



engenium

smart project delivery

Demonstrated Capabilities

- Haul road design.
- Working to stringent environmental conditions.
- Haulage fleet options assessment.
- Drainage and culvert hydraulic analysis and design.
- Construction risk assessment facilitation.
- Geotechnical analysis and support.
- Management of international service providers.

Gangra Haul Road Detailed Design, Geotechnical Construction Support Services

Client ArcelorMittal Liberia

Project Location

Yekepa, Liberia.

Scope

Engenium was engaged by ArcelorMittal to deliver the detailed design and geotechnical construction support services for the Gangra Haul Road Project.

Business Objective

High grade reserves at ArcelorMittal's existing Tokadeh iron ore mine were depleted and the client elected to open new pits to access further high grade ore as the lowest NPV cost solution to maintaining production compared to upgrading processing facilities.

Challenges to Overcome

The project involved a new 13 km mining haul road in very challenging terrain to connect a new pit area to existing train load-out facilities. Drainage of both the haul road and the mine pits for sedimentation management were key concerns due to sensitive environmental receptors in the area. Engenium's scope involved several sediment settlement basins in addition to the haul road. The road route crossed numerous drainage catchments requiring large culvert structures and one river crossing that required a modular bridge.

Smarts

At commencement of the design phase, Engenium engaged an off-shore survey team to physically survey the proposed haul road route as existing aerial survey data was unusable due to the height and density of the jungle vegetation. We worked with our long term geotechnical service provider, Perth-based 4DG Geotechnics, to undertake an extensive field test program needed to inform the road design and establish material specifications for construction.

Engenium engaged a local Liberian company to provide labour support for both geotechnical and survey work, and partnered with an engineering and design consultant in South Africa to capitalise on the lower cost of professional services and deliver the most cost effective design package for our client. The team's role continued into construction with the provision of technical engineering support and on-site geotechnical support for construction quality assurance and materials testing.

Project Outcome

The completed haul road enabled ArcelorMittal to continue exporting iron ore to their customers and postpone costly plant upgrades. The project was delivered from concept to completion in 15 months, meeting the clients production needs.

Delivering Value. Delivering Results.