



TEN **10** YEARS
2020

NURIZON
CONSULTING ENGINEERS

WHO WE ARE...

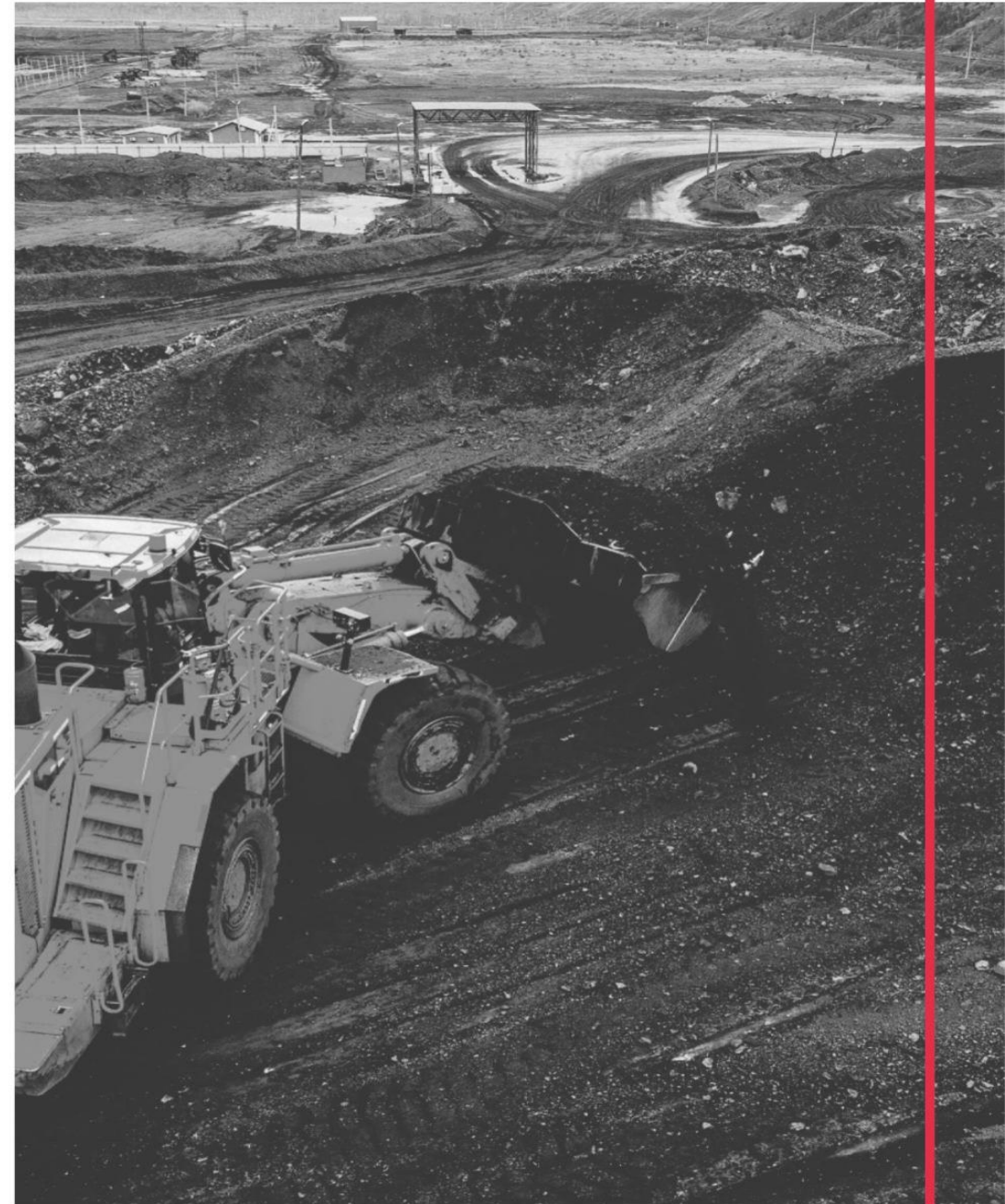
**PROVIDING UNIQUE, INNOVATIVE AND COST-EFFECTIVE
ENGINEERING SOLUTIONS SINCE 2010**

Nurizon has been built on a solid foundation of three core values – Innovation, Professionalism and Openness. With these fundamentals in place, we have built invaluable trust-relationships with local and international clients, continually providing them with security, comfort and confidence as we continue to deliver quality integrated solutions for their projects.

Over the past decade, a vibrant group of engineers and support staff has been hand-picked to become part of the Nurizon Team. This has helped us to grow our specialised fields from mainly airport and mining infrastructure, to seven different sectors, in which we are able to deliver unique and innovative engineering solutions.

With many years of combined experience, we are able to assist from the onset to completion of your project, to ensure the finest possible outcome. Our 'beyond boundaries' approach makes us renowned for our adaptability, as we naturally view every project with an element of uniqueness. Consistently maintaining remarkably high standards, we continue to thrive on repeat business, secured by work relationships built on integrity, by applying our core values in every aspect of conducting business.

We are ISO 9001 (2015) certified, B-BBEE Level 1 Certified and a proud member of CESA (Consulting Engineers South Africa). Our engineers are also professionally registered with ECSA (Engineering Council of South Africa) and SAICE (South African Institution of Civil Engineering).





SECTOR OVERVIEW

MINING

AIRPORTS

ROADS AND BRIDGES

GEOTECHNICAL

MUNICIPAL INFRASTRUCTURE

COMMERCIAL / INDUSTRIAL /
RESIDENTIAL DEVELOPMENT

BULK WATER

RAIL AND PORT

FINANCIAL SERVICES

MINING

South Africa remains one of the largest producers of mineral resources in the world and the mining industry is intrinsically linked to the national economy. It has now become critically important to ensure mines are developed and operated in a sustainable manner - environmentally, socially, and financially.

We have undertaken mining projects for junior miners and mining giants alike, both in South Africa and throughout Africa. We have worked with multiple commodities - from coal, manganese and iron ore to tin, platinum, gold, and bauxite. Our key personnel are well versed in the most current mining technologies as well as the sensitivities around mining developments. We always strive to optimise time and costs to improve the viability of any project.

MINE DESIGN

Opencast and underground designs; Life of mine plans; Mine schedules

GEOTECHNICAL INVESTIGATION

Foundation design; Soils investigation; Retaining structures; Soil stability

GEOMETRIC DESIGN

Access roads; Haul roads; Platforms

PAVEMENT DESIGN

Access roads; Haul roads

BULK WATER SERVICES

Bulk pipelines; Pump stations; Reservoirs; Dams; River diversions

WATER & WASTEWATER

Reticulation; Purification facilities; Water balance; Stormwater management plans

BULK FUEL

Storage; Piping

BULK MATERIAL HANDLING

Tailings storage facilities; Conveyors; Bulk slurry pipelines; Crushers; Screens, etc

STRUCTURAL ENGINEERING

ROM tips; Process plant structures; Workshops; Service bays; Headgear structures

CAPEX & OPEX

Financial models; Cost estimates

OWNERS TEAM REPRESENTATION

Engineering lead

AIRPORTS

Civil aviation is a major international industry with annual passenger numbers running into the billions. This requires that airports continually evolve to align with forecasted traffic movements. We have broad technical experience and expertise in this field, having worked on civil and military airport projects in South Africa, Africa and the UK. We are well-versed in international design standards including ICAO, CAA Publications (UK), FAA and IATA. Our clients include airport operators, aviation financiers, military and government authorities.

Our airport planning and design solutions are incredibly varied, incorporating feasibility and site selection studies, airside and landside geometric planning, master planning, terminal design and detailed construction design of all airport-related infrastructure.

AIRPORT PLANNING

Master planning; Upgrades; Vehicle and aircraft tracking; Terminal building sizing

PAVEMENT DESIGN

Runways; Taxiways; Aprons; Parking; Roads

GEOMETRIC DESIGN

All landside and airside movement areas

STRUCTURAL ENGINEERING

Terminal buildings; Control towers; Fire stations; Hangars

MECHANICAL & ELECTRICAL

Airfield ground lighting; Bulk electrical reticulation; General electrical; Baggage handling; HVAC

FIRE PROTECTION

Fire water reticulation; Rational fire designs; Sprinklers; Fire water storage

STORMWATER DRAINAGE

All landside and airside areas

BULK UTILITIES

Fuel; Water; Sewer; Power

ROADS AND BRIDGES

Roads are arguably the most dominant form of transport globally and even more so within Africa. From feasibility studies, route planning and design, to rehabilitation solutions, we have you covered. We have undertaken road projects for government authorities and private clients - from a feasibility study for a new 100km toll route in Senegal, to the detail design of a municipal road network servicing a new 60,000 unit housing development in Gauteng. We have also successfully designed various mine haul roads as part of our mine infrastructure project appointments globally. Our heavy structures' capability handles all forms of bridge designs, including road bridges and grade separated interchanges, pedestrian bridges and elevated service crossings.

PAVEMENT DESIGN

Surfaced and unsurfaced roads

GEOMETRIC DESIGN

3D Modelling

STRUCTURAL ENGINEERING

Bridges; Bridge foundations; Culverts

ELECTRICAL

Street lighting

STORMWATER DRAINAGE

Drainage; Floodline analysis; Run-off calculations

GEOTECHNICAL INVESTIGATIONS

Pavement investigations; Soil testing; Profiling and core logging; Founding conditions

GEOTECH

Our key personnel has extensive experience in all aspects of geotechnical and pavement engineering, from initial materials testing, geotechnical and pavement investigations, through to materials selection and detail geotechnical and pavement engineering designs.

Our geotechnical engineering design capabilities include, but are not limited to, retaining wall structures, foundation design and tailings dam design. Pavement engineering design capabilities include layer-works design, design of flexible and concrete pavements and pavement rehabilitation solutions. Our team has specific expertise in the design of pavements for heavy vehicle and aircraft loadings, although we tailor each solution to meet specific requirements and budgetary parameters.

GEOTECHNICAL INVESTIGATIONS

Pavement investigations, Soil testing, profiling and core logging, Founding conditions

DOLOMITIC STABILITY ASSESSMENTS

Hazard classification; Authority approvals

RETAINING STRUCTURES

Earth and gravity retaining structures; Reinforced earth walls; Sheet pile walls; Slope stability

FOUNDATION DESIGN

Engineering soil rafts; Strip and pad footings; Pile foundations

TAILINGS & EARTH DAM DESIGNS

Soil investigations and testing; Sizing and operation; Permeability, Stability

PAVEMENT & LAYERWORKS DESIGN

Material identification; Material modification

MUNICIPAL

The development of well-planned, efficient and reliable municipal infrastructure is crucial in ensuring amenities continue to reach and service communities. We have successfully completed electrical power, water and wastewater infrastructure projects, having the expertise to provide concept design through to detail design solutions, technical construction support and project hand-over.

Our consultancy professionals have proven themselves with the successful completion of numerous municipal infrastructure projects, often within accelerated timeframes. Large scale completed infrastructure projects include a 350km bulk portable water supply pipeline in Limpopo as well as a stormwater infrastructure design for a 3,000 hectare development in Gauteng.

PAVEMENT DESIGN

Roads; Parking areas; Platforms

GEOMETRIC DESIGN

3D Modelling

STRUCTURAL ENGINEERING

Bridges; Pedestrian walkways; Pedestrian bridges; Culverts

ELECTRICAL

Street lighting; Substations

STORMWATER DRAINAGE

Drainage; Floodline analysis; Run-off calculations

WATER & WASTEWATER

Water and sewer reticulation; Wastewater treatment works; Reservoirs

COMMERCIAL INDUSTRIAL, & RESIDENTIAL DEVELOPMENT

Expansion into the Commercial, Industrial and Residential market sector is a true indicator of our continued diversification since Nurizon's establishment in 2010. Professional services have been rendered in the planning and design of shopping centres, mining villages, housing development, warehousing, office development and single luxury residential dwellings. We have also undertaken largescale low-cost housing, forensic audits and refurbishment projects for the NHBRC. Our capable structural engineers are experienced in the design of steel, reinforced concrete, composite and timber structures and buildings – from elegant and complex, to fit-for-purpose sustainable and green solutions.

STRUCTURAL ENGINEERING

Steel and concrete structures; Timber and masonry

CIVIL INFRASTRUCTURE

All civil related infrastructure

ELECTRICAL & MECHANICAL

Electrical engineering; Backup power; HVAC; Lifts

STORMWATER DRAINAGE

Roof and surface run-off calculations; Stormwater designs

WATER & WASTEWATER

Water and sewer reticulation; Wastewater treatment works; Reservoirs

BULK WATER

Bulk water, potable water and wastewater design capabilities support all of the business sectors in which we specialise.

Our successfully completed design projects include various specialised water and wastewater projects – ranging from pump station and reservoir designs, bulk pipelines, fire water designs, dewatering systems to rain water harvesting schemes.

SYSTEM DESIGN

Demand calculations; Hydraulic design

PUMP STATIONS

Structures; Pumps sizing; Pipes, valves and specials; Electrical supply; Control and instrumentation

BULK PIPELINES

Alignment and sizing; Hydraulic design; Bridge and river crossings; Pipe jacking; Valves and valve chambers; Telemetry

RESERVOIRS

Foundation design; Structural and hydraulic design; Control and instrumentation

DAMS

Raw water dams and stormwater retention dams; Catchment calculations; Location selection

RAIL AND PORT

Rail and Port infrastructure in Africa remains critical to unlocking the continent's economic potential. The high number of land-locked countries in Africa and small sized economies necessitates development of high-capacity efficient railway networks and ports.

We have been involved in various rail and port infrastructure projects for both private clients as well as government authorities over the years.

Many of our mining projects also require upgrading or designing of new rail and port infrastructure as part of the new development or expansion.

GEOMETRIC ALIGNMENT

3D Modeling

FORMATION DESIGN

Layerworks design

STORMWATER DRAINAGE

Floodline analysis; Run-off calculations

RAIL OPERATIONS & ROLLING STOCK

Modeling and simulations

GEOTECHNICAL INVESTIGATIONS

Soil testing; Profiling & core logging;
foundation conditions

STRUCTURAL DESIGN

Rail and port buildings; Port structures;
Railway bridges and major culverts

FINANCIAL SERVICES

We have undertaken a number of financial evaluations and in addition to our portfolio of financial modelling services, we have arranged successful grant funding through the South African Department of Trade and Industry's Capital Projects Feasibility Programme, as well as other investment partners.

We can also assist with the application for any mineral resource project (Mines Work Programmes) as well as water use licenses and mining permits.

Our feasibility study experience ranges from desktop and scoping studies, to bankable feasibility and definitive studies.

FEASIBILITY STUDIES

Concept scoping; Feasibility and bankable studies

FUNDING SOLUTIONS

Grant funding; Export credit funding; Debt and equity solutions

QUANTITY SURVEYING

Bills of quantities; Progress measurements; Interim and final payment certificates; Budget & estimates

COST MANAGEMENT

Design and construction programs; Progress updates; Budget and progress reports

WHAT MAKES US UNIQUE...

INTERNATIONAL FOOTPRINT

With offices in South Africa and the United Kingdom, we have extensive expertise and understanding of logistics, systems and procedures on a global level. The United Kingdom provides a strong base for us to pursue opportunities within the European markets, as well as projects on the African continent, as several North African clients have head offices situated in London.

South Africa has significant regional influence and recognised status within the developing African economy, making it the optimal strategic location for us to pursue infrastructure projects in Sub-Saharan Africa.

SOLID FOUNDATION

We view each project individually, as being unique, and do not believe in 'one-fits-all' solutions. Consistently maintaining remarkably high standards, we continue to thrive on repeat business. This being secured by the development of integrity in our work-relationships, we remain focused on our core values in every aspect of conducting business.

COLLECTIVE EXPERTISE

We have assembled a vibrant team of key engineering professionals and support staff, adequately equipped to provide integrated solution approaches to our clients. Inspired by vision, we have established a unique identity as an engineering consultancy brand by bringing innovative engineering solutions to every one of our projects, sometimes with unique challenges, across various business sectors.



STUDENT BURSARY PROGRAMME

Since 2010, we have assisted students with tertiary education studies, which range from one-year courses to degrees. We recognise the value of a good education. It is one of the key elements in bringing about change for the better in one's personal circumstances, opening up many great career possibilities. In addition, any meaningful commitment to personal growth brings positive change into families, the surrounding community and into the company as a whole.

We strive to improve the lives and broaden the horizons of all our students, many of whom are from previously disadvantaged backgrounds. An internship route is the best way for us to provide training and real design experience to students.

Nurizon consists of various divisions / departments, with service offerings across eight market sectors. With these divisions managed by our multi-disciplinary design team, our bursary posts are not only limited to the engineering side of the business. We also assist with the training of draughtspersons and administration staff.



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