HOW MSW CAN HELP YOU

We have a range of engineering services, specialising in the following:

- Institutional Capacity Building
- Water and Sanitation
- Structures
- Infrastructure
- Roads and Highways
- Programme Management
- Cost Engineering

BACKGROUND

MSW, co-founded by a dynamic team of black professionals, sets itself apart by its dedicated focus on its clients’ programme, project and contract management, cost management, infrastructure development, and institutional capacity building needs. For MSW, no project is a carbon copy. Each takes on a life of its own, with our department heads and teams working hard to meet deadlines and to give attention to quality delivery at all times.

Based in Midrand, Johannesburg and with additional offices in Polokwane, Limpopo, and Nelspruit, Mpumalanga, MSW is committed to dynamic transformation in the engineering and project management sector. As such, we are building and training our team to achieve superior skills and knowledge in the industry. As a black majority-owned consulting firm, we aim to make an active difference in South Africa’s infrastructure, so that every South African will benefit.

COMPANY EXPERIENCE

Project Management

Client: Department of Correctional Services (DCS)  
Project: The design and project management of five correctional centre upgrades  
Duration: 2014–ongoing  
Project value: R6Bn

MSW are currently engaged by the Department of Correctional Services for the programme management, design, and construction monitoring of five correctional centres (CC), Johannesburg CC, St Albans CC, Durban Westville CC, Brandvlei CC and Zeerust CC.

The projects comprise a combination of refurbishment and the upgrade of existing facilities that have outlived their design life. In addition, the new build of prisoner accommodation and support facilities is either planned or underway. MSW developed the detailed project scopes in close conjunction with the correctional centre management teams in order to ensure they were able to take ownership of the completed facilities.

The planning of the implementation stages is complex with construction taking place in operational facilities. MSW carefully developed contract structures to enable the large projects to be broken down into smaller contracts without increasing the risk of unnecessary contractor interfaces.
**Client: Department of Correctional Services (DCS)**  
**Project:** Government Immoveable Asset Management Act (GIAMA): condition surveys  
**Duration:** 2014–ongoing  
**Project value:** Not applicable

MSW are currently engaged in the production of condition survey reports for 221 correctional centres across the country in support of the DCS’s compliance with the GIAMA Act (2007).

MSW’s inspection teams collect detailed condition information from the centres on a room-by-room basis, which is inputted in real time into a secure cloud-based database. The information is analysed and presented in a series of condition survey reports. Accompanying these are recommendations and cost estimates for remedial and any upgrade works required to bring the correctional centres back to an efficient operational status.

These reports are then used by the DCS as part of the overall development of User Asset Management plans (U-AMPS) for each of their centres. MSW interrogates the data using Microsoft MSACCESS® database linked to PLANET GIS and presents its findings in a consolidated regional report. The regional report is used by the DCS as a planning tool to develop maintenance strategies.

**Client: Technical and Vocational Education Training Colleges (TVET).**  
**Project:** The design and project management of 12 new Further Education and Training Colleges and the refurbishment of four existing campuses  
**Duration:** 2013–Ongoing  
**Project value:** R2.5Bn

MSW are currently engaged by the Department of Higher Education and Training for the programme management, design, and construction monitoring of 16 TVET colleges. The individual projects include classrooms, specialist workshops, kitchens, student centres, administration and accommodation buildings along with associated site infrastructure.

The design and tender documentation stages have been completed with nine campuses already under construction and the remainder are awaiting the awarding of contracts.

The campuses are located across KZN, Limpopo, Eastern Cape and Mpumalanga.

**Client: Further Education and Training (FET) capital expenditure programme management**  
**Project:** Recapitalisation of seven FET colleges and 23 campuses (RECAP)  
**Duration:** 2007–2008  
**Project value:** R264Mn

MSW were responsible for the programme management of the 2007–2008 FET colleges DORA capital expenditure programme (RECAP) for the Department of Education in Limpopo Province.

The project included supporting the FET colleges’ management in the implementation of seven strategic funding areas that included: campus and workshop rehabilitations; ICT development; and supply of learner support materials. MSW offered technology transfer and capacity building to the seven FET college local project managers and financial staff.

The assignment was successfully completed, achieving a 100 per cent expenditure of the budget.

**Client: MTN building project managers**  
**Project:** Refurbishment of dealerships, warehousing, and development of switch centres  
**Duration:** 2008–2014  
**Project value:** R310Mn

As MTN project managers, MSW have successfully delivered a range of building projects for MTN across South Africa.
Dealerships. The roll-out of the refurbishment of more than 100 MSW dealerships in their role of store building highlighted MSW’s ability to manage multiple short contracts. The project required high levels of interface between contractors, MTN specialist suppliers, shopping centre management and MTN dealerships. Project value: R60Mn.

Switch centres. MSW project managed MTN switch centres at Rustenburg, Emelo and Worcester. The projects involved technically complex design solutions and fast-tracked completion dates. The projects, which were completed in 2009, provided connectivity between MTN’s network and the terrestrial telephone system. Project value: R180Mn.

HVRC. MSW project managed MTN’s High Volume Repair Centre (HVRC) in Midrand. The HVRC provides MTN with the ability to carry out high volumes of complex handset repairs under the certification of the manufacturers. The facility, which is strategically located at the Allandale junction of the N1 for the purposes of efficient transportation, is a highly clean environment with great levels of security and fire protection. Despite challenges with ground water, the project was delivered on time and within budget. Project value: R40Mn.

Warehousing. MSW project managed MTN’s Midrand warehouse refurbishment. The facility, which was completed in 2011, receives bulk deliveries from manufacturers, provides storage, and packages the product for distribution to retail outlets. The works were carried out inside a live operating facility containing high-value products. As the warehouse was the central storage and distribution facility, it was critical that the works did not compromise operations. MSW ensured that the construction was phased to meet operations and closely monitored construction to ensure that the works did not result in contamination of the warehouse product. Project value: R30Mn.

Client: PIKITUP
Project: City of Johannesburg illegal dump rehabilitation programme
Duration: 2006–2009
Project value: R400Mn
MSW were responsible for the programme management of the three-year R400Mn programme to eradicate illegal dumps within Johannesburg.

This programme was broad ranging and included the strategic support of PIKITUP executive, management, and the implementation of physical, educational and operational programmes along with the management of community and stakeholder groups.

MSW identified illegal dumpsites and recorded their location and content on a GIS model. This assisted in identifying illegal dumping trends and measuring the impacts of the rehabilitation programme. MSW then coordinated and quantified the removal of waste and planned and implemented the rehabilitation of major dumpsites into parks and other community spaces.

Client: Mpumalanga Department of Public Works Roads and Transport (DPWRT)
Project: Mud School Eradication Programme
Duration: 2010–2011
Project value: R33Mn
MSW provided project management and engineering support to the Mpumalanga DPWRT through the planning design and construction monitoring of their 2010/2011 Mud School Eradication Programme.

MSW carried out a gap analysis on each of the sites in order to enable DPWRT to confirm the scope of works. A total of 91 classrooms and four Grade R facilities were constructed across 29 sites.

Client: Department of Public Works, Roads and Transport (DPWRT)
Project: Vezimfundo Primary School, Mpumalanga
Duration: 2011–2012
Project value: R34Mn
MSW were responsible for the engineering designs for the Mpumalanga Department of Public Works Roads and Transport’s development of the new Vezimfundo Primary School in Delmas.
The new development included: 24 classrooms; a library; a computer centre; two Grade R facilities; a kitchen; an administration block and multipurpose hall; five ablution blocks; a guard house; a tennis court; multipurpose ground; a boundary fence; driveways and parking. Excessive ground water on the whole project site also necessitated a network of subsoil drains.

Client: Department of Public Works, Roads and Transport (DPWRT)
Project: Alex Benjamin Secondary, Mpumalanga
Duration: 2013–2014
Project value: R31Mn

MSW were responsible for the engineering design of the Alex Benjamin Secondary School in Hendrina on behalf of the Mpumalanga Department of Public Works Roads and Transport.

This new campus was completed in phases from 2012 to 2014. It included: 12 classrooms; a library; a computer centre; a science laboratory; a kitchen and administration block; a multipurpose hall; four ablution blocks; a guard house; a tennis and netball court; multipurpose ground; a boundary fence; driveways and parking.

Client: Department of Public Works, Roads and Transport (DPWRT)
Project: Arnot Primary School, Mpumalanga
Duration: 2013–2014
Project value: R26Mn

In 2010 the Mpumalanga Department of Public Works Roads and Transport appointed MSW to provide professional services in civil and structural design and supervision for the Arnot Primary School in Mafube.

The project scope included: nine classrooms; a library, computer centre and kitchen; administration block and multipurpose hall; one grade R facility; two ablution blocks; a guard house and multipurpose ground; a boundary fence; driveways and parking.

Client: Department of Public Works, Roads and Transport (DPWRT)
Project: Wolvenkop Special School, Mpumalanga
Duration: 2013–2014
Project value: R20Mn

In 2010 the Mpumalanga Department of Public Works Roads and Transport appointed MSW to provide civil and structural engineering design and monitoring services for the upgrade of Wolvenkop Special School in Verena.

The upgrade was of an existing school for special-needs learners. The project scope included six classrooms with supporting facilities, four workshops with supporting facilities, driveways and parking.

The building structures were a combination of reinforced concrete, structural steel, masonry and timber. MSW undertook civil and structural designs and construction supervision.

Client: Vhembe Technical Vocational Education and Training (TVET) College
Project: Design and programme management
Duration: 2014–Ongoing
Project value: R92Mn

MSW are currently engaged in the implementation phase of the expansion roll-out of the Vhembe TVET campuses at Makwarela, Mashamba, Mavhoni and Tshishimani. We are also upgrading the central offices in Sibasa Thohoyandou and a catering school in Makhado. Each project is being delivered through separate contractors to help build the capacity of the construction industry in Vhembe.

MSW have completed the design phase and obtained environmental screening clearances. The existing campuses were largely in rural areas and had been developed informally without planning approvals. MSW worked with the local municipalities to normalise this situation and obtained approvals for both the new and existing facilities.
A total of 60 classrooms, two administration buildings, three 1200 capacity multipurpose halls, student support services and a domestic science block are being constructed. For the central offices, MSW are refurbishing a historical building and approvals have been obtained from the South African Heritage Resource Agency.

**Client: Department of Public Works, Roads and Transport (DPWRT)**

**Project:** Mpumalanga Department of Culture Sport and Recreation High Altitude Training Centre  
**Duration:** 2010–2012  
**Project value:** R5Bn

MSW were responsible through the Independent Development Trust for the master planning and programme management of The High Altitude Training Centre in eMakhazeni, Mpumalanga.

The campus will cater for the training of elite international sportspeople in a wide range of disciplines and will promote the identification and development of talented young sportspeople.

The project is comprised of over 40 subprojects including training centres, which include gymnastics, aquatics, cycling and the like along with accommodation and sports stadia.

Environmental authorisation has been secured and Implementation Readiness Reports have been submitted to DWAS for the upgrade of eMakhazeni water and waste water treatment works in support of the development.

**Client: Department of Public Works (DPW) Technical Support**

**Project:** Provision of technical assistance  
**Duration:** 2014–Ongoing  
**Project value:** Not applicable

MSW are currently engaged as structural engineering specialists for the maintenance and renovations of properties under the custodianship of the Department of Public Works.

MSW also acts as structural engineering advisors to the Regional Sketch Plan Committee reporting to the project managers at the DPW. MSW reviews the status quo reports and preliminary designs prepared by other appointed structural PSPs for the conduct and completeness of the structural surveys and the appropriateness of any preliminary designs.

Importantly, MSW ensure compliance with DPW procedures and signs off documentation on behalf of the DPW.

**Client: Limpopo Department of Local Government and Housing**

**Project:** Integrated sustainable human settlement  
**Duration:** 2010  
**Project value:** Not applicable

MSW were responsible for the investigation and recommendation of foundation types for housing projects at 67 residential sites across Limpopo.

MSW mapped the project sites using GIS. We then carried out geotechnical investigations and categorised the sites based on the NHBRC system, which enabled a range of standardised engineering designs to be developed and implemented across the various projects.

**Client: Department of Water Affairs (DWAS)**

**Project:** National Water Resources Infrastructure Programme Management Unit  
**Duration:** 2012–2014  
**Project value:** Not applicable

MSW were responsible for the programme management of the Department of Water Affairs National Water Resources Infrastructure Branch’s (NWRI) capital and maintenance projects from 2012 to 2014.

The assignment began with a tender evaluation process for the selection of a panel of forty consultants. MSW developed a rotational procurement policy to engage successful panel members for individual assignments.
MSW developed 80 terms of reference for water service delivery and maintenance projects throughout South Africa.

A cornerstone of the assignment was the development of emerging consultants and MSW reported regularly on project progress, capacity building and skills transfer.

Civil Engineering

**Client:** Lepelle Northern Water  
**Project:** Upgrade of the Olifantspoort and Ebenezer water scheme  
**Duration:** Ongoing multi-year programme  
**Project Value:** R11Bn

MSW are programme managers and principal consultants for the multiyear upgrade of the Olifantspoort and Ebenezer water scheme. The project is part of the ministerial intervention, through Lepelle Northern Water (LNW), to support water service delivery in Polokwane and other related supply areas.

Having investigated the water needs and existing infrastructure, MSW developed a feasibility study and concept design for the planned upgrades.

The programme was broken down into numerous work packages, which were made of distinct elements of work. These packages were planned so they could be implemented independently without compromising the existing infrastructure and, importantly, without creating interface risks between the various packages.

The urgent need for improved service delivery was a key driver in MSW’s planned phasing of the upgrades. A first phase to deliver an additional 40Ml/day of water to communities has been planned. The roll-out of the detailed design and construction stages will be implemented by third-party consultants under the programme management of MSW.

MSW are currently in the process of formalising servitudes and managing the environmental authorisation processes for the first phase of the upgrade works.

**Client:** Bela Bela Local Municipality  
**Project:** Rehabilitation of the Bela Bela CBD roads  
**Duration:** 12 months  
**Project Value:** R25Mn

MSW were responsible for providing consulting engineering services for the rehabilitation of Central Business District (CBD) roads in Bela Bela. The scope included planning, designing and construction monitoring of different streets. A total of seven roads, with a total length of 3.3km, underwent pavement upgrades and reseal to improve the pavement strength and also resolve storm water challenges.

The main roads R101 from Pretoria to Modimolle and the R516 from Settlers to Thabazimbi pass through the project area resulting in high through-traffic volumes. The commercial and retail businesses located within the CBD required continued access from the roads under construction. In order to ensure that the impacts on through traffic and to the businesses within the CBD were minimised, MSW designed a phased traffic-accommodation plan, which was discussed with the community prior to implementation. The project was successfully completed without disruption.

The project site is flat and storm water management was a challenge with flooding of the CBD roads having been a common occurrence. The existing storm water system did not function adequately and was a contributing factor to the deterioration of the road pavements layers. MSW developed storm water designs, which interfaced with pedestrian walkways and efficiently directed water away from the project site.
MSW were responsible for the engineering design of the Acornhoek Bulk Water Supply Project, B3, which we did for the Bushbuckridge Local Municipality in Mpumalanga Province. The project included supply, storage reservoirs and reticulation and was completed in 2013.

MSW are responsible for the design and construction monitoring of the Sebayeng/Dikgale Regional Bulk Water Scheme. The project is located 30km northeast of Polokwane CBD within the Polokwane Local Municipality. The scheme supplies over 30 villages across more than 900 km².

The Sebayeng/Dikgale Bulk Regional Water Scheme draws water from the Ebenezer main bulk line, which runs between the Ebenezer Dam and Polokwane city.

This regional bulk water supply pipe consists of a 450mm diameter steel grade 300 WA pipe conveying 78.91 l/s of water. It feeds networks of 250mm and 160mm diameter steel pipes of approximately 30km, which in turn feed three new concrete reservoirs sized 11ML, 7ML and 40ML.

As the multiyear project progresses, it is augmented with short-term emergency water supply projects fed from local boreholes in order to alleviate the critical water shortages.

MSW were responsible for the Capricorn District Municipality water infrastructure refurbishment programme, which was designed to alleviate a service-delivery backlog and was comprised of 10 turnkey contracts.

The projects ranged from the refurbishment of treatment works and dams and long-distance water supply pipelines to the refit of existing boreholes. The projects are spread throughout the Aganang, Molemole and Blouberg Local Municipalities.

The Modimolle Local Municipality appointed MSW to carry out a project rescue at their Donkerpoort Water Purification Plant. MSW assessed the status of the failed project, developed a retrieval strategy and were responsible for the design and construction monitoring of the upgrade of the works. The water purification plant was upgraded from 5–10ML/day through the addition of a new filter and associated civil infrastructure.

MSW assisted the Modimolle Local Municipality in securing funding from DWAS for the upgrade of its bulk water supply scheme, based on MSW’s devised business plan.
The project will replace the existing asbestos pipelines, which are under-capacity and have outlived their design life.

The scheme includes an above-ground steel raw water line, 13km gravity pipeline along with a total of 22Ml storage capacity. The existing scheme ran through agricultural land where access for maintenance was difficult. By making use of an adjacent road reserve for the route it has been possible to eliminate this challenge.

| Client: Emalahleni Local Municipality |
| Project: Ganala Waste Water Treatment Works |
| Duration: 2009–2013 |
| Project value: R64Mn |

MSW were responsible for the design and construction monitoring of a 7Ml/day sewage treatment plant to replace the existing Kriel Sewage Treatment Works, as appointed by the Emalahleni Local Municipality. The activated sludge treatment works include full secondary treatment with nitrogen and phosphorus removal as well as chlorine disinfection of effluent.

| Client: Emalahleni Local Municipality |
| Project: Thubelihle Outfall Sewer |
| Duration: 2014–2015 |
| Project value: R8Mn |

The existing waste water treatment works at Kriel were old, under-capacity and represented both a maintenance and environmental challenge to an adjacent water course.

Emalahleni Local Municipality made a strategic decision to decommission the works and divert sewage to the new works at Ganala.

MSW were engaged to design and monitor the construction of a pumped rising main from Kriel, 3km to the existing Cypress Pump Station to enable the waste to be treated at the new Ganala works. The route included a river crossing of 20m and the most direct route required that a new river crossing be developed. However in order to avoid the delay related to obtaining a water use licence the pipeline was diverted across an existing road bridge.

| Client: Moqhaka Local Municipality |
| Project: Steynsrus emergency water supply rehabilitation |
| Duration: 2012–2013 |
| Project values: R10Mn |

Water is supplied to the communities of Steynsrus and Matlwangtlwang from the Reinoster River via the Morgenzon storage dam and 18km raw water pipeline. The scheme is not reliable and is a major service-delivery challenge.

MSW's investigations identified the need to upgrade the river intake and replace the supply line in order to meet demands. These works would require a water-use licence and are a long-term project.

MSW commissioned a geohydrological study, which identified a reliable ground-water source as an emergency supply, which existing agricultural boreholes could access. MSW carried out yield and water quality testing and retrofitted the boreholes to supply the community in the interim period until the main scheme was upgraded. Leak detection testing in the community identified serious water losses and a maintenance programme was implemented to reduce the stress on the system.

| Client: Moqhaka Local Municipality |
| Project: Water scheme business planning project |
| Duration: 2010 |
| Project value: Not applicable |

MSW investigated the challenges at both Viljoenskroon and Kroonstad water purification and waste water treatment works and developed concept designs and business plans for the upgrade of the works. The Department of Water Affairs approved MSW’s Implementation Readiness Reports that enabled the municipality to secure funds for the projects.
Client: Bela-Bela Local Municipality  
Project: Water supply scheme audit  
Duration: 2008  
Project value: R14Mn

MSW carried out a technical audit of the Bela-Bela Water Supply Scheme. The assignment involved evaluating the current infrastructure for its efficiency and effectiveness to meet present water and future water demands.

The audit informed the planning process and enabled a maintenance plan as well as emergency rehabilitation project scopes to be developed and presented to DWAF funding.

Client: Mvula Trust  
Project: School sanitation project  
Duration: 2012–2013  
Project value: R1.8Mn

Mvula Trust, acting as the implementing agent for the Department of Education engaged MSW to manage the installation of boreholes to six schools. MSW were responsible for contract administration, quality and cost control.

MSW’s team monitored the borehole yields and water chemical tests to ensure that they were within acceptable limits and delivered the project on time and within budget.

Client: Lepelle Northern Water  
Project: Olifantspoort Water Treatment Works  
Duration: 2007–2009  
Project value: R4Mn

MSW were responsible for engineering designs for the upgrades of the Olifantspoort Water Treatment Plant in Limpopo. The project has boosted plant capacity from 30ML/day to 60 ML/day.

The plant currently provides water to areas surrounding Polokwane including Anglo Platinum mines. MSW’s services on this project range from the building system design to pipeline and chlorination design.

Client: Roads Agency Limpopo  
Project: Maintenance of Road D1468 from Vivo to end tar in the Capricorn District of Limpopo Province  
Duration: 2014–Ongoing  
Project value: R13Mn

MSW were responsible for the engineering assessments, design and also the tender documentation for the maintenance of 19.5km of surfaced road from the R521 intersection in Vivo to the end of surfaced road at the village of Indermark.

The project involves the maintenance of the road’s bituminous surface. The deteriorating condition of the surfacing presented challenges from continual traffic wear. Heavy vehicular traffic had also compromised both storm water and the existing pavement. Taking these issues account, MSW recognised a possible change in design approach might be needed when the project proceeded to construction.

Client: Limpopo Department of Roads and Transport  
Project: Design, construction supervision and project management for the maintenance of Road P1/3, Waterberg District, Limpopo Province  
Duration: 2008–2010  
Project value: R25Mn

MSW were responsible for the engineering assessments, design and construction monitoring of the rehabilitation of 43km of surfaced road from Bela-Bela to Pienaars River to Hammanskraal.
The project involved the rehabilitation, reconstruction and maintenance of the road pavement and storm water. The low-lying topography of the area presented challenges with both storm water and underground water and the existing pavement had been compromised by a high water table.

MSW's design made use of geomembranes to protect the road layer works and to strengthen the new asphalt surfacing.

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<tr>
<th>Client: Limpopo Department of Roads and Transport</th>
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<tr>
<td>Project: Design for preventative maintenance of Road D936 from P1/3 to Codrington to Settlers in Bela-Bela Municipality in the Waterberg District, Limpopo Province</td>
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<tr>
<td>Duration: 2010–2011</td>
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<td>Project value: R25Mn</td>
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MSW were responsible for the engineering assessments, design and tender documentation of the rehabilitation of 27km of surfaced road from Codrington to Settlers.

The project involves the rehabilitation, reconstruction and maintenance of the road pavement and storm water. The low-lying topography of the area and expansive soils presented challenges with both storm water and the existing pavement having been compromised by heavy vehicular traffic.

MSW's design made use of an improved subgrade while raising the road layer works above the expansive soils and strengthening the existing pavement structure.

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<tr>
<th>Client: Mpumalanga Department of Public Works Roads and Transport (DPWRT)</th>
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<td>Project: Ehlanzeni North and South Road maintenance managers</td>
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<tr>
<td>Duration: 2010–2012</td>
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<td>Project value: R123Mn</td>
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From 2010 to 2012, MSW were responsible for the programme management and engineering design of road maintenance in the North and South Ehlanzeni Districts of Mpumalanga for the Department of Public Works, Roads and Transport.

The programme was focused on increasing the capacity of the DPWRT by providing management, reporting, technical assistance and capacity building.

It also involved the mentoring of some 33 local contractors, many of whom were emerging contractors.

MSW supported DPWRT in the development of a routine road maintenance plan along with its associated budget. Resulting projects included emergency patching, overlays and the reconstruction of surfaced roads along with the regravelling of rural access roads.

MSW were also responsible for the support of the community-based Siyatentela programme.

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<th>Client: Johannesburg Roads Agency (JRA)</th>
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<td>Project: Gravel road upgrades – Doornkop Township</td>
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<td>Duration: 2009</td>
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<td>Project value: R22Mn</td>
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MSW were responsible for the engineering management, design and construction monitoring of the upgrade of 5km of existing gravel roads in Doornkop Soweto for the JRA. We surfaced these roads with bitumen and constructed associated storm water drainage works.

The existing topography and built environment required improved storm water systems from a master plan prepared by MSW as well as an upgraded pavement structure.
Client: Johannesburg Roads Agency (JRA)
Project: Gravel road upgrades – Ivory Park Township
Duration: 2009
Project value: R9.6Mn

In Ward 79 Ivory Park Johannesburg, MSW were responsible for the engineering management, planning, design, and construction monitoring of the upgrade of 2km of existing gravel roads to bitumen-standard surfaced roads with associated storm water drainage works for JRA.

A total of 30 roads in five separate priority areas covering a total of 6.2km were identified for upgrade. This included associated storm water drainage. The roads included in this project were chosen dependent on priority and budget.

Client: Johannesburg Roads Agency (JRA)
Project: Gravel road upgrades – Ivory Park Extensions 6 and 7
Duration: 2009–2011
Project value: R15Mn

MSW were appointed by Johannesburg Road Agency (JRA) to design the upgrade of 5.5km of gravel roads and associated storm water in Ivory Park Township.

JRA identified 7.5km of priority roads in two adjacent wards 78 and 79. The limited project budget prevented all of the roads from being upgraded in the project and JRA empowered MSW to present the project to the ward councillors and negotiate which roads were to be included in the project. The nature of township road upgrades requires that storm water and road upgrades are linked; it is often the storm water system, which governs the project scope.

MSW were able to explain these constraints and reach an agreement with the ward councillors. The development of a comprehensive storm water master plan was undertaken, which was applied in the project and forwarded to JRA to inform future gravel road upgrade projects.

A total of 2km of gravel roads in Ward 79 and 1.5km in Ward 78 was identified for upgrade inclusive of associated storm water drainage. Approximately 2.5km were upgraded in that financial year leaving 5km to be upgraded in future projects.

Client: Letsemeng Council, Koffiefontein.
Project: Design, construction supervision and project management for the upgrading of streets in Khayelitsha (Ward 3), Free State Province
Duration: 2008
Project value: R6Mn

MSW were responsible for the upgrading of approximately 1.6km of the existing gravel roads to bitumen-standard surfaced roads with related storm water drainage works in a built-up township. The 1.6km cover the following roads: Vukunzenzele, Emathuneni, Meriting and Emdni.

Client: Gautrain
Project: Detailed design package DD4B
Duration: 2007–2009
Project value: Not applicable

MSW were responsible for the detailed design of the Gautrain civil works from OR Tambo Airport to the Marlboro Portal running through the jurisdictions of both the City of Johannesburg and Ekurhuleni. The designs included: 15km of civil works and surface drainage; 21 bridge structures; 20 box and pipe culverts; 30 road diversions (temporary and permanent); over 150 utility diversions; and landscape design for the railway reserve.

The project was completed in 2009 in time for the 2010 FIFA world cup.
Client: Southern District Council, Botswana
Project: Kanye Phase IV physical infrastructure development
Duration: 2007–2009
Project value: R150Mn

MSW were responsible for the design, contract documentation and construction monitoring of roads and associated storm water drainage in the Village of Kanye, Botswana.

The project included the upgrade of Industrial Area, CBD and village roads to surfaced standard, all totalling 45km. The project included: the rehabilitation of a section of the main A2 highway that passes through Kanye; a bridge; street lighting; a 5km main relief reinforced concrete drain; and a 1,200m² bus and taxi rank.

Client: Department of Roads, Transport and Community Safety, North West Province
Duration: 2009
Project value: R385Mn

MSW carried out the technical audit of the CAPEX programme of the Department of Roads, Transport and Community Safety in North West Province for the years 2005–2007.

The assignment addressed 16 projects covering a total of R383Mn and resulted in a number of recommendations to strengthen management procedures.

In particular, the audit highlighted the need to ensure that a proper structure and systems needed to be developed and implemented to ensure the successful delivery of programmes of this nature.

Client: Modimolle Local Municipality
Project: Joe Slovo Bridge, Modimolle
Duration: 2013–2014
Project value: R4Mn

The residential and commercial districts of Modimolle are separated by the Nyl River, which has a number of low-level crossings that overtopped during floods preventing vehicular and pedestrian movement and creating a danger to life.

A previous contract to upgrade the Joe Slovo Bridge failed leaving Modimolle Local Municipality with an open excavation and a range of materials. MSW were engaged to rescue the project. An audit revealed that the project did not have environmental authorisation nor a water-use licence. MSW engaged both the Department of Water Affairs and the Department of Environmental Affairs and secured their approval to progress the project in parallel with securing relevant authorisations.

In order to minimise costs, MSW redesigned the crossing in the form of a multibarrel-box culvert and incorporated environmental remedial works into the project to return the water course to its natural state.

Client: Modimolle Local Municipality
Project: Limpopo St Bridge, Modimolle
Duration: Ongoing
Project value: R5Mn

The Nyl River meanders through the residential areas of Modimolle and a number of low-level bridges cross it.

The Limpopo St Bridge crosses the river adjacent to a nursery school and represents a health and safety hazard. There is serious river bank erosion just upstream of the bridge, which is putting private property at risk. MSW were engaged to upgrade the bridge to accommodate a 1:100 flood. We integrated river bank erosion protection in the form of gabions into the design of the heavily skewed box culvert bridge.
Having completed the topographical survey of the bridge site and approach roads it became clear that the original bridge location was not aligned to its road reserve. This was causing adjacent crossroads to be staggered and creating a traffic black spot. By moving the new bridge to the centre of the road reserve and increasing its skew, it was possible to realign the approach road and remove the staggered junction.

**Client:** Mpumalanga Department of Public Works Roads and Transport  
**Project:** Flood disaster assessment  
**Duration:** 2011−2012  
**Project value:** Not applicable

Between June 2011 and January 2012 a series of devastating floods occurred in Mpumalanga. A flood emergency response team was assembled, led by the Department of Co-Operative Governance and Traditional Affairs (CoGTA) and the National and Provincial Disaster Management Teams. MSW were appointed to investigate 45 flood-damaged sites. These included both gravel and paved roads, culverts and bridges.

MSW mobilised a team of engineers and produced reports, which: identified and mapped their locations; recorded the damage; recommended a solution; and proposed a budget for rectification.

MSW were appointed to the Provincial Flood Response Task Team, which provided strategic direction, monitored progress and developed the regional proposal for access to the National Disaster and Emergency Fund Scheme.

**Client:** Johannesburg Roads Agency (JRA)  
**Project:** Emergency storm water professional services at Ivory Park, Orange Farm, Diepsloot and Alexandra.  
**Duration:** 2010  
**Project value:** R20Mn

MSW were responsible for the investigation, planning, design and construction monitoring of the conversion of open storm water drains to piped systems and prioritised the alignments requiring urgent upgrades.

**Client:** Bela-Bela Municipality  
**Project:** Roads and storm water audit  
**Duration:** 2013  
**Project value:** Not applicable

MSW carried out a roads and storm water audit for the town of Bela-Bela in support of the development of a road management planning tool.

Preliminary designs along with the cost estimates were developed for storm water drainage systems. The roads monitoring system will ensure proper maintenance and the operation of the roads.

**Client:** Johannesburg Roads Agency (JRA)  
**Project:** Johannesburg flood alleviation  
**Duration:** 2011  
**Project value:** R2Mn

The ongoing development in both residential and industrial areas is putting stress on the City of Johannesburg’s storm water infrastructure. As areas are formalised, the catchment collection times are reduced resulting in the need for infrastructure upgrades. Infill projects bring the public into closer contact with water courses and increase the impact of floods.

MSW were engaged to investigate, design and implement storm water improvements in Meredale where open storm water channels made access to residences unsafe and in Midrand Industrial Park where recent floods had damaged drainage structures and bridge approaches.
MSW were appointed by the JRA to provide consulting engineering services for emergency storm water drainage works in Extension 7, Extension 8, Extension 9, in Ivory Park and Diepsloot West.

MSW analysed the catchments and developed storm water master plans that were used to inform the design of storm water drainage systems through the townships. The extent of the encroachment of informal housing into road and storm water reserves was a major challenge in the implementation phase of the assignment.

MSW were appointed by the JRA for the design and construction monitoring of improvements to various storm water projects identified in Alexandra Township. Three main areas of concern were identified for improvement, extension or upgrade. Of these, one formed part of the investigations undertaken by MSW in April 2010 for the conversion of storm water drainage systems in Alexandra. They had been prioritised to identify the individual construction budgets to enable what can be constructed within the available budget.

MSW are responsible for the engineering design, construction monitoring and supervision of the rehabilitation of approximately 3km of various surfaced roads within the Bela-Bela Central Business District (CBD). The project entails: the cleaning out of hydrological structures; the upgrade of existing storm water pipelines; asphalt milling; in situ rehabilitation of existing pavement layers; asphalt paving; the supply and installation of interlocking paving blocks; concrete-lined drains; and the construction of precast concrete kerbs/channel combinations.

MSW's design has incorporated another layer of G2 materials from commercial sources to be added to some of the main roads to cater to heavy traffic passing through the Bela-Bela CBD.

MSW have been responsible for the engineering design, tender documentation and construction monitoring of the upgrading of approximately 3.6km of various gravel roads in Extensions 1–7 of Bela-Bela Municipality.

The project entails: roadbed construction; the supply and installation of interlocking paving blocks; and the construction of precast concrete kerbs.

The works in this contract were executed using both conventional and labour-intensive construction methods according to the Extended Public Works Programme (EPWP) implementation guidelines.