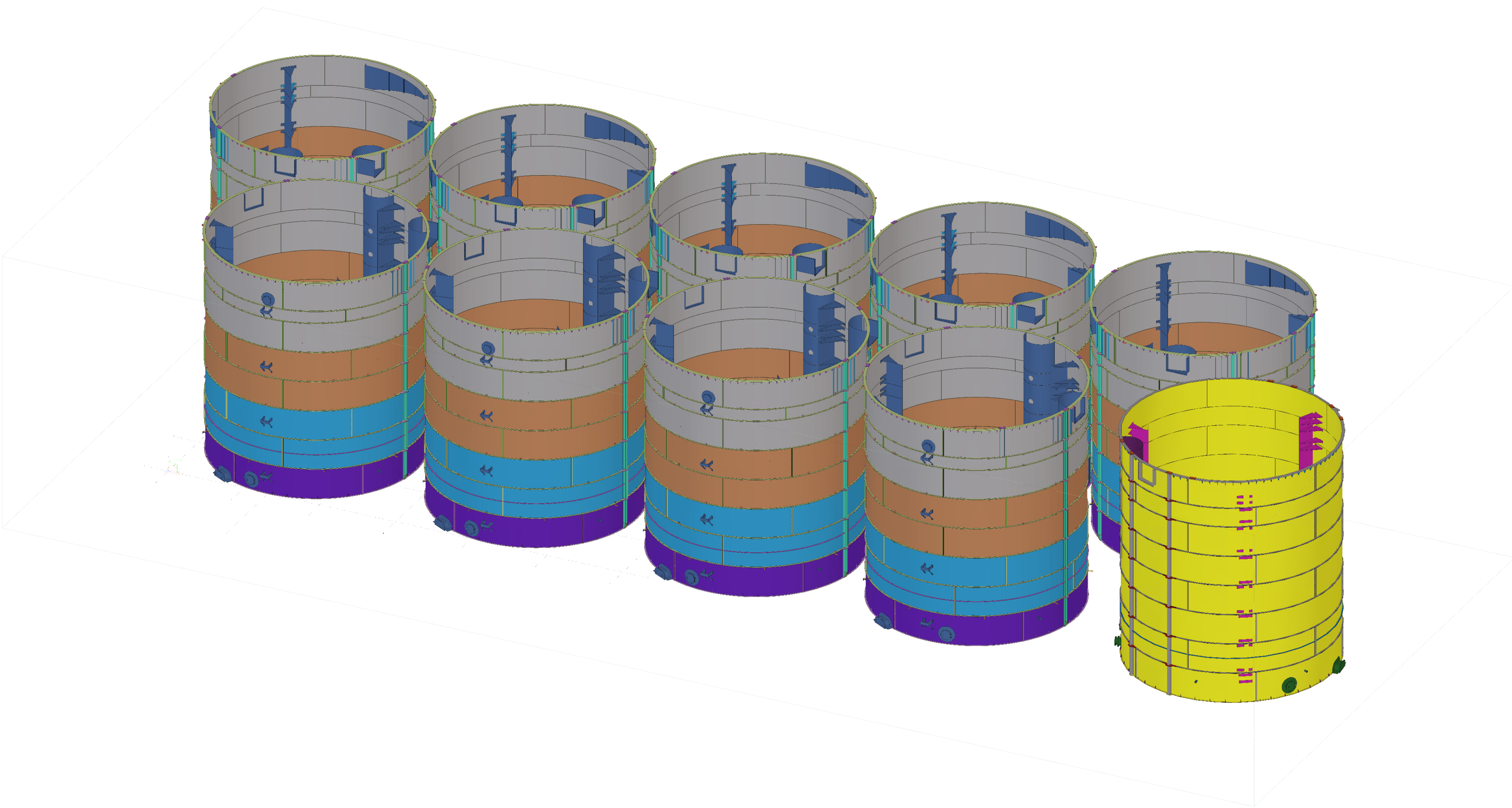
DESIGNER: Betterect (Pty) Ltd

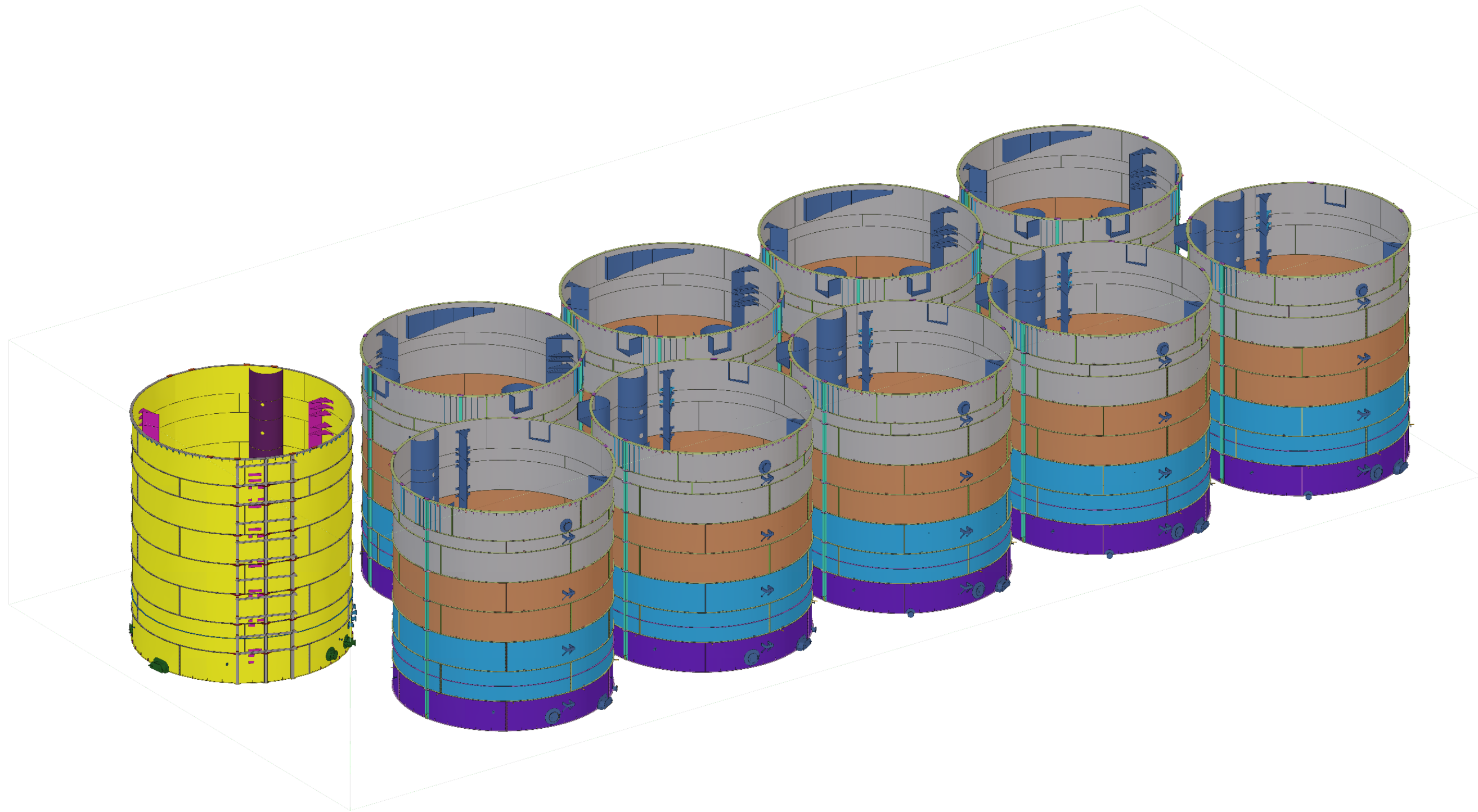
MAIN CONTRACTOR: Betterect (Pty) Ltd

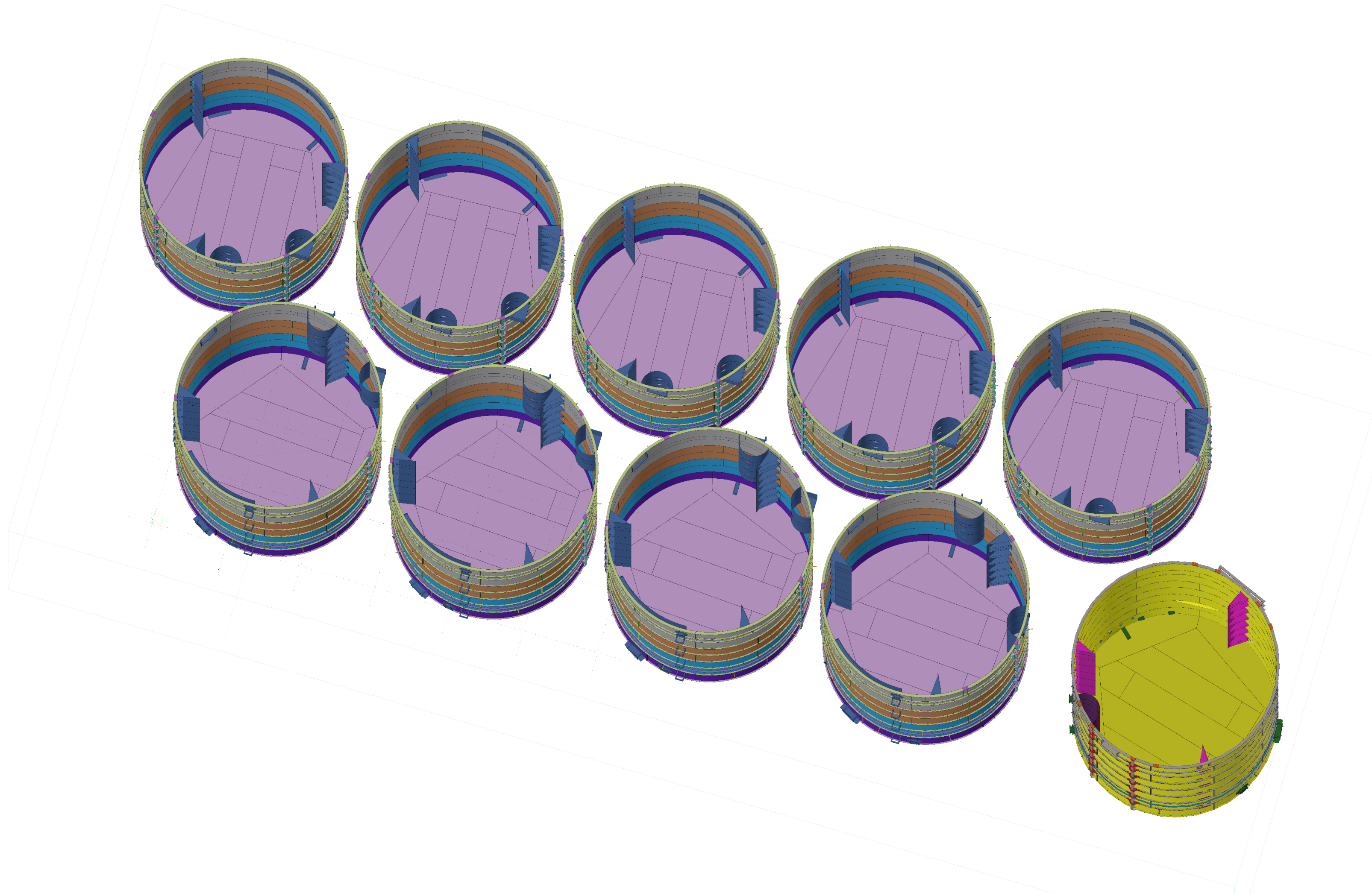
Original scope:

- Detail, Fabricate, Construct and Erect 10 **Welded** CIL Tanks
- Clients original tender called for tanks to be fabricated and welded on site.
- Betterect proposed an alternative solution of bolted rubber lined tanks. Betterect designed, detailed and completed a finite analysis on the design of the tanks.
- This proposal meant that most of the risk could be controlled in Betterect's factory eliminating the need for large welding teams on site.
- By suggesting a different design approach for the CIL tanks, we were able to achieve significant **cost savings of 20%** for our client. This accomplishment underscores our dedication to value engineering and continuous improvement, as we leverage our expertise to identify opportunities for optimization without compromising quality or functionality









THE PROJECT OVERVIEW



PROJECT OVERVIEW

STRUCTURAL STEELWORK

Project Completed: 31 July 2024

Steelwork Completed: 30 June 2024

Tonnage: 1300

Profiles used: S355 Plates, Channels, Columns, Angle Iron, IPE
and Flat Bar



PROJECT OVERVIEW

STRUCTURAL STEELWORK

Structural Engineer: Betterect

Steelwork Contractor: Betterect

Steel Detailer: Betterect

Steel Merchant/s: Allied Steelrode/Macsteel/BSI Steel



PROJECT OVERVIEW

- Detail, Fabricate, Construct and Erect 10 CIL Tanks
- Betterect was the main contractor and were responsible for all detailing, fabrication and site installation of structural steel.

What makes this project standout over any other projects:

Carbon-in leach (CIL) is a simultaneous leach and absorption process. The simultaneous leach and absorption phases of the CIL process were developed for processing gold ores that contain pre-robbing materials such as natural absorptive carbon. These reduce the gold yield by attracting gold meant for the activated carbon. Simultaneous leaching and absorption help minimize the problem. The MTR plant will produce about 50 000 oz of gold a year over an expected 20-year period.



STRUCTURAL FRAMING

STRUCTURAL ENGINEER: Betterect

STEELWORK CONTRACTOR: Betterect

STEEL DETAILER: Betterect





FABRICATION

STEELWORK CONTRACTOR: Betterect



The fabrication process includes precise welding techniques to create seamless joints, preventing leakage and ensuring structural integrity. Additionally, special attention is paid to the lining of the tanks with abrasion-resistant materials to withstand the abrasive nature of the slurry. Quality control measures are rigorously implemented throughout fabrication to meet industry standards and guarantee optimal performance in the gold leaching process.







ERECTION / CONSTRUCTION / INSTALLATION

CONTRACTOR: Betterect



The erection of carbon-in-leach (CIL) tanks is a meticulously orchestrated process that demands precision and expertise. It begins with thorough site preparation, ensuring a stable foundation for the tanks. Skilled technicians then assemble the tank components according to detailed engineering drawings, employing specialized equipment such as cranes and lifting gear to manoeuvre heavy sections into place safely. Close attention is paid to alignment and levelling to guarantee the tanks' integrity and functionality.



Close attention is paid to alignment and levelling to guarantee the tanks' integrity and functionality. Once erected, rigorous testing procedures are conducted to validate structural integrity and ensure leak-proof performance. Throughout the erection process, strict adherence to safety protocols and quality standards is paramount to safeguard both personnel and equipment, ultimately facilitating the seamless integration of CIL tanks into gold processing operations.

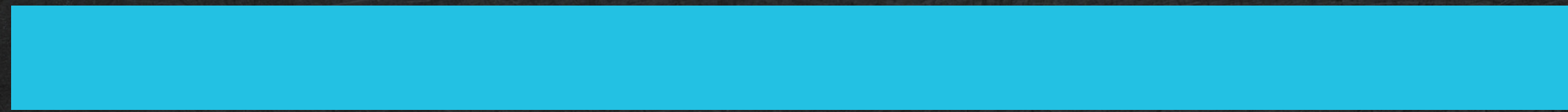








CHALLENGES AND SOLUTIONS



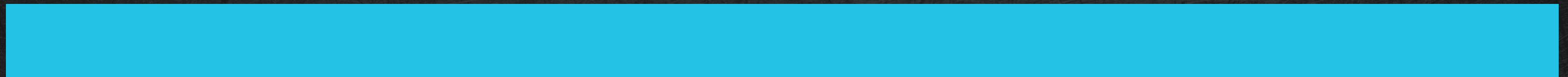


While the weather presented a significant challenge on the site, We are pleased that despite these adversities, our project remained ahead of schedule. This is a testament to the dedication and resilience of our team in overcoming obstacles and maintaining our commitment to delivering results





THE BENEFITS OF STEEL IN THIS APPLICATION



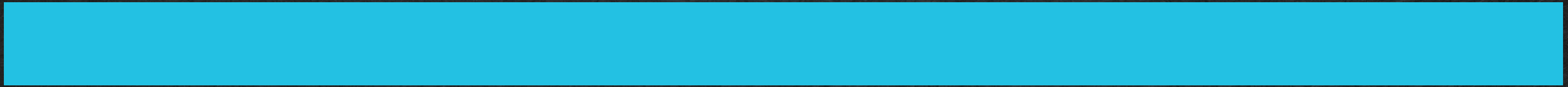
Benefits of Steel in this Application

- **Strength and Durability:** Steel is known for its high strength-to-weight ratio, making it a durable and robust material for constructing tanks. CIL tanks are subjected to harsh conditions, including chemical reactions and abrasion, and steel can withstand these conditions effectively.
- **Corrosion Resistance:** Steel can be coated or alloyed to enhance its resistance to corrosion, which is crucial in CIL tanks where corrosive chemicals are present. Proper surface treatments and coatings can significantly prolong the lifespan of steel tanks in such environments.
- **Customization and Flexibility:** Steel fabrication allows for flexibility in design and construction, enabling engineers to tailor tanks to specific project requirements. This flexibility includes variations in size, shape, and features like baffles or agitators, optimizing tank performance.

Benefits of Steel in this Application

- **Ease of Maintenance:** Steel tanks are relatively easy to maintain compared to other materials. Routine inspections and maintenance activities such as cleaning, repairs, and coatings can be performed efficiently, minimizing downtime and operational disruptions.
- **Cost-Effectiveness:** Despite the initial investment, steel construction can be cost-effective in the long run due to its durability and low maintenance requirements. Additionally, steel fabrication processes have become increasingly efficient, reducing production costs.
- **Recyclability:** Steel is highly recyclable, making it an environmentally friendly choice for construction. At the end of a tank's lifespan, steel components can be recycled and used in new applications, reducing waste and conserving resources.
- Overall, the use of steel in CIL tanks provides a reliable and efficient solution for processing facilities in the mining industry, offering longevity, customization, and cost-effectiveness.

WHAT WE'RE PROUD OF



We take immense pride in our commitment to delivering innovative solutions that not only meet but exceed our clients' expectations. By suggesting a different design approach for the CIL tanks, we were able to achieve significant cost savings of 20% for our client. This accomplishment underscores our dedication to value engineering and continuous improvement, as we leverage our expertise to identify opportunities for optimization without compromising quality or functionality

We are proud to announce that our welding team has achieved a remarkable 100% pass rate on Magnetic Particle Inspection (MPI) testing. This outstanding accomplishment underscores our unwavering commitment to excellence and quality in every weld we produce. By consistently meeting and exceeding industry standards, we ensure the safety, durability, and reliability of our welded products

