

R&H RAIL

SUBSTATION INFRASTRUCTURE



KOPPIESKRAAL SUBSTATION - MAJUBA RAIL ELECTRIFICATION PROJECT



HOLISTIC RAIL SOLUTIONS

At R&H, we understand that Substation infrastructure within the railway environment forms an integral part of the multidisciplinary rail solution.

Our approach is to ensure a cost efficient and appropriate result that meets client and engineering requirements at all times. We achieve this through combining client's needs, technical standards, engineering technology, logistic constraints and operational performance into a balanced integrated system.

This holistic approach requires diverse understanding of OHTE, Substations and P&L by our electrical design team to integrate with multidisciplinary teams throughout the project phases, ensuring that the optimum solution benefits the overall project infrastructure requirements and long-term operational benefits.





SUBSTATION INFRASTRUCTURE SERVICES

The scope of our Substation infrastructure services extends from concept studies through feasibility phases to implementation design, construction management and project close-out. We offer support services to Project Management, Operational Planning, Technology Development, Maintenance Management and Training including:

- Analysis of existing railway Substation systems (brownfields)
- Analysis of geographic conditions (greenfields)
- Feasibility analysis and costing
- Cost efficient solutions for expected asset life-cycles, purpose and conditions
- Designing infrastructure layouts in collaboration with other services
- Selection of appropriate technology
- Influence on or by OHTE, P&L, Perway, Signalling & Telecommunications and Rail Operations
- Considerations of expandability
- Integration into other systems and assets
- System and project specifications and BoQ's
- Procurement processes and tendering
- Construction management
- Condition audits and reporting
- Maintenance management



TRACTION AND DISTRIBUTION SUBSTATIONS

Specifications, analyses, auditing, system design, procurement and construction management is undertaken for the traction and distribution power supply environment. These include:

- 3kV DC traction substations and tie-stations
- 25kV AC traction substations and Track Sectioning Stations (TSS)
- 50kV AC Track Feeder stations (TFS)
- 11kV and 6.6kV AC Distribution substations and switching stations
- Traction substation capacity determination and positioning
- Traction and distribution substation system requirements
- Utility (Eskom / Municipality) power supply interactions
- Provision of new traction and distribution substations
- Refurbishments and upgrades of existing substations
- Maintenance condition auditing 3kV DC traction substations and tie-stations



RECENT PROJECTS

Recent projects where we have provided the above services either as part of the holistic multidisciplinary design effort or as a stand-alone service include:

- Inese 132/11kV AC New Distribution Substation – Design (2018 to 2019);
- Built adjacent to existing 132/25kV AC traction substation
- 5MVA Transformer capacity
- Serves to strengthen 11kV voltage regulation
- Refurbishment of PRASA's Durban, Booth and Northdene Traction Substations (2018 - ongoing)
- Including incoming municipal supply voltage change and Eskom interfacing for refurbishment of incoming switch yard;
- 3kV DC Substations
- 11kV and 400V Distribution substations
- Refurbishment of PRASA's Nyanga (Relocate and upgrade to Indoor substation), Langa (Upgrade substation) and Paarden Eiland Traction Substations in Cape Town (2018 - ongoing);
- 3kV DC Double unit traction substations
- 11kV AC Distribution substations
- Majuba Rail Project (3kV, 25kV and 11kV Substations) (2016-2019);
- Majuba Rail Project (3kV DC Series tie-station, for isolation of "On the Fly" wrong side voltage activations) (2018);
- Ore Line 82.5Mtpa 50kV AC Power Supply FEL2 Study in association with Aurecon (2012 to 2013);
- PRASA's Countrywide 3kV DC HSCB replacement project (2006 - ongoing)