R&H Rail (Pty) Ltd
Established 1950 www.rhrailway.co.za

R&H RAIL
OPERATIONS PLANNING AND DEVELOPMENT

HOLISTIC RAIL SOLUTIONS
R&H's approach to railway projects is founded on developing holistic multidisciplinary solutions which maximise investment returns while minimising capital commitment. In order to achieve this, we place emphasis on understanding what our clients require, what the constraints are, what the solution will look like, and also how it will function as a complete system.

This holistic approach requires that the design team considers all facets of the solution early on during development, ensuring that efficient operability is always embedded within a cost effective design.

RAIL OPERATIONS SERVICES
The scope of our Rail Operations Services extends from railway traffic studies through to train design, standard operating procedure development, train and locomotive scheduling, crew roster planning, rolling stock procurement, service implementation, regulatory compliance and rolling stock maintenance. This covers:

• Analysis of current or projected tonnages and passenger traffic volume characteristics
• Measurement and analysis of route constraints
• Designing trains to satisfy demand, route constraints and budget
• Train section performance simulations
• Multiple train service interaction simulations

• Designing / sourcing suitable locomotives and wagons (rolling stock)
• Designing train, staff, locomotive, wagon and support logistic flows
• Deriving operating staff requirements coupled to train working rules
• Designing maintenance facilities, location, equipment and staffing
• Deriving operating rules, maintenance procedures and staff training requirements
• Defining optimised train handling methods to maximise reliability and operating efficiency
• Conducting train commissioning tests and verifying performance against designs
• Auditing train performance and rolling stock maintenance
• Producing trains working time tables and diagrams, operating procedures and safety instructions
• Audits, applications and review for Safety Permits to RSR (Act 16 of 2002)
• Derailment / train incident investigation

TRAIN AND SERVICE DESIGN
For a railway system to transport a given tonnage or number of passengers optimally, it must be running suitable trains to optimised schedules. At R&H we use sophisticated train simulation software tools to design trains and time tables for simple or complex networks, because we understand that train design is a vital part of full service design and subsequent infrastructure configuration.
LOCOMOTIVE AND WAGON ENGINEERING

Clients need to ensure their locomotives and wagons are safe, efficient and productive. We offer them peace of mind by firstly assisting with the procurement of fit-for-purpose equipment, and secondly by measuring performance parameters and conducting regular condition inspections. Combined measurements of tractive effort, power output, braking performance, wheel-on-rail forces and other performance parameters as well as visual inspections, are used to assess design and maintenance deficiencies. Recommendations for improved procedures and training to address these deficiencies are then made.

FEASIBILITY STUDIES AND PROJECT DESIGN

As an integral part of the holistic design approach, our operations team has been performing feasibility studies from conceptual and pre-feasibility, through to bankable feasibility level as well as overall project operations design on various national and international rail corridors. These include bulk material and heavy-haul transport systems, rural and local commuter rail systems, mining business development, and cross-border logistic services. When required, it also included the design of new and retrofitted maintenance facilities to support the holistic railway systems’ operations.

RAIL SAFETY REGULATOR (RSR) AND SAFE OPERATING PROCEDURES

We perform RSR compliance audits and assist our clients with developing and implementing suitable Safety Management Systems for their railway systems in terms of Act 16 of 2002. We preformed the first such audits nationally for Transnet and PRASA, custodians of freight and passenger movement across South Africa.

DERAILMENT INVESTIGATION

R&H Rail has been involved in over 30 major derailment and incident investigations and pride ourselves on being able to offer full service support, from accident reconstruction to simulation of scenarios, as well as presenting expert evidence.

RESOURCES AND EQUIPMENT

R&H uses flexible, real time instrumentation and data acquisition equipment, which is attached to locomotives, wagons or track to scientifically measure and record performance parameters on the specific railway system. Computer simulations and mathematical analyses are done under the conditions of the specific system. Our equipment is portable, and it can be set up onto and dismantled from rolling stock and/or infrastructure within minutes, ensuring no major disruptions to productivity are incurred.

OUR 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:

- Durban Metro Resignalling Project (2013 - 2018); PRASA
- Mayoko Iron Ore Export Project (2012 - 2014); Exxaro
- Glosam Private Siding (2011 - 2013); PMG Mining
- Future Corridors DoM Study (2012 - 2013); Rio Tinto Coal Mozambique
- Freight and Passenger System Interoperability Study (2012 to 2013); Transnet Group Planning and PRASA
- National Rail Long Term Planning Framework Development (2012 to 2013); Transnet Group Planning
- Ore Line 82.5Mtpa FEL2 Study in association with Aurecon (2012 to 2013); Transnet Capital Projects
- Durban Rail in Port FEL1 Study (2012 to 2013); Transnet Group Planning
- Unit Cost Model Development (2012); Transnet Group Planning
- Sena Line Upgrade Simulation Study (2011 to 2012); Rio Tinto Coal Mozambique
- Limpopo Supply Chain Development FEL1 Study (2011 to 2012); Transnet Group Planning
- Nacala Corridor FEL3 and FEL4 in association with Aurecon (2010 to 2012); Vale Mozambique Limitada
- Ethekwini IRPTN in association with Goba (2010); Ethekwini Municipality
- Locomotive Refurbishment Commissioning Tests (2008); Impala Platinum
- Moloto Corridor Development Initiative (2006 to 2010); Mpumalanga DoRT and National DoT
- Rolling Stock Performance, Braking Efficiency and Wheel-Rail Interaction Tests (2006 to 2010); RPM Rustenburg