



PS .0 Environmental Management Plan Obligations

PS.1.1 INTRODUCTION

The Environmental Management Plan (EMP) provides the framework for managing and mitigating negative environmental impacts associated with the construction and operation of the Western Highveld Bulk Water Supply Scheme. The project intends to improve potable water security across portions of Gauteng, Limpopo, and Mpumalanga by constructing pipelines, pump stations, reservoirs, and associated infrastructure.

This EMP outlines mitigation measures, performance indicators, monitoring requirements, institutional responsibilities, and reporting protocols to ensure the project complies with the **National Environmental Management Act (NEMA) (Act No. 107 of 1998)** and associated environmental regulations.

PS.1.2 PROJECT DESCRIPTION

The project entails the construction of a bulk water pipeline which known as the western Highveld Bulk Supply Scheme. This project aims to address the water supply infrastructure backlogs within the Manthanjana Magisterial District and Rapotokwane settlements in line with the Department of Water and Sanitation (DWS)'s overall objectives of expanding accessibility of potable water to poor communities. The water will be supplied to Mathanjana Magisterial District's (MMD) and Rapotokwane settlements. The study area comprises the Mathanjana Magisterial District's (MMD) and Rapotokwane settlements. The MMD includes Masobe, Katjibane, Loding, Marapyane, Nokoneng Mantiole, Mmaduma, Mmamethlake, Phake, Ramantsho, Rankaile, Seabe and Semahlase villages.

This project will source ground water augmentation from Rust De Winter Dam Surface Water. This option 1 is considered the best alternative solution for addressing bulk water infrastructure needs of the study area and it is recommended for further development owing to its robust technical functionality and lowest whole life costs. Furthermore, this option would maximise the use of the limited available water resources by utilising both surface and groundwater thereby mitigating the potential risk of loss of supply. A 51.5km gravity bulk pipeline comprising 19.4km and 32.1km of 500mm and 400mm diameter welded steel pipeline respectively, would be constructed to supply potable water from the command reservoir to various villages within the project area. The proposed gravity bulk pipeline will commence from Rust De Winter Dam Nature Reserve via R573/R568 it will be linked to an arterial road to Moretele.

PS.2 LEGAL AND POLICY FRAMEWORK

PS.2.1 National Legislation

- Constitution of the Republic of South Africa (Act 108 of 1996)
- National Environmental Management Act (Act 107 of 1998), as amended
- NEMA Environmental Impact Assessment Regulations 2014
- National Water Act (Act 36 of 1998) (NWA)


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Witness 2
462


Employer


Witness 1


Witness 2



- National Heritage Resources Act (Act 25 of 1999) (NHRA)
- National Environmental Management: Waste (Act 59 of 2008) (NEM: WA)
- National Environmental Management: Air Quality Management (Act No. 39 of 2004)
- Spatial Planning and Land Use Management Act 16 of 2013 (SPLUMA)
- Occupational Health and Safety Act (Act No. 85 of 1993) (OHSA)
- National Environmental Management Act (NEMA), 1998.
- NEMA EIA Regulations (GN R. 326, 327, 324).
- National Forests Act (NFA), 1998 – permits required for protected trees.
- National Environmental Management: Biodiversity Act (NEMBA), 2004.

PS.2.2 Provincial and Local Regulations

- Gauteng Conservation Plan & C-Plan Sensitivity Maps.
- Mpumalanga Biodiversity Sector Plan (MBSP).
- Limpopo Conservation Plan 2013.
- Municipal bylaws on water, waste, and stormwater.

PS.3 ENVIRONMENTAL BASELINE SUMMARY

PS.3.1 Biophysical Environment

- Vegetation: Grassland and Savanna Biomes; presence of endangered ecosystems near Highveld grasslands.
- Water Resources: Multiple river and wetland crossings (including tributaries of the Olifants and Crocodile Catchments).
- Fauna: Potential habitat for red-listed birds, amphibians, and small mammals.
- Soils & Geology: Erosion-prone sandy soils, dolomitic areas in Gauteng.
- Air Quality: Existing industrial emissions in Gauteng Highveld.
- Noise: Baseline rural sound levels susceptible to construction noise.

PS.3.2 Socio-economic Environment

- Communities depend on agriculture, mining, and rural livelihoods.
- Sensitive receptors include homesteads, schools, and clinics.
- Cultural and heritage resources may be present, requiring chance-find protocols.


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463


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Witness 1


Witness 2

**PS.4 OBJECTIVES OF THE EMP**

- Determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context;
- Describe the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location
- Identify the location of the development footprint within the preferred site based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on geographical, physical, biological, social, economic, heritage and cultural aspects of the environment;
- Determine the: Nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and Degree to which these impacts: Can be reversed; May cause irreplaceable loss of resources; and Promote sustainable resource use and environmental stewardship, May be avoided, managed or mitigated;
- Identify the most ideal location for the activity within the preferred site based on the lowest level of environmental sensitivity identified during the assessment;
- Identify, assess, and rank the impacts the activity will impose on the preferred location through the life of the activity;
- Identify suitable measures to manage, avoid or mitigate identified impacts; and
- Identify residual risks that need to be managed and monitored.
- Provide monitoring, auditing, and reporting procedures.
- Safeguard local communities, ecosystems, and heritage resources.

PS.5 ROLES AND RESPONSIBILITIES**PS.5.1 Project Proponent**

- Appoint Environmental Control Officer (ECO), Environmental Site Officer and Safety Officer.
- Ensure contractors comply with the EMP and licence conditions.

PS.5.2 Environmental Control Officer (ECO)

- Conduct weekly compliance inspections.
- Approve Method Statements.

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Witness 2



- Monitor rehabilitation and vegetation clearance.
- Issue non-compliance notices.
- Conduct environmental awareness training.
- Ensure that the site manager has input into the review and acceptance of construction methods and methods statements.
- Ensure that activities on site comply with all relevant environmental legislation.
- Ensure that a removal is ordered of any persons and equipment responsible for any contravention of the specifications of the EMPr.

PS.5.3 Environmental Site Officer

- Implement day-to-day mitigation measures.
- Maintain environmental registers (waste, incidents, complaints).
- Provide toolbox talks to staff.
- Have overall responsibility of the EMPr and its implementation.
- Conducts audit to ensure compliance to the EMPr.
- Ensure there is good communication amongst the entire team.
- Be fully knowledgeable with the contents of all relevant licences and permits.
- Confine activities to the demarcated construction site.

PS.5.4 Site Workers

- Follow environmental rules.
- Immediately report spills, erosion, or wildlife disturbances.

PS.6 ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

PS.6.1 Vegetation and Biodiversity

PS.6.1.1 *Potential Impacts*

- Loss of vegetation due to clearing.
- Disturbance of fauna.
- Spread of alien invasive species.
- Impact on protected or red-listed species.

PS.6.1.2 *Mitigation*

- Maintain minimised footprints of disturbance of vegetation/habitats on-site.
- Rescue and relocate flora/fauna where necessary.

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- No hunting, collection of firewood, or harming wildlife.
- Implement an invasive species management plan (as per NEMBA).
- Rehabilitate disturbed areas with indigenous species.

PS.6.2 Water Resources

PS.6.2.1 *Potential Impacts*

- Siltation of rivers and wetlands.
- Contamination from hydrocarbons, cement, or wastewater.
- Unauthorized abstraction or discharge.

PS.6.2.2 *Mitigation*

- Obtain Water Use Licence (WUL) before construction.
- Install silt traps, berms, and diversion channels.
- No refuelling within 50 m of watercourses.
- Use coffer dams or directional drilling for crossings where possible.
- Store hazardous substances in bunded areas.
- Regular water quality monitoring (pH, turbidity,).
- Reinstate natural hydrology after construction.

PS.6.3 Soil and Erosion Control

PS.6.3.1 *Potential Impacts*

- Soil compaction.
- Erosion from pipeline trenching.
- Instability in steep or dolomitic areas.

Mitigation

- Strip and stockpile topsoil separately.
- Implement erosion protection (geotextiles, gabions, grassing).
- Avoid construction during heavy rainfall periods.
- Reinstate correct soil profiles after backfilling.

PS.6.4 Air Quality and Dust

PS.6.4.1 *Potential Impacts*

- Dust from construction vehicles and clearing.
- Emissions from machinery.

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PS.6.4.2 Mitigation

- Water spray on haul roads.
- Cover material stockpiles.
- Maintain equipment to manufacturer standards.
- Speed limits ≤ 40 km/h on gravel roads.

PS.6.5 Noise

PS.6.5.1 Mitigation

- Limit noisy activities to 07:00–17:00.
- Notify communities in advance.
- Use silencers on machinery.
- Monitor noise at sensitive receptors (schools, clinics).

PS.6.6 Waste Management

- Implement waste separation (hazardous/non-hazardous).
- Use licensed waste transporters and disposal sites.
- Provide sufficient bins (with lids) at camps.
- No burying or burning of waste.
- Maintain a waste register.

PS.6.7 Hazardous Substances & Spill Management

- Store fuels in bunded areas (110% capacity).
- Maintain spill kits on all vehicles.
- Train workers on spill response.
- Report and remediate spills immediately.
- Compile incident reports.

PS.6.8 Heritage and Cultural Resources

- Pre-construction archaeological survey where required.
- Implement Chance Find Procedure: stop work, cordon area, notify SAHRA.
- Protect graves, artefacts, or heritage features.

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**PS.6.9 Social Impacts & Community Health****Mitigation**

- Stakeholder Engagement Plan implemented throughout project.
- Local labour recruitment where possible.
- HIV/AIDS & community safety awareness programmes.
- Install fencing and warning signage.
- Avoid blocking community access routes.

PS.6.10 Traffic Management

- Traffic Management Plan required.
- Maintain safe access for communities.
- Use signage, flag personnel, and speed limits.

PS.7 REHABILITATION PLAN

- Replace topsoil and revegetate with indigenous grass.
- Stabilise riverbanks with bioengineering structures.
- Remove alien species for 12 months post-construction.
- ECO to certify rehabilitation success.

PS.8 MONITORING PROGRAMME

Activity	Indicator	Frequency	Responsible
Vegetation clearing	Clearing within boundaries	Daily	Contractor/ECO
Water quality	Turbidity, pH, EC	Weekly	Contractor/ECO
Waste management	Waste register updated	Weekly	Contractor
Heritage	No unreported finds	Ongoing	All staff
Air quality	Dust suppression evidence	Daily	Contractor
Rehabilitation	Grass cover %, erosion evidence	Monthly	ECO

PS.9 TRAINING & AWARENESS

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- Toolbox talks weekly.
- Induction training for all workers on EMP.
- Specialised training for spill response, fauna handling, heritage finds.

PS.10 REPORTING AND AUDITING

- Weekly ESO reports.
- Monthly environmental compliance reports for the client by the appointed ECO.
- Annual environmental audit as per NEMA requirements.
- Immediate reporting of major incidents to authorities.

PS.11 EMERGENCY RESPONSE PLAN

PS.11.1 Includes:

- Fire management procedure.
- Spill response procedure.
- Medical emergency plan.
- Contact list for emergency services, ECO, site manager.
- Evacuation procedures.

PS.12 CONCLUSION

This Environmental Management Plan provides a comprehensive framework to ensure that the Western Highveld Bulk Water Supply Scheme is implemented in an environmentally sustainable manner. Adherence to this EMP will reduce environmental risks, enhance compliance, and support long-term ecological and community well-being in Gauteng, Limpopo, and Mpumalanga.

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**PS.13 ENVIRONMENTAL MANAGEMENT SPECIFICATIONS****PS.13 .1 PROJECT OVERVIEW**

The Proposed Western Highveld Bulk Water Supply Scheme includes the planning, design, construction, and commissioning of:

- Water Treatment Works (WTW)
- Reservoirs and elevated tanks
- Bulk pipelines and chambers (rising mains and gravity mains)
- Boreholes (forming part of the project scope)

All works will be implemented within sensitive environmental landscapes that include watercourses, protected plant species, highveld grasslands, and agricultural land. The contractor must ensure compliance with all applicable environmental legislation, including but not limited to:

- National Environmental Management Act (NEMA) 107 of 1998
- NEMA: EIA Regulations (2014, as amended)
- National Water Act (36 of 1998)
- National Environmental Management: Biodiversity Act (NEMBA)
- National Heritage Resources Act (NHRA)
- Occupational Health and Safety Act
- Municipal bylaws of affected districts

PS.13 .2 ENVIRONMENTAL MANAGEMENT REQUIREMENTS**PS.13 .2.1 Environmental Management Programme (EMPr) Compliance**

The Contractor shall:

1. Implement the approved EMPr for the project in full.
2. Develop site-specific method statements for all environmentally sensitive activities (e.g., vegetation clearance, watercourse crossings, trenching, concrete works, storage of hazardous materials).
3. Appoint a qualified Environmental Control Officer (ECO) and Environmental Site Officer (ESO).
4. Attend mandatory environmental induction training before accessing site.


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PS.14 PROJECT-SPECIFIC ENVIRONMENTAL SPECIFICATIONS

PS.14.1 Water Treatment Works Construction

PS.14.1.1 Site Establishment

- Construction laydown areas must be located outside wetlands, floodlines, and riparian zones.
- Install silt fencing, stormwater diversion berms, and sediment traps.

PS.14.1.2 Pollution Prevention

- Bunded areas required for all fuel, oil, chemicals (110% capacity).
- No concrete batching within 50 m of any watercourse.
- All wastewater from curing, cleaning, and hydrotesting shall be contained and disposed of at licensed facilities.

PS.14.1.3 Waste Management

- Solid waste to be managed via a registered waste contractor.
- Implement recycling of steel, wood, and packaging material.

PS.14.2 Reservoirs and Elevated Tanks Construction

PS.14.2.1 Vegetation Clearance

- Limit clearing to approved footprint areas.
- Protected trees and species (per NEMBA lists) must be marked and avoided; permits must be obtained where removal is unavoidable.

PS.14.2.2 Soil and Erosion Control

- Install erosion protection (geotextiles, stone pitching, grassing) around reservoir platforms and elevated tank foundations.
- Stockpiled soil must be protected from wind and water erosion.

PS.14.2.3 Noise and Dust Control

- Use low-noise equipment where possible and operate only during permitted working hours.
- Apply dust suppression (water spraying, gravel surfacing, speed control).

PS.14.3 Pipelines and Chambers (Rising and Gravity Mains)

PS.14.3.1 Trenching and Excavation

- Trenches must not be left open for more than 48 hours to minimise safety and biodiversity risks.
- Sensitive habitats (wetlands, drainage lines, steep slopes) must be micro-sited with the ECO.


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PS.14.3.2 Watercourse Crossings

- Install temporary crossings such as culverts or geotextile-lined channels to prevent sedimentation.
- No in-channel works during high-flow or rainy seasons unless authorised.

PS.14.3.3 Rehabilitation of Excavated Areas

- Backfilling and compaction must meet design specifications.
- Rehabilitate pipeline servitudes with indigenous vegetation.
- Remove all construction debris and redundant pipeline materials.

PS.15 Boreholes

PS.15.1 Drilling Environmental Controls

- Boreholes shall be drilled in accordance with the National Water Act and DWS minimum requirements for groundwater.
- Drilling mud pits must be lined to prevent groundwater contamination.
- Noise control measures to be implemented during drilling operations.

PS.15.2 Groundwater Protection

- Wellhead protection zones shall be established.
- No hazardous materials stored within 100 m of boreholes.
- Proper sealing and grouting of boreholes to prevent aquifer cross-contamination.

PS.15.3 Hydrogeological Monitoring

- Pre-construction baseline groundwater quality sampling.
- Monitoring of water levels during abstraction testing and construction.

PS.16 BIODIVERSITY MANAGEMENT

The contractor must implement the following:

- Avoid disturbance of protected species (fauna and flora).
- Conduct search and rescue fauna prior to clearing.
- Translocate protected flora under valid permits.
- Prevent invasion of aliens by clearing invasive species.

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PS.17 HERITAGE AND ARCHAEOLOGY

- Immediately cease work if graves, fossils, cultural artefacts, or heritage resources are discovered.
- Notify the South African Heritage Resources Agency (SAHRA).
- Implement chance-find procedures as included in the EMP.

PS.18 SOCIAL AND COMMUNITY ENVIRONMENTAL REQUIREMENTS

- Keep construction activities within approved working hours (07:00–17:00).
- Control dust and noise in communities near project components.
- Provide signage, fencing, and public safety measures around excavations and storage sites.
- Ensure local labour recruitment aligns with the project's Social and Labour Plan (SLP).

PS.19 WATER MANAGEMENT

PS.19.1 Stormwater Management

- Separate clean and dirty water systems.
- Construct diversion berms and attenuation ponds where required

PS.19.2 Water Use Authorisation Compliance

- All water abstraction, dewatering, and discharge to comply with DWS authorisations.
- Monthly water quality monitoring reports to be submitted to the Client and ECO.

PS.20 AIR QUALITY MANAGEMENT

- Dust suppression through watering, covering of stockpiles, and vehicle speed limits.
- Emission controls on diesel engines to meet applicable standards.

PS.21 HEALTH, SAFETY, AND ENVIRONMENT (HSE)

- Contractor to implement an integrated Health and Safety Environment Plan.
- Provide PPE, first aid facilities, spill kits, and emergency response plans.
- Maintain fire extinguishers at fuel storage and workshop areas.

PS.22 REPORTING AND MONITORING

The contractor shall prepare and submit:

1. Monthly Environmental Compliance Reports
2. Incident and Non-Compliance Reports
3. Water Quality, Soil, Noise, and Biodiversity Monitoring Records
4. Rehabilitation Completion Report before final handover

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PS.23 PENALTIES AND NON-COMPLIANCE

Environmental penalties may be applied for:

- Unauthorized clearing
- Pollution incidents
- Failure to implement mitigation measures
- Damages to protected species or watercourses

Penalties shall be aligned with the EMPr and South African legal provisions.

PS.24 CLOSE-OUT AND REHABILITATION

- All disturbed areas to be rehabilitated to pre-construction condition or better.
- Remove all temporary structures, waste, excess materials, and contaminated soil.
- Submit a Final Environmental Close-out Report endorsed by the ECO.


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**HEALTH & SAFETY SPECIFICATIONS: AS PER CONSTRUCTION REGULATION 5(1) (B), 2014
OCCUPATIONAL HEALTH AND SAFETY ACT, NO. 85 OF 1993**

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Witness 1

Witness 2

Employer

Witness 1

Witness 2

**INDEX**

- 1. Background**
- 2. Scope**
- 3. Definitions**
- 4. OH&S Management**
 - 4.1 Construction Work Permit
 - 4.2 Structure and Organization of OH&S Responsibilities
 - 4.3 Communication & Liaison
 - 4.4 OH&S File
 - 4.5 OH&S Goals and Objectives and Arrangements for Monitoring and Review of OH&S Performance
 - 4.6 Identification of Hazards and Development of Risk Assessments, Standard Working Procedures (SWP) and Method Statements
 - 4.7 Arrangements for Monitoring and Review
 - 4.8 Site Rules and other Restrictions
 - 4.9 Training
 - 4.10 Accident and Incident Investigation
 - 4.11 H&S Representatives
 - 4.12 Occupational Medicals
 - 4.13 Fines & Penalties
 - 4.14 Contractor Management
- 5. Project and Site-Specific Requirements**
 - 5.1 Risk Management
 - 5.2 Construction Vehicles and Mobile Plant – Regulation 23
 - 5.3 Barricading and Demarcation
 - 5.4 Housekeeping and Construction Sites – Regulation 27
 - 5.5 Stacking and Storage on Construction Sites – Regulation 28
 - 5.6 First Aid
 - 5.7 Fire Precautions on Construction Sites – Regulation 29
 - 5.8 Construction Welfare Facilities – Regulation 30
 - 5.9 Hazardous Chemical Agents
 - 5.10 Commissioning Safety Precautions
 - 5.11 Electrical Installations and Machinery on Construction Sites – Regulation 24
 - 5.12 Dealing with HIV / Aids and other Diseases
 - 5.13 Working at Heights
 - 5.14 Ergonomics – Ergonomic Regulations 2019
 - 5.15 Excavation Work
 - 5.16 Traffic Accommodation -
 - 5.17 Structures – Regulation 11
 - 5.18 Demolition Work – Regulation 14
 - 5.19 Completion of works and close-out.

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Witness 1

Witness 2

Employer

Witness 1

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**PB.1 SCOPE OF WORKS BACKGROUND**

In terms of the Construction Regulation 5(1)(b), 2014 of the Occupational Health and Safety Act, No. 85 of 1993, the Client, is required to compile a Health & Safety Specification for any intended project and provide such specification to Contractor.

The project is located within DR JS Moroka Local Municipality's area of jurisdiction in the Nkangala Region in Mpumalanga

Overview of the Works

The scope of works includes the construction of a new pump station and a 160 mm diameter rising main bulk pipeline approximately 7 km in length. The project further comprises ±98km of gravity bulk pipelines ranging from 560 mm to 75 mm in diameter. These pipelines will supply 12 elevated steel storage tanks and 1 ground-level reservoir. The works also include the equipping of 11 boreholes, together with approximately 38km of bulk supply pipelines conveying water to the elevated tanks

Extent of the Works

The Scope of Work envisaged to be carried out under this Contract is summarized as follows:

Contract 1

- Construction of a new 11 ML/day raw water pump station at Rust De Winter Dam, complete with all associated civil, structural, mechanical, electrical, instrumentation and control works.
- Supply, installation and commissioning of pumps with Variable Speed Drives (VSDs) designed for a maximum pumping capacity of 11 ML/day, controlled to deliver an operational flow of 7.28 ML/day.
- Construction of approximately 20 km of DN450 OPVC and steel rising main from the Rust De Winter Dam Pump Station to the proposed Water Treatment Works in Moretele, including all associated valves, fittings, chambers, thrust blocks, anchor blocks, air valves, scour valves, pipeline crossings and ancillary works.
- Construction and commissioning of an 11 ML/day Water Treatment Works (WTW) in Moretele, including all treatment process units, buildings, pipework, mechanical and electrical installations, instrumentation, control systems and associated infrastructure.
- Construction and commissioning of an 11.5 ML reinforced concrete Command Reservoir at Moretele, including inlet and outlet pipework, overflow and scour systems, valve chambers, control equipment and associated civil works.
- Construction of staff accommodation, including associated buildings, internal services, water supply, sewer reticulation, electrical reticulation, access roads, fencing and ancillary infrastructure.
- Testing, commissioning and successful operation of the complete bulk water supply system, including submission of as-built drawings, operation and maintenance manuals, training of Employer's personnel and all documentation required for Practical Completion.

PB 2 DEFINITIONS

Act: means the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)

AIA means an Inspection Authority approved by the chief inspector: Provided that an inspection authority approved by the chief inspector with respect to any particular service shall be an Approved Inspection Authority with respect to that service only.

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Client: means any person for whom construction work is being performed.

Competent person: means any person having the knowledge, training, experience and qualifications specific to the work or task being performed.

Construction work: means any work in connection with—

- the erection, maintenance, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure;
- the installation, erection, dismantling or maintenance of a fixed plant where such work includes the risk of a person falling;
- the moving of earth, clearing of land, the making of an excavation, piling, or any similar type of work;

Demolition work: means a method to dismantle, wreck, break, pull down or knock down of a structure or part thereof by way of manual labor, machinery, or the use of explosives

Contractor: means an employer, as defined in section 1 of the Occupational Health and Safety Act, who performs construction work and includes principal contractors;

Hazard identification: means the identification and documenting of existing or expected hazards to the health and safety of persons, which are normally associated with the type of construction work being executed or to be executed;

Health and safety file: means a file or other record in permanent form, containing the information required as contemplated in these regulations;

Health and safety plan: means a documented plan, which addresses hazards identified and includes safe work procedures to mitigate, reduce or control the hazards identified;

Health and safety specification: means a documented specification of all health and safety requirements pertaining to the associated works on a construction site, so as to ensure the health and safety of persons;

HCA: Hazardous Chemical Agents

SDS: Safety Data Sheet

PPE: Personal Protective Equipment **OREP:** Occupational Risk Exposure Profile **OH&S:** Occupational Health and Safety

Pr. CHSA: Professional Construction Health and Safety Agent

CHSM: Construction Health and Safety Manager

Reg: Regulations

SWP: Safe Work Procedure

Medical Certificate of Fitness: means a certificate contemplated in Construction Regulation 7(8);

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National Building Regulations means the National Building Regulations made under the National Building Regulations and Building Standards Act, 1977 (Act No. 103 of 1977), and promulgated by Government Notice No. R. 2378 of 30 July 1990, as amended by Government Notices No's R. 432 of 8 March 1991, R. 919 of 30 July 1999 and R. 547 of 30 May 2008;

Occupational Health Practitioner means an occupational medicine practitioner or a person who holds a qualification in occupational health recognized as such by the South African Medical and Dental Council as referred to in the Medical, Dental and Supplementary Health Service Professions Act, 1974 (Act No. 56 of 1974), or the South African Nursing Council as referred to in the Nursing Act, 1978 (Act No. 50 of 1978);

Occupational Hygiene Survey: means a Survey or Analysis on Hazardous Environmental Exposure e.g. Noise, Lead, Asbestos, Airborne Pollutants, Thermal Stress, Hazardous Chemical Substances, etc. to Persons conducted by an Inspection Authority Approved by the Department of Labor for the Exposure identified, provided that an inspection authority approved by the chief inspector with respect to any particular service shall be an Approved Inspection Authority with respect to that service only

Occupational Hygiene: means the anticipation, recognition, evaluation and control of conditions arising in or from the workplace, which may cause illness or adverse health effects to persons;

Principal contractor: means an employer, as defined in section 1 of the Occupational Health and Safety Act who performs construction work and is appointed by the client to be in overall control and management of a part of or the whole of a construction site;

Risk assessment: means a program to determine any risk associated with any hazard at a construction site, in order to identify the steps needed to be taken to remove, reduce or control such hazard;

Structure: means any building, steel or reinforced concrete structure

SACPCMP means the South African Council for the Project and Construction Management Professions

Designer: means a competent person who

- prepares a design;
- checks and approves a design;
- arranges for a person at work under his or her control to prepare a design, including an employee of that person where he or she is the employer; or
- designs temporary work, including its components;
- an architect or engineer contributing to, or having overall responsibility for a design;
- a building services engineer designing details for fixed plant;
- a surveyor specifying articles or drawing up specifications;
- a contractor carrying out design work as part of a design and building project; or
- an interior designer, shop-fitter or landscape architect;

Construction manager: means a competent person responsible for the management of the physical construction processes and the coordination, administration and management of resources on a construction site;

Construction site: means a work place where construction work is being performed

“Disaster Management Act” means the Disaster Management Act, 2002 (Act No. 57 of 2002);

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**CONSTRUCTION OF WESTERN HIGHVELD BULK WATER SUPPLY SCHEME
WORK PACKAGE 1**

“OHSA” means the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993);

“Worker” means any person who works in an employer’s workplace including an employee of the employer or contractor, a self-employed person or volunteer;

“Workplace” means any premises or place where a person performs work.

“WTW” means Water Treatment Works

“Transmission” or “Transmitting” is the passing of a pathogen causing communicable disease from an infected host individual or group to a particular individual or group, regardless of whether the other individual was previously infected.

PB 3 TENDERS

The Contractor shall submit the following with his tender:

- a) A documented Health and Safety Plan as stipulated in Regulation 5 of the Construction Regulations. The Safety Plan must be based on the Construction Regulations 2003 and will be subject to approval by the Employer;
- b) A declaration to the effect that he has the competence and necessary resources to carry out the work safely in compliance with the Construction Regulations 2003;
- c) A declaration to the effect that he made provision in this tender for the cost of the health and safety measures envisaged in the Construction Regulations; and
- d) Failure to submit the foregoing with his tender, will lead to the conclusion that the Contractor will not be able to carry out the work under the contract safely in accordance with the Construction Regulations.

PB.4 Construction Work Permit Application

The Client’s Construction Health & Safety Agent shall, as the contract meets the requirements laid down in Construction Regulations 3, prior to commencement of the works, apply to the Department of Employment and Labor for a Permit to do Construction Work.

A copy shall be kept on the OH&S file and the construction work permit number shall be displayed at the entrance to the Construction Site. No Construction activities may take place before Permit has been issued by the Department of Employment and Labor.

PB.5 Structure and Organisation of OH&S Responsibilities***PB.5.1 Overall Supervision and Responsibility for OH&S***

- The Client to ensure that the Principal Contractor, is appointed in terms of Construction Regulation 5(1)(k), implements and maintains the agreed and approved OH&S Plan.
- The Chief Executive Officer of the Principal Contractor in terms of Section 16 (1) of the Act to ensure that his Employees (as defined in the Act) complies with the Act. Legal Compliance Audit may be used for this purpose.
- Any OH&S Act (85 /1993), Section 16 (2) appointee/s as detailed in his/her/their respective appointment forms

Tenderer

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Witness 2

Employer

Witness 1

Witness 2



**CONSTRUCTION OF WESTERN HIGHVELD BULK WATER SUPPLY SCHEME
WORK PACKAGE 1**

- The Construction Manager, Assistant Construction Manager, Supervisor and Assistant Construction Supervisor/s appointed in terms of Construction Regulation 8.

Should provide proof of OHS training and fully understand their duties and responsibilities outlined by the respective appointments.
- The principal contractor shall appoint as a minimum a Full-Time competent Health and Safety Officer that is registered with the SACPCMP.

PB.5.2 Further (Specific) Responsibilities for OH&S

The contractor shall note that it is a generic list only and is intended for use as a guideline.

Appointment	Legal Reference
Delegation of Duties	Section 16(2)
Construction Manager	Construction Regulation 8(1)
OH&S Officer (Part-Time)	Construction Regulation 8(5)
Construction Supervisor	Construction Regulation 8(7)
Risk Assessor	Construction Regulation 9
Fall Protection Plan Developer	Construction Regulation 10
Structures Supervisor/Inspector	Construction Regulation 11
Temporary Works Supervisor	Construction Regulation 12
Excavation Supervisor	Construction Regulation 13
Scaffold Erector & Inspector	Construction Regulation 16
Crane Inspector	Construction Regulation 22
Construction Vehicle / Mobile Plant / Machinery Supervisor	Construction Regulation 23
Drivers / Operators of Construction Vehicles / Plant	Construction Regulation 23
Electrical Installation and Appliances Inspector	Construction Regulation 24
Hazardous Chemical Agent Supervisor	HCA Regulations & CR 25
Stacking & Storage Supervisor	Construction Regulation 28
Emergency Coordinator	Construction Regulation 29
First Aider	General Safety Regulation 3
Fire Equipment Inspector	Construction Regulation 29
Incident Investigator	General Admin Regulation 9
Ladder Inspector	General Safety Regulation 13A
OH&S Representatives	OHS Act Section 17
Person Responsible for Machinery	General Machinery Regulation 2
Pressure Equipment Supervisor	Pressure Equipment Regulations
Welding Supervisor	General Safety Regulation 9

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The above appointments shall be in writing and the responsibilities clearly stated together with the period for which the appointment is made. This information shall be communicated and agreed with the appointees.

Competencies of all Appointed Personnel to be attached to Appointment and Placed on Health and Safety File

The principal contractor shall, furthermore, provide the clients agent with an organogram of all contractors that he/she has appointed or intends to appoint and keep this list updated and prominently displayed on site.

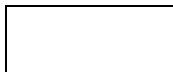
PB.6 Communication & Liaison

- OH&S Liaison between the Client, the principal Contractor, the other Contractors, the Designer and other concerned parties will be through the OH&S committee or Committee established by Client for this purpose.
- In addition to the above, communication may be directly to the Client or his appointed Agent, verbally or in writing, as and when the need arises.
- Consultation with the workforce on OH&S matters will be through their Supervisors, OH&S Representatives, the OH&S committee and their elected Trade Union Representatives, if any.
- The Principal Contractor will be responsible for the dissemination of all relevant OH&S information to the other Contractors e.g. design changes agreed with the Client and the Designer, instructions by the Client and/or his/her agent, exchange of information between Contractors, the reporting of hazardous/dangerous conditions/situations etc.
- The Principal Contractor will be responsible to continuously liaise with the Pr. CHSA on the project regarding Health & Safety issues, findings and other related matters.
- In addition, the Principal Contractor must after every Audit compile a corrective Action Plan in table form which must be submitted to the Pr. CHSA.

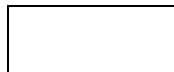
The Corrective Action Plan must consist of the following headings: Findings, Action taken / to be taken, Date closed out, Signature (of Safety Officer). The Construction Manager must also sign off on the Corrective Action Plan before submitting.

PB.7. OH&S File

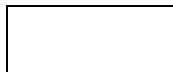
The Principal Contractor must, in terms of Construction Regulation 7(1)(b), keep a health & safety file on site at all times that must include all documentation required in terms of the Act and Regulations and must also include a list of all Contractors on site that are accountable to the Principal Contractor and the agreements between the parties and details



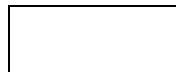
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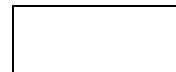
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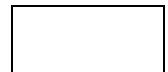
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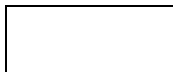
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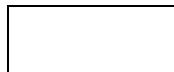


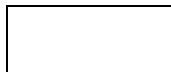
of work being done.

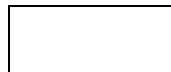
The following documents must inter alia be kept in the OH&S file:

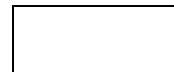
- Health and Safety Management Plan
 - Health & Safety Management Plan
 - Health and Safety Management Plan Approval
 - Pre-Start Site Checklist
- Appointments
 - Organogram
 - Legal Appointments
- General Policies and Procedures
 - General Policies
 - Health and Safety Policy
 - Environmental Policy
 - Alcohol and Drug Policy
 - Use of Cellphone Policy
 - Transmittable Disease Prevention Policy
 - General Procedures
 - Emergency Procedure
 - Emergency Telephone Numbers
 - Incident Investigation Procedure
 - Incident Investigation Monitoring Plan
- Work Method Statements
- Risk Assessments
 - Baseline Risk Assessment (Client)
 - Baseline Risk Assessment (Contractor)
 - Task / Issue Based Risk Assessments
 - Ergonomic Assessments
 - DSTI's (Daily Safety Task Instructions)
 - Monitoring and Review Plan
- Safe Operating / Work Procedures
- Registers
- Machinery and Equipment
 - Load Test Certificates
 - Pressure Test Certificates
 - Compliance Checks
 - Vehicle Licenses
- Personal Protective Equipment
 - PPE Task Analysis

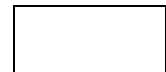

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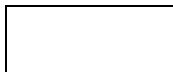

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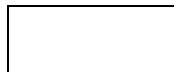

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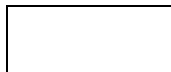


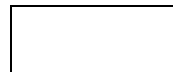
**CONSTRUCTION OF WESTERN HIGHVELD BULK WATER SUPPLY SCHEME
WORK PACKAGE 1**

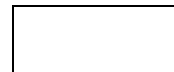
- Issue Registers
 - Man, Job Specifications
- Incident Investigation Forms
 - Internal Accident / Incident Investigation Forms
 - Annexure 1
 - WCL 1 & 2
- Behavioral Base Safety
 - VFL Forms (Visible Felt Leadership Forms)
 - Supervisor's Checklist
 - Planned Task Observation
- Health and Safety Representative Checklists
- Health and Safety Meeting Minutes
- Communication
 - Department of Employment and Labor
 - Construction Work Permit
 - Letter of Good Standing
 - Sect 24 Incidents
 - Client
 - Non-Conformances
 - Legal Compliance Register
 - Audit Close-out Reports
- Legal Register
 - Acts and Regulations
 - Section 37(2) Agreements
 - Client
 - Sub-Contractors
 - Client's Health and Safety Specifications
- Training
 - Attendance Register
 - Induction Manual
 - Ergonomic Training
 - Competencies (Certificates)
 - Toolbox Talks

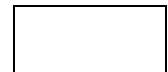

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- Hazardous Chemical Agents (HCA)
 - HCA Registers
 - Safety Data Sheets
- Audits
 - Internal
 - External
 - Audit Findings / Non-Conformances Close-out Plan
- Occupational Medicals
 - ID's of Personnel
 - Annexure 3 Certificates
 - Occupational Medicals Surveillance Program
- Occupational Hygiene Surveys
 - AIA Certificate
 - SANAS Accreditation
 - Applicable Surveys
- Design Drawings
 - Drawing Register
 - Drawings
- Permits
 - Permit to Work
 - Lockout Permit
 - Excavation Permit
 - Work at Heights Permit
- Sub-Contractors Pack
- Monthly Health & Safety Statistics

PB 8 OH&S Goals and Objectives and Arrangements for Monitoring and Review of OH&S Performance

The Principal Contractor is required to maintain a DIFR of less than 1 and report on this to the Client on a monthly basis.

PB 9 Identification of Hazards and Development of Risk Assessments, Standard Working Procedures (SWP) and Method Statements

The Principal Contractor is required to develop Risk Assessments, Standard Working Procedures (SWP) and Method Statements for each activity executed in the contract or project (See Section 5 below "Project/Site Specific Requirements")

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Witness 1

Witness 2

Employer

Witness 1

Witness 2

**PB 10 Arrangements for Monitoring and Review****PB 10.1 Monthly Audit by Client**

The Client will be conducting monthly Audits to comply with Construction Regulation 5(1) (o) to ensure that the principal Contractor has implemented and is maintaining the agreed and approved OH&S Plan.

If contractor is non-compliant according to Client's Health and Safety Audit, the Client's Agent / Representative may stop the work or a specific work activity and request a re-audit that must be approved by the client and the contractor will be held liable for the cost.

The Principal Contractor must compile a Corrective Action Report with evidence of close outs, and submit to the Pr. CHSA within seven (7) days of receiving the Audit Report.

PB.10.2 Other Audits and Inspections by Client

The Client reserves the right to conduct other ad hoc audits and inspections as deemed necessary.

The Principal Contractor must conduct a Monthly Internal Health and Safety Audit on their own health and safety management system, and an Audit on all Sub-Contractors.

The Audit must be conducted by an independent person of the contractor or contractor's representative, which is not working on the site, on condition that the person is qualified to conduct an Occupational Health and Safety Audit.

PB10.3 A representative of the Principal Contractor must accompany the Client on all Audits and Inspections and may conduct his/her own audit/inspection at the same time. Each party will, however, take responsibility for the results of his/her own audit/inspection results.

The client's representative / Agent must approve the Principal Contractor's Health and Safety Audit Template, to be used, before work commences

PB10.3.1 Reports

PB10.3.2 The Principal Contractor is required to provide the Client with a monthly report.

PB10.3.3 The Principal Contractor must report all incidents where an employee is injured on duty to the extent that he/she:

- dies
- becomes unconscious
- loses a limb or part of a limb

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2

**CONSTRUCTION OF WESTERN HIGHVELD BULK WATER SUPPLY SCHEME
WORK PACKAGE 1**

- is injured or becomes ill to such a degree that he/she is likely either to die or to suffer a permanent physical defect or likely to be unable for a period of at least 14 days either to work or continue with the activity for which he/she was usually employed

OR where:

- a major incident occurred
- the health or safety of any person was endangered
- where a dangerous substance was spilled
- the uncontrolled release of any substance under pressure took place
- machinery or any part of machinery fractured or failed resulting in flying, falling or uncontrolled moving objects
- Machinery ran out of control to the Provincial Director of the Department of Employment and Labor within seven days. (Section 24 of the Act & General Administrative Reg 8.)

PB10.3.4 The Principal Contractor is required to provide the Client with copies of all statutory reports required in terms of the Act. The Principal Contractor is required to provide the Client with copies of all internal and external accident/incident investigation reports.

PB10.3.5 *Review*

PB10.3.5.1 The Principal Contractor is to review the Hazard Identification, Risk Assessments and SWP's at each Production Planning and Progress Report meeting as the construction work develops and progresses and each time changes are made to the designs, plans and construction methods and processes.

PB10.3.5.2 The Principal Contractor must provide the Client, other Contractors and all other concerned parties with copies of any changes, alterations or amendments.

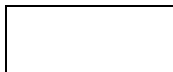
PB10.3.6 Site Rules and other Restrictions

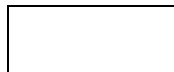
PB10.3.6.1 *Site OH&S Rules*

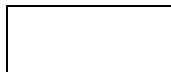
The Principal Contractor must develop a set of site-specific OH&S rules that will be applied, to regulate the OH&S aspects of the construction site.

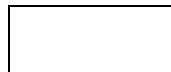
PB10.3.7 *Security Arrangements*

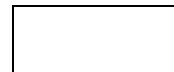
PB10.3.7.1 The Principal Contractor must establish site access rules and implement and maintain these throughout the construction period. Access control must include the rule that non-employees will not be allowed on site unaccompanied.

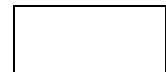

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PB10.3.7.2 The Principal Contractor must develop a set of Security rules and procedures and maintain these throughout the construction period.

PB10.3.7.3 The Principal Contractor must appoint a competent Emergency Controller who must develop emergency contingency plans for any emergency that may arise on site as indicated by the risk assessments. These must include a quarterly practice/testing program for the plans.

PB11 Training

The contents and syllabi of all training required by the Act and Regulations to be included in the Principal Contractor's OH&S Plan.

PB11.1 General Induction Training

All employees of the Principal and other Contractors to be in possession of proof of General Induction training.

PB11.2 Site Specific Induction Training

All employees of the Principal and other Contractors to be in possession of Site Specific OH&S Induction training.

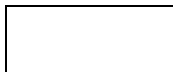
PB11.3 Other Training

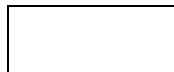
PB11.3.1 All operators, drivers and users of construction vehicles, mobile plant and other equipment to be in possession of Competency Certificates & Medical Certificates of Fitness (Construction Regulation 23).

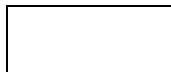
PB11.3.2 All employees in jobs requiring training in terms of the Act and Regulations to be in possession of valid proof of training.

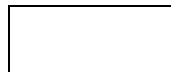
PB11.3.2 OH&S Training Requirements: (as required by the Construction Regulations and as indicated by the OH&S Specification & the Risk Assessment/s):

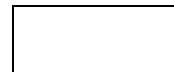
- General Induction (Section 8 of the Act)
- Site/Job Specific Induction (also visitors) (Sections 8 & 9 of the Act)
- Construction Manager
- Construction Supervisor
- OH&S Representatives (Section 18 (3) of the Act)
- Operation of Cranes (Driven Machinery Regulations 18 (11))
- Operators & Drivers of Construction Vehicles & Mobile Plant (CR 23)
- Basic Fire Prevention & Protection (ERW 9 and CR 29)
- Basic First Aid (General Safety Regulations 3)
- Storekeeping Methods & Safe Stacking (Construction Regulation 28)

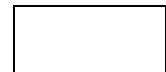

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Witness 1


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- Emergency, Security and Fire coordinator
- Work and Appointment Related training
- Work at Heights Training (Where Required)

PB12 Accident and Incident Investigation

PB11.1 The Principal Contractor is responsible for the investigation of all accidents/incidents where employees and non-employees were injured to the extent that he/she/they had to be referred for medical treatment by a doctor, hospital or clinic. (General Administrative Regulation 9)

PB11.2 The results of the investigation to be entered into the Accident/Incident Register: Annexure 1. (General Administrative Regulation 9)

PB11.3 The Principal Contractor is responsible for the investigation of all non-injury incidents as described in Section 24 (1) (b) & (c) of the Act and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.

PB11.4 The Principal Contractor is responsible for the investigation of all road traffic accidents and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.

PB12 H&S Representatives**PB12.1 Designation of OH&S Representatives**

Before commencing work, the Principal Contractor shall designate a competent Safety, Health and Environmental representative (SHE Rep) who shall be acceptable to the Agent, to represent and act for the Contractor and Sub Contractors.

It should be noted that the Principal Contractor is held responsible for the activities of the Sub Contractors. Failure of Health and Safety measures by the Sub Contractor will revert directly back to the Principal Contractor.

The Contractor shall inform the Agent in writing of the name and address of the Contractor's SHE Rep and of any subsequent changes in the name and address of the SHE Rep, together with the scope and limitations of the SHE Rep's authority to act for the Contractor.

The Contractor's SHE Rep shall make available to the Employer an all-hours telephone number at which the SHE Rep can be contacted at any time in the event of an emergency involving any of the Contractor's employees, or other persons at the Works.

PB12.2 OH&S Representatives have to be designated in writing and the designation must include the area of responsibility of the person and term of the designation.

PB12.3 Duties and Functions of the OH&S Representatives

PB12.4.1 The Principal Contractor must ensure that the designated OH&S Representatives conduct a minimum

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**CONSTRUCTION OF WESTERN HIGHVELD BULK WATER SUPPLY SCHEME
WORK PACKAGE 1**

monthly inspection of their respective areas of responsibility using a checklist and report thereon to the Principal Contractor.

PB12.4.1 OH&S representatives must be included in accident/incident investigations.

PB13 Occupational Medicals

PB13.1 Principal Contractor must ensure that all employees have a valid medical certificate of fitness specific to the construction work to be performed and issued by an occupational health practitioner as per Annexure 3 of Construction Regulation, 2014 – Construction Regulation 7(1)(g)

Principal Contractor to ensure that Ergonomic Risks are included in the Medical Surveillance Program.

PB14

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Employer

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**Fines & Penalties**

PB14.1 Repeated non-conformances raised during Audits may be subjected to a Minimum Fine of R 250.00 per Finding and a Maximum Fine of R 5,000.00 per finding.

PB14.2 The value of the fine will be recommended by the Pr. CHSA and Finally Approved by the Client's Project Manager

PB15 Contractor Management

Contractors shall be appointed by the Principal Contractor in terms of Construction Regulation 7(1) (c) (v).

An agreement will be drawn up between the Principal Contractor and appointed contractor in terms of Section 37(2) of the Occupational Health & Safety Act 85 of 1993.

The Agreement must include all Health and Safety aspects, requirements, etc. pertaining to the specific project.

The agreement must also indicate whether the contractor will make use of the Principal Contractor's First Aid facilities, if they have less than 10 persons on site or does not have their own appointed and trained First Aider.

A list of all Contractors must be drawn up and displayed in the site office, indicating the name of the contractor, contact person / responsible person, contact number and scope of work. The list must be updated on a monthly basis and as the work progress.

No Contractor may be appointed by the Principal Contractor, unless they are in possession of a valid Letter of Good Standing with the Compensation Commissioner (COIDA).

Every Contractor must provide the Principal Contractor with a site-specific Health & Safety Plan and File. The Health & Safety Plan will be evaluated and must be approved prior to the Contractor commencing on site.

All personnel of Contractors must, prior to commencement, submit to the Principal Contractor Occupational Medicals of all their personnel who will be involve in the project.

The Principal Contractor will be responsible to monitor each Contractor on site on an ongoing basis to ensure compliance in terms of the Act and Regulations. Monthly Audits will be conducted on each contractor and reports kept on file.

To ensure Induction and Toolbox talks are done properly and kept on the same standard, all Contractors will fall under the Induction Program and weekly toolbox talks of the Principal Contractor.

PB16 PROJECT/SITE SPECIFIC REQUIREMENTS**PB16.1 Risk Management**

The following is a list of specific activities and considerations that have been identified for the project and

*Tenderer**Witness 1**Witness 2**Employer**Witness 1**Witness 2*

**CONSTRUCTION OF WESTERN HIGHVELD BULK WATER SUPPLY SCHEME
WORK PACKAGE 1**

site and for which Risk Assessments, Standard Working Procedures (SWP), management and control measures and Method Statements (where necessary) have to be developed by the Principal Contractor:

- Site Establishment
- Offices
- Secure / safe storage for materials, plant and equipment
- Ablutions
- Sheltered eating area
- Vehicle access to the site
- Dealing with existing structures
- Location of existing structures
- Installation and Maintenance of temporary construction electrical supply
- Adjacent land uses / surrounding property exposures
- Boundary and access control
- Public liability exposures
- Health risks arising from neighboring as well as own activities and from the environment
e.g. diseases, public / students, lightning etc.
- Exposure to noise
- Protection against dehydration and heat exhaustion
- Protection from wet and cold conditions
- Dealing with HIV/Aids and other Transmittable diseases
- Use of portable electrical equipment
- Excavations & Trenching
- Loading and offloading of trucks
- Manual and mechanical handling
- Lifting and lowering operations
- Working in elevated positions (Working on Roof)
- Surveying and Setting Out
- Handling of Solar Panels
- Installation of Solar Panels
- Connecting and Commissioning of Solar System
- Connect the plant to the National Energy grid,
- Installation of inverters and UPS systems
- Construction of Transformation center
- Construction of Sub-Station
- Construction of Power Line
- Driving & Operation of Construction Vehicles and Mobile Plant
- Use and Storage of Flammable Liquids and other Hazardous Chemical Agents
- As discovered by the principal contractors hazard identification exercise

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Witness 2

Employer

Witness 1

Witness 2

**CONSTRUCTION OF WESTERN HIGHVELD BULK WATER SUPPLY SCHEME
WORK PACKAGE 1**

- As discovered from any inspections and audits conducted by the client or by the principal contractor or any other contractor on site.
- As discovered from any accident / Incident Investigation

The following are in particular requirements of works and will form a basis for compliance audits.

1. Administrative & Legal Requirements
2. Education, Training & Promotion
3. Public Safety & Emergency Preparedness
4. Personal Protective Equipment
5. Housekeeping
6. Working at Heights
7. Temporary Structures e.g. Formwork, Support work, Scaffold, etc.
8. Traffic Control & Accommodation
9. Electrical Safeguarding
10. Emergency/Fire Prevention & Protection
11. Excavations (Foundations, Trenches, etc.)
12. Ladders & Tools
13. Lifting Equipment
14. Permits
15. Transport & Materials Handling
16. Site Plant & Machinery
17. Plant & Storage Yard
18. Occupational Health & Hygiene
19. Construction Activities

PB16.2 Construction Vehicles and Mobile Plant – Regulation 23

The Contractor shall ensure that drivers of motor vehicles are in possession of a driver's license, valid for the class of vehicle which they are required to drive, and shall produce the license on request.

The Contractor shall not permit any driver to be in control of a vehicle at the Works while under the influence of alcohol, drugs or other substance.

A register shall be kept of workers operating construction vehicles and mobile plant.

The register shall contain proof of training of operators to operate construction vehicles and mobile plant, certification of competency and authorization of operators to operate machinery, vehicles or plant.

Names of operators and their relevant training with date and time stamps together with name of course instructor shall be

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2

**CONSTRUCTION OF WESTERN HIGHVELD BULK WATER SUPPLY SCHEME
WORK PACKAGE 1**

kept in the Health and Safety File on site.

Physical and Psychological fitness shall be proved by way of a medical certificate of fitness of the said operators before allowing operators to operate machinery, vehicles or plant.

The Health and Safety File shall include the written training material offered to operators for the different construction vehicles and mobile plant.

Each and every driver shall be trained on risks involved and safety procedures.

All Construction vehicles and mobile plant must be of acceptable design and construction and used according to their design. All construction vehicles and mobile plant must be maintained in good working order.

A register of all vehicles and plant shall be kept on site together with names of operators responsible for each. The register shall report all maintenance activities performed on these vehicles and plant as well as signatures certifying the condition of the vehicles as in a good working order.

All requirements on the vehicles and mobile plant with regard to safety and health shall be inspected and certified.

During use of Construction vehicles or mobile plant the following rules shall be adhered to:

- Construction vehicles or mobile plant must be prevented from falling into excavations, water or any other area lower than the working surface. These protection must consist of adequate edge protection e.g. Guard rails and/or crash barriers
- No person shall be allowed to or require to ride on any Construction Vehicle or Mobile Plant in a position otherwise than a safe place provided for on the construction vehicle or mobile plant as designed for that purpose.
- The construction site must be organized in such a way that as far as is reasonable practical, pedestrians and vehicles can move safely and without risks to health and safety.
- Traffic routes shall be of sufficient size, sufficient in number and in suitable positions to be used safely by construction vehicles, mobile plant and pedestrians.
- Each and every traffic route shall be indicated by suitable signs for reasons of safety and health.
- No tools and/or material shall be transported in the same compartment as the operators/drivers/employees unless the said are secured against movement during transportation.
- All Construction Vehicles and Mobile Plant left unattended at night adjacent to a freeway in normal use or adjacent to construction areas where work is in progress, shall have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, in order to identify the location of vehicles or plant
- Mobile Plant are, when being repaired or when not in use, fully lowered or blocked with controls in a neutral position, motors stopped and brakes set.

PB16.3 Barricading and Demarcation

The construction site shall be barricaded completely to prevent pedestrians and vehicles to enter the construction area.

Protection around the site must be in the form of a physical barrier and appropriate signage, to prevent public from entering the area.



Tenderer



Witness 1



Witness 2



Employer



Witness 1



Witness 2

**CONSTRUCTION OF WESTERN HIGHVELD BULK WATER SUPPLY SCHEME
WORK PACKAGE 1**

It is advised to use 1.2m high DAY-GLO Mesh (barrier netting) to prevent pedestrians entering the specific construction area.

PB16.4 Housekeeping and Construction Sites – Regulation 27

The Contractor shall at all time carry out the Works in a manner to avoid the risk of bodily harm to persons or risk of damage to any property. The Contractor shall take all precautions, which are necessary and adequate to eliminate any conditions, which contribute to the risk of injury to persons or damage to property. The Contractor shall continuously inspect all work, materials and equipment to discover and determine any such conditions and shall be solely responsible for the discovery, determination and elimination of such conditions.

During the period of this Contract, the Contractor shall be responsible for the safe storage of all materials and equipment required for execution of the Contract, and for disposal of all non-usable waste material in an orderly manner.

All materials, whether stored on the construction site or within the Contractor's designated area, shall be stored neatly and safely to prevent possible injury to any personnel. The material shall be stored to facilitate safe access to, and removal of the material from the storage area.

Any flammable material, such as paint, diesel fuel and oil, shall be stored in lockable non-combustible structures, which shall be clearly marked to indicate the hazardous nature of the materials stored within.

The flammable materials stores shall be located in safe areas away from hazardous surroundings and adequate and suitable fire-fighting equipment shall be provided within easy reach of the materials stores.

Loose material need for use shall not accumulate so as to obstruct means of access to and egress from the workplace.

Scrap and waste shall not be allowed on site and must be removed daily.

The construction sites adjacent to build up area or public way shall be effectively fenced and controlled with access points.

PB16.5 Stacking and Storage on Construction Sites – Regulation 28

A Competent person shall be appointed in writing with the duty of supervising all stacking and storage of material on site.

Adequate storage areas shall be provided which includes demarcated areas. All storage areas shall be kept neat and under control. Registers and checklist on housekeeping shall be kept on site

PB16.6 First Aid**PB16.6.1 Safety Notice Board**

The Contractor shall provide a Safety Notice Board where safety notices, site regulations concerning safe working practices and information on the location of the nearest first aid station, can be conspicuously displayed to all staff. The size of the notice board shall be at least 600 mm x 800 mm.


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Witness 1


Witness 2


Employer


Witness 1


Witness 2

**PB16.6.2 First Aid Equipment**

The Contractor shall provide for its employees a stretcher for emergencies and an approved first aid box. The first aid box shall be checked weekly by a responsible person, who shall be appointed by the Contractor, and a record shall be kept of the contents. Any deficient medical supplies shall be promptly replenished by the Contractor.

PB16.6.3 Hazard Notices

The Contractor shall display hazard notices in all areas where hazardous conditions prevail or may occur.

PB16.6.4 Reporting of Incidents and/or Injuries

All incidents in respect of damage to Works, property or machinery, or injury to persons, shall be reported by the Contractor's SHE Rep by the quickest means possible.

A mandatory incident report form, containing full details of the incident, shall be completed and submitted to the Site Agent and the Department of Employment and Labor within twenty four (24) hours of the occurrence of the incident.

PB16.7 Fire Precautions on Construction Sites – Regulation 29

A register shall be kept on all Acetylene and Oxygen cylinders used on the site. Condition of components, sub-components and safety components (e.g. Flame back arrestors) shall be listed in the register and signed by the construction supervisor at regular intervals as required with time and date stamp.

Acetylene, Oxygen and LP Gas cylinders shall be stored in suitable places to minimize the risk of fire. Suitable storage to be provided for flammable liquids, e.g. petrol, diesel, paint, thinners.

Smoking shall be prohibited in the workplace and notices posted accordingly.

Suitable and sufficient firefighting equipment shall be placed in strategic positions in the work place. (On vehicles and other positions as deemed necessary).

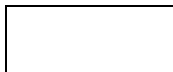
A register shall be kept on type and number of equipment for each site in the Health and Safety File.

A competent person shall inspect all firefighting equipment. A sufficient number of employees shall be trained in the use of firefighting equipment.

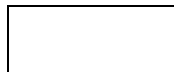
A register shall be kept in the Health and Safety File on site with names of employees and type of firefighting training completed with date.

Suitable signs shall be erected in work places indicating escape routes.

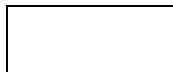
Escape routes shall be kept clear. Evacuation plans shall be in Health and Safety File as part of Induction Training. Combustible materials shall not accumulated on site.



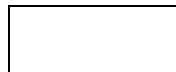
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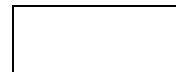
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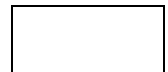
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**PB16.8 Construction Welfare Facilities – Regulation 30**

On each site where existing facilities are not present, at least one sanitary facility shall be erected for every 10 workers, one shower for every 15 workers, a changing facility for each sex and sheltered eating areas.

Mobile toilets with bucket system / Chemical Toilets shall be installed at the site. Cleaning of Toilet Facilities shall be arranged with the City Council or an Approved service provider

Eating facilities shall be made available in the form of a shaded net, table and chairs.

As the site is in a remote area, transport shall be made available for workers to and from site.

PB16.9 Hazardous Chemical Agents

The Contractor shall exercise all necessary care in the handling of toxic compounds and shall be able to identify the major chemical components in the event of medical treatment being required.

PB16.9.1 Hazardous Chemicals and Materials

- a) The Contractor shall provide suitable and adequate protective equipment when working in an area where hazardous chemicals and materials are being used.
- b) The Contractor shall ensure that its employees have familiarized themselves with the hazardous material data sheets applicable to the specific site as well as the location of firefighting equipment, safety showers / baths and other washing facilities, prior to commencement of work.

PB16.10 Commissioning Safety Precautions

The Contractor shall ensure that wherever repairs, adjustments or any other work are undertaken on any plant or machinery, the power supply is switched off, disconnected or the plant / machinery disengaged until the work or repairs have been completed.

PB16.11 Electrical Installations and Machinery on Construction Sites – Regulation 24

Before construction commences or any other related works and during the progress thereof adequate steps must be taken to establish the presence of and guard against any danger to the workers in respect to electrical cables or apparatus.

In areas where it cannot be established where electrical devices are, the employees must use tools of which the handles are insulated or rubber insulated gloves.

Any temporary electrical installation set up by the principal contractor or contractor must be inspected at least once a week by a competent person. The inspections shall be recorded in a register and kept in the Health and Safety File.

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2

**CONSTRUCTION OF WESTERN HIGHVELD BULK WATER SUPPLY SCHEME
WORK PACKAGE 1**

When working on or next to live electrical Machinery/Equipment the Principal Contractor or Contractor must provide insulated stands, trestles and mats.

When Distribution Boards are removed the incoming power supplies shall be cut by the client's authorized Electrician. The incoming electricity supply feeder shall be earthed by a suitable earth wire or spike to prevent cable of becoming live during the installation of new Distribution Boards.

No person shall continue with wiring of premises unless the supply to the premises has been rendered dead and the above effective measures has been taken to ensure that such cables remains dead. When rewiring of premises is done the feeder breakers at the other end of the supply cables shall be locked out and the cable earthed to prevent any injury to workers by Electrical Shock.

A register shall be kept on site in the Health and Safety File indicating all signatures of competent persons switching electricity supply on or off with time and date stamp.

No person shall use or permit to use a portable electric load operating at a voltage exceeding 50V to earth unless it is connected to a source of electrical energy incorporating an earth leakage protection device.

A register shall be kept on site in which all daily checks of portable electric tools are performed and signed by the responsible person. Checks shall include condition of plug top, power cord, on-off switch and insulation condition of electric tool. All tools shall be numbered and entered accordingly into the register. Condition of tools as listed in the register shall be inspected and signed by the construction supervisor at regular intervals as required by the nature of the equipment.

PB16.12 Dealing with HIV / Aids and other Diseases

The Principal Contractor need to comply with Section 8 of the Occupational Health & Safety Act, taking into consideration transmittable diseases (e.g. COVID19 virus).

PB16.12.1 Health & Safety Planning

The Health & Safety Management Plan must include the planning in relation to dealing with HIV / Aids and other transmittable diseases.

PB16.12.2 Awareness

An awareness programme will be implemented by the Principal Contractor pertaining to HIV / Aids and other transmittable diseases. The awareness programme may include aspects such as, displaying posters, washing and personal hygiene, toolbox Talks, etc.

An Emergency Response and Prevention Plan must be compiled by the Principal Contractor including the latest applicable Regulations.

PB16.12.3 Risk Assessment and Safe Operating Procedure:

A risk assessment will be compiled for transmittable diseases including the following:

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



- Identification of hazards pertaining to the disease
- Identifying the risks involved
- Evaluating these risks (evaluating in accordance with risk matrix)
- Control measures

When compiling documentation, the Principal Contractor must take the following into consideration:

- Section 8 of the Occupation Health & Safety Act:
 - Section 8 (1) - Duties of Employers to Employees
 - *Every employer shall provide and maintain, as far as reasonably practicable, a working environment that is safe and without risk to the health of his employees.*
- Other specified regulations pertaining to a specific disease (e.g. COVID-19)
- Use and supply of proper personal protective equipment and other items (e.g. condoms) in the workplace

PB16.13 Working at Heights

The Contractor shall ensure that a site-specific Fall Protection Plan is developed by a competent person, appointed in writing as per Construction Regulation 10.

The Fall Protection Plan must take into consideration the following:

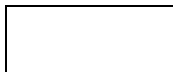
- A risk assessment of all work carried out from a fall risk position and the procedures and methods used to address all the risks identified per location
- The processes for the evaluation of the employees' medical fitness necessary to work at a fall risk position and the records thereof
- A programme for the training of employees working from a fall risk position and the records thereof
- The procedure addressing the inspection, testing and maintenance of all fall protection equipment
- A rescue plan detailing the necessary procedure, personnel and suitable equipment required to affect a rescue of a person in the event of a fall incident to ensure the rescue procedure is implemented immediately following the incident

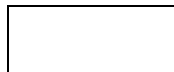
PB16.13.1 Training pertaining to working at heights:

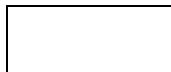
- Fall protection plan developer to be competent (US 229994)
- Install, use and perform rescues from fall arrest systems (US 229995). This competency to be obtained by at least one person who will be full-time on site (e.g. Supervisor)
- All personnel who will be conducting working at heights, will attend Working at Heights (W@H) training
- First Aid Training – first aider to be available at hand when working at heights take place

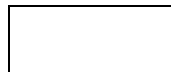
PB16.13.2 Medical Surveillance:

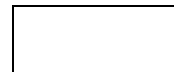
All personnel working at heights will be in possession of a valid occupational medical certificate and declared fit for work at heights.

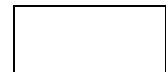

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Employer


Witness 1


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**PB16.13.3 Implementation and Application:**

The Fall Protection Plan will be implemented by the responsible person on site (Construction Manager).

Safety Harnesses will be available for all personnel conducting work in elevated positions. Inspections of the harnesses and other fall protection equipment will be conducted on issue (daily) and record kept thereof. All defective fall protection equipment must be discarded immediately.

Scaffolding will be erected by a competent scaffold erector and inspected by a competent scaffold inspector, appointed in writing. Scaffolding will be erected in accordance with SANS 10085.

Anchor points must be installed at strategic points, where there is nothing else strong enough to hook the safety harnesses to. Retractable lifelines / lifeline(s) will be installed where and if necessary.

No equipment, material or tools will be thrown from heights. Areas underneath overhead work will be demarcated to prevent employees from entering the critical work area.

PB16.14 Ergonomics – Ergonomic Regulations 2019

The Contractor shall:

Ensure a training programme is established for employees who may be potentially affected or exposed to ergonomic risks. Such training shall prior to placement of the relevant employee in the workplace.

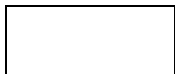
Refresher training shall also be conduct when recommended by the health and safety committee.

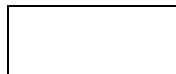
Ensure that all employees obey any lawful instruction given to him/her regarding the:

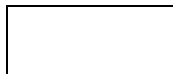
- The use of measures adopted to control ergonomic risks
- Cooperating with employer in determining his/her exposure to ergonomic risks
- The reporting of potential ergonomic risks to the health and safety representative
- Reporting for medical surveillance as required in ER 8
- Information, instructions and training received as contemplated in ER 3

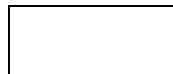
Ensure a risk assessment is conducted by a competent person before any work commences that may exposed employees to ergonomic risks. Risk assessment shall include:

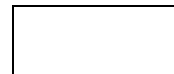
- A complete hazard identification
- The identification of all persons who may be affected by the ergonomic risks
- How employees may be affected by the ergonomic risks
- The analysis and evaluation of ergonomic risks
- The prioritization of the ergonomic risks

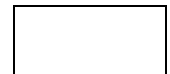

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Employer


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Revision of Ergonomic Risk Assessment:

- Assessment is no longer valid
- Control measures are no longer effective
- Technological or scientific advances allow for more effective control measures
- There is a change in: work method, the type of work carried out, the type of equipment used to control the exposure and an accident occurs or medical surveillance reveals an adverse health effect, where ergonomic risks are identified as a contributing factor.

Ensure all ergonomic risks are prevented or when not reasonably practicable adequately controlled to the benefit of the employee. Ensure all employees are placed under medical surveillance, which is overseen by a registered occupational medicine practitioner as required in ER 8. Ensure all records are kept as contemplated in ER 3, 6, 7, 8, 9.

PB16.15 Excavation Work - Construction Regulation 13

An excavation could be a hole or trench of any size and shape. A Risk Assessment must be done prior to making an excavation.

The following must be taken in consideration when doing the Risk Assessment:

- Depth and Length of the excavation
- Existing services
- Barricading and demarcation
- Depth of the excavation

Should an excavation be more than chest deep (1.2m), it must be adequately shored or braced.

Slopes or trenches shall be as flat as possible, 1 x vertical to 2 x horizontal must be considered maximum for dry conditions. In wet conditions either a much lower slope shall be used, or if space is a constraint, shoring and de-watering shall be applied.

A competent person shall be appointed to supervise excavation work. Stability evaluation of ground must be done and a certificate shall be issued.

A plan for prevention of persons being trapped due to collapse shall be provided by the Contractor. The design of shoring shall be documented by Contractor in the Health and Safety file as provided by the competent designer of shoring.

The maximum loading of sides of an excavation must be documented in a usable format. If adjacent structures and buildings are present and can be affected a design and construction of supporting details shall be represented.

Provision shall be made for access routes to the excavation. Routes must not be more than 6 meters away from worker.

Contractor must establish all existing services in area of excavations. Plan of existing services shall be documented in the Health and Safety file. Existing services include Telkom, Gas, Water, Electricity Supplies and other similar services.

Excavation Inspection shall be done on a

- daily basis
- prior to each shift

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2



- after every blasting operation
- after an unexpected fall of ground
- after substantial damage to supports
- after rain

PB16.16 Traffic Accommodation

Traffic Accommodation shall be done in accordance with the South African Road Traffic Signs Manual (SARTSM) Chapter 13.

Signs for Deviations, Stop/Go's, Lane Drops and Lane Narrowing's shall conform to the requirements as stipulated by the SARTSM and be visible/reflective during nighttime. A daily register of all signs used shall be kept by the contractor.

A competent person shall be appointed to supervise all Traffic Accommodation activities and maintain signage throughout the site. Employees used/working as part of the traffic accommodation team shall be trained in traffic management by and accredited training provider in the relevant Unit Standard (Unit Standard 14561).

If nighttime, a competent person shall be appointed to supervise all Traffic Accommodation activities and maintain signage throughout the site during nighttime.

Members of the traffic accommodation team/flagmen shall at all times wear high visibility PPE. No flagmen shall stand in the road or in the way of vehicles to avoid them being run over or being hit.

Flags used shall be in accordance with the SARTSM (red with a silver reflective cross and 400mm x 400mm).

PB16.17 Structures – Construction Regulation 11

A contractor shall ensure that-

- (i) all reasonable practicable steps are taken to prevent the uncontrolled collapse of any new or existing structure or any part thereof, which may become unstable or is in a temporary state of weakness or instability due to the carrying out of construction work;

And-

- (ii) no structure or part of a structure is loaded in a manner which would render it unsafe.

The designer of a structure shall-

- a) before the contractor is put out to tender, make available to the client all relevant information about the design of the relevant structure that may affect the pricing of the construction work;
- b) inform the contractor in writing of any known or anticipated dangers or hazards relating to the construction work, and make available all relevant information required for the safe execution of the work upon being designed or when the design is subsequently altered;
- c) subject to the provisions of paragraph (a) and (b) ensure that the following information is included in a report and made available to the contractor-
 - a geo-science technical report where appropriate;

Tenderer

Witness 1

Witness 2

Employer

Witness 1

Witness 2

**CONSTRUCTION OF WESTERN HIGHVELD BULK WATER SUPPLY SCHEME
WORK PACKAGE 1**

- the loading of the structure is designed to withstand; and
 - the methods and sequence of construction process;
- d) not including anything in the design of the structure necessitating the use of dangerous procedures or materials hazardous to the health and safety of persons, which could be avoided by modifying the design or by substituting materials;
- e) Take into account the hazards relating to any subsequent maintenance of the relevant structure and should make provision in the design for that work to be performed to minimize the risk;
- f) carry out sufficient inspections at appropriate times of the construction work involving the design of the relevant structure in order to ensure compliance with the design and a record of those inspections is to be kept on site;
- g) stop any contractor from executing any construction work which is not in accordance with the relevant design;
- h) conduct a final inspection of the completed structure prior to its commissioning to render it safe for commissioning and issue a completion certificate to the contractor;
- i) Ensure that during commissioning, cognizance is taken of ergonomic design principles in order to minimize ergonomic related hazards in all phases of the life cycle of a structure.
- j) A contractor shall ensure that all drawings pertaining to the design of the relevant structure are kept on site and are available on request by an inspector, contractors, client, client's agent or employee.
- k) Any owner of a structure shall ensure that inspections of that structure upon completion are carried out periodically by competent persons in order to render the structure safe for continued use: Provided that the inspections are carried out at least once every six months for the first two years and thereafter yearly and records of such inspections are kept and made available to an inspector upon request.
- l) Any owner of a structure shall ensure that the structure upon completion is maintained in such a manner that the structure remains safe for continued use and such maintenance records shall be kept and made available to an inspector upon request.

PB16.18 Demolition Work – Construction Regulation 14

Contractor must appoint a competent person in writing to supervise and control all demolition work on site.

Contractor shall ensure that prior to any demolition work being carried out, and in order also to ascertain the method of demolition to be used, a detailed structural engineering survey of the structure to be demolished is carried out by a competent person and that a method statement on the procedure to be followed in demolishing the structure is developed.

During the demolition, a competent person shall check the structural integrity of the structure at intervals determined in the method statement, in order to avoid any premature collapses.

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**CONSTRUCTION OF WESTERN HIGHVELD BULK WATER SUPPLY SCHEME
WORK PACKAGE 1**

Contractor shall ensure that no material is dropped to any point, which falls outside the exterior walls of the structure, unless the area is effectively protected.

Contractor shall ensure that equipment is not used on floors or working surfaces, unless such floors or surfaces are of sufficient strength to support the imposed loads.

Where the risk assessment indicates the presence of asbestos, a contractor shall ensure that all asbestos related work is conducted in accordance with the provisions of the, Asbestos Abatement Regulations, 2020, as amended.

A contractor shall ensure that all waste and debris is as soon as reasonably practicable removed and disposed of from the site in accordance with the applicable legislation.

PB16.19 Completion of works and Close-out.

The Principal Contractor shall ensure that the necessary and applicable resources remain available towards the end of the project.

A consolidated Health & Safety File must be prepared by the Principal Contractor, including all Legal documentation pertaining to the project, as well as other documents as indicated by the Pr. CHSA. The format of submission must be confirmed with the client

On completion, the Principal Contractor will ensure that all required close out information is submitted to the Pr. CHSA, in order to prepare the Project Health & Safety Close out Report.

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Employer

Witness 1

Witness 2