LEFATSI
ENVIRONMENTAL ENGINEERING

Unearthing tomorrow, responsibly.



"Because every shovel of soil holds the promise of a better future"

STATEMENT OF QUALIFICATIONS

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Through our team of skilled professionals, we undertake and execute design of mine waste facilities at every level.

Mining is an industry of opportunity and obstacles, of upturns and downturns. Success in this industry requires technical skills while keeping an eye on the long- term goals of our clients and their project site.

Lefatsi, a B-BBEE level 2 contributor, provides mining services, from project inception to mine closure and our experience, coupled with a dedicated team, provides clients with mine planning solutions no matter where the mining project is located.

Meeting mining challenges head-on, we provide full-service mining consultancy specializing in mine waste design and planning.

We provide mining solutions for:

- Design of Waste Storage facility e.g. Waste Rock Dumps, Stockpiles, Pollution Control & Storm Water Dams, etc.
- Geotechnical investigations for Mine Waste Facilities
- Mine Water
- Mine Environmental and Permitting
- Mine Closure and Infrastructure decommissioning
- Construction Services of mine waste facilities and related infrastructure
- AI integration and operational intelligence

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Why Choose Lefatsi?

Understanding Your Needs

Our focus is on meeting your expectations.
By developing good client relationships, we can better understand your needs and the specific challenges you face in your operations.
It is this understanding that enables us to develop practical outcome-based solutions.

Integrated Services

We assemble integrated, specialist teams that cover all stages of a mine's life cycle. We provide a strong team that understands your needs and operates as a single point of contact, thereby offering more cost- effective solutions.

Health and Safety is Fundamental

Work safe, home safe... that's our goal.
Safety, security, health and wellness are fundamental tenets of our business.
Awareness and attention are the first step, but mutual caring and individual responsibility is the ultimate answer. At Lefatsi, every individual has the training, the tools and the power to create a safe work environment.

Sustainability

Lefatsi pro-actively engages our clients in discussions about sustainable options to help them achieve their own goals for economic, social and environmental measures.
We are committed to thoughtful balance as we plan, design and consume, with a view to the long-term. We aim to improve the lives of communities we touch.

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Exploration

Exploration is the foundation of every successful mining project. Lefatsi offers integrated geological and geophysical services that help our clients identify, evaluate, and advance mineral prospects with confidence. By combining field expertise with advanced analytical and modelling tools, we deliver exploration strategies that reduce risk and maximize value.

Our Services

- **Geological Mapping & Sampling:** Detailed lithological, structural, and alteration mapping supported by systematic sampling programs.
- **Drilling Management:** Full oversight of drilling campaigns, including diamond, RC, and percussion drilling, with a focus on quality assurance, safety, and efficiency.
- **Geophysical & Geochemical Surveys:** Application of modern survey techniques to define anomalies and support deposit targeting.
- **Core Logging & Data Management:** High-quality data collection and interpretation, including digital logging and database management for reliable project records.
- **Resource Estimation:** Using industry-standard software and classification codes (JORC, SAMREC, NI 43-101), we transform exploration data into robust mineral resource and reserve models that support investment and project development decisions.



Our Advantage

- End-to-end capabilities from grassroots exploration through to mine planning and development.
- Experienced geologists, geophysicists, and resource modellers with international exposure.
- Integration of exploration results into resource estimation, mine design, and life-of-mine planning.
- Commitment to innovative, cost-effective, and environmentally responsible exploration programs.

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Mining

Lefatsi Mineral Resources (LMR) is a leading mining company renowned for its commitment to excellence and sustainability. Our mining division leverages state-of-the-art technology for mine design, feasibility studies, surveying and mine planning. Our team comprises highly skilled mining and civil engineers with decades of experience in the planning and execution of complex mining projects.

Our Services

- **Mine Planning:** Comprehensive planning to optimize resource extraction and operational efficiency.
- **Contract Mining:** Reliable and efficient contract mining services tailored to meet client needs.
- **Mine Rehabilitation:** Sustainable practices to restore and rehabilitate mining sites.
- **Mine Closure:** Expert management of mine closure processes to ensure environmental compliance and safety.

At LMR, we pride ourselves on delivering innovative solutions and maintaining the highest standards of safety and environmental stewardship. Our expertise and dedication make us a trusted partner in the mining industry.



Engineering Design Services

Lefatsi's Engineering Design & Construction (EDC) experience includes planning, feasibility studies, detailed design and construction supervision for large projects. Our experience includes Design-Bid-Build, of the required infrastructure.

TYPES OF FACILITIES

- Tailings Storage Facilities, waste rock dumps, and stockpiles
- Water dams
- Silt traps for sediment control
- Erosion control
- Culverts and flow control structures
- Other mine waste related infrastructure

RELATED SERVICES

- Hydraulic control structures
- Water intake and abstraction
- Channel design and restoration
- Drainage and dewatering
- Geotechnical engineering

SERVICES

- Preliminary to detailed engineering design of environmental, civil and geotechnical engineering designs
- Design of waste rock dumps, stockpiles, pollution control and storm water dams
- Construction documents including construction drawings, specifications, construction quality assurance and bill of quantities
- GISTM Compliance and EoR Services
- Facilitating tendering evaluation and adjudication
- Resident inspection and contract administration QA/QC services during construction



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Geotechnical Engineering Services

Lefatsi provides a full range of geotechnical consulting services, providing the benefit of local experience while supported by the skill, capability, and experience of international recognized people when highly specialized services are required. Our scope of services is flexible and comprehensive, ranging from site reconnaissance and subsurface exploration, through data analysis and engineering design.

SERVICES

- Site Characterization and Field Investigations
- Foundation Design and Analysis
- Slope Stability for mine waste facilities
- Ground Improvement
- Control of groundwater
- Risk Assessment

GEOTECHNICAL FIELD WORK

- Project Management
- Resident Engineering
- Construction Specifications
- Construction Quality Control and Quality Assurance Review and Testing
- Material Field Testing
- Specialized in situ testing

LABORATORY SERVICES

- Soil Engineering Properties
- Rock Engineering Properties
- On site laboratory testing

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Water Resources Engineering Services

SURFACE WATER

Lefatsi provides a wide variety of surface water services for a mine project. Our surface water team consists of hydrologists, water quality specialists and water resources engineers. Our surface water team works together with clients and stakeholders to assess existing water resources and to determine the best course of action to address specific issues. We have experience in the following areas:

- Environmental Monitoring
- Water and Sediment Quality Loading and Remediation
- Source Water Protection and Watershed Management
- Regulatory Compliance and Environmental Permitting
- Storm Water Management
- Design and Management of Hydraulic Structures
- Flood Plain Delineation and Management

GROUNDWATER

Lefatsi provides geologic, hydrogeologic, geochemical, geophysical and numerical modeling services. Our services have been applied to mining, aggregate, civil construction industry, water supply, hazardous and non-hazardous waste management and industrial site assessments. Our expertise has been used to address:

- Groundwater Flow Systems
- Groundwater Monitoring and Protection
- Contaminant Migration
- Point Source and Distributed Contaminants
- Water Supply, Protection and Permitting
- Artificial Recharge

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Project Support Services

Lefatsi Project Support Services provide complete project management related services including construction and building project management across an array of disciplines from concept phase to closeout. Successful project delivery is achieved by adopting a specific planning and scheduling approach, interlinked with an effective project controls system.
Lefatsi deliver reliable, innovative, and comprehensive services to help our clients conduct their business efficiently and cost-effectively. Our team have assisted clients involved in a wide range of minerals including clays, gold, copper, platinum, etc. We offer integrated services, utilizing multidisciplinary teams of professionals.

PROJECT SERVICES

Project Management

- EPC/M (Engineering, Procurement, Construction/Management)
- Project Life Cycle Management
- Programme and Portfolio Management

Project Risk Management

- Strategic Risk Management

Project Controls Management

- Scope, Time, Cost, Quality Control

Project Planning and Scheduling

- Schedule Development and Maintenance
- Schedule Analysis and Reporting
- Schedule Review and Evaluation

TECHNICAL PROJECT SCHEDULES

- Legal Requirement (Permits/Licenses)
- Legal Authorization and Compliance (Environmental)
- Engineering Design (Conceptual, Basic, Detail, BOQ)
- Fabrication and Manufacturing (Structural, Piping)
- Equipment Supply and Delivery (Critical, Long Leads)
- Opencast Mining and Underground Development
- Construction and Equipping (Discipline Specific)
- Construction Quality Control (QAQC)
- Forensic Schedule Analysis (Project Delay Root Cause Analyses)



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Other Mine Related Services

Lefatsi also offers services relating to Mine Environmental and Permitting, Mine Closure and Infrastructure decommissioning, and Construction Services of mine waste facilities and related infrastructure.

MINE ENVIRONMENTAL AND PERMITTTING

- Technical design and assistance of permitting mine waste facilities and related infrastructure.
- Tender evaluation and adjudication for mine waste closure projects.
- QA/QC services for mine waste closure construction works.

MINE CLOSURE AND INFRASTRUCTURE DECOMISSIONING

- Technical design and assistance of permitting closure solutions of mine waste facilities and related infrastructure
- Detailed design and development of construction documentation for mine waste closure projects

CONSTRUCTION SERVICES OF MINE WASTE FACILITIES AND RELATED INFRASTRUCTURE

Construction of Pre-deposition works of mine waste facilities including, waste rock dumps, stockpiles, pollution control dams as well as closure and rehabilitation.



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AI Integration and Operational Intelligence

Lefatsi Environmental Engineering helps engineering and mining businesses put AI and operational data to practical use. We develop reporting systems, automation and focused applications that support operational improvement and reduce repetitive technical administration.

OPERATIONAL REPORTING

Shift and daily reporting built around useful data points, including production, drilling progress, equipment utilisation, downtime and operational delays.

PERFORMANCE ANALYSIS

Dashboards and management reports that help teams identify recurring constraints, compare working practices and assess the effect of operational changes.

AI ASSISTED ENGINEERING

Document searches, information comparison, draft reporting, meeting actions and technical administration, with review by the responsible engineer or manager.

CUSTOM APPLICATIONS

Mobile reporting forms, inspection registers and action trackers, with suitable connections to existing spreadsheets, documents and business systems.

IMPLEMENTATION AND SUPPORT

Assess the existing process, define a manageable application, test the solution and support adoption through staff training and documentation. Ongoing assistance and improvements are agreed to suit operating requirements.

PRACTICAL APPLICATIONS

One of our chrome drilling projects near Rustenburg uses structured shift reporting to identify effective practices, operational constraints and improvement opportunities. We also apply AI in engineering workflows for gold and chrome mining projects.

REGIONAL DELIVERY

On-site assessment and implementation support in Gauteng, Free State and North West. Remote development, training and support across South Africa and internationally.

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Unearthing tomorrow, responsibly.

Partnered with

ENTAIL
Geotechnical Consulting

Tailings engineering made easy. We know what it Entails...

CRANE & HARVARD
CONSULTING ENGINEERS PVT LTD

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