

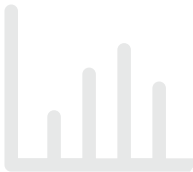


THE MSA GROUP

Mining Studies



ISO 9001:2008



CPRs



Due Diligence

Scoping Studies



Environmental

Exploration

Geology



Mineral Resources

Valuations

Diamond Labs



Specialist Consultants to the Mining Industry

The MSA Group, Africa's leading mineral exploration and evaluation consultants, has been a trusted service provider to the Mining Industry for over 30 years.

Our track record is synonymous with quality, technical integrity and the highest standards of health, safety and environmental compliance.

MSA provides specialist services on numerous international and national projects on virtually all commodities, has worked on 5 continents and in over 40 countries, and reports on all Major mining stock exchanges.

The MSA Group's client base includes Major and Mid-tier Mining Companies, Private Equity Funds, Sovereign Wealth, State Owned Enterprises, Traders, Junior Explorers and Miners.

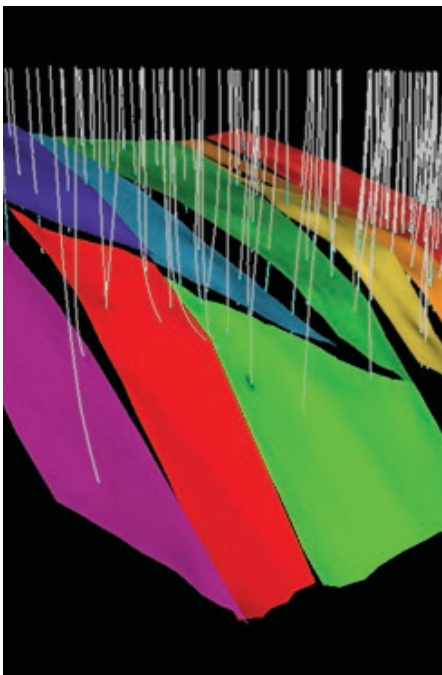
The MSA Group's services encompass **Exploration and Geology, Mineral Resource Estimation, Mining Studies and Environmental Consulting**, from targeting and initial assessment to turn-key exploration project management, Mineral Resource and Reserve Estimation, public reporting, valuations, scoping/PEA studies and feasibility studies.



EXPLORATION AND GEOLOGY:

The Exploration portfolio consists of gold, platinum group metals, base metals (copper, cobalt, lead, zinc and nickel), coal, chromite, uranium, diamonds, iron ore, bauxite, graphite, tin, tungsten, tantalite, lithium, niobium, potash, phosphate, limestone, aggregates, manganese, vanadium, rare earth elements and heavy mineral sands. The MSA Group has an extensive knowledge of exploration environments and provides comprehensive expertise to design, implement and manage exploration projects safely, on time and within budget.

- Prospectivity Assessments and targeting
- Geological and Structural Mapping and Modelling
- Remote Sensing
- Geophysics
- Geochemistry
- Programme Design and Project Management
- Turn-key Exploration Services
- Management of Drilling Programmes
- GIS and database development and management
- QAQC and exploration programme auditing
- Petrographic studies
- Health and Safety audits, consulting and implementation
- Geotechnical services (mining and civils)
- Survey services
- Public Reporting (JORC / NI 43-101 / SAMREC)



MINERAL RESOURCES:

The MSA Group's team of experienced Mineral Resource geologists are experts in constructing Mineral Resource models from geological data in greenfields exploration projects through to producing mines. Reporting of Mineral Resource estimates is carried out by Competent/Qualified Persons in accordance with the major reporting codes such as JORC, SAMREC and NI 43-101. Our service offering includes due diligence exercises, audits and sampling optimisation studies.

- Mineral Resource modelling and estimation
- Public Reporting of Mineral Resources (JORC / NI 43-101 / SAMREC)
- Sampling optimisation studies
- Audits and reviews
- Due diligence exercises



MINING STUDIES:

The MSA Group undertakes mining studies in the development of mineral projects during and after exploration activities with the aim of enhancing value throughout the mining value chain. The Mining Studies service offering includes Competent/Qualified Persons Reports, Mineral Reserve Estimation, Benchmarking Assessments, Mine Optimisation, Preliminary Economic Assessments, Scoping Studies and Pre-Feasibility and Feasibility Studies. In addition, the division regularly carries out Mineral Asset Valuations, full Due Diligences, Independent Peer Reviews and Technical Audits suitable for investment requirements.

- Mineral Reserve Estimates
- Mineral Resource Management
- Resource to Market Asset Optimization
- Mineral Asset Valuations
 - SAMVAL / VALMIN / CIMVal
- Scoping Studies/ PEAs & Pre-Feasibility and Feasibility Studies
 - Mine financial modelling, Mining, Processing, Tailings, Water and Utilities, Infrastructure, Marketing, Human Resources, Environmental & Social, Rehabilitation and Closure
- Due Diligence Reviews, Independent Peer Review and Technical Audits



ENVIRONMENTAL:

The MSA Group offers comprehensive technical and legal environmental and social assessments and services to the Mining, Oil and Gas and Infrastructure sectors. MSA strives to assist its clients in managing their environmental risk and developing their projects in a responsible and compliant manner.

- Environmental and Social Impact Assessments and management plans
- Legal Reviews and Registers
- Compliance audits against local and international requirements
- GAP Analysis
- Permitting and Licensing including prospecting and mining right applications
- Environmental Risk Assessments and Due Diligences
- Environmental Management Systems and ISO14001 implementation
- Waste licence applications and management plans
- Environmental Control Officers
- Mine Closure and Rehabilitation
- Training



DIAMOND LABORATORIES:

The MSA Group offers a complete service from Kimberlite exploration and evaluation to resource evaluation and modelling.

- **Heavy Mineral Analysis Laboratory** (ISO 17025 accredited)
 - Concentration and sorting of indicator minerals
 - Provenance and surface texture analysis
 - Major and trace element chemistry analysis on indicator minerals
- **Micro-Diamond Laboratory** (ISO 17025 accredited)
 - Micro-diamond extraction from kimberlite using caustic fusion
 - Micro-diamond sorting and diamond description
 - Micro-diamond data statistical analysis for grade predictions
 - On and off site macro-diamond sorting

The Diamond Laboratory ISO/IEC 17025 Accreditation is under temporary voluntary suspension due to the office move, effective 30 September until our next SANAS re-assessment scheduled for February 2017.



FLOW (DATA MANAGEMENT)

The MSA Group presents FLOW – revolutionising the way you manage your exploration and mining data. FLOW is a multi-faceted data management package innovated by The MSA Group – improving the efficiency, security, reliability and work flow of your data, in turn protecting your intellectual property. Flow enables delivery of data to decision makers in REAL TIME, from any remote field site, while ensuring compliance with all major reporting codes.

FLOW is cost-effectively and seamlessly implemented into new and existing projects.

- Tablet-based capture systems
- Robust back-up systems
- Automated data reports
- Live access to the database server
- Integrates with major geological software packages
- Customised online dashboards

For more information visit www.msagroupservices.com.

CONTACT DETAILS

MSA Johannesburg

Tel: +27 (0)11 880 4209
Email: info@msagroupservices.com

Henley House, Greenacres Office Park:
Cnr Victory and Rustenburg Roads, Victory Park, 2195
PO Box 81356, Parkhurst, 2120, South Africa

ISO 9001:2008 Certified.
OHSAS 18001 Certified.

The MSA Group is a Level 6 BBBEE Contributor.