PROJECT SPECIFIC SAFETY, HEALTH AND ENVIRONMENT SPECIFICATION

FOR

Construction of Part B of B16 Pipeline from Zuikerbosch to Slangfontein Chainage 10 034 to Chainage 18 203

DATE OF COMPILATION : 18 June 2020 **REVISION NUMBER** : 02

PROJECT NUMBER : P.03370 **SPECIFICATION NUMBER** : SHER 21.10.19

ENVIRONMENT AUTHORIZATION (EA, HIA, WUL, WASTE) NUMBER : 14/12/16/3/3/1/1615

COMPILED BY : **REVIEWED BY :**

DESIGNATION	SIGNATURE
SHEQ Representative	
SHEQ Representative (Head Office)	
Client CHS Representative/Agent	
SHEQ Manager	
EMS Representative	
Designer Representative	
Project Manager/Client's Agent	
Technical Person (Optional Requirement)	
Programme Manager	

NB: Do not add contact information including on Page 4 as per the recommendation made by Bid Specification Committee however contact information must be provided to Contractor after tender award.

APPROVED BY:

Name:

Minimum requirements and framework for a safety, health and environmental specification: The following sections contain minimum requirements that should be contained in all SHE specifications that are being developed. Depending on the scope of work tendered for, the site and/or the project, if there are any section/s or requirement/s that are not applicable in a specific project, then those sections or specific requirements should be deleted. If there are additional sections and/or requirements that are required, then they should be added to the site and project specific SHE specification. All italic fonts are to be revised / reviewed by the Project team.

NOTE TO PRINCIPAL CONTRACTORS AND THEIR SUB-CONTRACTORS

The SHE specifications are Rand Water's minimum requirements. The contractor is expected to develop a SHE plan which meets these requirements contained herein, as well as all the relevant applicable legislation and methods to be used in the execution of the works. Rand Water in no way assumes the Contractors legal responsibilities. The Contractor is and remains accountable for the quality and the execution of his Safety, Health and Environmental programme, and that of any Contractors and Suppliers. This SHE specification reflects minimum requirements and should not be construed as all-encompassing or fixed in terms of this or other amendments made during the project. The Contractor must take into account all information in this specification and ensure that their tenders include adequate resource and competence to deal with the matters detailed herein so that all relevant contents are dealt with

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i. LIST OF ABBREVIATIONS

AIA	Approved Inspection Authority
BOQ	Bill of Quantities
BRA	Baseline Risk Assessment
CC	Compensation Commissioner
CHS	Construction Health and Safety
CCHSR	Client Construction H&S Representative
CorrISA	Corrosion Institute Southern Africa
COVID-19	Coronavirus Disease 2019
CHSM	Construction H&S Manager
CHSO	Construction H&S Officer
CLO	Community Liaison Officer
CM	Construction Manager
CPM	Construction Project Manager (Rand Water)
CR	Construction Regulations (Gazette 10113 of 7/02/2014)
CWP	Construction Work Permit
DMR	Driven Machinery Regulations
DEL	Department of Employment & Labour
DRA	Design Risk Assessment
ECSA	Engineering Council of South Africa
ER	Engineer's Representative
FEMA	Federated Employers Mutual Association
GAR	General Administration Regulations
GSR	General Safety Regulations
HIRA	Hazard Identification Risk Assessment
NDoH	National Department of Health
NICD	National Institute of Communicable Diseases
NIOH	National Institute for Occupational Health
NACE	National Association of Corrosion Engineers
SHE	Safety, Health and Environment
OH	Occupational Health
OHSA	Occupational Health and Safety Act No. 85 of 1993 (as amended)
OHSS	Occupational Health and Safety Specification
PSSHEP	Project Specific Safety, Health and Environment Plan
PSSHES	Project Specific Safety, Health and Environment Specification
PC	Principal Contractor
PM	Project Manager
Pr. CHSA	Professional Construction H&S Agent
Pr. Eng	Professional Engineer
PPE	Personal Protective Equipment
RPO	Radiation Protection Officer
RHCS	Regulations for Hazardous Chemical Substances
RE	Resident Engineer
RW	Rand Water
SABS	South African Bureau of Standards (Authority)
SACPCMP	South African Council for the Construction and Project Management Professions
SANS	South African National Standards (Authority)
SHE	Safe, health and environment
SMME	Small, Micro, Medium Enterprise
SWP	Safe Work Procedure

ii. OMISSIONS FROM THIS SHE SPECIFICATION

By drawing up this SHE specification Rand Water has endeavoured to address the most critical aspects relating to SHE issues in order to assist the contractor in adequately providing for the health and safety of employees on site.

Should Rand Water not have addressed all SHE aspects pertaining to the work that is tendered for, the contractor needs to include it in the SHE plan and inform Rand Water of such issues when submitting the tender.

iii. PROJECT GOALS

Rand Water is determined that the highest H&S standards will prevail throughout the project and is committed to ensuring the following goals on the project are achieved:

- ZERO incidents for the duration of the Project.
- ZERO exposure of employees and visitors to Occupational Health Risks for the duration of the Project.
- ZERO harm to the environment.
- Good Quality Service and Quality End Product.
- Compliance to all applicable Legal and Client Requirements at all times.

Good and Transparent relations with the community and other interested parties around the Project

PART A – SITE SPECIFIC SHE REQUIREMENTS

1. PROJECT AND SCOPE OF WORK DETAILS

1.1 Project Title as per Tender Document:

Construction of Part B of B16 Pipeline from Zuikerbosch to Slangfontein Chainage 10 034 to Chainage 18 203

1.2 Project description/detailed scope of work:

The B16 will be installed within an existing servitude and parallel to the existing B8. The B16 Pipeline will be located within existing and fully developed small holdings and farms. The pipeline will connect to the B16 inside Zuikerbosch Pump Station at Station 5; the B16 will run in a north east direction where the pipeline will cross over various roads, runs along and within small holdings and farms. The pipeline will terminate at the Slangfontein Farm where it will be tied into the existing B16.

Schematic layout of project site including site plans/services and surrounding land uses or any sensitive features

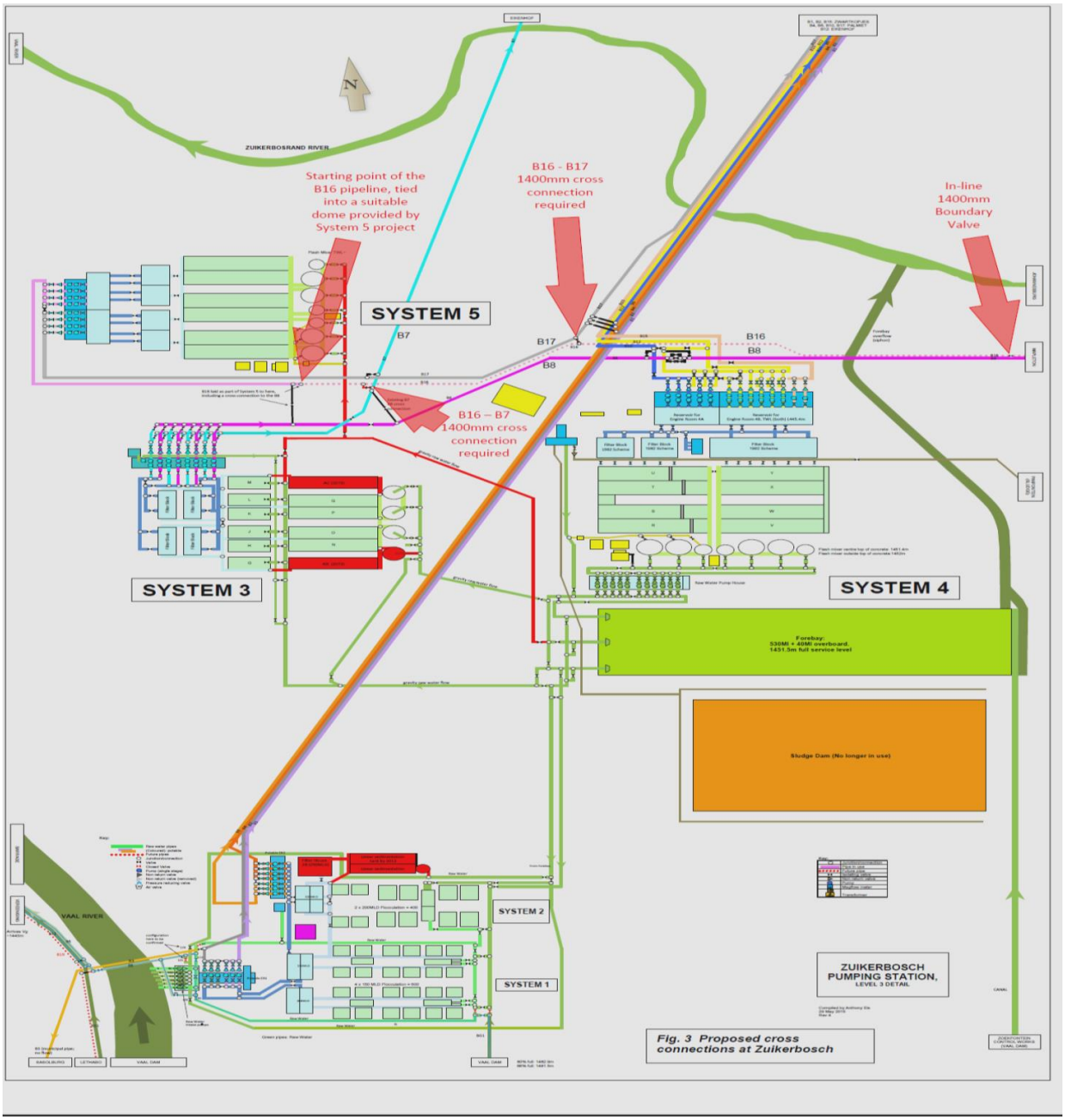


Figure 1: Proposed cross connections at Zuikebosch

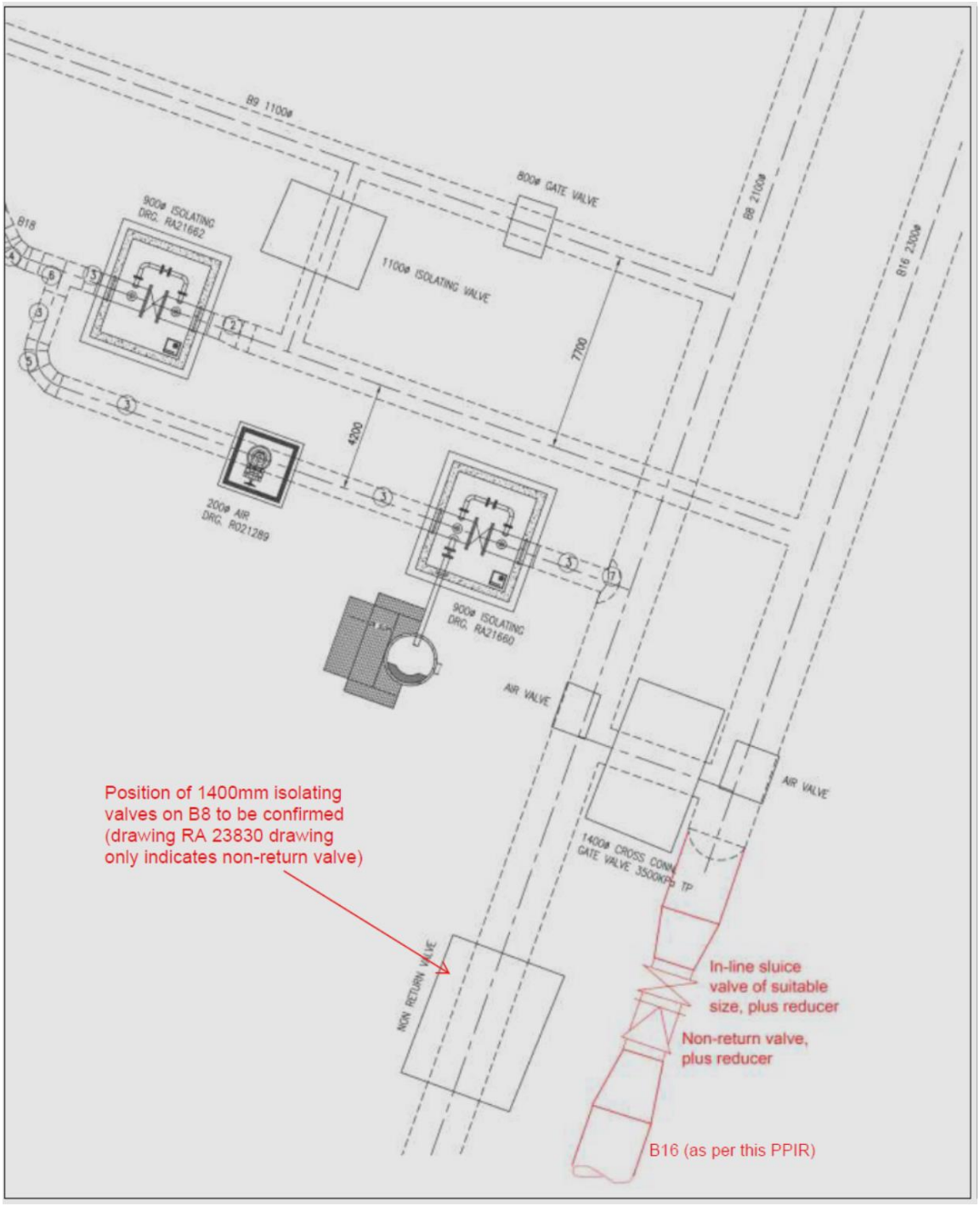


Figure 2: Proposed cross connections at Slangfontein

'The Contractor shall at all times observe proper and adequate safety precautions on the Site. Where adequate safety precautions are not being observed, the Engineer may order the Contractor to comply with minimum safety requirements at the Contractor's expense, and compliance with such an order will not absolve the Contractor from any of his responsibilities and obligations under the contract'.

The requirements noted in SABS 1200A do not exempt the PCs and their Contractors from all appropriate statutory compliance as it relates to any of the works throughout the project.

Where non-conformances are noted, activities or the appropriate sections of the works will be stopped and parties will be penalized financially. No claims or standing time will be considered. The PCs are to extend the same approach to their Contractors and provide evidence of such. Full investigations are to follow each non-conformance by the CHSO/CHSM. Such aspects are to be reported to the PM; Pr. CHSA/ or CCHSR ; Pr. Engineer and RW Risk Control/SHEQ. Full records of actions; disciplinary hearings; CHS Committee findings to be kept on file and reported at each site progress meeting.

1.3 Programme details:

Clarification Meeting	To be advised by procurement
Time allowed for preparation of SHE plan/file after tender award	2 weeks
Approval date of SHE Plan	Within 3 days after submission but subject to content as per this requirements
Induction dates	To be advised after Approvals of SHE Plan/file
Anticipated Commencement date of work on site	TBA
Estimated Project completion date or project duration	TBA

1.4 Site Details:

Locality of the works: The site is located about 47km south west of Johannesburg Central Business District, within the Midvaal Municipality, Gauteng Province.
The B16 Pipeline Route starts within the Zuikerbosch Pump Station at Station 5. It goes under 7 Rand Water pipes and under a canal, crosses various roads and river. The pipeline runs in a north east direction and then turns in a northern direction. The pipe will terminate at Slangfontein and tie-in to the existing B16.

The proposed route traverses the following areas:

- Open fields
- Minor and Major Public Roads
- Eskom, Sasol, Communications, Municipal Services Servitudes
- Agricultural Holdings
- Canal

2. PROJECT DOCUMENTATION

2.1 Project Lifecycle SHE Document Requirements

Documents Required at					
Evaluation stages		Awarding	Site establishment	Construction	Project Closeout
Commercial (Part A)	Functional (Part B)				

• Complete pricing schedule for Health & Safety • Letter of Good standing – COID Act	• Letter of Good standing – COID Act • Health & Safety System- ISO 45001 certification or in-house SHE Management system • Site Specific Health and Safety Plan • SHEQ Policy • DIFR Status • Appointment of Construction health and Safety Officer • Base line Risk Assessment • Preliminary SHE File	• Baseline Risk Assessment • Site specific health & safety plan • Comprehensive SHE File • Appointments of key role players • Method Statements • Written agreements between RW & contractor (Section 37.2) including (CR 5k) appointment • Applicable permits and licences e.g. Notifications to DOL, completion of CWP etc. • Certificates of competencies • Appointment Letter of CHSO including proof of registration with SACPCMP • Appointment letter of Temporary works designer including proof of registration with ECSA • Proposed Project organogram • Schedule of activities Project Programme	• Medicals (CoF) – Annexure 3 • Operational Legal Appointments with certificate of competencies. This also is dependent on Works to be undertaken i.e. submissions to Client before start date of activity on site. • Safe Working Procedures as per Risk Assessment • Inductions • Activity based HIRA. • Staff list with certified ID Copies (4 copies for each employee) / Valid Passports with work permits. • All foreign nationals to be screened by the state security agency and be issued with a security clearance before being allowed on site • Drivers licenses to RSA • Appointment of security company • Appointment of CLO	• Maintained detailed SHE File • Operational Legal Appointments-submissions to Client before start date of activity on site • Method Statements /Activity based HIRA • Contractor weekly and monthly reports	Detailed SHE File (hard and electronic copies)

2.2 Tender preparation support by CHSMs / CHSOs

The CHSM / CHSO is to be involved with tender preparations or quotations and adjudication for their Contractors and Suppliers relative to CHS requirements (Stage 4), adapt the 6ase line risk assessment and project specific SHE specification for inclusion with such documents as and when necessary. No Contractor or Supplier may commence work unless the CM and PM/ Engineer have evidence of the approval of the PSHS plan.

The CHSM and CHSO are to ensure that Contractors PSSHE Plan(s) have at least a seven (7) day clearance period before they can commence on site. The audit process will measure the completeness of the documentation.

The RW SHEQ\ Risk Control or Pr. CHSA Representative will be responsible for auditing/inspections and ensuring compliance to legal and other requirements at least monthly, or as deemed necessary relative to risk or CHS management. Any instructions given by the CHSM / CHSO are to be followed by the PCs and Contractors.

Failure to comply will be noted as a serious offence.

2.3 Format of the Project Specific SHE Plan (PSSHEP)

The format of the PSSHEP is to follow the same Index as Part A of this SHE Specification. Each aspect is to be responded to in terms of the way the PC will manage the scenario, and is requested **not** to insert the supporting

documentation within the plan. Each section is to cross reference where the information can be found in the supporting documentation provided that is contained within the SHE System of the PC. The submission of 'generic' documentation is not acceptable. The appointed PC will receive a full report on the appropriateness of the plan, and further requirements if any. The Plan is to consider the project and the operational requirements, including matching to the construction programme. It is preferable that a similar approach is followed in managing Contractors.

Part B of this specification is to be referred to for additional client information that must be complied with.

2.4 SHE File Contents

The Contractor must have a SHE file in which records of this specification and the SHE plan are kept as per **Construction Regulations Section 7(2) (b)**. All information required in the specification and plan, for the duration of the Principal Contractor and sub-contractors contract, is to be recorded in the file.

The SHE file that will be maintained will be for the construction site.

The Principal Contractor must also record on the file:

- Information about removal or dismantling of installed plant and equipment
- Hands on information about equipment needing cleaning and maintenance, for future purposes
- Nature, location and markings of services
- As-built drawings

The file must be kept on site and must be available on request for audit and inspection purposes.

The completed SHE file (i.e. hard and soft copy) shall be handed over to the Client/Agent at the end of the Principal Contractor's contract

2.5 Required SHE File Contents

Description	**Evaluation Stage - Preliminary SHE File**	**After Award - Comprehensive SHE File**
Company Profile	x	
Project Organogram	x	
SHEQ Policy	x	
Contact List including Emergency Numbers	x	
Rand Water Project Scope of Work	x (RW to issue)	
Rand Water SHE Specification & Baseline Risk Assessment		x (RW to issue)
SHE Plan Approval Memorandum		x (RW to issue)
Workman Compensation COID: Letter of Good Standing	x	
Legal Permits: Notification to Department of Labour/ or Construction Work		x
37.2: Contractors Written Agreement		x (RW to issue)
Site Entry/ Access Certificate		x (RW to issue)
List of Sub-Contractors		x
Section 7(1)(c)(v): Agreements between Principal Contractor and Subcontractors		x
Environmental Authorizations where applicable		x (RW to issue)
Environment Management Plan		x
Traffic Management Plan		x
Certificates of Competencies	x(key staff)	x(Operational)
Pre and Exit Certificates of Medical Fitness(Annexure 3)		x
Annual Medical Records		x
Staff List with Copies of valid certified ID/Passport Documents &work permits		x
Client Induction Registers (SHEQ/Risk Control and or EMS)		x (RW to issue)
Contractors Tools and Equipment Inventory		x
COVID-19 Plan		x
SHE Plans: SHE Management System aligned to the RW SHE Spec to be implemented on site. Refer to DOL website for sample of a SHE Plan. Include specific operational requirements as stated below. Emergency		x

Plan, Traffic Plan, Fall Protection Plan and Environmental Management Plans to be submitted as separate documents.			
Fall Protection			x
Structures			x
Temporary Works			x
Excavation Work			x
Demolition Work			x
Tunneling			x
Scaffolding			x
Suspended Platforms			N/A
Rope Access			N/A
Hoisted Materials			N/A
Bulk mixing Plants			N/A
Explosive actuated fastening device			N/A
Cranes			x
Construction Vehicles and Mobile Plant			x
Electrical Installations			x
Flammable Liquids			x
Water Environments			x
Housekeeping			x
Stacking and Storage			x
Fire Precautions			x
Construction Welfare Facilities			x
Legal Appointments: As required by the OHS ACT & Other Regulation *(Dependant on Works to be undertaken i.e. submissions to Client before start date of activity on site)*			
Reg.	Appointment		
Section 16(1)	Top Management i.e. MD or CEO	x	
Section 16(2)	Assistant to Chief Executive Officer	x	
Section 17	Health and Safety Representative		x
Section 19	Health and Safety Committee Member(s) and Co-opted Members		x
GSR 3	First Aider		x
GSR (2) ER9(1)	Fire Fighter		x
GSR 5(1)	Confined space Inspector		x
DMR 17(2)	Goods Hoist Inspector		N/A
GAR 9 (2)	Incident/Accident Investigator		x
DMR18 (11)	Lifting Machinery Operator(Appointment or Permit)		x
DMR18 (5)	Lifting Machinery Inspector		x
DMR 18 (10) (e)	Lifting Tackle Inspector		x
EMR 9	Portable Electrical Equipment Inspector		x
PER 11 1 b) e)	Portable Gas Container Inspector		x
PER 11 1 a)	Pressure Vessels Inspector		x
LE&PCR(6) (1)	Lift, escalator or passenger conveyer Inspector		N/A
HCS 3 (3)	Hazardous Chemical Substances Co-coordinator		x
	Cathodic Protection Officer registered with NACE or CorrISA		x
Hazardous Substance Act 15 of 1973	RPO registered with Department of Health		N/A
Asbestos 21	Person registered as an Asbestos Contractor (Asbestos AIA) by the Department of Labour	N/A	
Legal Appointments- Required as per Construction Regulations *(Dependant on Works to be undertaken i.e. submissions to Client before start date of activity on site)*			
Reg.	Appointment		
5(1)(k)	Principal contractor	x	
7(1)(c)(v)	Contractor		x
8(1)	Construction Manager	x	
8(2)	Assistant Construction Manager		x
8(7)	Construction supervisor		x
8(8)	Construction supervisor sub-ordinates		x
8(5)	Construction Health and Safety Officer		x
9(1)	Person to carry out risk assessment		x

10(1)(a)	Fall protection planner		x
12 (1)	Temporary works designer		x
13(1)(a)	Excavation supervisor		x
13(2)(b)(ii)(bb)	Professional engineer or technologist		x
14(11)	Explosives expert		x
16(1)	Scaffold supervisor		x
17(1)	Suspended platform supervisor		N/A
17(8)(c)	Suspended platform expert		N/A
			x
19(8)(a)	Material hoist inspector		N/A
20(1)	Bulk Mixing plant supervisor		x
21(2)(b)	Explosive Actuated fastening device Insp.		N/A
22.2 (g) (i)	Explosive Actuated fastening device controller		N/A
23(1)(d)(i)/(k)	Constr. vehicle and mobile plant operator/Inspector.		x
24(c)(d)	Temporary electrical installations inspector/Cont		x
28 (a)	Stacking and storage supervisor		x
27 (h)	Fire equipment inspector		x
Risk Assessments – Baseline and activity based HIRA		x(Baseline)	x(Baseline)
Safe Work Procedures and Method Statements		x	x
Calibration Certificates			x
Load Test & Inspection Test Certificates(e.g. Lifting equipment and Tackle)			x
Mandatory Registers Required for All Contracts:			
	Incident recording Register		x
	Principal Contractor SHE Induction Register		x
	First Aid Box Inspection Register		x
	PPE Issue Register		x
	Risk Assessment Communications Register		x
Contract Specific Registers/Checklists:			
Fall Protection Inspection Register			x
Structural Inspection Register			x
Temporary Work Inspection register			x
Excavation Inspection Register			x
Demolition Work Inspection register			x
Tunneling Inspection Register			x
Scaffolding Inspection Register			x
Suspended Platforms Inspection register			N/A
Rope Access Inspection Register			N/A
Hoisted Materials Inspection register			N/A
Bulk mixing Plants Inspection Register			N/A
Explosive actuated fastening device Inspection register			N/A
Cranes Inspection Register			x
Temporary Electrical Installations Inspection Register			x
Flammable Liquids Inspection register			x
Water Environments Inspection register			x
Explosives Inspection Register			x
Hazardous Chemicals Inspection register			x
Ladder Inspection Register			x
Compressor register			x
Electrical Machinery Inspection register			x
Construction Vehicles and Mobile Plant Inspection Register Plant			x
Gas Equipment Register			x
Stacking and Storage Register			x
Fire Precaution Register			x
General Housekeeping Register			x
Incident Management			x
Emergency Response and evacuation Procedures			x
Emergency Drill Schedule			x
Minutes of SHE meeting			x (during construction)
SHE Toolbox Talks/DSTI's			x
Job Observations			x

Material Safety Data Sheets		x
Training Records		x
SHE Rep Monthly Inspection Reports		x
Monthly Inspection /Audit Reports		x(during construction)
Non-conformance Reports (Work Stoppages & Penalties /Spot fines)		x(during construction)
Client SHEQ/ EMS Audit and Inspection Reports		x(during construction)
Contractor SHEQ Reports i.e. Contractor weekly report, Monthly Statistics		x(during construction)
Site Clearance Certificate		x (RW to issue)
Temporary Site Closure Checklist		x(during long breaks)
Copy of the OSHACT		x

2.6 Project and Site Requirements

Item	Requirement:
1. Site Risk Control Documentation Requirements (Where Applicable)	List the required Site Risk Control documentation to be completed by the Contractor: • Written Agreement • Verification of the approved PC PSSHE plan and file by Rand Water SHEQ. • Verification of the approved contractor PSSHE plan and file by PC. • Security clearance of all foreign nationals • Site induction (Each employee attending induction must bring a pen as there will be an evaluation test) • Site access certificate Work permits as and when required.
2. General Project Site Rules	ALL employees may NOT: • Partake, possess or sell drugs or alcoholic beverages on site. • Indulge in practical jokes, horseplay, fighting or gambling • Destroy or tamper with safety devices, symbolic signs, fire extinguishers. • Bring onto site or have in your possession a firearm, lethal weapon. • Assault, intimidate or abuse any other person. • Operate construction equipment (vehicles or plant) without the necessary training and authorization. • Enter any area unless authorized to do so by the person in charge • Negligently, carelessly or wilfully cause damage to property of others. • Refuse to give evidence or deliberately make false statements during investigations. • Smoke on site unless in a designated smoking area. • Use cell phones on site while performing work with equipment and machinery • Take site photos with electronic device unless permission is given • Perform work that they have not been informed of or trained on • Engage in horseplay or fail comply with COVID-19 associated regulations such as maintaining social distance, reporting for duty if they feel ill with Covid-19 related symptoms, failing to report if feel ill with Covid-19 related symptoms during working hours, • Disregard the screening and hygiene practices in place • Discriminate or victimise / stigmatise other employees that have symptoms of COVID-19 • Disseminate fake news regarding fake news

2.7 General Aspects

In summary, the statement made early in the PSHS that the PSSHEP is to follow the same outline as this document. The PSSHEP requires demonstrating management's commitment to SHE and shall, as include the following elements as support documentation and references to where the information can be found for verification:

- The SHE Policy;
- Competent supervision on site (CV's, training certificates and appointments);
- Section 37.2 appointments and appointments of Contractors;
- Duties and safety responsibilities of all appointed persons on the project;
- Method Statements, Induction training, Toolbox talks, and on-going SHE training arrangements for employees;
- Occupational Health and Safety communications and meeting arrangements, including daily safe task instructions and project safety meetings;

- Safety awareness promotions;
- Nomination of personnel to carry out SHE audit and inspections. The task may be shared with other duties;
- Contractor Senior Management involvement with Company's staff in consultative processes and daily management SHE walkabouts;
- Occupational Health and Safety Workplace Environment, including provision for monitoring employee exposures to noise, dust, etc.;
- Rules and regulations including safe work procedures the Contractor has in place for recurring work activities;
- Fall protection plan (where applicable);
- Control of dangerous and hazardous substances;
- System of hazard identification and risk control, such as Risk assessments, Daily Safe Task Instructions and communication;
- Design control and design interaction arrangements;
- Inspection of plant, tools and equipment prior to introduction to site and regularly thereafter;
- Accident incident reporting, recording, investigation and analysis, which ensure that corrective and preventative actions are taken;
- Medical and first aid arrangements;
- Evacuation and emergency planning;
- Substance abuse programme;
- Record keeping, including details of what is to be kept and for how long;
- Detailed financial allocation for SHE;
- Personal Protective equipment rules and arrangements;
- Selection, procurement and management of other Contractors;
- Maintenance arrangements of machinery and equipment;
- Workers welfare facilities, and
- Letters of good standing with a compensation insurer.

The PC shall amend the PSSHEP as required by the CCHSR where amendments and updates are provided.

2.8 SHEQ POLICY

The PC shall have a SHEQ Policy authorised by their OHSA Section 16(1) appointee that clearly states overall SHEQ objectives and commitment to improving Safety, Health, Environment and Quality performance in the Project specific SHE plan. A copy shall be in the site office and included in induction programmes.

Rand Water has a SHEQ Policy attached to this document that clearly states the guiding principles by which Rand Water operates and the commitment to SHEQ excellence and is authorised by the Chief Executive.

A zero tolerance approach will be taken to any non-conformances or non-compliance throughout the project. This is to ensure that **every person** who works on or visits RW work site **returns home safely to their families**.

RAND WATER

SAFETY, HEALTH, ENVIRONMENTAL AND QUALITY MANAGEMENT (SHEQ) POLICY STATEMENT

As a provider of sustainable, universally competitive Water and Sanitation solutions for Africa, Rand Water makes significant social and economic impact on society. As such, Rand Water will promote sustainable development and accountability whilst meeting the needs of our customers and stakeholders. As a water utility in water stressed country, we commit to water conservation as well as the education of employees and communities on safety, health, environmental and quality issues.

Our values embrace the principles of Safety, Health, Environment and Quality (SHEQ). This Policy Statement sets out total leadership commitment towards SHEQ systems. To deliver on this commitment, Rand Water shall:

- Conduct pro-active and re-active threat/risk assessments of business processes to manage the impacts of threats/risks associated with our activities, products and services.
- Identify opportunities that may be derived from our activities, products and services.
- Comply with applicable legal, best practices and other requirements to which Rand Water subscribes relating to Occupational Health and Safety threats/risks as well as Environmental impacts.
- Conform to formal SHEQ Management Systems based on ISO 9001, ISO 14001, OHSAS 18001 and ISO 17025.
- Implement appropriate programs to prevent occupational injury/diseases, ill health and environmental impairment including pollution as well as non-conformities to our own standards.
- Implement appropriate programmes to manage resource utilization.
- Plan and provide adequate resources to ensure implementation and maintenance of the SHEQ Management systems.
- Set and review objectives, targets and programmes to achieve continuous improvement to SHEQ management systems.
- Implement life-cycle approach for all product/material produced.
- Commit to the continuous improvement of our activities, services and products to manage all safety, health, environmental and quality management system performance.
- Communicate the SHEQ Policy to all employees, service providers, contractors and those working for and on behalf of Rand Water with the intention of making individuals aware of their SHEQ obligations.
- Endeavor to exceed our customer's needs and expectations, as well as support business continuity in the treatment and distribution of world-class quality potable water and sanitation solutions.
- Communicate this Policy and make it available to interested/affected parties.

The Policy will be reviewed upon significant changes to business activities, products, services or legislation.

Approved

CHIEF EXECUTIVE

09/07/2017

DATE

Revision: 06/2017

2.9 SHE FILE submission at the end of the project

The SHE file will commence once the PC is on site and be maintained. The SHE file must be kept on site and must be available on request for audit and inspection purposes. Regular scanning of documents and records is required as a form of archiving for inclusion in the consolidated SHE file at the end of the project.

A list of critical information to be included in the SHE file on completion of the project will be provided. On completion of the project, all records including the project information should include:

- Information about removal or dismantling of installed plant and equipment;

- SHE information about equipment needing cleaning and maintenance, for O&M management;
- As-built drawings, including nature, location and markings of services.

The SHE file (i.e. hard and soft copy) is to be handed over to the RW PM, and include all the close out SHE files for Contractors. Further requirements regarding the content of the consolidated SHE files will be provided to PCs during the project.

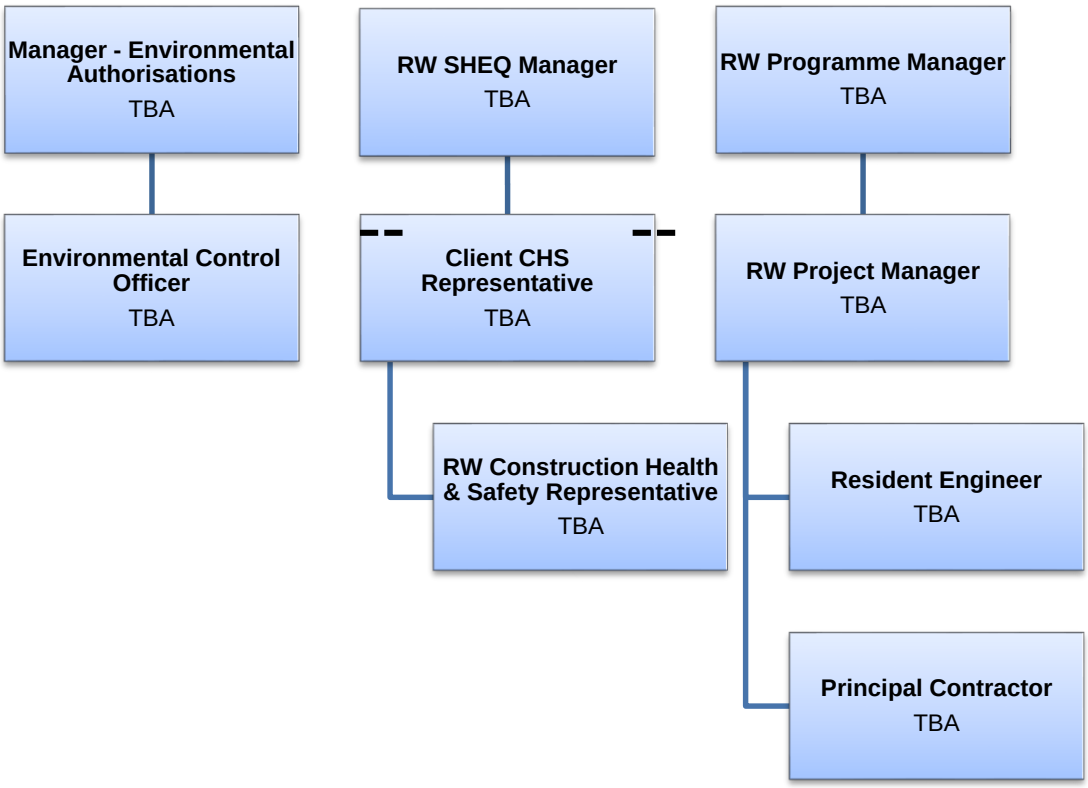
3. ROLES AND RESPONSIBILITIES

3.1 Client

The Client for this project is Rand Water

The Client Organogram will be provided by the RW PM and updated from time to time. The project and site records will be kept up to date and referenced in correspondence between parties.

The Rand Water Client/Implementing Agent Project Organogram is:
(Insert project structure here): Example



Rand Water Responsibilities:

Client/ RW Programme Manager/The Engineer	The RW PM is the accountable person for the overall management of the project, on and off-site. The PM is the delegated responsible person appointed in terms of the OHSA, Section 16(2), and FIDIC by the Engineer. The RW PM is responsible for ensuring that the SHE specification and any amendments are provided to the PCs and designers throughout the project. The RW PM will liaise with the RW SHEQ/ CCHS representative to communicate any changes to designs or information relating to project SHE risk and the mitigation thereof. The RW PM shall ensure that the Construction Work Permit (CWP) is available from the Pr. CHSA prior to any PCs commencing any form of construction work on site where applicable. The RW PM will provide a

	copy of the CWP to keep in the SHE file. All CHS aspects as they relate to the overall requirements will be managed through the RW PM. The PM will ensure that all the statutory requirements, RW requirements are adhered to by the PCs and their Contractors at all times. Engineers and Resident Engineers with support staff will manage parts of the programme as they apply to the size and complexity of the project.
RW Project Manager/Client Agent / Assistant Engineer Representative	The Project Manager is the delegated responsible person appointed in terms of the OHS Act/or FIDIC by the Engineer/Section 16(2) delegated responsible person. He/she is responsible for providing this specification to the Designer and managing the contract with the Principal Contractor. The Project Manager ensures that the PSSHE specifications are developed and issued with tender enquiries and that the Principal Contractor's SHE plan is approved prior to commencement of work. He must ensure that all the statutory requirements, Rand Water and SHE specification and PSSHE plan requirements are adhered to by Principal Contractor and (if applicable) their sub-contractors at all times. Where applicable, (1) provide a copy of the construction work permit with its site specific number to Contractor to keep in file and (2) ensure Contractor conspicuously displays site specific number at the main entrance to the site. He / she participates in the development, execution, supervision, and coordination of all technical aspects of the project including development of plans, schedules, contracts, procedures. He organizes the accumulation of assigned discipline data for the final project turnover and report
Project Execution Engineer /Site Clerk of Works :	He is responsible for the overall management of the project on-site and is accountable to the Rand Water Project Manager. Among his responsibilities is to ensure Contactor SHE Plans meet the specifications.
Designer:	The Designer is the person responsible for the overall management of the project design as well as ensuring the management of the compliance of the completed works to the design during and after construction on site with reference to Section 6 and 12 of Construction Regulation 2014
RW Resident Engineer:	The Resident Engineer participates in the development, execution, supervision, and coordination of all technical aspects of the project including development of plans, schedules, contracts, procedures, and construction methods and systems for the project. He/she is also responsible for reviewing the performance of contractors and subcontractors to assure contract compliance, the application of accepted construction technology and standards, and the acceptable standardization of materials and supplies. He/she maintains first-level quality assurance to confirm that the installation of all work within his/her discipline is in accordance with the plans, specifications, and industry standards. He/she ensures that tests and inspections are performed, witnessed, and documented in accordance with approved procedures and collaborates with construction management to eliminate any hazards associated with the work that may adversely affect the environment or the safety or health of employees. He /she establishes and maintains liaison with the discipline design engineering staff and reviews and interprets discipline design drawings and specifications to ensure current revision level and correct technical execution of the work. He / she communicates any design changes to the designer. He / she develops discipline construction schedules and monitors progress as well as monitors material procurement and deliveries to ensure timeliness in support of construction activities and schedule within the assigned discipline. He / she ensures that materials received meet specifications and established standards of quality
Client Construction Health & Safety Representative (CCHSR)	The CCHSR is the responsible person appointed to act on behalf of the client regarding CHS aspects on a specific project. Duties are as per the outputs and deliverables outlined by the SACPCMP, statutory requirements and those set by the Department of Labour as concerns the CWP. All parties will ensure the CCHSR is informed of any design

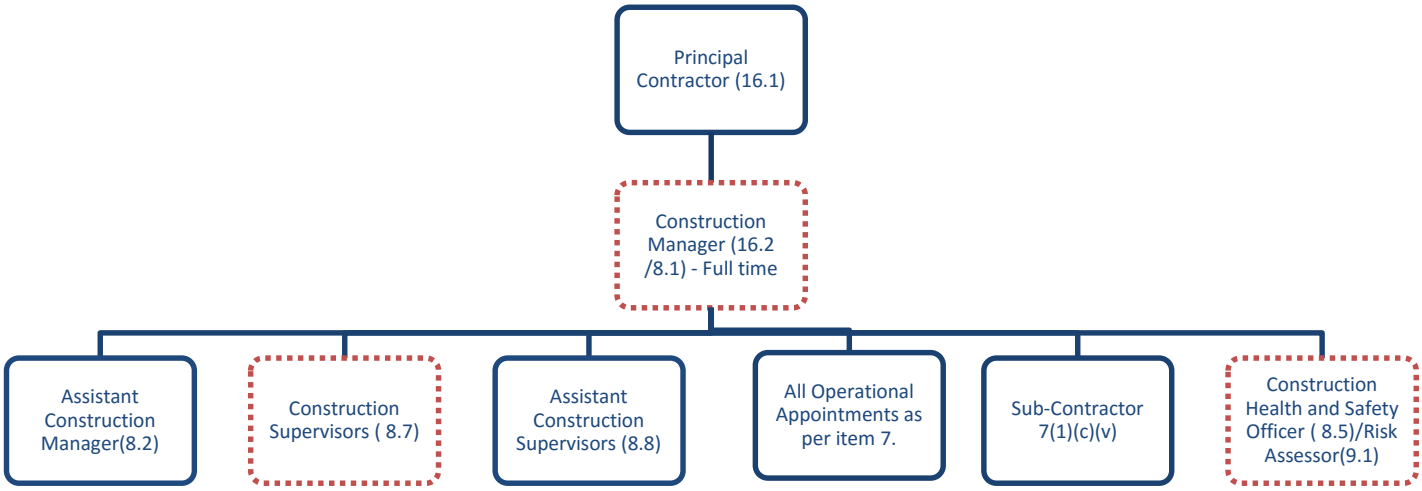
RW SHEQ Representative **RW SHEQ Manager**	aspects, changes to design and will participate in mitigating project risk and liability. The Pr. CHSA will audit all PCs and ensure that the CHS requirements as they relate to the dynamics of the project are adhered to. PCs and their Contractors will be expected to anticipate and plan for appropriate CHS requirements to limit risk. The CCHSR will communicate any non-conformances to the client via the Engineer, or as the communication routes are discussed. The CCHSR may increase the frequency of visits and audits depending on the risk and construction activities. Managing day-to-day risks remains the responsibility of all on site. Work or activities shall be stopped or halted by any party where workers of any level are at risk, and appropriate corrective action taken. Records of such actions are to be noted, and penalties applied where deemed necessary as set down in the PSSHES. RW reserves the right to place a full or part-time RW SHEQO Officer to assist the CCHSR with the monitoring of CHS. The RW SHEQM / SHEQO may assist in information and is able to visit and audit the site at any time. However, all findings are to be reported to the CCHSR and discussed in terms of the appropriate outcome. The RW PM and PC staff will then be notified. The RW SHEQ Manager is responsible for the overall management and coordination of work systems of all SHEQ resources allocated on a project, on and off-site.
Environmental Control Officer (ECO):	The Environmental Control Officer is to provide assurance, advice, assist and support to the RW PM and Engineer /Agent in the management of the environmental issues on the project which includes ensuring compliance to the Environmental Authorizations and the Environmental Management Plan (EMP). For more detail refer to the ECO protocol. While a number of SHE issues may have an impact on environmental issues, the CHSMs / CHSOs are to ensure they communicate such aspects to the ECO. Any identified aspects noted in the CCHSR / SHEQ audits or inspections will be communicated to the ECO.

3.2 Contractor Responsibilities:

The Principal Contractor carries primarily accountability and responsibility for ensuring full compliance to the provisions of the OHS Act as contemplated by Section 37(2) written agreements and Construction Regulation (7).

Contractor Project Organogram:

- The principal contractor must provide an organisational organogram related to the project, depicting all the levels of responsibility from the CE down to the supervisors responsible for the project. The relevant positions held names of appointees and legal appointments must be listed.
- This diagram must be kept up to date and filed in the project SHE files.
- The principal contractor must ensure that all appointed contractors comply with this requirement



Compulsory Appointments

3.2.1 Appointments and Competencies

The PC shall appoint adequate, resourced, competent persons in all the areas of work that are experienced in such areas, and are aware of their CHS accountabilities and responsibilities. All appointment letters and competency certificates, CVs etc. are to be approved by the Engineer or jointly with RW SHEQ/Risk Control and/or CCHSR in terms of technical and CHS competence prior to commencement of work. Where persons are replaced or added to the project, the aforementioned is required prior to appointment. The project Organogram is to be updated accordingly.

Note: If there are any appointments that are not applicable, then a brief explanation as to why they are not applicable should be made. The CHSM or CHSO shall review all appointments prior to submission to ensure compliance and competence.

- **Construction Management and Supervision**

No work may commence and/or continue without the presence of appointed Construction Manager during performance of the contracted work. It must be noted that the required appointed Construction Manager (OHS Act CR 8.1) may not leave the site unless there is a sufficient number of appointed competent Assistant Construction Managers (OHS Act – CR 8.2) on site to assist with supervision. Competent construction managers who are appointed to manage part or all of the works must have had training and/or experience in their area of responsibility. All site supervisors must show evidence of basic training in OHS, and an understanding or training in areas of responsibility (i.e. risk assessments, method statements etc.).

Multiple, competent Assistant Construction Managers may be appointed where justified by the scope and complexity of the works. Curriculum Vitae (CVs) are to be submitted for approval to the Client Representative. Each supervisor will be held responsible for the safety of working teams and subordinates, housekeeping and stacking and storage of materials in their particular area.

COVID-19 and Construction Management

The appointed Construction Manager shall, in addition to their responsibilities, be responsible for addressing employee or workplace representative concerns on the virus. These responsibilities are in terms of the Regulations issued in Chapter 2 – General Provisions applicable to National State of Disaster (Act 57 OF 2002) (COVID-19) COMPLIANCE EMPLOYEE (REG. 5(4)(e) APPOINTEE). He/she shall keep all employees informed on the disease, its management and prevention and update them on latest information published through official government platforms; the COVID-19 prevention measures are complied with, the COVID-19 health and hygiene protocols are complied with and the workplace plan is complied with.

Where a health and safety committee has been elected, the Construction Manger shall consult with that committee on the nature of the hazard in that workplace and the measures that need to be taken. In the event of any accidents or incidents involving COVID-19, ensure that all the relevant documentation and reporting procedures, in terms of the Act, are complied with.

NB:

- **For projects where a Construction Manager has not been appointed, the responsible person (16.1 /16.2 appointee) or supervisor shall take on the responsibility for COVID-19.**
- **The contractor may consolidate the responsibilities into the Construction Manager Appointment letter or a separate appointment can be made based on REG. 5(4)(e) of the National State of Disaster (Act 57 OF 2002)**

- **Construction Health and Safety Officer**

The PC will employ at least **one or two** competent, full-time CHSO for the duration of the contract. The CHSOs CV is to be submitted for approval to the Client Representative, prior to placement on the project. The PC is to ensure adequate resources are provided in order to undertake all responsibilities (i.e. mobile phone, computer and internet access, vehicle etc.). The incumbent should fulfil the requirements for registration in 1 or other category as determined by the South African Council for Project and Construction Management Professionals (SACPCMP) as legislated. CHSOs require a minimum of two years exposure to Construction in such a capacity. Failure of the aforementioned will result in the CHSO being required to be removed from site and an alternate provided who is appropriately registered.

Based on SED requirements, PC to allow for a graduate H&S Officer to assist the CHSO on the project.

Depending on the portions or the criticality of work given to the Sub-contractors, the PC to ensure his sub-contractors have priced for a full –time CHSO to manage the OHS. The sub-contractor CHSO will provide H&S report(s) to the PC CHSO.

The CHSO must have the competence to evaluate the Contractors Health and Safety plans, must hold a valid driver's license and may not hold any other position on the site staff.

The Construction Manager assisted by the CHSO will be held responsible for all OHS on the project. All staff and supervision, Contractors are to follow systems, instructions etc. given by the CHSO at all times. No new workers or Contractors may commence work without approval or following the OHS plan as submitted. Failure to do so will be considered a serious offence.

The CHSO will be held responsible for all OHS on the project.

A graduate CHSO from the local community may be appointed to assist the designated CHSO with the management of H&S on the site. The designated CHSO will be expected to mentor the graduate CHSO and additional training to be arranged by the PC where required.

A Candidate CHSO may also be appointed on a project at the discretion of RW, however there should be proof of mentorship being provided for that candidate.

No inductions of Contractor/ Sub-contractor staff until the OHS documentation is approved by the CHS Officer.

The CHS Officer/s may not be removed or replaced without the approval of the client representative, nor may the site be left unattended for more than 1 day without adequate, competent cover. The client representative may also give instruction for the replacement of the contractor/sub-contractor CHSO, should they fail to meet all obligations that fall within their scope of services.

A close out meeting will be held at the end of each formal audit by the client representative and findings will be issued in the form of an audit report. Relevant contractor representatives will be obliged to attend the close out meeting.

The Contractor Safety Officer where appointed **must** report all SHEQ Matters to Rand Water SAM SHEQ Officer on weekly basis i.e. on Fridays at 16H00 or Mondays before 09H00 using the RW Contractor Weekly Report Template.

The Contractor Safety Officer must report to Rand Water on the template provided, on the 2nd of every month, name of principal contractor company and name of each sub-contractor company and each company's performance which includes the following as a minimum:

- Incidents: Lost time /Disabling Injuries, Medical; first aid, near misses reported;
- Staff Complement per principal contractor and Sub-Contractor Company;
- Actual man-hours worked;
- Status on incidents investigated and recommendations closed out and
- Status on audits conducted and findings closed out.

Internal audits of own and Contractors documentation are to be completed relative to the risk of the work, and irrespective of duration on site. Short term contractors and suppliers are to be audited.

The CHSO will be responsible for collating the OHS documentation (electronically) at the close out of the project. A list of the typical aspects that should be provided is available as an Annexure to this document.

NB: For projects that are 'design and build' the PC must appoint the CHSO in the early stages of the project i.e. during the design stage and be invited to attend and participate in the design review meetings.

The CHSO must perform their duties in accordance with the scope of services as prescribed in "The Scope of Work for Categories of Registration of the Project and Construction Management Professions" document. These include:

Stage 4 (Tender)	**Stage 5 (Construction Documentation & Management)**	**Stage 6 (Project Closeout)**
• Attend site tender clarification meetings with contractors. • Assist in the preparation of project specific health and safety documentation for distribution to contractors for inclusion into their tender submissions. • Assist with the evaluation of the contractor(s) competencies, knowledge and resources to carry out the works safely. • Assist with the preparation of • Contract documentation related to health and safety requirements for approval and signature.	• Assist with the preparation of a construction health and safety plan. • Confirm necessary documentation was submitted to the relevant authorities. • Attend project planning meetings. • Assessments and approval of contractor(s) health and safety plans. • Attend the contractors site handover • Attend regular site, technical and progress meetings. • Facilitate site health and safety meetings. • Identification of the hazards and risks relevant to the construction project through regular coordinated site inspections. • Establish and maintain health and safety communication structures and systems, distribution of health and safety specific documents to sub-contractors. • Compiling project specific emergency response and preparedness plans. • Testing the effectiveness of the emergency response plans. • Conduct site safety inductions. • Evaluate the levels of compliance of subcontractors to the project specific health and safety plan and client specifications through inspections and audits. • Oversee the reporting and investigation of project related incidents. • Oversee the maintenance of all records • Participation in management reviews of the health and safety systems. • Use of trends analysis to identify system deficiencies and incident trends, outline relevant improvements • Incorporation of changes into a health and safety management system. • Review and update the health and safety plan. • Development of technical reports in relation to health and safety issues and communicate through presentations to diverse groups of decision makers.	• Review, discuss and approve contractors' consolidated health and safety file with the contractor(s). • Monitor site health and safety during the defects liability period. • Prepare the consolidated project health and safety file for the client.

- **Designers/ Design Brief**

The Designers for the project are responsible for the overall management of the project design. Designers are furthermore required to ensure statutory compliance, more specifically, the Construction Regulations (as amended). The Designer must take PSSHES into consideration during the design stage and address SHE with all.

Designs done ‘in-house’, and all those involved in the design including designers and the CCHSR/ CHSMs / or CHSOs are to be involved in the design meetings. Design method statements and activity based method statements are required by Designers.

The requirement of each design team is a ‘Design for SHE’ risk approach, both from the design and materials used, complexity and constructability, where possible, to limit project and life cycle risk. While this is contextualised in the CRs, a minimum level of compliance is not always optimum or will suit the project.

The hierarchy of control in identifying and mitigating risk is to be applied in each design activity. Ergonomic and health risks are to be considered. The designers shall identify risks both in terms of practical ways in which the PC is required to construct, which could increase risk the Client across the construction life cycle. Mitigation outcomes are to be included in any HIRA attached to the PC documentation that shall include assessment of products specified, with alternative approaches chosen. Designers shall include HIRA in reports to the Client design meetings. The BRAs at PC and Client levels may be amended from time to time. The CHSMs / CHSOs shall attend the Client and PC / design meetings and will ensure that feedback is provided and add value to all parties where possible. The CCHSR may assist at all levels if and when necessary.

The Contract Manager and or designated Resident Engineer/ CCHSR / CHSO including the RW designer Representative must be informed of all design changes, for acceptance and review of the BRA prior to implementation. In addition, CCHSR /or Pr CHSA and CHSO must be informed of these changes to incorporate in the BRA prior to implementation.

Updated risk assessments and related documentation need to be completed on acceptance of the designs. The CCHSR will provide amended BRAs and PSSHES where appropriate. The CCHSR shall be included in and attend Client / PC design meetings.

Failure to comply will be noted as a serious offence

- Designer: Temporary Works

All designers of temporary works must ensure that:

All temporary works are adequately designed so that it can support all anticipated vertical and lateral loads that may be applied. These designs must be done with close reference to the structural designed drawings issued by the contractor, and in the event of any uncertainty consult the contractor. In addition, all drawings and calculations pertaining to the design of temporary works are kept at the office of the temporary works designer and are made available on request by an inspector, and the loads caused by the temporary works and any imposed loads are to be clearly indicated in the design.

For the application of the construction work permit, the appointment of the temporary works designer may be required depending on the construction program.

All load bearing temporary works to be inspected before, during, and after pouring as well as daily until stripping by a competent person who has at least NQF level 6 qualifications in structures or related fields and at least 5 years work experience.

Guidelines on Construction Regulations 2014 published by Department of Labour indicate that:

Regulation 12 (1) is a three functions competent person(s) appointment. The temporary works designer could be one person or different persons to design; inspect and or approve [read with Regulation 6(g); (h) and (i)].

Failure to comply will be noted as a serious offence

- **Health and Safety Representatives and SHE Committee**

SHE Representatives are to be appointed following the start-up of the project, to be made up from both permanent and temporary employees. Representatives from local labour can be appointed as SHE Reps or Committee members to represent such labour for the duration of the contract. Local labour should not be responsible for OHS duties unless appropriate training has been provided and the CHSO deems such labour competent to do so. Development in OHS of such labour would be an advantage to the community and the PC. SHE Representatives are to be actively involved and serve on the SHE Committee.

The CHSO shall ensure there is an SHE Committee made up of appointed active key site staff and OHS Representatives, representing each work area, including all Contractors. Meetings will be held at least quarterly and

more frequently if so instructed. Issues arising from the client audits are to be discussed, as well as all OHS related issues.

Minutes are to be distributed and discussed among all workers and Contractors and records kept thereof.

- **Appointment of Competent Suppliers**

Suppliers are those organisations who deliver, test, remove or supply material but do not conduct any construction work by definition, but who are required to be managed in terms of access to site, as well as being responsible for specific SHE requirements when on site. The CHSM/CHSO will keep an up to date list of all Suppliers, and ensure that a list of SHE requirements that relate to the activities are available. Site rules in terms of security and induction apply to Suppliers as well as Mandatory (37.2) agreements between parties to be in place. COIDA letters of Good Standing and appointments, registers and certificates for equipment are to accompany the Suppliers employees to site. The PC shall include specific requirements in their PSSHEP, and indicate the type of suppliers and state how the Suppliers will be managed on a day-to-day basis.

Failure to do so will be a serious offence.

- **Appointment of Competent Contractors**

The Principal Contractor is to ensure compliance with at least the Client's minimum standards and all legislative requirements. The same OHS standards required of the PC are to be applied to all Contractors. An index of all Contractors and Suppliers is to be on file and kept updated at all times. The PC is to ensure there is sufficient funding for OHS compliance by each Contractor. The PC to ensure contractors appointed to perform high risk or critical portions of the work have priced for a full –time CHSO to manage the OHS.

The following minimum aspects are applicable to any Contractor appointed:

- The CHSO is to ensure a Contractors appointment and approval of H&S documentation at least seven (7) working days prior to commencing work. In addition, proof of approval of the H&S documentation must be retained.
- No Contractor may work under the PCs Compensation registration number. If required the PC may assist SMMEs with their registration with the Compensation Commissioner. However, such Contractors will not be able to commence work until proof of registration or Letter of Good Standing has been received.
- No work may commence without CR 7(1) (c) (v) and Mandatory (37.2) agreements between parties in place.
- Depending on the work arrangements between the PC and their contractors or the nature of work being conducted by a SC, a full time CHSO must be appointed by the contractor with the larger portion of the work or the contractor who is performing activities that have been identified as high risk by the RW Project Team.

All contractor SHE plan/file approvals are subject to Client's verification before commencing on site.

The following aspects are applicable to Suppliers or short-term works (surveying, repairs, servicing, deliveries etc). Cognisance is to be taken of the level of risk involved and the CHSO is to ensure the level of OHS documentation is appropriate:

- Mandatory agreements in place
- Letter of Good Standing
- Method statements and risk assessments
- Available information relative to:
    - Load testing and registers for cranes or lifting devices
    - Medical certificates of fitness
    - Material Safety data sheets (MSDSs)

Failure to provide written approval of OHS documentation will be considered a serious offense, and could result in aspects of, or all of, the activities being stopped.

3.2.2 Principal Contractors /Joint Ventures

The PSSHES forms an integral part of the Contract, and each JV or PC is required to make it an integral part of their Contracts with Contractors and Suppliers. A PSSHES is to be made available for each level of Contract and each Contractor shall comply as instructed. No contractor may commence work without written approval of the PSSHEP by each PC or contractor when appointing their Contractors.

The PSSHES must be read in conjunction with the OHSA, it's Regulations (as amended) and any other standards relating to work being done, and ensure a minimum of statutory compliance. The information relative to the scope of the project, the works etc. is detailed in the tender document (but not limited to), is to be taken into account when

developing the project specific SHE plan (PSSHEP) and associated documentation. The BRA is to be included, as is a summary of risks identified as attached. However as much of the designs by the PCs were unknown during the amendments, the contents of this PSSHES are recorded as incomplete. Please note the items regarding how design will be managed through the design stages with the CHSM / CHSO.

Continuous design will occur, and where there are design changes, or change in the scope of works, an amended PSSHES may be issued and managed by either the CCHSR/ or Pr. CHSA or the CHSM/CHSO. Where amended PSSHESs are issued, the PC will be required to ensure a resubmission of an amended PSSHE plan for approval. Further to this, the PC must ensure that a similar system must be implemented between all their Contractors.

All activities on the site and all appropriate documentation will be monitored and reported on to the Client, Engineer and PCs. Communication between RW SHEQ/ CCHSR and the PC will be through the Engineer or Engineer's Representative (ER) as determined at the commencement of the project.

If any person **transgresses any CHS site rules, policies or procedures**, the person shall **be removed from site and their site access revoked**. The appropriate employer must follow a process of disciplinary action which shall include re-training/inducting the employee (at the cost of the appropriate employer) and provide proof thereof to the RW PM for review prior to allowing the person to resume duties. The RW SHEQ Representative, Pr. CHSA, CHSM or CHSO may impose penalties on any other person where such transgressions were overlooked by colleagues and supervision.

Design method statements and activity based method statements are required throughout the project, and are to be linked to risk assessments and training. The CHSMs and/or CHSOs will be included in all operational planning to ensure optimum CHS compliance and risk mitigation.

The appointed PC is to ensure their own and contractors site organograms are kept up to date throughout the project. Organograms are to reflect the statutory references.

Failure to comply will be noted as a serious offence

4. Hours of Work

The hours of work for the site are:

- Mon- Fri **(07h00 – 17h00)**

All work conducted on site shall be in accordance with the Basic Conditions of Employment Act.PCs are required to timeously notify their RW PM/Agent of any work that needs to be performed after **hours**. Application forms for working after hours including breakdown/emergency projects can be acquired from the PMs. Also refer to Environmental Authorisation Conditions, as these may supersede any other document.

Failure to comply will be noted as a serious offence

5. RISK MANAGEMENT

The aim of this section is to:

- Highlight the construction site SHE risks and hazards (Reference must be made to the EIA, EMP, Environment Authorisations and the client/agent's baseline risk assessment).
- Request the Principal Contractor/s and his/her subcontractors to identify hazardous and potentially hazardous work operations. The principal contractor needs to demonstrate that the site hazards and the contractor's activity risks and the mitigating measure have been considered in his risk assessments.
- There must be method statements and written safe work procedures for all the Contractor activities. Method statements and Risk Assessments should be available as per the construction programme. In addition both of these documents are to be comprehensive and aligned to one another.
- Where there are scope changes, the risk register and the SHE plan must be revised in consultation with the project team.
- Method statements and risk assessments are to be used in all DSTI activities. Records for all activities are to be kept that will be verified during auditing / inspection processes.
- Emerging risks and hazards must be managed during construction work.

Activity based risk assessments must be conducted by an appointed and competent person of the Principal Contractor.

Preliminary hazard identification shall be conducted by the Principal Contractor prior to work beginning on site.

A risk management plan / procedure must be developed and implemented to clearly demonstrate how the risks identified on site will be managed. A detailed risk assessment methodology must be included in the plan/ procedure and this plan /procedure must be kept in the SHE file and be available for inspection by any authority/ RW Representative / CCHSR.

A. Site Specific Health and Safety Hazards

In complying with the requirements of Regulation 5(1) (a) of the Construction Regulations of the OHS Act, the Rand Water Site/ Project Manager, Relevant Site Risk Control/SHEQ team and design team that will outline the site specific health and safety hazards pertaining to the environment and physical conditions that the contractor will be exposed to in performing his work on site.

This section shall be reviewed by the Project Manager, the client and/or agent and design team to make it project/site specific.

The Rand Water Project Manager will make all reasonable efforts to ensure that the information provided is complete and correct. However, the Principal Contractor shall make his own assessment of the hazards and risks associated with the work under the Contract.

The **Baseline Risk Assessment is attached to this SHE specification** in order to make potential Contractors aware of the hazards:

It is however pointed out to the Principal Contractor that the list may not be totally comprehensive and it is the duty of each Principal Contractor to ensure that all the hazards are identified, before and during the project, and the necessary activity-based risk assessments are carried out. These risk assessments shall form part of the SHE Plan which will be passed on for scrutiny and approval by both the Client/Agent's representative and/or the Relevant Site Risk Control/SHEQ team.

During construction work, the Principal Contractor, his sub-contractors or the Rand Water Representative may identify emerging hazards and risks. For each such newly identified hazard or risk, the Rand Water Project Manager/Agent shall review the baseline Risk Assessment and the relevant section(s) of the SHE specification. The revised SHE specification and baseline Risk Assessment shall be submitted to the Principal Contractor who will review his own risk assessments and relevant sections of the SHE plan, as well as those of the sub-contractors. The Principal Contractor will prepare and submit to the Rand Water Project Manager/Agent, both documents for approval.

The Principal Contractor and his subcontractors shall not proceed with the work/operation in hazardous areas until the Client/Agent's representative has reviewed the Risk Assessment and has approved and signed the revised SHE plan and issued a valid permit to work.

The Contractor shall on a daily basis and for every task to be performed, conduct a pre-task risk assessment with all employees involved with the task(s). The pre-task risk assessment will form the basis of the daily pre-job brief/toolbox talks prior to the start of work. Proof of communication as well as confirmation that it was received and understood by all will be noted on a standard form, which will be kept at the job site during the job execution. The completed signed pre-task risk assessment form will be filed in the Principal Contractor's SHE file.

Additional Site Specific Risks

- **Limited work space & existing services**

There is limited workspace due to the infrastructure that has already been constructed. Work is to be planned appropriately to ensure that work activities do not overlap and employees are allowed as much space as possible to perform work. The PC must also take note of the existing services around the site. Care must be taken to ensure that they are adequately protected and not damaged during the work.

- **Dry vegetation surrounding the area**

Area surrounding the site may have dry vegetation. The PC must ensure that risk assessments and inspections are conducted to identify potential risks and ensure that the area is fumigated. Training and awareness on insects, bees and snakes bites must be done to prevent incidents.

Additionally, Principal Contractor must review relevant risk assessment when an incident has occurred as contemplated in (OHS ACT – CR 9(7)(b) and submit for approvals.

B. COVID 19

Coronavirus Disease 2019 (COVID-19) is a respiratory disease caused by the SARS-CoV-2 virus. To reduce the impact of COVID-19 outbreak conditions on Rand Water projects, contractor employees, client representatives, visitors and members of the public, it is important for all contractors to adequately plan for COVID-19.

Contractors shall make sure that they plan for COVID-19 appropriately by identifying all its related risks in their respective workplace settings and determining the relevant control measures to implement. As the COVID-19 outbreak conditions are constantly changing, the contractor must ensure they have access to new information on the virus, its transmission, and impact and make this information available to all employees. All COVID—19 related plans and risk assessments must also be modified accordingly.

NB: To access new and relevant information on COVID-19, the contractor shall regularly check the websites of the National Department of Health, National Institute of Communicable Diseases and the National Institute for Occupational Health whether any additional PPE is required or recommended in any guidelines given the nature of the workplace or the nature of a worker's duties.

To support the national strategies to being implemented by the government in relation to prevention and management of COVID-19, the following is expected from the contractor:

- Full compliance is required with the legislation governing workplaces in relation to COVID – 19, i.e. the Occupational Health and Safety Act, Act 85 of 1993, as amended, read with the Hazardous Biological Agents Regulations. Section 8 (1) of the Occupational Health and Safety (OHS) Act, Act 85 of 1993, as amended, which requires the employer to provide and maintain as far as is reasonably practicable a working environment that is safe and without risks to the health of employees. Specifically, section 8(2)(b) which requires steps such as may be reasonably practicable to eliminate or mitigate any hazard or potential hazard before resorting to personal protective equipment (PPE).

- Full compliance with the COID Act where the Compensation Commissioner requires all employers to assist employees with claims through their respective COIDA Insurers providing for any employee who falls ill through the exposure to Covid-19 at their workplace.

- Full compliance with the COVID-19 Occupational Health and Safety Measures in Workplaces COVID-19 (C19 OHS), 2020 directive published by DOEL on 28 April 2020 (sent as an attachment with this memo).

- Full compliance with any guidelines issued by the National Department of Health (NDoH), National Institute of Communicable Diseases (NICD) and the National Institute for Occupational Health (NIOH).

Submission of a staff list, COVID19 Risk Assessment and a detailed Health and Safety implementation plan for the safe re-activation of the applicable site that must be approved by RW SHEQ Representative and the Project Manager on the project. The Construction Manager takes full responsibility and accountability of the implementation of the Covid-19 plans. The latter two documents are independent from the existing SHE Plan and Risk Assessment in use for the project but must form part of the existing SHE management system. An in depth analysis of each risk associated with the virus and actions required to mitigate all such risks must be clear and concise [refer to Workplace Preparedness: COVID-19 (SARS-CoV-19 virus) Coronavirus – A Practical Guide for Employers documents from Department of employment and Labour (DOEL)].

Due COVID-19, no overtime will be allowed or approved during the lockdown levels unless it is an emergency or impacts health and safety.

Examples of these risks will include but will not be limited to:

- Travelling to work – public transport – exposure to the virus;
    - E.g. Social distancing should be maintained in provided transport and should it be filled at 70% capacity or as required by the relevant legislation
- Older employees or employees with chronic diseases;
- Site access by non-employees;
- Poor personal hygiene practices on sites;
- Unhygienic facilities such as offices, toilets, canteens etc.;
    - E.g. Ablution facilities should be cleaned and disinfected regularly and a cleaning log sheet kept and maintained.
- Inadequate PPE;
- Poor ventilation;
- Site meetings and;

- Tracing of infected employees
- Unhygienic accommodation provided for employees

Before work resumes after intervals of lockdown levels, contractor is required to prepare the site with key personnel to make the site safe for his employees. Ensure employees required to work are fit to work without any chronic conditions or compromised immune systems.

Absenteeism and sick leave shall be managed as per the basic conditions of employment or any legal document gazetted in light of the COVID19 pandemic.

All contractor sites and offices shall focus on the following recommended health & safety measures but shall not limited to:

- Temperature Screening of all employees including visitors on a daily basis. (NB: Where an individual has been noted to have a body temperature equal to or higher than 38^{o}C, they should be given 30 minutes to cool off before being retested to confirm the result); A log book for the daily screening shall be maintained.

- Handling of COVID-19 - related cases in the workplace including a provision of a quarantine room for suspected / confirmed cases on site;

- Influenza vaccine to help build immunity against the common flu and or multivitamin supplements to boost their immune system;

- Management of COVID-19 waste;

- Low population density for work arrangements/ break intervals such as lunch and tea to facilitate social distancing;

- Rotation of office staff or work teams to minimise contact;

- Required COVID-19 training and education on PPE use including the training on the use of the thermometer facilitated preferably by a health professional; awareness on COVID-19; induction material to include COVID-19 etc.

- Use of essential PPE including masks and gloves;

- Person(s) screening (Testers) to be provided with proper masks (N95, or surgical or FFP2 mask); face shield and disposal suit.

- Facilities for handwashing and sanitizing;

- Facility for isolation / quarantine of suspected cases

- Regular cleaning and disinfection of surfaces and common areas such as kitchens, eating areas etc.

- Mobile Flushing Toilets with running water for hand washing

- Signage/notices displayed for COVID-19;

- Flexible work arrangements shall be allowed for employees that are ≥60 years old and those with compromised immune systems and comorbidities.

- Medical surveillance/renewals to include COVID 19 testing/ screening, and

- SHE Committee meetings to include the management of COVID-19 as an item on the agenda or the establishment of a Covid-19 task team to provide feedback to this meeting will be supported. Social distancing & precautionary measures to be considered with any meeting arrangements. Virtual communications are encouraged for meetings where possible to minimise human contact.

- NB: All contractors shall be expected to submit a COVID 19 report to Rand Water on a weekly basis and to immediately report any suspected / confirmed cases.

The detailed table below of the Covid Risks and implementation plan that is proposed by the Construction Covid-19 Rapid Response Task (CCRRT) for all construction companies and built environment professional service provider companies intending to go back to work must be used when developing COVID-19 plan and risk assessment.

Risk	Mitigation Plan	Responsibility
Travelling to work – public transport – exposure to the virus	• Office support staff to remain working from home • Contractors to transport staff from a designated place • Where not possible to avoid, use of public transport to comply with the transport limitations • Provide employees with information on the virus and precautions to take during travel i.e.: - If possible, maintain social distancing (at least 2 m) between yourself and anyone else when travelling - Frequently clean hands by using alcohol-based hand rub or soap and water - Avoid touching eyes, nose or mouth - Always wear a suitable face mask • Cancel travel for employees experiencing symptoms of the virus • Regular testing of body temperature	Contractor
Site access by non-employees	• Stop all non-essential visitors. • All employees and non-employees to be screened with non-contact thermometers. • All non-employees visiting the site must complete a site access register that includes their contact details in case they will need to be traced at a later stage. • Body temperature check with thermometer upon employee's arrival as well as departure. • Introduce staggered start and finish times to reduce congestion and contact at all times. • Take body temperature of anybody stepping on or stepping off site • Monitor site access points to enable social distancing • Change the number of access points, either increase to reduce congestion or decrease to enable monitoring. • Disinfectant is to be placed in the trough and all shoes coming onto site or leaving site will be disinfected. • Remove or disable entry systems that require skin contact e.g. fingerprint scanners or biometric system. • Require all workers to wash or clean their hands before entering or leaving the site. • Allow plenty of space (two metres) between people waiting to enter site. • Regularly clean common contact surfaces in reception, office, access control and delivery areas e.g. scanners, turnstiles, screens, telephone handsets, desks, particularly during peak times.	Contractor

Risk	Mitigation Plan	Responsibility
	• Reduce the number of people in attendance at site inductions and consider holding them outdoors wherever possible. • Drivers should remain in their vehicles if the load will allow it and must wash or clean their hands before unloading goods and materials.	
Poor Personal Hygiene on sites	• Provide additional handwashing facilities to the usual welfare facilities if a large spread out of site or significant numbers of personnel on site. • Provide misting hand sanitizers in all strategic places on site. • Ensure soap and fresh water is always readily available and kept topped up. • Provide hand sanitiser where hand washing facilities are unavailable. • Regularly clean the hand washing facilities and check soap and sanitiser levels. • Provide suitable and enough rubbish bins for hand towels with regular removal and disposal. • Sites to have extra supplies of soap, hand sanitiser and paper towels and these will be securely stored. • Non-compliant employees will face disciplinary action in order to safeguard	Contractor and Employees. Applicable in part to off-site Office based work being done by Professional service providers as well
Unhygienic facilities such as offices, toilets, canteens etc.	**Toilets:** • Restrict the number of people using toilet facilities at any one time. • Employees to wash hands before and after using the facilities. • Enhance the cleaning regimes for toilet facilities particularly door handles, locks and the toilet flush. • Portable toilets should be avoided wherever possible, but where in use these should be cleaned and emptied more frequently. • The provision of flushable toilets where possible. • Provide suitable and enough rubbish bins for hand towels with regular removal and disposal. **Offices and canteens:** • The workforce should also be required to stay on site once they have entered it and not use local shops. • Dedicated eating areas should be identified on site to reduce food waste and contamination. • Break times should always be staggered to reduce congestion and contact. • Hand cleaning facilities or hand sanitiser should be available at the entrance of any room where people eat and should be used by workers when entering and leaving the area. • The workforce should be asked to bring pre-prepared meals and refillable drinking bottles from home. • Workers should sit 2 metres apart from each other whilst eating and avoid all contact. Eating facilities should be redesigned to accommodate this requirement.	Contractor and employees

Risk	Mitigation Plan	Responsibility
	• Where catering is provided on site, it should provide pre-prepared and wrapped food only. • Payments should be taken by contactless card wherever possible. • Where only cash can be used, the usual hands cleaning and with sanitizers and soap should be observed. • Crockery, eating utensils, cups etc. should not be used. • Drinking water should be provided with enhanced cleaning measures of the tap mechanism introduced. • Tables should be cleaned between each use. • All rubbish should be put straight in the bin and not left for someone else to clear up. • All areas used for eating must be thoroughly cleaned at the end of each break and shift, including chairs, door handles, vending machines and payment devices.	
Inadequate PPE	• No employee on site without adequate and relevant PPE. • Re-usable PPE should be thoroughly cleaned after each single use and not shared between workers (e.g. overalls, reflector vests etc.) • Single use PPE should be disposed of so that it cannot be reused into biohazard bins.	Contractor
Poor ventilation	• Increase ventilation in enclosed spaces	Contractor
Site meetings	• Only necessary meeting participants should attend. • Attendees should be two meters apart from each other. • Rooms should be well ventilated / windows opened to allow fresh air circulation. • Consider holding meetings in open areas where possible.	Contractor
Tracing of infected employees	• The necessary systems will be implemented to trace employees that are infected. • Register with details of employees Contacts (family, people living with, etc.) to be available on site. • The system will also enable the tracing, identification and quarantining of people who came into contact with the infected employee.	Contractor & Consultants (through government)

6. PROJECT SPECIFIC RISKS IDENTIFIED

Internal regulations and procedures of RW and relevant legislation are to follow the principles of a **zero harm** approach to workers and the environment. These rules will be specific to the Project. Further RW Site specific rules will be highlighted during induction training. It is expected that over 15 workers may be on site at peak construction.

For the purposes of this amendment to the PSSHES PCs shall take cognizance of the requirements and ensure that method statements, risk assessments and appropriate aspects of the organizational documentation are added. The additional information that may be required from time to time is to be submitted following further amendments prior to activities being able to commence. RW, and PCs Technical staff and CHSMs / CHSOs are to work together to complete the requirements as they relate to the project.

A Permit system is required for all medium and high risk activities, and competent resourced Contractors are to be used if PCs are not doing the work themselves.

The aspects included herein include the residual risks, related to the activities noted in the Bill of Quantities and the tender documentation, and project specifications. The items noted and included have been simply quantified, and are deemed, if applied, to reduce the risks identified by between 50-75% where the extra control measures are applied. The PCs are to note the extra control measures and expand upon them when considering their own activity and the appropriate risk mitigation.

6.1 Site Establishment

The PC to use allocated area identified as their site camp area and to ensure that potable water and electricity is supplied. Site establishment method statements and detailed risk assessments are required for each activity to be completed linking to the construction programme.

Details regarding management of Contractors and Suppliers are contained within the body of the PSSHES. Competent, resourced Contractors are to be used, with an SHE plan approval lead time of 7 days prior to Contractors being able to commence work.

It is expected that PCs and Contractors will respect each other's work spaces and operations and communicate with each other to arrange work where there are overlaps or adjacent activities.

6.2 Excavations and Backfilling

Prior to construction commencement, topsoil will be stripped and stockpiled from the spoils material for rehabilitation purposes. Technical method statements linking to the HIRA are to be created for each activity and guide the excavation processes needed for the connections to sewage, electrical supply, cable laying or potable water, as well as box cuts for foundations of each of the structures. Some excavations are likely to be up to 1,5meters. Slopes of excavations are to be carefully considered and close monitoring of conditions is required

As far as possible excavations for pipes, cables or similar should not be open for more than a day. No danger tape is allowed to be used for excavation demarcation. Excavations shall be protected using rigid fencing and / or snow netting or plastic mesh as necessary. Competent supervision is required, with experience in the type of excavations to be done. Registers and inspections are to be completed according to organisational standards and procedures. Appropriate signage and PPE as outlined in the HIRA are to be provided.

General housekeeping is to be controlled by each site supervisor / team leader. Areas used for stacking and storage are to be noted on a plan, and appropriately maintained. Poor housekeeping will not be tolerated and a 'clean as you go' approach is to be adopted.

Dust suppression and silica monitoring, during all activities that include cutting and grinding of any cement, grouts etc., as identified by the CHSMs or CHSOs for each PC. Method statements, SWP and DSTIs are to be part of daily activities and each task planned.

6.3 Geotechnical Report/Blasting and Drilling

The geotechnical investigations for the pipeline route have indicated that blasting may be expected on certain portions of the total pipeline length.

The contractor will, prior to commencement of blasting operations, conduct hazard identification and risk assessments related to all the drilling and blasting processes. Strategies to deal adequately with the risks will be developed and submitted to the Engineer.

In addition to baseline risk assessments, issue based and continuous risk assessments should be carried out during the period of the contract.

The contractor must be fully competent in the processes associated with blasting trenches in close proximity to other services.

The contractor will evaluate and demarcate safety zones for each blast and take measures to minimize/control fly-rock so as to prevent injury to people and animals as well as damage to equipment and services.

6.4 Construction of Site Facilities

Offices, ablutions, laboratory and dining facilities will be constructed during site establishment. Temporary works are to be managed by a competent person, all designs will be signed off by the designer and erected and maintained by

competent appointed persons. The SANS 10085 is to be applied for all access scaffolding and any other Standards where appropriate.

Temporary ablution facilities are not to include formaldehyde products, and a ration of 1:10 is advised. It is preferable that a bacterial product is used.

6.5 Hazardous Chemical Substances

The following list of substances is likely to be used, but each PC is to compile a list from the specifications provided by their Designers and Contractors and ensure the Safety Data Sheets (SDSs) are obtained and included in all HIRAs. The link to medical surveillance or health risks is to be included, and included in OREPS and the Annexure 3.

PRODUCT	POTENTIAL HEALTH OR OTHER RISKS
Cement	Hand mixing may occur, will be used for structures, stabilizing. 50kg bags delivered on pallets, ergonomic risk from handling, dust exposure, chromates. Eye, skin and respiratory irritant
Shutter Oil	Usually hand application prior to placing formwork in position. Volatiles present. Skin and respiratory irritant.
Micron Polyethelene Membrane	Skin burns, lung damage, cancer or mutations. Skin and respiratory irritant.
Mastic sealant	Dehydration, hypothermia, and frostbite
Petrol/diesel/lubricants	Storage tanks/ bowsers on site. Fire, spillage, fumes
Creosote (pre-treated poles)	Eye and skin irritation and minor burns, carcinogen
Argon gas	Asphyxiation, breathing difficulties, blackening on the edges of vision, fatigue, numbness, unconsciousness Raptures and explosive. Fumes created by the melting of metals, however, are known to cause short-term health effects such as respiratory irritation, dizziness, chronic cough, suffocation
Epoxies and epoxy resins	Type not specified, but will be used. Principal Contractor to ensure use of SDSs and appropriate protection measures
Coatings	Type not specified, but will be used. Principal Contractor to ensure use of SDSs and appropriate protection measures
Grouts	Will be determined by the Principal Contractor; various grouts will be required, cementitious or other, may contain silica (crystalline - quartz), hexavalent chromium, respiratory, skin and eye irritant

6.6 Ergonomics and Occupational Health

Ergonomic factors need to be considered during all stages of construction. Limited working spaces, lifting heavy loads, and repetitive work, while synonymous with construction, are to be considered a high risk and mechanical aids and the hierarchy of control are to be considered and applied. Heavy componentry confined working spaces and installation requirements are to be considered and mitigated where possible. Where a design issue exists, the client is to be approached to consider alternatives. Method statements, HIRA and DSTIs are to include ergonomic and health issues.

6.7 Working on Fall Risk Positions

A competent fall protection planner must be appointed. A safe working platform should be erected or anchor points must be made available for fall arrest or fall prevention equipment. Proper signage should be installed to warn employees of fall risk positions. Employees must have been trained on fall risk positions/working at heights. Housekeeping must be done regularly to prevent trips and falls.

6.8 Hot Work

All welding, cutting and grinding equipment and machinery shall be inspected daily before use. Supervisor shall be appointed to oversee the work. Fire precautions and adequate ventilation shall be ensured at all times.

6.9 Confined spaces

Working inside chambers is considered a confined space and toxic gases may exist. The PC shall inspect and monitor the oxygen concentrations of the air and provide suitable means of ventilation should the oxygen concentration not be at the acceptable levels. All persons entering the confined space shall be adequately trained on work in confined spaces, the risk assessment as well as rescue measures in cases of emergency. This will apply only if entry is made into the confined space.

Registers and inspections are to be completed daily. Appropriate signage is to be posted and controls as outlined in the HIRA are to be implemented. Oxygen monitoring to be done at regular intervals on a daily basis.

NB: Only competent personnel will be allowed to enter the confined space to perform tasks due to limited space.

6.10 Mobile Plant and Equipment

This project involves the use of mobile plant and equipment such as excavators, compactors and TLBs. The PC must ensure that an Emergency Plan is put in place. Employees working with mobile plant and equipment must be competent and fit to work under the conditions. A traffic management plan must be put in place to ensure the safe movement of mobile plant and equipment on site.

Mobile plant and equipment on site shall be regularly serviced and maintained to ensure they are in good working order. Operators shall do daily checks of their plant and equipment. Operators shall be allowed regular breaks to prevent fatigue.

6.11 Working in or on structures

Existing or new structures on site may collapse; the PC must take steps to ensure that any uncontrolled structural collapse is prevented. Drawings of structures are to be kept on site. Inspections of structures must be done regularly by a competent person. The PC must have a Fall Protection Plan in place and must provide employees who are required to work on structures with the relevant fall prevention and fall arrest equipment.

6.12 Lifting Equipment

A crane will be used on site. The operator of the crane must be certified competent. A daily inspection checklist should be completed. 6 monthly performance load test certificates must be valid and available. Quarterly inspection certificates of lifting tackle must be available. A method statement must be available. The rigger must be trained and found to be competent.

6.13 Traffic Management

The pipeline route traverses Vischgat Road, Maribou Main Route (R54), Heidelberg-Nigel (R40), Essexworld Road and Hewitt Road by means of Pipe jacking. Traffic accommodation will need to be carefully planned during the construction work in these areas. The contractor is to contact the applicable Roads Department in writing to ensure that they are aware of the work taking place and submit and receive written approval from the departmental and local authority for any safety plans and requirements before any construction activity can commence. Special care needs to be taken in these areas because it may include 24-hour traffic control. The contractor must at all times comply with the way leave conditions that are relevant.

Gravel and minor roads will be crossed by means of open cut.

A traffic impact assessment with respect to this project needs to be undertaken by the contractor.

Traffic will be affected at intersections along the pipeline route and various roads. Mitigation measures to minimize the impacts must be identified and implemented during construction.

6.13 Substance Abuse

The PC should implement methods to prevent employees who are under the influence of alcohol or drugs from entering the site and performing any work. Daily breathalyser testing should be carried out and recorded by security.

6.14 General Items

- Planning for access needs to coincide with the RW internal induction programmes and requirements for medical certification of fitness;

- Access to site will involve routes through residential areas, industrial area, mining area and the protection of the public and private assets is to be considered at all times, including dust suppression and traffic controls according to the SARTSM;

- Weather extremes may be experienced in winter and summer. Humidity levels are unlikely to be a concern, but the Discomfort Index (DI) is to be calculated and taken into consideration. Where a DI of 105 is likely, alternative working hours can be suggested to limit work during the hours of 11hoo and 14h00. Snow is unlikely, but temperatures may dip below zero in winter. A weather device is to be installed by the PC is indicate in a procedure how workers will be protected from such extremes; Wind speeds typical range from light to moderate breezes, and this factor must be taken into consideration during crane operation.

- Working hours are to be within the labour relations legislative confines. Procedures for working overtime are to be available, and where extended concrete pours are likely or other such activities, these must be well planned, incorporate shift changes and any other aspects that will keep workers safe;

- Project interfacing. Each PC is expected to ensure that their activities do not overly impact on other PCs. Co-ordination of activities is to be discussed with the Engineers and RW to ensure limiting the risks;

- No key staff may be removed during the decommissioning stages of work, snagging or site de-establishment. Competent supervision will be required at all times, and

- On-going Baseline and design risk assessments will be done for each PC as the work progresses.

7. MANAGEMENT OF ALCOHOL AND SUBSTANCE ABUSE

No person (employees, Contractors, consultants, visitors) shall report for duty or continue with his/her duties, if under the influence. No person may consume or have in possession alcohol or drugs/controlled substances while on the project site.

The PC is to implement a Zero tolerance approach regarding alcohol or drug consumption whilst on duty, or off duty consumption that can still be detected upon reporting for work, or any other consumption that can be detected whilst on duty. Employees, Contractors, consultants or visitors shall comply with any reasonable request to undergo alcohol testing.

The legislative alcohol level is deemed to be zero. Test records must be treated as confidential and file in employee personal files.

8. SAFETY, HEALTH AND ENVIRONMENTAL INCENTIVES

For all projects of duration greater than 12 months, the PC shall implement the SHE incentive programme that has been determined by Rand Water to encourage good health and safety practices on site. The programme shall be used to encourage people to follow health and safety procedures; reward those who achieve outstanding health and safety performance; reward those who actively support a good culture on site; encourage participation in safety initiatives such as surveys; encourage, reward and reinforce specific safe behaviours.

Every 6 months, RW SHEQ shall determine which PC shall be awarded a certificate for SHE performance based on:

- Zero disabling injuries in a 6-month period
- Highest number of near misses reported in the Capital Execution Department for projects in a 6-month period
- Contractor/s with an overall non-conformance closure rate of 6 days within a 12-month period

After a PC has attained a total of 3 certificates within a 12-month period they will qualify for a monetary reward as determined in incentives table below:

The PC must ensure that the reward scheme is communicated fully to workers and that everyone knows what it takes to achieve a reward and what observers will be looking for. The incentive scheme must be part of the site daily

routine to encourage participation and must focus on rewarding observable safe behaviours and not unsafe behaviour. All PC employees must be included in the programme.

In addition to the RW incentive programme, principal contractor can also implement their own incentive programme where employees and supervisors are recognised for their individual SHE performance on site

9. COMPLIANCE

All parties on site are to comply with legal and other requirements as part of the contract. Expenses which result from compliance with this legislation as well as other requirements specific to the site, will be for the PC or Contractors account. Where there are major and / or repeat SHE deviations, the Client or Agent will impose the necessary penalties as per the contract document and/ or the PSSHES as described.

Should the Principal Contractor appoint a sub-contractor, the Principal Contractor would then have the same role and responsibility in relation to the sub-contractors, in a similar way as the Client has in relation to the Principal Contractor.

The requirements within this specification should not be considered to be exhaustive and the Client/Agent reserves the right to add, delete or modify conditions where it is considered to be appropriate.

No claim will be accepted as a result of any costs or delays being incurred due to the Principal Contractor or his sub-contractors not complying with legislation, this PSSHE specification or their PSSHE plan approved by the Client/Agent.
Additionally, no claim will be accepted as a result of any costs or delays being incurred due to pending Client permit approvals from DOL or other government bodies.

8.1 Legal Compliance

The following legislation has been identified, but is not limited to, potentially having an impact on the project:

- Agricultural Pests Act 36 0f 1993;
- Basic Conditions of Employment Act No. 75 of 1997 (as amended);
- Constitution of the Republic of South Africa (Act 108 of 1996);
- Conservation of Agricultural Resources Act (Act 43 of 1983);
- COID Act 130 of 1993;
- Disaster Management Act (Act 57 of 2002);
- Employment Equity Act No. 55 of 1998 (as amended);
- Environment Conservation Act (Act 73 of 1989);
- Fencing Act(Act 31 of 1963);
- Hazardous Substances Act (Act 15 of 1973);
- Health Act (Act 63 0f 1977);
- Labour Relations Act No.66 of 1995 (as amended);
- Mineral and Petroleum Resources Development Act (Act 28 of 2002);
- National Building Regulations and Building Standards Act 103 of 1977;
- National Environmental Management Act (Act 107 of 1998);
- National Environmental Management: Waste Act 59 of 2008;
- National Environmental Management: Air Quality Act 39 of 2004;
- National Environmental Management: Biodiversity Act 10 of 2004;
- National Environmental Management: Protected Areas Act 57 of 2003;
- National Forest Act (Act 84 of 1998);
- National Road Traffic Act (Act 93 of 1996);
- National Water Act (Act 36 of 1998);
- National Veld and forest fire Act (Act 101 of 1998);
- Occupational Health and Safety Act (Act 85 of 1993) and its Regulations;
- Water Services Act (Act 108 of 1997);
- Any other applicable South African legislation at a national, provincial and local authority level;
- Applicable South African National Standards (SANS);
- Applicable international standards;
- ISO 9001:2008 –Quality Management Systems requirements;
- ISO 14001:2015 –Environment Management Systems requirements;
- ISO45001: 2018 – Occupational Health and Safety Management System Requirements
- National Key Points Act (Act 102 of 1980), and
- Applicable By-laws.

- Guidelines and directives issued by the DEL and NDoH

The PCs shall compile their own lists of all applicable legislation and standards that may have an impact on the scope of work that they are performing on the construction project. The list shall be updated on a regular basis.

8.2 Non Conformances / Work Stoppage

The Client/Agent's representative reserves the right to stop work and issue a work stoppage non-conformance report whenever safety, health or environmental violations are observed for both Principal Contractors and/or their sub-contractors. Expenses incurred as a result of such work stoppage and standing time shall be for the Principal Contractors account. Any non-conformances/findings/observations found in these audits/inspections on sub-contractors shall be raised and discussed with the relevant Principal Contractor (with whom the sub-contractor is contracted with).

The conditions that lead to work stoppages are based on:

- Management of change – this is when there are changes to the work environment (e.g.: climatic changes) and/construction work (e.g.: modifications to the design), in any phase of the construction project, and/or amendments with regards to Rand Water rules and regulations and/or legislative amendments;
- Unsafe acts/behaviours;
- Unsafe conditions;

The process to be followed to ensure the worksite is rendered safe:

- The relevant activity must be stopped;
- The Rand Water site/project manager and/or Principal Contractor and his subcontractors shall immediately remove the workforce from the work area and correct the health and safety or environmental deficiencies by allowing only the people in the area that are competent to make the area safe.
- Principal Contractor and his subcontractors shall ensure that no other work is being performed during this time. Should the estimated time from the outset to make the area safe where life threatening/imminent danger situations exist, then the area will be barricaded and a sign placed with the wording "Unsafe Area – Authorized Access Only".
- The Rand Water Site/Project Manager shall review the affected parts/sections of the SHE specification with the purpose of providing sufficient SHE information to the principal contractor when necessary.
- The principal contractor shall then revise the relevant sections in the SHE plan to accommodate the changes.
- The Rand Water Site/project manager must ensure that the revised provisions in the SHE plan are adequate and must approve it before the work activity is commenced.

Before the workforce is allowed back in the area, Principal Contractor and his subcontractors shall ensure:

- Investigation of the work stoppage and the area is to re-inspected by Contractor Safety Officer and supervisor and corrective actions taken documented on the work stoppage form;
- Sign off of the "Work Stoppage report" issued by the Rand Water Site/Representative/SHEQO to declare the area/activity/person/plant/or equipment safe for work.

Refer to requirements of Construction Regulation 5(q) of the OHS Act.

8.3 Penalties

The Client, SHEQ Representative / Pr. CHSA , ECO or anyone observing an unsafe act or practice reserves the right to stop work, and issue non-conformances when SHE violations are observed, for both PCs and/or their Contractors. Expenses incurred as a result of such work stoppage will be for the PCs account.

Penalties shall be enforced on the principal contractor for SHE related non-conformances identified for both the Principal Contractor and/or his/her sub-contractor(s) and/or supplier(s) pertaining to Rand Waters SHE requirements.

Penalties applied will be according to the following tables and where issued, the amount indicated on the non-conformance will be deducted from the certificate of the PC. Failure or refusal on the part of the PC or their Contractors to take the necessary steps to ensure the safety of workers and the general public in accordance with these specifications or as required by statutory authorities or ordered by the engineer, shall be sufficient cause to apply penalties.

In cases where a penalty has been issued and the contractor provides reasonable evidence to support the non-issue of the penalty, the client / CCHSR may withdraw the penalty.

DELAYS ON ITEMS ATTRACTING PENALTIES	<1	≥1<5	≥5<20	≥20<50	≥50
a)SHE non conformances, corrective and preventative actions not resolved within the agreed target dates exceeding 5 days (Rands)	1,000	5,000	10,000	10,000	10,000
b)Non-reporting of incidents and statistics within the shift (Rands)	1,000	5,000	10,000	10,000	10,000
c) Repeat SHE non conformances (Rands)	2,000	10,000	20,000	20,000	20,000
d) Overtime Work without the required approvals (Rands)	2,000	10,000	20,000	20,000	20,000

Over and above the details relating to the penalties noted in the RW SHE Management System, and Tender document, spot fines will be issued as follows, according to 'minor', 'medium' or 'severe' non-conformances.

MINOR:			**MEDIUM**			**SEVERE**		
Value of Contract (Excl VAT.) in millions R			Value of Contract (Excl VAT.) in millions R			Value of Contract (Excl VAT.) in millions R		
<1	≥1<5	≥5<20	<1	≥1<5	≥5<20	<1	≥1<5	≥5<20
Penalty: R5/count			Penalty: R/count and a non-conformance			Penalty: R/count, a non-conformance and/or activity stoppage		
R 10	**R 25**	**R 50**	**R 25**	**R 250**	**R 500**	**R 250**	**R 2500**	**R 5000**
Non-use of PPE supplied			*Toilets not supplied or regularly serviced; lack of drinking water*			*Contractors working without Health and Safety Plan approval*		
Non completion of registers for plant and equipment on site			*Contractors not audited*			*Workers transported in contravention of the OHS plan or legal requirements*		
Lack of H&S signage at work areas			*Working without training or the appropriate, approved H&S method statements*			*Invalid Letters of Good Standing*		
Tools and equipment identified in poor condition during inspections			*Legal non-conformances identified during the previous audit and not addressed within the agreed time frame*			*Non-compliance with traffic accommodation requirements: layout or physical conditions*		
			No monthly OHS report at site meeting to report on			*Any serious breach of legal requirements*		
			No certificates of fitness for workers as required					

Absence of the reference to a possible penalty for non-conformance does not mean one cannot be issued. All aspects will link to legal non-compliance or risks identified in the SHE Specification or work being done at the time. The 2 forms of penalties will be used together, with immediate penalties issued as they apply.

In addition, a time-related penalty of R500,00 per hour over and above the fixed penalty may be deducted for non-compliance to rectify any non-conformance within the allowable time after a site instruction to this effect has been given by the Designer. The site instruction shall state the agreed time, which shall be the time in hours for reinstatement of the defects. Should the Contractor fail to adhere to this instruction, the time-related penalty shall be applied from the time the instruction was given.

Failure to comply with any/all of the above will result in a penalty being issued as indicated in the table. The details of the penalty issued shall be recorded on form SAM SHE 01033 F Notice to Penalise Contractor due to SHE Non-Conformances by the relevant SHEQ representative, signed off by the Project Manager, SHEQ Manager, Construction Services Manager and Programme Manager, and finally approved by MANCO.

10. TRAINING

Training of site personnel in SHE is to be on-going, and where formal training is deemed required, is to be provided, where possible, by accredited training service providers. The CHSM / CHSO is to determine training requirements and to report on needs or completed training in their reports and audits. For appointees that are strategically required on site, but do not meet the minimum competencies, a training plan must be submitted on a monthly basis to reflect progress of meeting the minimum training requirements. In addition, the CHSO must maintain a training matrix for all site employees and to be in line with the skills development plan submitted to RW.

Records of all training, and acknowledgement of such training by attendees must be kept. Comprehensive records of all employees under the PCs control attending induction or any other training throughout the project shall be included. Amendments to statutes, the PSSHES, PSSHEP, policies, procedures, method statements etc. shall require that all those affected shall undergo the relevant re-training.

Labourers from the local community shall not be allowed to perform work unless if they have been informed of the work and if received formal or informal training on the work.

9.1 General Training

All site personnel (at all levels) shall be adequately trained in the type of work/tasks to be performed. The training shall extend to, but not be limited to include relevant method statements, hazard identification and risk assessments, procedures, rules and regulations, and other related aspects. The induction should also include identification of high risk areas or rules. The CHSM or CHSO is expected to use discretion and apply their minds to what is appropriate.

9.2 Ongoing, Pre-Task Training

The PCs are required to ensure that Daily Site Task instructions (DSTIs) are to be completed daily by supervisors and team leaders for each team. DSTIs could be done multiple times during the day if different tasks or activities are done. The CHSMs / CHSOs are to ensure that records are kept of each team and DSTIs completed. The DSTIs are to include relevant method statements, HIRAs, SWPs and Tool box talks as they apply to the activities or tasks.

NB: COVID19 awareness and training shall be scheduled as appropriate in the DSTI's / Awareness on site and where relevant formal / informal training organised for the applicable employees, for example those the will be screening for symptoms.

9.3 Site Induction

The PCs shall ensure that all employees, Agents and Contractors have undergone the Project SHEQ induction programme including a competency test prior to commencing work on site. On-site induction training will be completed by RW and the principal contractor.

Appropriate time must be set-aside for training (induction and other) for all employees. The appropriate Site Induction Request form must be completed by RW PM and submitted to the relevant SHEQ/Risk Control Representative.

All contractor employees on site shall carry the proof of induction training in form of an induction card. Client Induction is valid for a year from the date it was conducted and thereafter refresher induction shall be re-scheduled at least one month before the induction period expires.

The relevant RW site Risk Control/SHEQ Training Officer shall keep a database of all records pertaining to induction and will inform Contractors of pending expiry though the overall responsibility of maintaining current induction cards still lies with the principal contractor. All induction cards issued must be returned on completion of the project to the Issuer.

Note:

- No work shall commence without the required inductions provided by the Client, and
- Client will rearrange for inductions for Contractor employees and re-approve SHE File where Contractor is not on site for more than 1 month.
- The PC shall ensure that service providers and suppliers have undergone the PC induction training
- COVID19 related information shall be included in induction training done for PC & SC employees on site.
- For projects to be undertaken in remote sites and that are not established, the Rand Water induction to be arranged at either at a Rand Water venue or at the Contractor Head Office(s).

9.4 Other Training

All Operators, Drivers and users of construction vehicles, mobile plant and other equipment must be competent and in possession of valid proof of training and experience. All employees in jobs requiring training in terms of the OHSA and Regulations must be in possession of valid proof of training. All records to be kept in the SHE file and kept up to date.

9.5 Visitors to Site

Visitors to the site shall be required to undergo and comply with the Principal Contractor construction site SHE induction requirement(s) and other access/screening protocols prior to being allowed access to site.

All visitors accessing the site for duration of less than 8 hours will undergo a short induction for which they are expected to sign for and be issued with a Temporary Visitors card. All visitors accessing the site for more than one day will undergo

a full SHEQ induction. The parents of children (minors) visiting the site will need to sign a consent form issued by the contractor, prior to them being granted access to the site.

Visitors are to be made of aware of any legal environmental authorisations that exist on site and any relevant aspects that relate to the nature of the visit.

All visitors must remain in the care and custody of a person (Host) who has been properly inducted. No visitors are permitted to undertake any construction work, of any nature.

NB: The PC must ensure the H&S of all persons that are entering and performing work on the project site. This includes all contractors, service providers, Rand Water employees and their representatives and anyone else that is appointed by Rand Water to perform work for the project. Any incident occurring involving such person(s) to be investigated by the PC.

11. SITE FACILITIES

All personnel are to be afforded decent, clean, hygienic facilities at all times. Respect for people irrespective of status is to be afforded to all at all times. General housekeeping, stacking and storage are to be the responsibility of each team supervisor for indicated areas, which are to be noted on a site map or the drawings for the facilities. The responsibilities are to be updated as necessary.

Fixed ablution facilities are to be in accordance with statutory or generally acceptable standards. Separate facilities (sanitary and changing) are required for each gender. All facilities to be kept clean, hygienic and in a good state of repair. The input of the ECO may be required or there may be stipulations regarding where such facilities are to be placed. Temporary toilets moved around site are not to use formaldehyde, and alternative bacterial products are to be used. Temporary toilets are further to be available with each team, and for each gender. The CHSM/CHSO are to determine the ratio of worker to chemical toilet, however it is recommended it is on a 1:10 ratio.

Toilets must have hand washing basins and, if not inside the toilet, they must be in close proximity to it. Soap, toilet paper and / or hand towels/paper hand drying mechanisms must be provided for the employees.

Dining areas are to be made available, that are sheltered, accessible to all, be kept clean, hygienic and in a good state of repair. Where work is on site, away from the fixed site facilities, temporary facilities that are hygienic, clean and in good repair shall be available for all to use.

No living quarters will be allowed within the site, in line with the ILO conventions. Suitable living quarters are to be found for those who are required to be accommodated. Such sites could be inspected by the CHSMs / CHSOs for hygienic assessment.

10.1 Temporary Facility Layout Plan

A drawing indicating all facilities at the site camp and potential remote sites are to be provided with the amended PSSHEP. The ECO and the EMP will need to be cross referenced regarding waste management and particular environmental factors to be considered, and the placement of waste skips and other forms of waste.

Shower facilities for each gender are to be supplied at the discretion of the PCs. Emergency showers may be provided if the risk warrants. Such drawings are to include the following but are not limited to:

- Dining room facilities;
- Change rooms (indicating gender);
- Ablution facilities (indicating gender);
- Site Offices and Amenities;
- Lay down and Storage;
- Site Access, and
- Temporary Site Services.

Failure to comply with the requirements will be seen as a moderate offence.

12. ACCESS CONTROL TO THE CONSTRUCTION SITE

- **Rand Water Site Access**

All Contractors are to strictly adhere and are subjected to all security requirements on the premises, as laid down by the Client/Agent. Security requirements shall be highlighted at the induction given by the Client/Agent or Site Risk Personnel.

After induction, the principal contractor will be issued with a site access certificate that should be kept with the Contractor at all times within the site. Contractor employees will be issued with individual induction cards that should be kept with the employees at all times and be retrieved at the end of project/upon termination of employment.

All personnel/Contractor items to be declared at entry and pass-out to be obtained for non-declared items by Site personnel are required when exiting the premises.

Upon completion of a job, firing or leaving the site, the induction cards issued where applicable to a specific site to the contractors must be returned to the Client/Agent's Representative and or the protective services office. Under no circumstances is the card allowed to be used by another person other than the person issued with the card.

All those who access site are required to strictly adhere to all security requirements on the premises, as laid down by the Client.

- **Security and Site Access**

All contractors shall be accountable and responsible for the security of all their equipment, materials etc. on any of their work sites and site camp offices.
Security requirements shall be included at Client and PCs induction training. Following induction, all employees are registered on the site access system and are issued with access cards. Access certificates to be kept with each PC and their Contractors at all times within the site. Under no circumstances are access cards allowed to be used by any other person other than the person issued with the card.

PCs are to provide security controls at each site camp and at determine requirements for the site access gate, RW will provide security cover at the external access at the main gate.

Outsourced security services are to be treated as Service Providers.

The security guards should be fully trained and knowledgeable about the company and its assets. Security guards on site to be accredited with the Private Security Industry Regulatory Authority (PSIRA) and hold an identification card from PSIRA at all times.

The project/site security arrangements that are to be included in the PSSHEP include, but are not limited to:

- The provision of a guard house, with access to ablution facilities;
- The management of the Visitor's register and Occurrence book;
- The provision and maintenance of an appropriate communication system between patrols and to contract the relevant authorities in an emergency;
- Professional uniform that is neat and clean at all times;
- Ensuring that Personal Protective Equipment is to be provided for patrolling guards, and all other CHS activities appropriate to limit their exposure.

Security arrangements to be based on security risk assessments which must be conducted independently by a competent person before security services are procured and before site establishment is done. The following minimum security standards will apply to all project sites, however should the security risk assessment stipulate additional requirements, then the contractor must implement those additional requirements. Finalised security arrangements on site to be in place before site establishment.

SECURITY COMPANY

The company must have the following:

(a) Company / Owner PSIRA registration
(b) Officers must be PSIRA registered
(c) Firearm licenses/ permits
(d) Letter of Good Standing (COID)
(e) Operational Control Room
(f) The Security Department Organogram
(g) Area Manager/s
(h) Site Supervisor/s
(i) Company Logo/ Marked Reaction vehicles (In the absence of a reaction vehicle, the sites will need to be linked to external local armed reaction service providers)

DEPLOYMENT OF GUARDS

(a) Day Shift
- 02 X PSIRA Grade D security officers at camp site
- 02 X PSIRA Grade D security officers at project sites

(b) Night Shift
- 02 X PSIRA Grade D security officers
- No female security offices shall be deployed for all night shifts

STANDARD SECURITY EQUIPMENT

All security service providers must have the following standard security equipment:

(a) Full Security uniform with the company's name or logo
(b) Company and PSIRA Identification Card
(c) Base radio and two-way radio
(d) Bullet Proof Vests ((depending on risks identified)
(e) Company Firearms (depending on risks identified)
(f) Reflective Jackets (depending on risks identified)
(g) Helmets (depending on risks identified)
(h) Safety Shoes
(i) Rain Suits
(j) Baton stick
(k) Hand cuffs
(l) Torches and sport lights
(m) Panic buttons
(n) All Security registers and Pen

SECURITY FILE

The following must be in the security file:

(a) A list of all security officers to be posted on site including copies of their qualifications
(b) A list of all firearms to be used on site including copies firearm licenses and SAPS issued competency certificates
(c) A site security risk assessment report
(d) Security plan that addresses all identified security risks

The security plan must include the following:

(a) Posting of guards
(b) Reaction to emergencies – including response times
(c) Monitoring methods and mechanisms
(d) The use of security aids

- **Project Site Access**

The PCs, in collaboration with the Client/Agent's representative will ensure that proper access control is in place and functional at all times on and off the construction site, by posting a notice at every entrance, prohibiting entry of unauthorised person/s. This is also dependent on the Rand Water (project within an operational site) or contractor's security plan.

The PC is to take all necessary steps to control the entry and movement of non-employees into or onto a construction site or any other workplace and to ensure that persons outside the workplace are not detrimentally affected by the workplace activities.

- **Traffic Access and Routes**

The site is located about 47km south west of Johannesburg Central Business District, within the Midvaal Municipality, Gauteng Province.

Access to the Project Site is on Vischgat Road. Entry into private property/s is evident.

A traffic plan to accommodate movement of plant, vehicles and people through the Golf Course is required, and is to be included in the PSSHEP for specific work areas in the control of the PC.

Access to the site from the public roads needs to be co-ordinated and managed in accordance with the by-laws, traffic and traffic standards (SA Road Traffic Signs Manual (SARTSM), Chapter 13, Volume 2).

Under no circumstances may workers be transported on the rear of vehicles or with plant and materials. The Road Traffic Safety Act is to be applied, as well as the PC doing risk assessments to determine risks.

Failure to comply with the requirements will be regarded as a serious offence.

13. COMPENSATION ISSUES

The PCs must submit proof of registration and letter of good standing (LoGS) with the compensation fund or with a licensed compensation insurer for his company and each of his Contractors'. Record of validity must be maintained. Work is to be stopped where Contractors are identified with expired LoGSs).

The Letter of Good Standing must reflect the name of the Principal Contractor and/or Contractor Company and the nature of business. No one organization may carry the liability or cover for another.

Failure to comply with the requirements will be regarded as a serious offence.

14. OCCUPATIONAL HYGIENE MONITORING

The requirement to measure and monitor levels of hazards that affect the health of workers. PCs are to identify the occupational hygiene monitoring requirements that is relative to the products and processes, and risks created by work. Monitoring is to be in line with the legal framework, and use the Approved Inspection Authority (AIA) as defined, and the CHSMs / CHSOs will be required to co-ordinate the measuring and monitoring.

Each PC shall monitor dust, noise, vibration, lighting, and any other risks caused by mobile equipment, generators and other equipment used during construction. Factors such as weather can affect the intensity to which these impacts are experienced. The use of dampening of noise and vibration produced by equipment or processes is to be applied. Other appropriate mitigation measures are to be implemented as required / agreed upon with the RW PM, ECO and SHEQ/Pr. CHSA.

All plant and equipment is to come to site pre monitored, irrespective of source. Evidence of the use of an AIA to have done the measuring is to be available.

Dust suppression measures must be in place to reduce the dust caused by the movement of heavy vehicles and plant. Gravel roads in use are to be watered a minimum of twice a day in the working strip.

Failure to comply with the requirements will be regarded as a serious offence.

15. MEDICAL SURVEILLANCE PROGRAMME

The PCs shall submit details of their employee Health as part of their PSSHEP which shall include a Medical Surveillance Programme.

The PCs must ensure that all persons coming to site to work, including designers, shall be in possession of a valid medical certificate of fitness (CoF). The CoF is also required that is relevant to the type of work (risk based) that the employee will be conducting in the form of **Annexure 3 of Construction Regulations 2014**, based on occupational Risk Exposure Profile (OREP)for each category of work. **Periodic or Annual medicals** to be conducted and to be related to exposure until completion of the project, unless otherwise advised by the Occupational Health Practitioner (OHP). Medical examinations shall be completed **before** commencing construction work on site and exit medicals before **employee(s)** leave record the health status of each worker. CoFs will be placed in the PSSHEP and be able to at all times cross reference lists of those working on site.

An employer shall not permit an employee who has been certified unfit for work to enter the site until deemed fit by the Occupational Health Practitioner (OHP).

Note: RW will only accept medical certificates of fitness issued by an 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 56 of 1974), or the South African Nursing Council as referred to in the Nursing Act, 1978 (Act 50 of 1978). An example of an approved medical certificate can be requested from SAM SHEQ or the Pr. CHSA.

Failure to comply with the requirements will be regarded as a serious offence.

16. EMERGENCY PREPAREDNESS AND RESPONSE

PCs will develop their own emergency response plan submit this plan in the PSSHEP as an addendum. The emergency plans will be adapted to complement the RW emergency plan once on site. PCs will ensure that employees and Contractor employees are trained on the emergency plan on a regular basis. The plan is to detail how emergencies will be managed, taking into account the risk of the works emergency cover and responses. First aiders and fire fighters need to be involved with key employees responsible on the project.

Periodic emergency drills will be undertaken by RW that will include all PCs; however, the principal contractor must initiate his own emergency drills annually with permission from the RW PM.

- **Fire hazards and Management**

No open fires are allowed on site. The contractor must ensure that operations are in compliance with statutory requirements at all times.The emergency plan is to ensure fire management is included. Workers are to be trained in fire fighting, and appropriate equipment is available for the work being done at the various stages of the project.The designation and organization of site personnel to carry out fire safety duties, including fire watch service if applicable.

High risk products and processes such as using gas, and activities such as cutting, grinding, or any possibility of explosions or fire are to utilise a system of hot work permits and appropriate controls.

17. ENVIRONMENTAL MANAGEMENT

A separate Environment File will be required for the evaluation of compliance as per the conditons of the environment authorisations. This file will be reviewed and approved by the ECO.

- **Waste**

All hazardous waste to be disposed of at a registered waste site and records kept. The contractor and Contractor working on site must ensure that oil, fuel, and chemicals are confined to specific and secure areas throughout the construction period and stored in the appropriate manner in a bunded area with adequate containment for potential spills and leaks. Contractors must ensure that sufficient waste bins / containers are made available for waste control.

NB: refer to part B, for additional informattion on environment management (item 8)

18. FORUMS FOR SHE COMMUNICATION

PCs are to provide a communication strategy outlining how they intend to communicate SHE issues to their staff, the mediums they will employ and how they will measure the effectiveness of their SHE communication.

SHE will be included as an agenda item at every meeting conducted on site. Attendance registers, Agendas and Minutes of all meetings shall be available. Outcomes and decisions made regarding SHE are to be followed through and evidence of same available.

Monthly progress and technical meetings must be attended by the SHEQ Representative/ Pr. CHSA (either); CHSM / CHSOs who will report on SHE during the meetings, and advise on SHE issues.

A SHE Steering Committee will be established for the duration of the project. Representatives from each of the PCs involved, the RW PM, RW SHEQO, CHSM / CHSO and the CCHSR will attend and report on SHE issues identified and requiring attention as they relate to the project.

Other SHE meetings may be held as required by Rand Water.

19. SHE AUDITS AND INSPECTIONS

RW, including government authorities and the CCHSR reserve the right to conduct unannounced audits or inspections on PCs and/or their Contractors. Generally, audits and inspections will be done bi-monthly, but more frequently if deemed required in the construction stage of the project. Results will be available within 7 days of the audit or within 3 days for an inspection, but critical issues will be recorded immediately and non-conformances issued.

During the defects liability period of the project, adhoc inspections will be conducted on PCs and / or their contractors and a report made available within three days.

- **Approval of PSSHEPs**

The PC PSSHEP will be audited against the PSSHES, construction activities and programme; to verify compliance to the requirements in the PSSHES before approval will be provided. The PSSHEP will be approved by the CCHSR .

- **Contractor SHE Performance Evaluation**

RW shall evaluate their Contractor SHE performance on an ongoing basis against the legislative and project standards as appropriate to the activities and level of risk.

- **Contractor Internal Audits**

PCs are required to conduct internal audits and do audits on their Contractors on at least a monthly basis, or more frequently if high risk activities, or when the scope of work changes. An executive summary of the findings that includes the proposed corrective actions shall be submitted to the RW PM within 5 days of completion. Regular site inspections are required, and at least daily site visits to ensure compliance, including unannounced 'spot checks' on activities are to be done. A diary and evidence of such are to be kept indicating dates and type of audits/inspections completed.

- **Third Party Legal Compliance Verification Audits**

Where third party legal compliance verification audits are conducted on PCs or Contractors, a copy of the summary of the findings and corrective actions shall be submitted to RW PM. The written report shall be submitted within 5 days of completion of the audit.

20. SHE INCIDENT MANAGEMENT (PC AND CONTRACTORS)

A procedure for reporting, investigation and record keeping of incidents and accidents is to be provided. The PC shall report all incidents/accidents including near miss incidents, first aid, medical, disabling / lost time, fatalities, Motor vehicle, property damage, crime and they shall be reviewed by the H&S committee and the members of the Project Progress meeting notified of corrective actions taken. All incidents must be reported to the relevant RW representative within the shift, or if not possible within 24 hours.

All corrective action must closed out within the agreed timeframes as per the incident report. If this is not practicable within the time frame, then it is to be submitted at a later date agreed to by the RW PM.

Note:

- Providing the accident/incident investigation report does not exempt the PC from providing accident reports required by Statutory Authorities, in particular, the PCs responsibility for reporting accidents in accordance with the requirements of the OHSA and COID Act. The Client and Pr. CHSA shall participate in any accident/incident investigation if the accident/incident is directly linked to any activity within the scope of the construction project. RW further reserves the right to conduct an independent investigation in any incident and a RW SHEQO should be included on the team.
- Refer to Part B: item 9 for further details on notifications.

21. STATISTICAL AND GENERAL REPORTING

PCs are to be submit a weekly contractor report each Friday afternoon before 16H00 or on the Monday morning on the previous week's activities before 09H00, and a monthly report on a RW template, or similar by the 2nd of each month. The focus of the reports is on leading indicators. A summary of the reports submitted are to be reported, recorded and discussed on at SHE Committee meetings, site progress meetings and the RW site weekly meetings.

22. OPERATIONAL CONTROL REQUIREMENTS

The PCS are to ensure that all operational aspects are controlled according to policies and procedures, RW standards where required. All records, registers, appointments and other applicable aspects are to be kept up to date in the SHE file. Filing is to be kept current.

- **Notices and Signage**

All symbolic safety signage is to conform to the requirements of SANS 1186, and be appropriate to the risks and activities on site and at the site camp. Equipment is to include the measured noise levels that are completed by an AIA.

- **Construction Plant and Equipment**

All plant and equipment on site is to include specific markers that identifies the PCs organisation. Appropriate forms of plant and equipment is to be used, with appropriate registers and maintenance programmes. Registers of all plant and equipment on site are to be kept. Stores and storage to be properly controlled, with competent supervision and in good repair. All plant must be operated by trained workers. Maintenance of all plant and equipment is to be carried out by the appropriately competent person with the following:

- N2 or N3
- Trade Certificate-Diesel and/or Petrol Mechanics
- Minimum 3 years' experience in the field
- Knowledge of OHS Act
- Code 8, 10 or 14 –depending on the vehicles that are being serviced

Identification is required on all of site vehicles entering the site. The speed limit within the bounds of the construction site is 30 km/h, and is weather dependent. No drivers or operator may talk on cell phones or two way radios whilst driving, unless a hands free kit is used, and carry no passengers unless so designed.

RW reserves the right to search any vehicle on the premises or when entering or leaving the premises. Each PC shall be solely responsible for the safety and security of any of his vehicles (including private vehicles) on the premises.

Housekeeping, Stacking and Storage

The PCs shall maintain a high standard of housekeeping within the site. Lay down areas agreed upon and on plan are to be maintained. Excessive material, plant and equipment storage on site is discouraged. Materials/objects shall not be left unsecured in elevated areas and shall be managed by site supervision at all times. A 'Clean as you go' approach is required, and will be monitored daily by the CHSMs / CHSOs.

- **Fall Protection**

Focus on limiting fall risks is to be the focus on all structures requiring workers to work at heights. Well-designed access using temporary works are to be utilized where necessary, and limit the need for workers to use fall arrest equipment.

A fall protection plan is required and is to be kept up to date where appropriate. Fall protection equipment to be implemented where fall prevention is not possible and shall comply with SANS Standards, SANS 503&508, and 10085 Series or other recognised international standards are to be strictly implemented.

It is preferable that cognizance of life cycle is taken into account and the where maintenance will be required, that built in attachment points are provided by the designers.

- **Lifting Devices and Cranes**

All lifting/crane machine operators shall be competent to operate such machines with valid permits and training certificates. Load testing certificates for lifting devices, slings and chains in line with the statutory requirements are to be kept on record.

No person is to walk or work under suspended loads, including excavators, and between a load and a solid object where they might be crushed if the load should swing or fall. Guide ropes and banks men to be used to prevent loads from swinging.

Rigger requirements are to conform with the statutory and industry standards.

- **Excavations and Barricading**

No candy tape may be used to demarcate excavations. Where it is impracticable to provide fixed guard railing, effective removable barriers to withstand an impact of at least 100 kg and adequately maintained.

No material to be within 1,5m of the excavation edges. No work shall commence in an excavation unless the excavation has been declared safe by the competent person. Whilst work is being performed in an excavation, there shall be a

supervisor in attendance. All excavations must be on register and inspected daily before work commences and after inclement weather by the contractor's appointed competent person, declared safe and his findings noted in the register. Access ladders are needed with each team within the excavation to ensure egress and easy access.

If an excavation or trench endangers the stability of buildings or walls, shoring, bracing, or underpinning shall be appropriately designed and be provided. Excavations and trenches that are adjacent to backfilled excavations or trenches, or which are subject to vibrations from traffic, or the operation of machinery (e.g., shovels, cranes, trucks), must be secured by a support system, such as shoring, or bracing.

Warning signs and flashing warning lights at night shall be displayed in suitable positions to warn any persons approaching the area of the location and extent of any excavation, if needed.

Barricades shall be provided at all unguarded openings in guard railing or floors, and shall be maintained in position at all times until the hazard no longer applies.

- **Electrical Supply and Equipment**

Electrical distribution boards used shall be fitted with suitable earth leakage protection. Leads must be properly and firmly connected and on register. All electrical equipment shall be kept in a good and safe condition and checked daily prior to use.

All electrical apparatus, other than electrical hand tools, shall have a physical "lock out" system which will prevent any operation other than that authorized by a supervisor. A "lock out" sign shall be displayed when the apparatus is not in use. A lock out system is required when systems are installed to protect workers doing maintenance operations.

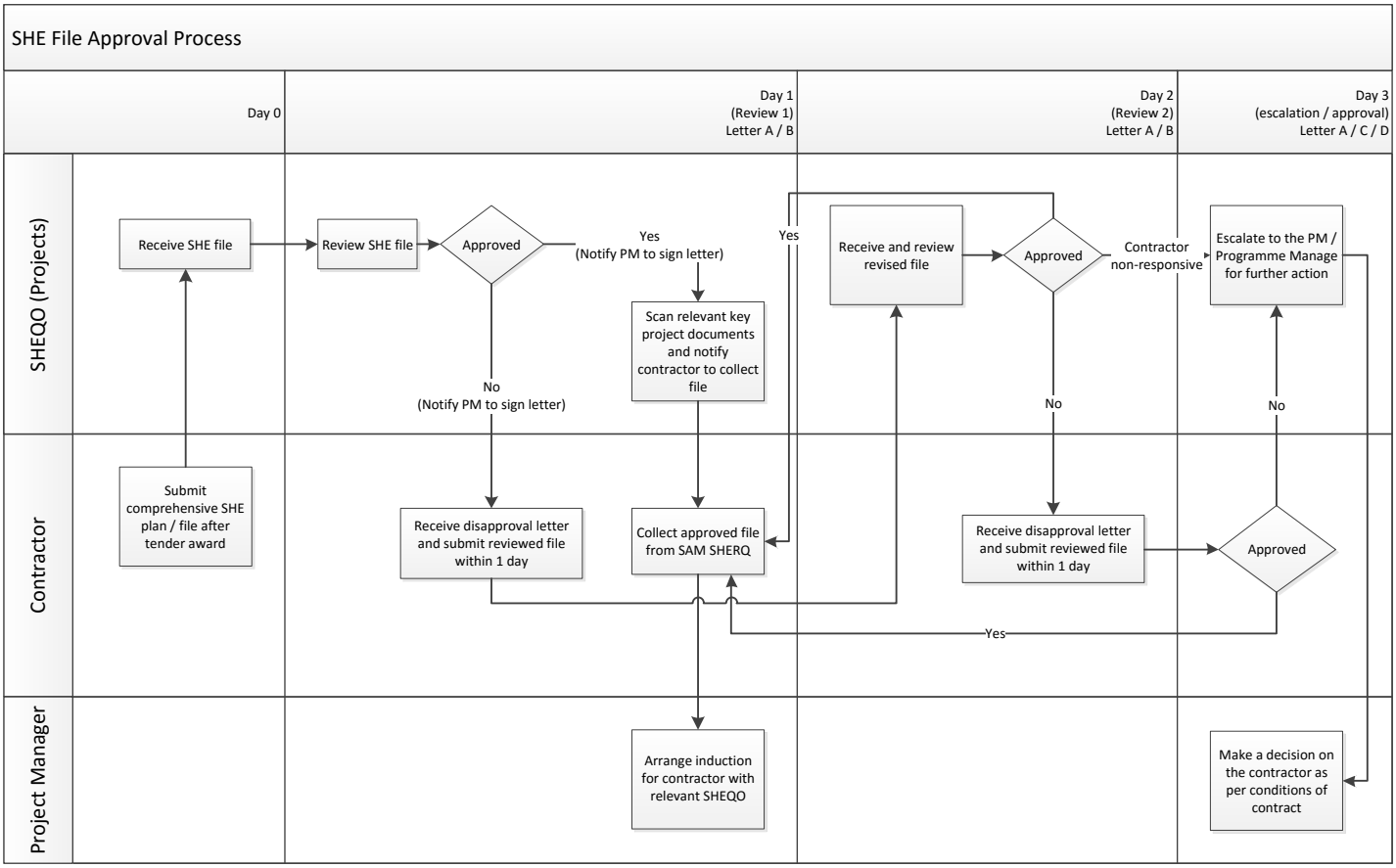
Method statements and safe work procedures will be required for all work involving electrical apparatus including competent operators, supervision, registers are to be in place.

Certificates of Compliance (CoCs) by the appropriate Electrical AIA are to be available for temporary and permanent installations, including the appropriate inspections.

23. PSSHEP APPROVAL PROCESS AND SUBMISSIONS

The PC's SHE File shall be reviewed and approved as per the process indicated below. In addition, for projects that are 'design and build', the SHE file shall be approved in two stages: initially for design where the minimum document requirements will be indicated to the contractor to submit for approval to the CCHSR, and thereafter a detailed file for construction.

For projects taking place within a National Key Point or other Rand Water site, the SHE file that has been approved by SAM SHEQ may also be submitted to the relevant Site Risk / SHEQ for verification of compliance to site requirements.



RWSHEQ / CCHS representative will provide a letter and report after the file has been assessed, with amendments to be made if needed prior to approval.

PROCESS	SHE SPECIFICATION PART OF TENDER DOCUMENTS	*NO* SHE SPECIFICATION INCLUDED AS PART OF TENDER DOCUMENTS
1. Time allowed for preparation of SHE plan/file by the Contractor	1 week	2 weeks
2. Submission of SHE Plan	On the 8th day	On the 15th day
3. *SHEQ Officer to review the SHE Plan/file	1 day – Notify PM & Contractor immediately of outstanding issues	1 day– Notify PM & Contractor immediately of outstanding issues
4. **Time allowed for submitting outstanding documents to Client i.e. to SHEQ or PM	1 day	1 day
5. ***Final Submission and Approval	1 day	1 day
Duration of Process	11 days	18 days

PSSHEP Submissions:

Required Timeframes to Avoid Project Delays
The following guidelines are to be followed to limit delays. However, the Pr. CHSA could provide other timelines that will be agreed upon between parties.

24. COST OF HEALTH AND SAFETY

The payment items for Occupational Health & Safety are contained in the Commercial Part of the Tender Document i.e. Bill of Quantities. A pro-forma BOQ is attached to this SHE Specification as a guide to the items the Contractor should allow for in his pricing. **CONTRACTOR MUST NOT PRICE FOR COVID-19 AT TENDER BUT AFTER AWARD. The Engineer will advise the Contractor at the relevant stage after tender award on the pricing for Covid-19 prevention and management. The pricing for this will determined by the Contractor's requirements for Covid-19 and approved by the Engineer.**

No	Item	Description	Unit
C.01	Preparation of Contractor's Site Specific Health and Safety Plan	The rate for this item must cover all expenses incurred in preparing the Contractor's project specific Health and Safety Plan as required by the Client's Site specific Health and Safety Specification in this document	Lump Sum
C.02	Principal Contractor's initial obligations in respect of the Occupational Health and Safety Act and Construction Regulations	The full amount will be paid in one instalment only when the Client's Agent has verified and approved the following (a) The Principal Contractor has notified the Provincial Director of the Department of Labour in writing of the project, Annexure A to the Regulations. (b) The Principal Contractor has made the required initial Appointments of Employees and Contractors. (c) The Client has approved the Principal Contractor's project Health and Safety Plan. (d) The Principal Contractor has set up his Health and Safety File.	Lump Sum
C.03	Principal Contractor's time related obligations in respect of the Occupational Health and Safety Act and Construction Regulations	The amount shall represent full compensation for that part of the Principal Contractor's general obligations in terms of the Occupational Health and Safety Act and Regulations which are mainly a function of time. Payment will be made when the Client's Agent has verified the Principle Contractor's compliance as part of the audit. This will include the updating and administration of the Health and Safety file	Month
C.04	Provision of Personal Protective Equipment (PPE)	The rates for these items shall include for the procurement, delivery, storage, distribution and all other actions required for the supply of PPE to the employees of the Principle Contractor, full or part time, requiring them. Contractors are responsible for their on costs in this regard. Any items of PPE not included on the list will be paid for only after the Engineer has agreed to their acquisition. Items listed will include, among others which may be noted, are: hard hats, reflective vests, reflective bibs, high visibility overalls, protective foot wear, fall arrestor harness and tethers, gloves, ear muffs, earplugs and dust masks of appropriate type. Normal items such as standard overalls, waterproof clothing, gum boots and standard workshop safety equipment such as welding masks and goggles will not be paid for. Payment will be based on the issues register for PPE as kept by the Construction Health and Safety Officer, backed up by paid invoices if requested.	Lump Sum
C.05	Provision of full time Construction Health and Safety Officer	The Tender sum shall include for the cost of a Construction Health and Safety Officer on a full time basis, his overheads, transport and all others items necessary for the proper carrying out of his duties, which include the induction and training of all persons on site. If a part time safety officer is appointed, by agreement with the Employer, then the amount Tendered will be prorated according to the amount of time spent on the project.	Lump Sum
C.06	Costs of Medical Surveillance	This item shall covers all costs in involved in the obtaining of baseline, periodic (at least annually) and exit medical certification and conducting medical surveillance for all workers and especially operators of Construction vehicles and mobile plant as contemplated in CR 21(d) (ii); Workers at Heights, Regulation 8 (2) (b) of the Construction Regulations	Lump Sum

		and Workers exposed to hazardous chemicals including bituminous fumes under Regulation 7 of the HCSR; for temporary workers and workers exposed to noises at or above the limits given in the Noise-induced Hearing Loss regulations, as stipulated above. Workers in the permanent employ of the Contractor will only be paid for if their certificates require updating. Chest x-rays will be required in the case of workers who may be exposed to high concentrations of dust (silica). **C.06 a)** Initial (baseline) medical examinations, including audiometric and lung function testing. **C.06 b)** Periodic examinations **C.06 c)** Exit examinations	
C.07	Induction Training	This item shall cover all costs incurred for the health and safety inductions as set out on Regulation 7 of the Construction regulations and the proof of induction required. Payment will be made on the figures contained in the induction section of the Health and Safety File.	Unit
C.08	Provision of First Aid Boxes including emergency safety equipment such as fire extinguishers	The rate for this item shall cover all costs incurred in the provision and maintaining of first aid boxes as well as other emergency safety equipment which includes, but will not be limited to the provision of fire extinguishers.	Unit
C.09	Transportation of Workers	The Lump sum tendered under this Item shall cover all costs involved in the safe transportation of workers as outlined above. Payment will be made in equal amounts for the duration of the contract.	Lump Sum
C.10	Welfare Facilities	Adequate toilets and hand washing facilities, clean, safe drinking water, sheltered eating facilities, showering and changing facilities for each sex as Facilities and Construction Regulations	Lump Sum
C.11	Occupational Hygiene Surveys	The lump sum tendered for this item shall cover the costs of the anticipation, recognition, evaluation, control and prevention of hazards from work that may result in injury, illness, or affect the wellbeing of workers. These hazards or stressors are typically divided into the categories biological, chemical, physical, ergonomic and psychosocial.	Lump Sum
C.12	Training	The Lump sum tendered under this Item shall cover all costs involved in Occupational Health and Safety Training Requirements: (as required by the Construction Regulations and as indicated by the SHE Specification Document & the Risk Assessment/s and recommendations by the Health and Safety Committee.	Lump Sum
C.13	Security requirements	The Lump sum tendered under this Item shall cover all costs involved in providing a Security Guardhouse for security guards on-site with ablution facilities where appropriate, a Visitor's register and Occurrence including the security risk assessment (before site establishment). Two-way radio or cell phone to report emergencies to the relevant authorities, site safeguarding and full security uniform worn at all times.	Lump Sum
C.14	Employee Wellness Programs	This item shall cover costs of programs implemented improve the health of the labour force, mentally, physically and socially.	Lump Sum
C.15	Drug and Alcohol Testing, Policies and Procedures	This lump sum tendered for this item shall cover the costs for the provision of regular training and information about the effects of drug and alcohol use on personal and work health and safety, the development and implementation of an alcohol and substance abuse policy and procedure including any support, whether internal or external, that shall be	Lump Sum

		provided to workers, especially those who admit they have a drug or alcohol problem. In addition, the costs for the purchase and regular calibration of alcohol testing equipment must be included.	
C.16	Barricading	The lump sum tendered under this tem shall cover all costs involved with erecting the appropriate solid / hard / soft temporary physical barriers to restrict the entry of persons to an area and/or prevent personnel from being exposed to hazards associated with unprotected openings on surfaces, floors, edges, slabs, hatchways and stairways. Barricades adjacent to a public road shall equipped with appropriate lights or reflectors for clear visibility at night.	Lump Sum
C.17	Safety notices and signs	The lump sum tendered under this tem shall cover all costs associated with erecting highly visible construction site signage to help prevent injuries on-site and ensure that all staff and visitors are aware of any hazards.	Lump Sum
C.18	SHE Incentives	The lump sum tendered for this item shall cover the costs of implementing SHE incentive programmes that motivate and encourage employees to perform work safely without injuries or damages to property or the environment for the duration of the project.	Lump Sum
C.19	COVID-19 Prevention and Management -	***NB: CONTRACTOR MUST NOT PRICE FOR COVID-19*.** The item to cover the costs associated with Covid-19 prevention and management as determined by the contractor workplace preparedness for Covid-19 and to cover costs such as: • developing and implementing a COVID1-19 risk assessment and health and safety plan including the recording & reporting of COVID statistics • Conducting worker education and training on COVID-19 and shall cover the costs associated with the provision of regular training and information on COVID-19 for Supervisors, SHE Reps, CHSOs and anyone else actively involved in the management of the virus. This includes online training/webinars through only official platforms that have been endorsed or approved by the World Health Organisation, the National Institute of Occupational Health, the National Institute for Communicable Diseases and the Department of Employment and Labour, and the Department of Health including any other training that is recommended by these official bodies. • Non-Contact Digital Thermometer /calibrated • Foot Operated hand sanitiser stand. • Hand Sanitiser Dispenser. • Paper towel dispenser. • Hand Soap Dispenser. For the kitchen. • Empty Sanitiser spray bottles • Water Container with Tap • Bio-hazard bin for Covid-19 waste • Provision of no touch/pedal refuse bins for kitchen, dining rooms, & boardrooms • Prefab Isolation Room near site camp entrance • Face Shield for screeners/tester(s) • Covid-19 Awareness Signage Posters/Notice at entrances/social distancing floor markings • Cloth masks for employees • Batteries for Thermometer & Dispenser • Medical/Disinfectant (Alcohol) -Wipes Canister • Full body Coverall with hood for Screeners/testers	PC Sum (*The Engineer to advise at the relevant stage after award to price for item*)

		• Examination Gloves for screeners/tester(s) • Screening stickers per day • Surgical Masks for suspected/sick person(s) /Screeners/testers • Disinfection Control by Accredited professional services • Disinfectant solutions for surface • Hand Sanitizers solution for refills • Hand soap for refills • Personal Hand Sanitizer • Biological waste Skip Disposal	
C.20	Adequate ventilation and lighting during construction	The lump sum tendered under this tem shall cover all costs for providing fresh air to all confined spaces before entering or working in them to the degree necessary to reduce flammable and toxic substances to acceptable levels and to provide adequate oxygen content inside the space including the provision of suitable artificial lighting to illuminate confined work spaces, work area(s), storerooms, facilities etc. to create a safe and comfortable work environment for both employees working during the day and the night.	Lump Sum
C.21	Submission of the Health and Safety File (hard and soft copies)	Expenditure under this item shall be made in accordance with the general conditions of contract. This amount will be paid only once the Principal Contractor has met all his obligations in respect of the Occupational Health and Safety Act and the Construction Regulations and has submitted his Health and Safety File complete as envisaged on this specification to the Client's satisfaction.	Lump Sum

25. COST OF ENVIRONMENT

The payment items for Environmental issues are contained in the Commercial Part of the Tender Document i.e. Bill of Quantities. A pro-forma BOQ is attached to this SHE Specification (Annexure B) as a guide to the items the Contractor should allow for in their pricing.

Item	Description	Unit
Signage	The rate for this item must cover all expenses incurred in preparing signage at the entrance of the site offices indicating the following information • The contractor's contact numbers • Authorisations details • ECO details • Emergency numbers and provision for: – snake removal, bee removal, fire, large hydrocarbon spillages, sewerage spillages Signage measuring 30mmx30mm must also be made available for no go areas.	Lump Sum
Pollution prevention	The rate for this item shall include costs for Identification and reduction or elimination of activities, areas, or processes which create excessive waste products or pollutants. It shall include but not be limited to the provision of adequately serviced ablution facilities, Screening for unsightly works and water cart/s for adequately watering down the site.	Lump Sum
Erosion control and silt management	The amount shall represent the costs associated with the practice of preventing or controlling wind or water erosion during construction. The erosion control measures must effectively prevent water pollution, soil loss, wildlife habitat loss and human property loss. The rate shall also include the costs of silt control where devices shall be designed to	Lump Sum

	keep eroded soil on a construction site, so that it does not wash off and cause water pollution to a nearby stream, river, lake, or dam.	
Work in sensitive areas	The Tender sum shall include for the cost associated with the protection of areas where the natural environment can easily be harmed. Control measures will be as indicated in the EMPr.	Lump Sum
Waste disposal provision	The Tender sum shall include for the cost for proper disposition of discarded or discharged material where it be hazardous or non-hazardous waste, in accordance with local environmental guidelines or laws.	Lump Sum
Administration and documentation	The rate for this item must cover all expenses incurred in the preparing and maintenance of an environmental file which includes but will not be limited to permits and licenses, EMPr, Environmental audit reports, Complaints register, Agreements with landowners, Noncompliance notifications, Waste disposal documentation, Safety data sheets for all chemicals	Lump Sum

Annexure A: BILL OF QUANTITIES FOR HEALTH AND SAFETY

This is an example, the bill and rates must appear in the Main Bill of Quantities

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	TOTAL
C.01	Preparation of the Contractor's site specific Health and Safety Plan	lump sum	1		
C.02	Principal Contractor's initial obligations in respect of the Occupational Health and Safety Act and Construction Regulations	lump sum	1		
C.03	Principal Contractor's time related obligations in respect of the Occupational Health and Safety Act and Construction Regulations	month			
C.04	Provision of Personal Protective Equipment (PPE)				
C.05	Provision of a full time Construction Health and Safety Officer including annual membership fees with SACPCMP	month			
C.06	Cost of medical certificates and medical surveillance				
	(a) Initial (baseline) medical examinations	lump sum			
	(b) Periodic and exit examinations	lump sum			
C.07	Induction training	lump sum			
C.08	Provision of First Aid Boxes to GSR requirements and other emergency safety equipment such as fire extinguishers.	lump sum			
C.09	Transportation of Workers	lump sum			
C.10	Welfare Facilities	lump sum			
C.11	Occupational Hygiene Surveys i.e illumination, noise, ergonomics etc	lump sum			
C.12	Training	lump sum			
C.13	Security requirements	lump sum			
C.14	Employee wellness programs	lump sum			
C.15	Drug and Alcohol Testing, Policies and Procedures	lump sum			
C.16	Barricading	lump sum			
C.17	Safety notices and signs	lump sum			
C.18	SHE Incentives	lump sum			
C.19	COVID-19 Prevention and Management	PC sum			
C.20	Adequate ventilation and lighting during construction	lump sum			

C.21	Submission of the Health and Safety File (hard and soft copies)	lump sum			

Annexure B: BILL OF QUANTITIES FOR ENVIRONMENT

This is an example, the bill and **rates must appear in the Main Bill of Quantities**

ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	TOTAL
E.01	Signage	lump sum			
E.02	Pollution prevention	lump sum			
E.03	Erosion control and silt management	lump sum			
E.04	Work in sensitive areas	lump sum			
E.05	Waste disposal provision	lump sum			
E.06	Administration and documentation	lump sum			

PART B – GENERAL CLIENT REQUIREMENTS

1. PRINCIPAL CONTRACTORS RESPONSIBILITIES

Principal Contractor: Construction Manager Supervisors and Sub-Contractor Supervisors	The Principal Contractor shall ensure that the performance of all specified work is supervised, throughout the contract period, by a sufficient number of competent appointed representatives of the Principal Contractor and/or sub-contractor, who have experience in the type of work specified. **Note: No work may commence and or continue without the presence of appointed Management and Supervision appointees during performance of the contracted work. In determining the number of appointed competent Construction Managers and Supervisors, the nature and scope of work being performed, shall be taken into consideration.** a) The Principal Contractor must appoint in writing 1 full time competent person as a **Construction Manager** (OHS Act CR 8.1) that will be responsible to manage all construction work on a **single site** and ensure health and safety compliance. In the absence of the Construction Manager the Principal Contractor must appoint an alternate Construction Manager. b) Having considering the size of the project a Principal Contractor must appoint in writing one or more **Assistant Construction Managers**(OHS Act- CR 8.2) for different sections, the Construction Manager is however still the accountable to manage the site. c) It must also be noted that the required appointed Construction supervisor (OHS Act CR 8.7) may not leave the site unless there is a sufficient number of appointed competent sub-ordinate supervisors (OHS Act – CR 8.8) on site to assist with supervision. d) A contractor must appoint in writing a full time or part time construction health and safety officer (CHSO), (OHS Act- CR. 8.5) and make sure that the CHSO is registered with SACPMP (OHS Act-CR.8.6) and has the necessary competencies and resources. e) The Principal contractor's Construction Manager shall provide a list of names and contact telephone numbers of all his employees as well as the sub-contractors employees on site. This list shall be updated as and when new sub-contractors commence on site. f) The Principal Contractor to keep the construction work permit in site file and ensure the site specific number is conspicuously displayed at the main entrance to the site. g) Where a construction work permit is **NOT** required, the Principal Contractor must notify DOL at least 7 days before work starts, on (CR. Annexure 2) if work includes:

	Excavation work, working at heights where there is a risk of falling, demolition of structure or the use of explosives. h) The Principal Contractor's Construction Manager shall keep a record of all employees including the sub-contractors employees, including date of induction, valid certified identity documents/passports; work permits, relevant skills and licenses, and be able to produce this list at the request of the Rand Water Project Manager/Agent. These records shall be filed in the SHE File. i) The Principal Contractor shall ensure that his managers and supervisors give clear and unambiguous instructions for the work in hand to the personnel for whom they are responsible for. The instructions shall include, but not necessarily be limited to: • description of the objective/scope of work • sequence of work/method statements • hazard identification and risk assessment (prior to commencement of work) • Precautionary/preventative measures that are to be taken. • Identification of sensitive features that may be impacted upon by the project.
Principal Contractor's Accountabilities for their Sub-Contractors	a) In the event that the Principal Contractor needs to introduce a new sub-contractor, the Principal Contractor must first inform the Client/Agent's and obtain his approval. Such sub-contractors must, in every respect, meet the Client's/Agent's SHE requirements. b) After approval from Client/Agent, to appoint each sub-contractor as per (OSH Act-CR 7.1 (c)(v)) c) Should the principal contractor appoint a subcontractor, the principal contractor would then have the same role and responsibility in relation to the subcontractors, in a similar way as the Client/Agent has in relation to the principal contractor. d) The Principal Contractor is directly accountable for the actions of his sub-contractors. The Principal Contractor will also be responsible for initiating any remedial action (recovery plan) that may be necessary to ensure that the contractor complies with all requirements. e) The Principal Contractor shall ensure that the sub-contractors appointed have the necessary competencies and resources to perform the work safely. f) The Principal Contractor shall provide any sub-contractor who is making a bid or appointed to perform construction work, with the relevant sections of the documented SHE specification, who would in turn provide the client/agent with a SHE plan for approval. g) The Principal Contractor shall carry out audits on the sub-contractor at least monthly to ensure that their SHE plan is being implemented and maintained. h) Rand Water may conduct audits on the Principal Contractor's sub-contractor/s. Any non-conformances/findings/observations found in these audits shall be raised and discussed with the relevant Principal Contractor (with whom the sub-contractor is contracted with). i) The Client/Agent and/or the Principal Contractor shall stop any sub-contractor from executing construction work which poses a threat to the safety and health of persons or the environment or non-compliance to the approved SHE plan. j) Where Sub-contractors appoint another contractor to perform construction work, the duties determined in sub regulation (1) (b)-(g) that apply to Principal Contractor apply to the Sub-contractor as if he or she were the principal contractor.
Project SHE/Environmental Control/Liaison Officer	Depending the size and complexity, and sensitivity of the project, the appointment of a full time SHE/EC Officer is required for the duration of the contracted work and part time appointments will not be allowed. The Contractor SHE/EC Officer(s) shall assist and support the Contractors Construction Manager to ensure that the contractors SHE responsibilities are fulfilled and compliance to the SHE specifications and SHE plan are met.In determining the number of appointed competent SHEQ Officer /s, the nature and scope of work being performed shall be taken into consideration.
Employees On The Project	a) The Principal Contractor is responsible for adequately informing his employees and sub-contractors of all relevant information of the Rand Water issued SHE specifications and the Principal Contractors SHE plan. b) Employees are responsible for their own health and safety and that of their co-workers in their area. They must be made aware of their responsibilities during induction and awareness sessions some of which are: • Familiarising themselves with their workplaces and SHEQ procedures. • Working in a manner that does not endanger them or cause harm to others. • Keeping their work area tidy. • Reporting all incidents/accidents and near misses.

	• Protecting fellow workers from injury. • Reporting unsafe acts and unsafe conditions. • Reporting any situation that may become dangerous. • Carrying out lawful orders and obeying SHEQ rules. c) Every employee ***must*** undergo site generic induction provided by the Client/Agent before commencement of the contracted work. Only once this induction has been received, will each employee receive an induction card from Relevant Site Risk Control/ SHEQ Representative giving them site access. Thereafter, principal contractor to conduct site specific SHE induction to all employees. d) It must be highlighted to all employees, that anyone who becomes aware of any person disregarding a safety notice, instruction or regulation shall immediately report this to the person concerned. If the person persists, stop the person from working and report the matter to the Rand Water Project Manager/Agent and the Principal Contractor "Construction Manager" immediately. e) No person shall damage, alter, remove, render ineffective, or interfere with anything that has been provided for the protection of the site, or for the health and safety of persons. f) No person under the influence of alcohol, drugs or medication (in a state of intoxication) or any other condition that may render him incapable of controlling himself or of other persons under his charge shall be allowed to enter the site.Any person required to take medication shall notify the relevant responsible person as well as the potential side effects of the medication. g) Employees shall not wear an ear plug intended for music or use a cell phone whist performing work activities. h) All safety and warning signs must be obeyed at all times. i) Entering or leaving the Site may only be done via the official designated walkways, do not take short cuts. Follow designated walkways to and from your work place. Walk, do not run, and be alert for motor vehicle traffic and mobile equipment. j) All employees must adhere to the SHE and other site specific rules. k) If any of the **Principal Contractor's employees or his sub-contractor employees has transgressed any of the requirements of the SHE Specification, SHE plan or site rules**, then the **employee will be removed from site and his/her site access revoked**. The Principal Contractor must follow a process of disciplinary action which shall include re-training/inducting the employee (at the cost of the Principal Contractor) and provide proof thereof to the Rand Water site/Project Manager and upon the satisfaction of the Rand Water Site/Project Manager will the employee be allowed back on site.

2. APPOINTMENTS AND COMPETENCIES

OHS ACT AND ASSOCIATED REGULATION APPOINTMENTS:

NO	REGULATION	APPOINTMENT/COMPETENCIES
1.	**Section 16(1)**	Chief Executive Officer (only the details of Chief Executive required)
2.	**Section 16(2)**	Assistant to Chief Executive Officer.
3.	**Section 17**	Health and Safety Representative Requirement: One trained Health and Safety Representative for every 20 employees, site location or part thereof. To be elected and appointed per work area and discipline and comply with OHS Act Section 17 and 18 and GAR Section 6. Competencies: General Health and Safety Training Health and Safety Representative Training Hazard Identification, Risk Assessment Training and Incident Investigation Training
4.	**Section 19**	Health and Safety Committee Member(s) and Co-opted Members Requirement: Health and Safety Committee Member (if there are 2 or more Health and Safety Representatives then there will be a Health and Safety committee)
5.	**Section 19**	Chairperson of Health and Safety Committee
6.	**GSR 3**	First Aider Requirement : as per OHS Act or project risk profile of workers Competencies:

		Possession of a valid level 1 or 2 first aid certificates issued by any one of the following: The SA Red Cross Society; the St John's Ambulance; the SA First Aid League; or a person or organisation approved by the Chief Inspector for this purpose.
7.	**GSR(2) & ER 9(1)**	Fire Fighter Requirements/Competencies: Relevant Training
8.	**GSR 5(1)**	Person that pronounces and certifies a confined space safe for the duration of work being conducted (applicable for only confined spaces). Competencies: Competent on the use of gas monitoring device, First Aid Certificate, Confined Space Training on emergency procedures.
9.	**DMR 17(2)**	Goods Hoist Inspector
10.	**GAR 9 (2)**	Incident/Accident Investigator
11.	**DMR18 (11)**	Lifting Machinery Operator (Appointment or Permit) Requirements/Competencies: Relevant Training
12.	**DMR18 (5)**	Lifting Machinery Inspector Requirements/Competencies: Relevant Training
13.	**DMR 18 (10) (e)**	Lifting Tackle Inspector Requirements/Competencies: Relevant Training
14.	**EMR 9**	Portable Electrical Equipment Inspector Requirements/Competencies: Trained Electrician
15.	**PER 11 1 b) e)**	Portable Gas Container Inspector
16.	**PER 11 1 a)**	Pressure Vessels Inspector Requirements/Competencies: AIA Approved
17.	**Lifting Regulation(6) (1)**	Competent person to examine and maintain lift, escalator or passenger conveyer Requirements/Competencies: AIA Approved
18.	**Asbestos Regulations 21**	Person registered as an Asbestos Contractor (Asbestos AIA) by the Department of Labour Requirements/Competencies: AIA approved
Written Agreements : OHS Act Section 37(2) Agreement between Client/agent and Principal Contractor		
18.	CR 8(1)	Construction Manager Requirements/Competencies: To be competent person as defined in the Construction Regulation i.e. Knowledge, training, experience and qualification in the type of project to be undertaken. Qualifications and training are registered in terms of the provisions of the National Qualification Framework Act, 2000. Courses include : General and Health and Safety course, Legal Liability course, OHS Act and Regulations course (latest version of the Act and regulations),Incident Investigation and Root Cause Analysis Training,Hazard Identification and Risk Assessment Training ,Job Observations Training and attended an accredited supervisors safety course
19.	CR 8(2)	Assistant Construction Manager Requirements/Competencies: To be competent person as defined in the Construction Regulation i.e. Knowledge, training, experience and qualification in the type of project to be undertaken. Qualifications and training are registered in terms of the provisions of the National Qualification Framework Act, 2000. Courses include : General and Health and Safety course, Legal Liability course, OHS Act and Regulations course (latest version of the Act and regulations),Incident Investigation and Root Cause Analysis Training,Hazard Identification and Risk Assessment Training ,Job Observations Training and attended an accredited supervisors safety course
18.	CR 8(7)	Construction supervisor Requirements/Competencies: To be competent person as defined in the Construction Regulation i.e. Knowledge, training, experience and qualification in the type of project to be undertaken. Qualifications and training are registered in terms of the provisions of the National Qualification Framework Act, 2000. Courses include : General and Health and Safety course, Legal Liability course, OHS Act and Regulations course (latest version of the Act and regulations),Incident Investigation and Root Cause Analysis Training,Hazard Identification and Risk Assessment Training ,Job Observations Training and attended an accredited supervisors safety course
19.	8(8)	Construction supervisor sub-ordinates i.e. assistant construction supervisors Requirements/Competencies: To be competent person as defined in the Construction Regulation i.e. Knowledge, training, experience and qualification in the type of project to be undertaken. Qualifications and training are registered in terms of the provisions of the National Qualification Framework Act, 2000. Courses include : General and Health and Safety course, Legal Liability course, OHS Act and Regulations course (latest version of the Act and regulations),Incident Investigation and Root Cause Analysis Training,Hazard Identification and Risk Assessment Training ,Job Observations Training and attended an accredited supervisors safety course

20.	8(5)	Construction Health and Safety Officer(CHSO)Requirements/Competencies: CHSO is registered with SACPMP Diploma in Safety Management or Environmental Health, A recognised safety certification (minimum: of 2 weeks training) (e.g. SAMTRAC / Modern SHEQ Management course), OHS Act and Regulations,COID Act, Incident Investigation, Hazard Identification and Risk Assessment Training,Health, Safety and Environmental Auditing, Environmental recognised course and Emergency Preparedness co-ordination training. Training in ISO and 2 years working experience in SHE will be mandatory for high risk projects.
21.	9(1)	Risk Assessor Requirements/Competencies: Person to carry out risk assessment, Competency based on exposure and experience level but preferably with the following :HIRA, a recognised safety certification (minimum: of 2 weeks training) (e.g. SAMTRAC / Modern SHEQ Management course) and OHS Act and Regulations (latest version of the Act and regulations)
22.	8(1)(a)	Fall protection planner Requirements/Competencies: Person that compiles the fall protection plan. Risk Assessments and Fall protection training
23.	10(1)(a)	Temporary Works Supervisor Requirements/Competencies:
24.	13(1)(a)	Excavation supervisor Requirements/Competencies: Person to carry out excavation inspections at planned intervals and as and when required. Competency based on exposure and experience but preferably with the following: HIRA, a recognised safety certification (minimum: of 2 weeks training) (e.g. SAMTRAC / Modern SHEQ Management course), Excavation Inspection Course and OHS Act and Regulations (latest version of the Act and regulations)
25.	14(1)	Supervisor of demolition work
26.	14(11)	Explosives expert Requirements/Competencies: Responsible person in the use of explosives and to develop the method statement in accordance with applicable explosives legislation
27.	16(1)	Scaffold supervisor Competencies: Competency based on exposure and experience but preferably with the following: Scaffolding Erector and Inspector Certificate, HIRA and OHS Act and Regulations (latest version of the Act and regulations).SANS 10085
28.	16(1)	Scaffold erector Competencies: Competency based on exposure and experience but preferably with the following: Scaffolding Erector and Inspector Certificate, HIRA and OHS Act and Regulations (latest version of the Act and regulations)
29.	16(1)	Scaffold inspector Competencies: Competency based on exposure and experience but preferably with the following: Scaffolding Erector and Inspector Certificate, HIRA and OHS Act and Regulations (latest version of the Act and regulations)
30.	17(1)	Suspended platform supervisor
31.	17(8)(c)	Suspended platform expert
32.	18(1)	Rope Access Supervisor
33.	19(8)(a)	Material hoist inspector
34.	20(1)	Bulk Mixing plant supervisor
35.	20(2)	Bulk Mixing plant operator
36.	21(2)(b)	Explosive Actuated fastening Device Inspector
37.	21.2 (g)(i)	Explosive Actuated fastening Device controller
38.	22(e)	Tower crane operator
39.	23(1)(d)(i)/(k)	Construction vehicle and mobile plant Operator/Inspector
40.	24 (c)/(d)	Temporary electrical installations Controller/Inspector
41.	28 (a)	Stacking and storage supervisor
42.	27 (h)	Fire equipment inspector

NB: All other relevant appointments not specified will be identified by the contractor and the necessary appointments to be put in place.

3. TRAINING

The aim of this section is to outline Rand Water's expectations in respective of the scope of the training which the Principal Contractor and Sub Contractor employees receive. The scope of the training includes but is not limited to the type of work being performed and the relevant procedures. Additional to the requirements, will be that the Principal

Contractors and sub-contractors would have the appropriate qualifications, certificates and are under competent management and supervision i.e. a supervisor with the appropriate knowledge, training, qualifications and experience.

Training Service Providers used in the training of Principle and Sub Contractor Employees should have the following verifiable credentials:

- Proof of valid Seta Accreditation Certificate for NQF Aligned Training;
- Registered Assessors, Facilitators and Moderators;
- Proof of recognition by relevant Quality Assurer

Records of all training and qualifications of all contractor employees must be kept. The Contractor shall maintain comprehensive records of all employees under his control (including all employees of the sub-contractor) attending induction training. Acknowledgement of receiving and understanding the induction must be signed by all persons receiving the induction respectively.

When there is an amendment to the Acts and/or to the regulations, SHE specification and SHE plan, all affected staff shall undergo the relevant re-training.

For appointees that do not meet the minimum competencies as indicated above: full compliance to the above competencies would be expected within 6 months after the contract is placed. A training plan must be submitted on a monthly basis to reflect progress of meeting the minimum training requirements.

General

Prior to induction all Principal Contractor and Sub-contractor employees must undergo a pre-employment medical examination and found fit for duty. A copy of the certificate of medical fitness as per Annexure 3 must be presented for permanent record at the induction venue and kept at site offices for permanent record.

All employees and visitors on site shall carry the proof of induction training in form of an induction card. Client Induction is valid for a year from the date it was conducted and thereafter refresher induction shall be re-scheduled at least one month before the induction period expires. The relevant site Risk Control/SHEQ Training Officer shall keep a database of all records pertaining to induction and will inform contractors of pending expiry though the overall responsibility of maintaining current induction cards still lies with the principal contractor. All induction cards issued must be returned on completion of the project to the Issuer.

Note:

- **Where projects involve Environmental Authorisations, arrangements will be made with the Relevant Project Environment Control Officer to jointly conduct induction with the relevant site Risk/SHEQ personnel prior to commencing work on site.**
- **No work shall commence without the required inductions provided by the Client.**
- **Client will rearrange for inductions for Contractor employees and re-approve SHE File where Contractor is not on site for more than 1 month.**

Construction Site induction carried out by the Principal Contractor

The Principal Contractor shall ensure that all his employees, sub-contractor employees and visitors undergo general work induction as contemplated in the (OHS Act- CR 7(6) & 7(7))with regard to the approved SHE plan, general hazards prevalent on the construction site, construction risk assessment, rules and regulations, and other related aspects.The induction should also include identification of sensitive features such as wetlands/ vlei areas, red data species, graves, etc.

Job specific induction carried out by the Principal Contractor/Sub-Contractor Supervisor on the site

The Principal Contractor will be required to ensure that before an employee commences work on the project that the supervisor in control with responsibility for the employee has informed the employee of his scope of authority, any hazards associated with the work to be performed as well as the control measures to be taken. This will include man-task specifications, the discussion of any standard task procedures or hazardous operational procedures to be performed by the employee. The Principal Contractor is to ensure that the supervisor has satisfied himself that the employee understands the hazards associated with any work to be performed by conducting task/job observations.

Proof of job specific induction signed by Inductor and trainee must be submitted to Construction Safety Officer before employee is permitted will to work.

Other Training

All Operators, Drivers and Users of construction vehicles, mobile plant and other equipment must be in possession of valid proof of training.

All employees in jobs requiring training in terms of the Act and Regulations must be inpossession of valid proof of training as follows:

Occupational Health and Safety Training Requirements: (as required by the Construction Regulations and as indicated by the SHE Specification Document & the Risk Assessment/s and recommendations by the Health and Safety Committee):

* General Induction (Section 8 of the Act)
* Site/Job Specific Induction (also visitors) (Sections 8 & 9 of the Act)
* SHE Representatives (Section 18 (3) of the Act)
* Training of the Appointees indicated above
* Operation of Cranes (Driven Machinery Regulations 18 (11)
* Operators & Drivers of Construction Vehicles & Mobile Plant (Construction Regulation 21)
* Basic Fire Prevention & Protection (Environmental Regulations 9 and Construction Regulation 27)
* As a minimum basic First Aid to be upgraded when necessary (General Safety Regulations 3)
* Storekeeping Methods & Safe Stacking (Construction Regulation 26)
* Emergency, Security and Fire Co-ordinator

4. Risk Assessment (Additional Guidelines)

Types of risk assessments:

Base-line	Base-line risk assessments must be conducted to profile the project risks and approved by the Principal Contractor's competent person i.e. Risk Assessor and Client/ Agents Representative before the project commences must be updated regularly to ensure its relevance to changing scope and/or circumstances.
Issue-based	Conducted when there any changes/or emerging risks
Continuous activity based	The intent is Zero Tolerance to unsafe acts and conditions on the construction site through the assessment of risk of each operation executed by the Principal Contractor and the provision of the necessary means to eliminate or minimise the risk to ensure a healthy and safe working environment. The process involves input from the Site Manager, Supervisor(s), SHE Officer, and the specialist Artisans for the job as well as the SHE representative for the workplace concerned. Additional Activity based risk assessments are required for certain tasks throughout the project. Guidelines for actual steps involved in an Activity based risk assessment are: – Each activity is listed; – Specific hazards are identified and listed against each activity; – The magnitude of each risk is rated as Low. Medium or High; – All known existing controls are listed for example: Safe Work Procedure for scaffolds and ladders; registers and checklists, appointments etc. – The relevance, effectiveness and sufficiency of these controls are assessed; – In the event of deficient controls for the particular activity. Further mitigating actions will be recorded and safe working procedures drawn up where applicable; – Responsible person appointed to supervise the task and carryout Planned Job Observation(s). – Completed Risk Assessment must be handed to the Rand Water Site/Project Manager representative for comment and approval; – Names of employees who have received instruction on the work content and the sequence of the activities listed in the risk assessment are to be recorded, obtain their confirmation of comprehension of their roles (signature or other markings). This instruction must be done through an interpreter if required and recorded on the Pre-Job Brief (Daily Safe Task Instructions), with reference to applicable Risk Assessments.

5. SAFE WORK PROCEDURES AND PRACTICES

The aim of this section is to provide an indication of the activities that require safe work procedures and practices to mitigate the identified risks. There must be written safe work procedures for all activities. Risk Assessments should refer to the safe work procedures.

A safe working procedure should be written when:

- Designing a new job or task;
- Changing a job or task;
- Introducing new equipment or substances; and
- Reviewing a procedure when problems have been identified, e.g. from near miss incidents or an accident/incident investigation.

The safe working procedure should identify:

- The supervisor for the task or job and the employees who will undertake the task;
- The tasks that are to be undertaken that pose risks;
- The equipment and substances that are used in these tasks;
- The control measures that have been built into these tasks;
- Any training or qualification needed to undertake the task;
- The personal protective equipment to be worn;
- Actions to be undertaken to address safety issues that may arise while undertaking the task.

Site supervisors / CHSOs shall observe all steps of tasks being carried out on site to ensure that procedures are accurate and being followed as well as to establish if the training provided is sufficient and to observe if the employee has got a safer way of doing the task. Tasks to be observed shall include routine, critical and those tasks which are performed infrequently.

Planned Task Observations must only be conducted by personnel who have been trained on how to conduct them and have been deemed competent to do so. To ensure the Planned Task Observation process is supported, all employees are to receive information regarding the Planned Task Observation procedure and process. All PTO's conducted must be evaluated and this information must be discussed at various communication platforms e.g. progress meetings, SHEQ committee meetings.

Formal planned task observations are to be conducted on a regular scheduled basis within each work group. Each work group is to identify all critical tasks carried out by that work group and a Planned Task Observation is to be conducted for each critical task, at least in every 3-month period.

All Planned Task Observations are to be recorded using a form to provide a record of the observation. This must be recorded to allow future observations to follow up on the items discovered and to ensure that the complete range of tasks and workers are observed. Accurate records of Planned Task Observations conducted and actions resulting are to be maintained. These records with be requested by the RW SHEQ representative from time who will also maintain a record of them.

All actions resulting from Planned Task Observations are to be recorded on the Task Observation form. These actions must be analysed and monitored.

6. EMERGENCY PREPAREDNESS AND RESPONSE

The aim of this section is to remind the Principal Contractors and his sub-contractors about the importance of developing a site specific emergency response plan.

Using the Rand Water ***Site*** specific emergency plan where applicable, the Principal Contractor, together with his sub-contractors, will develop their own emergency response plan (as a guideline) for both site and offices and submit this plan to the Rand Water Project Manager for approval. It may be decided that one site specific emergency response plan be used for all contractors. Principal Contractor will ensure that employees and sub-contractor employees are trained on this plan.

Periodic emergency drills will be undertaken by Rand Water; however, the principal contractor must initiate his own emergency drills annually with permission from the Rand Water Project Manager. This must be recorded and provided on request.

Emergency Care

- A list of emergency numbers must be posted at phones and in every office. Principal Contractor must ensure that his employees and sub-contractor employees are familiar with the emergency numbers and also are provided with stickers, with the emergency numbers printed on, to place inside their hardhats if working in remote areas.
- Contractors shall have one first aid box for the first 5 persons and thereafter one for every 50 or team of workers on site or part thereof.
- More first aid boxes shall be provided if the risks, distance between work teams or workplace requirements require it (it should be available and accessible for the treatment of injured persons at that workplace).
- Minimum contents of a first aid box as per OHS Act as per (OHS ACT-GSR 3)
- A prominent notice or sign in a conspicuous place at a workplace (SABS 1186 approved signs to indicate location of first aid boxes), indicating where the first aid box or boxes are kept as well as the name and contact details of the First Aider of such first aid box or boxes.
- The First Aider must be familiar with the material safety data sheets (MSDS) kept on site.
- The First Aider with a valid certificate will manage the first aid box and will update the contents accordingly.
- The Principal Contractor and sub-contractor shall ensure that alternative arrangements shall be made for possible incidents occurring after normal working hours.
- Where services are not available from the medical centre or where there is no medical centre, the Principal Contractor shall make alternative arrangements for any medical assistance. Proof of this must be made available in the Principal contractors SHE Plan.
- Emergency hospital care must be accessed preferably in a private hospital, but at the nearest hospital.
- The Principal Contractor shall create a 'mock' emergency drill schedule for the duration of the project. The emergency plan shall be tested at least once during the first 90 days of the project, and thereafter annually.

7. ENVIRONMENTAL MANAGEMENT

The aim of this section is to outline Rand Water's requirements with regards to management of the environment in and around the construction site.

i. General Requirements

The minimum environmental requirements required environmental compliance on any construction site include:

a) Spillage clean up kits
b) Driptrays for vehicles
c) Waste disposal at a registered waste site
d) Separation of waste
e) Signage for no go areas
f) Silt fencing
g) Silt sock fitted to trench pump
h) Dust suppression on dust road (twice daily)

ii. Environment File (EA Projects):

A separate Environment file will be required for evaluation of compliance to the conditions of any environmental authorisations. The file must be referenced as per the conditions of the authorisation or EMP / EMPr.

The appointed ECO will review the environmental file simultaneously while the safety file is being evaluated.

This file will be reviewed and approved by the ECO before work commences on site.

Refer to Project Environmental Management Plan (EMP) /and Generic EMP, Environement Authorisations where applicable.
The following is list of documentation that may be held on site and must be made available to the ECO and/or Approving Authority on request:

- Site daily diary /instruction book/ Incident reports;
- Daily toolbox talks;
- Copies of ECO reports (management and monitoring);
- Environmental Management Plan (EMP);
- All environmental authorisations and licences;
- Environmental appointments of Person(s);
- Complaints register;

- Method statements; and
- Rehabilitation Plan

Note : A separate Environment File will be required for the evaluation of compliance as per the conditons of the environment authorisations. This file will be reviewed and approved by the ECO.

The following criteria needs to be complied by any Contractor before performing work:

iii. Spillage of Hazardous Chemical Substances

A register of Hazardous Chemical Substances and Material Safety Data Sheets should be kept on site.

Herbicide usage

Herbicide register for usage to be compiled and maintained, and a copy handed to the Project Manager / environmental advisor on completion of the project / contract.The application of herbicides to be in accordance with the Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act No. 36 of 1947. Only approved and tested herbicides with a low environmental risk shall be used.
Only registered pest control operators may apply herbicides on a commercial basis. All staff applying herbicides must be trained in the application of herbicides.

16.2 Fire hazard

The Contractor shall ensure that staff are educated in fire prevention and will be held responsible to avoid the risk of fire. No area is to be denuded of vegetation to create firebreaks, to prevent or make fires. No open fires are allowed on site. The contractor must ensure that operations are in compliance with statutory requirements at all times.

iv. Waste

- A wasteplan is to be compiled before commencing of work.
- A register of hazardous and non-hazardous waste to be kept on-site.
- All waste to be disposed of at a registered d waste site and records kept. The contractor should identify this site prior to comencement for all waste streams.
- No waste, whether it be biodegradable or not, is to be left on site once work has ended.
- Domestic and hazardous waste generated will not be burned, buried, or disposed of on Rand Water or other Landowners' property but will be controlled and removed to a registered waste site on a regular basis (Daily/Weekly/Monthly).
- The contractor and sub-contractor working on site must ensure that oil, fuel, and chemicals are confined to specific and secure areas throughout the construction period.
- These materials must be stored in a bunded area with adequate containment for potential spills and leaks.
- Contractors must ensure that sufficient waste bins / containers are made available for waste control.

v. Material requirement

The use of any material or property belonging to a specific Landowner will not be undertaken prior to arrangements with the applicable Landowner. Written proof of such agreement to be handed to Project Manager for record keeping

vi. Dust and Noise

The Contractor shall monitor dust and noise caused by mobile equipment, generators and other equipment during construction. Factors such as wind can often affect the intensity to which these impacts are experienced.

To ensure that noise does not constitute a disturbance during construction activities, all construction works shall occur between specific working hours. This must be stipulated in the contract.

Mitigation measures to be implemented as required / agreed upon with the Project Manager/ Project Environmental Control Officer/Advisor.

Dust suppression measures must be in place to reduce the dust caused by the movement of heavy vehicles.All dust road in use should be watered a minimum of twice a day.

vii. Environmental Incidents

All environmental incidents such as pollution (air, water, land, noise, etc.), bird kills, animals killed, plants destroyed, public complaints etc. must be reported to Rand Water Project Manager and SAM SHEQ Officer . Where applicable, RW Project Manager or SAM SHEQ Officer will inform the Environmental Control Officer/Advisor within 24 hours of its occurrence for further further assistance on the investigation and reporting to Government Authorities.

All environmental incidents occurring on site must be recorded, detailing how each incident was dealt with. Proof thereof must be kept in an incident register.

The Contractor will be held liable for any infringement of statutory requirements of the National Environmental Management Act of 1998 or any other relevant legislation.

viii. Water

No construction is allowed in regulated ares without authorisation. These are theareas within the 1:100 year floodlines. 500m from a wetland, or in any situation where shallow water tabes exsist. In the event that it become evident that any of these conditions exsist appropriate advice must be obtained on the matter.

Should any pollution of the watercourse occur, the Department of Water Affairs (DWA) must be notified immediately via the ECO/Corporate Environmental Advisor.

Water usage on site to be verified with the Rand Water Site's Representative to ensure compliance with legislation. Bore hole water must be verified for human consumption fitness. All incidents related to water contamination to be reported within 24 hours.

Chemical toilets :

- May not be within close proximity of the drainage lines / ways,
- To be closed systems and not soak away french drains types.
- Adequate cleaning services must be provided for maintaining the toilets.
- All spillages from toilets to be cleaned up imediately.

ix. Handling of Stockpiles and Cultural and Heritage Resource Artefacts

Mitigation Measure	Management Objectives	Measurable Targets
Stockpiles		
• All stockpiled material must be easily accessible without any environmental damage. • All temporarily stockpiled material must be stockpiled in such a way that the spread of materials are minimised. • No stockpiles should be placed within the 1:100 flood lines. • The contractor must avoid vegetated areas that will not be cleared. • Storm water runoff from the stockpile sites and other related areas must be directed into the storm water system with the necessary pollution prevention measures such as silt traps and may not run freely into the immediate and surrounding environments. • Stockpiles are to be stabilized if signs of erosion are visible. • Soils from different horizons must be stock piled such that topsoil stockpiles do not get contaminated by sub-soil material. • Topsoil stockpiles must be monitored for invasive exotic vegetation growth. Contractors must remediate as and when required in consultation with the ER and ECO. • No plant, workforce or any construction related activities may be allowed onto the topsoil stockpiles. • Topsoil stockpiles must be clearly demarcated as no-go areas.	• Minimise scaring of the soil surface and land features • Minimise disturbance and loss of soil • Minimise construction footprint • Minimise sedimentation of nearby drainage lines • Maintain the integrity of topsoil's for landscaping and rehabilitation • Containment of invasive plant growth • Minimise contamination of storm water run-off	• No visible erosion scars once construction is completed • The footprint has not exceeded the agreed site. • Minimal invasive weed growth • No signs of sedimentation and erosion

• Top soil piles must not be higher than 1.5m to avoid compaction thereby maintaining the soil integrity and chemical composition.		
Cultural and Heritage Resources Artefacts		
• Local museums and the South African Heritage Resources Agency (SAHRA) should be informed if any artefacts are discovered in an affected area. • Employees should be aware of procedures to follow in such circumstances. • Any discovered artefacts should not be removed and the ECO should be informed so that necessary action can be taken.	• Proper training to employees on how to deal with artefacts discoveries	• Monthly

x. Signing-off of the contract

No project should be signed off before Site Risk Control/SAMSHEQ/ECO has given assurance that no environmental liabilities exist. The Responsible Person, Project Manager,SAM/Site Risk or Environmental Advisor shall carry out a physical inspection before acceptance of work done.

No invoice to be processed before work is accepted.

The Contractor shall be conversant and in the course of carrying out the Works the Contractor shall comply with the provisions of all Acts, regulations, ordinances, by-laws, Standards, Codes, Rules and requirements of public, municipal and other authorities.

The Project Team may at any time without notice to the Contractor examine and investigate the Contractors' compliance with all Applicable Legislation and the environmental management conditions.

At all times during the execution of the Works, the Contractor shall preserve and protect the natural environment in the general area of the site and the external areas that may be affected by his operations.

Environmental protection shall include, but not be limited to, the following issues: Noise pollution, gaseous emissions, noxious and/or offensive odours, liquid waste collection and solid waste separation and collection.

In the event of any perceived conflict between the "environmental laws" and the Contract documents, the Contractor shall, prior to commencing the Work, refer such conflict to the Project Management Team for clarification.

Without limiting the Contractors' responsibilities under the Applicable Legislation, the Work shall be conducted in such a manner as to ensure that:

- No substance, which can harm or is likely to harm the environment, is to be allowed to leak, spill or escape from any container or storage area.
- No oil or other effluent is permitted to escape into the drainage system and/or local storm water system.
- No oil or other effluent is permitted to escape into the ground and cause soil contamination.
- All powdered pollutants generated during execution of the Work are contained to prevent air pollution.
- No sediment generated is permitted to escape into the drainage system and/or local storm water system.
- No harmful solids or liquids are permitted to spill from containers whilst in transit on the premises.
- All oil-based waste material shall be kept segregated and placed in sealed 200 litre drums. This material shall be disposed of through a recognised oil recycling company.
- All water-based waste material shall be kept apart. Small amounts shall be collected and stored in 200 litre containers. Large amounts shall be pumped into a bulk tanker for disposal. Prior to disposal, all water-based material shall be sampled to allow analyses to be carried out.

8. FORUMS FOR SHEQ COMMUNICATION

This provides an outline of the different forums, where Rand Water engages with the contractor/s on SHEQ issues. This also includes the frequency of the different forums as well as the mediums to be employed.
The Principal Contractor/s and their sub-contractor/s will have to provide a communication strategy outlining how they intend to communicate SHEQ issues to their staff, the mediums they will employ and how they will measure the effectiveness of their SHEQ communication.

Every meeting conducted on site shall include SHEQ as a standing agenda point and minutes of these meetings shall be available on site at all times.

Attendance lists and minutes shall be kept for all the health and safety meetings.

Type of forum	Objective	Chairperson	Frequency	Required Attendees
Monthly Project Progress Meeting	This is the forum where all projects matters within a programme are discussed on a monthly basis. Duration is approximately 4 hours	Programme Manager	Monthly	Rand Water:Site Management Project Team [excludes contractor(s)]
Progress Meeting	This forum where project specific are discussed. SHEQ issues are standing agenda points on this forum	Rand Water Project Manager	Weekly/ Bi-weekly/ Monthly	Principal Contractor/s and their sub-contractor/s: o Project Managers o Site managers o Appointed Engineers or Designers Rand Water: Project Team
Pre-Job Brief Meeting	This is a meeting which is held prior to the commencement of the day's work with all relevant personnel associated with the work task in attendance. The job, relevant procedures, associated hazards, safety measures, i.e., the task risk assessments shall be discussed. Each employee who attends the briefing shall sign the back of that pre-job brief form. Toolbox talks shall be included in the pre-job brief meetings. The toolbox topics will be based on SHE issues pertaining to the construction site. The topic contents shall be in writing.	Contractor Supervisor	Daily	Principal Contractor/s and their sub-contractor/s: o All relevant personnel
Contractor Statutory SHE Meetings	This is a meeting where the Principal Contractor to ensure project SHE goals are met and to ensure SHE rules and procedures are understood. The Committee shall meet to discuss SHE issues concerning the current work being performed, training, upcoming work and SHE requirements, incidents and lessons learned specific SHE problems, safety performance, action plans and other relevant SHE issues such as but not limited to: Hazardous conditions/materials / substances, Work procedures, Protective clothing / equipment, Housekeeping, SHE Representative Reports,Accident / Safety incidents, Audit findings and close out, Work permits, Non-conformances, Emergency preparedness, Traffic control, Medicals, Training. Forthcoming High hazard activities, General SHEQ issues.	Principal Contractor Construction Supervisor	Monthly	Principal Contractor/s and their sub-contractor/s: o Project Managers o Site managers o Supervisors o Health and Safety Practitioners/Officers o Health and Safety Representatives • Rand Water: o RW ECO/SAM SHEQ o RW Project Representative

SHE Steering Committee Meetings	This is a meeting where SHE practitioners for different principal and subcontractors meet if they are working within the same locality or if the activities performed by each contractor interact with one another	Client SHEQ Representative	Monthly/ Quarterly	Principal Contractor/s and their sub-contractor/s: o Construction Health and Safety Officers • Rand Water: SAM SHEQ Reprehensive

9. SHEQ INCIDENT MANAGEMENT (PRINCIPAL CONTRACTOR AND SUB- CONTRACTORS)

The Contractor shall compile and implement procedure for Reporting and investigation of incidents – This document sets out the procedures to be followed when reporting, recording and investigating incidents that occur on a construction site.

The Principal Contractor shall report all incidents/accidents as required in terms of legislation including near miss incidents, first aid, medical treatment, lost time incidents (lost time injuries and fatalities); Section 24 and 25 incidents; electrical contact; property damage; crime, chemical spillage and other environmental incidents immediately, or if not possible within the shift and no later than 24 hours after the incident has occurred.

Where a **fatality or permanent disabling injury occurs** at a construction site, Contractor must provide the **Provincial director with a report contemplated in section 24 of the Act**, in accordance with regulations 8 and 9 of the General Administrative Regulations 2013 and that the reports included measures that the contractor intends to implement to ensure a safe construction site as far as is reasonably practicable.

All fatal incidents, employee and contractor incidents, shall be reviewed by the committee within one week after the incident and the members of the Project Progress meeting notified of corrective actions taken. Preliminary investigation information shall be shared.

An incident portfolio of evidence and a comprehensive and detailed investigation report shall be submitted to the Rand Water project manager/ SHEQ Officer within 7 days after the incident which shall include: Date, time and place of incident; Description of incident; Root cause of incident/accident; Type of injury (if any); Medical treatment provided (if any); Persons involved; Names of witness/s; Corrective action to prevent recurrence (with clear deadlines and responsible persons). It is required that all corrective action is closed out within 3 months. If this is not practicable within the time frame, then it is to be submitted at a later date agreed to by the Rand Water Project Manager.

The Principal Contractor shall ensure that all accidents/incidents are investigated by him/her and are discussed at the SHE committee meeting held on site. Accidents/incidents shall be investigated and recorded in terms of the requirements of the Occupational Health and Safety Act, the National Environmental Management Act and National Water Act as applicable.

Please note that providing the Accident/incident investigation report does not exempt the Principal Contractor from providing accident reports required by Statutory Authorities, in particular, the Contractors' responsibility for reporting accidents in accordance with the requirements of the OHS Act and COID Act.

NB: To limit incidents resulting from community unrest / protest action, a CLO must be appointed on the project prior to site establishment.

The Client/Agent shall be allowed to participate in any accident/incident investigation if the accident/incident is directly linked to any activity within the scope of the construction project

The Principal Contractor shall keep on site/workplace a record of all accidents and incidents reported in the form of the OHS Act Annexure 1 investigation form as referenced in the OHS Act. (Incident Investigation Report). The list below shows the minimum headings that should appear in the investigation report.

A. Recording of incident

i. Name of employer
ii. Name of affected person
iii. Identity number of affected person
iv. Date of incident
v. Time of incident
vi. Part of body affected
vii. Effect on person (e.g. sprain or strain / fracture / burn)

viii. Expected period of disablement
ix. Description of occupational disease
x. Machine / process involved / type of work performed / exposure**
xi. Was the incident reported to the Compensation Commissioner and the Provincial Director? (Yes/No)
xii. Was the incident reported to the police? (Yes/No)*
xiii. SAPS office and reference

**to be completed in case of a fatal incident*
***in case of a hazardous chemical substance, indicate substance exposed to*

B. Investigation of the above incident by a person designated thereto

i. Name of investigator
ii. Date of investigation
iii. Designation of investigator
iv. Short description of incident
v. Suspected cause of incident
vi. Recommended steps to prevent a recurrence

C. **Action taken by employer to prevent the recurrence of a similar incident** (including dated signature of employer and date)
D. **Remarks by Health and Safety Committee** (including dated signature of Health and Safety Committee Chairman)

All crime related incidents must be reported to SAPS and to Rand Water. The PC must also make sure that all crime related incidents are investigated. The investigation report stemming from crime related incident must contain the following information as minimum.

i. Name of employer
ii. Name of affected person (if anyone was injured)
iii. Identity number of affected person (if anyone was injured)
iv. Date of incident
v. Time of incident
vi. Description of incident
vii. Was the incident reported to the police? (Yes/No)
viii. SAPS office and reference

Investigation of the above incident by a person designated thereto

vii. Name of investigator
viii. Date of investigation
ix. Designation of investigator
x. Short description of incident
xi. Suspected cause of incident
xii. Immediate corrective action
xiii. Recommended steps to prevent a recurrence (including dated signature of employer and date)

Rand Water reserves the right to conduct an independent investigation in any incident. Actions stemming from these investigation reports must be closed out within the stipulated timeframes. Any actions that have not been closed out will be raised as a non-conformance and may warrant the issue of a penalty if they are still not close out within the required target dates.

Incidents involving the public that may impact the project by causing damage to property, harm or injury to employees and project delays must be reported as crime incidents to the SAPS as well as to Rand Water.

Investigation Teams below are expected as a minimum for the Principal Contractor to establish for incidents and accidents. In addition to the Principal Contractor and his sub-contractor investigations, Rand Water will also, separately, conduct its own separate investigation especially for disabling injuries, fatalities, serious environmental legal contraventions and damages to Rand Water property. The principal contractor and sub-contractor would be required to co-operate with the Rand Water Investigation Team.

Parties to be involved in the investigation are as follows:

Incident Type	Definition	Chairman:	Attendees:

First Aid Injuries	An incident in which an injured person is treated at the incident scene by the first Aider and released back for duty	Supervisor of Injured Person / Principal Contractor: Relevant Supervisor	Principal Contractor/s and their sub-contractor/s • SHE representative • Construction Safety Officer • Injured
Medical Treatment Injuries	An incident in which an injured person is treated by the OHP/Medical doctor and released back for duty	Principal Contractor's OHS Act Section 16(2) appointee	<u>Principal Contractor/s and / or their sub-contractor/s</u> • SHE representative • Construction Safety Officer • Injured (if possible) • Witness (if any) • Supervisor of the injured <u>Rand Water</u> • RW Project Representative
Disabling Injuries Including Occupational Diseases	Incident which arises in the course of duty which results in any occupational illness/ injury/ diseases, and giving rise to any related temporary or permanent disablement as determined by the Medical practitioner. The DI will be further classified as disabling in the event of one or more of the following criteria are applicable: – The injured person is unable to continue performing his normal duties and tasks for which he/she was employed for 14 days or more, – The loss or more than one day or shift following the day or shift during which an incident occurred, inclusive of weekends, and schedule off-duty days, – All fractures and amputations – A person becomes unconscious, irrespective of the duration, as the results of workplace exposure or any incident, – An occupational illness which necessitates medical treatment and or restricted work and /or days/shifts off-duty, – Compensable occupational diseases recorded as a single DI on the day of diagnosis. – Any damage to the bone such as closed fracture, amputation of the fingertip etc.	Principal Contractor's OHS Act Section 16(2) appointee	<u>Principal Contractor/s and / or their sub-contractor/s</u> • SHE Representative • Construction Safety Officer • Injured (if possible) • Witness (if any) • Supervisor of the injured • OHS Act Section 16(2) of the injured <u>Rand Water</u> • Rand Water Site Project Manager • Rand Water SAM SHEQ Representative • Rand Water Site Risk Representative • Corporate SHEQ Representative
Fatalities	An incident that occurs at work or arising out of, or in connection with the activities of persons at work, or in connection with the use of plant or machinery, in which, or in consequence of which a person dies,	Principal Contractor's OHS Act Section 16(2) appointee	<u>Principal Contractor/s and / or their sub-contractor/s</u> • SHE Representative • Construction Safety Officer • Injured (if possible) • Witness (if any) • Supervisor of the injured • OHS Act Section 16(2) of the injured <u>Rand Water</u> • Rand Water Project Manager • Rand Water Site Project Manager

			• Rand Water SAM SHEQ /Corporate Risk/Site Risk Representative
Near Miss Incidents	An incident that has the potential of causing an injury or negative impact to the environment	Principal Contractor/s Construction Supervisor 6.1 appointee	Principal Contractor/s and / or their sub-contractor/s • Person/s affected by near miss • SHE representative • Construction Safety Officer • Supervisor of the area • Principal Contractor 's OHS Act Section 16(2) appointee
Environment Incidents	An event resulting in temporary or permanent cumulative or immediate adverse effects on the environment, e.g. an oil or chemical spillage, or release of toxic gas	Principal Contractor/s Construction Supervisor 6.1 appointee	Principal Contractor/s and / or their sub-contractor/s • SHE representative • Construction Safety Officer • Witness (if any) Rand Water • Site Project Manager/Representative • ECO where applicable • Rand Water SAM SHEQ Officer/Corporate Environmental Advisor (in the event of major environment incidents)
Damage To Rand Water/ Third Party Property	Property damage is damage to or the destruction of Rand Water property, caused either by a person or by natural phenomena.	Principal Contractor/s Construction Supervisor 6.1 appointee	Principal Contractor/s and / or their sub-contractor/s • SHE representative • Construction Safety Officer • Witness (if any) Rand Water • Rand Water Site Project Manager • Rand Water SAM SHEQ Officer • SAM SHEQ Risk Control Investigator
Crime	An action or omission that constitutes an offense that may be prosecuted by the state and is punishable by law	Principal Contractor/s Construction Supervisor 6.1 appointee	Principal Contractor/s and / or their sub-contractor/s • SHE representative where applicable • Construction Safety Officer • Witness (if any) Rand Water (Where applicable) • Rand Water Site Project Manager • Rand Water SAM SHEQ Officer • SAM Risk Control Investigator • Detective (SAPS) • Suspect(s) • Witness (if any) • Protective Services Official (if possible) • Principal contractor and / or their sub-contractor

- All investigation teams must include at least 1 person (from both the Rand Water and Principal Contractor) that is competent in Incident Investigation.

- Contractors shall ensure the incident/accident scene is not disturbed until after the investigation unless it is done to prevent further injury or for rescue purposes (OHS Act, Section 24(2) applies). Investigation shall begin promptly after the incident/accident. Where applicable and with proper authorization, photographs may be taken of the scene of the incident as well as any equipment involved in the incident. The investigation report shall be submitted to Rand Water Project Manager, within 3 days after the incident occurred unless proof can be given that due to technical or other difficulties, more time is needed.

- It is essential that the Principal Contractor demonstrate that corrective action has been taken and that correction action is communicated to all Contractors staff affected.

- Feedback on the status of close out of corrective actions must be communicated at the following forums: Site Progress Meeting, Project Progress Meeting and at Contractor SHE Meetings.

  NB: Incidents of fraud will be handed over to the Rand Water Forensics Department for further investigation or if not applicable, they will be handed over to the Engineer of the project to make a determination as per the conditions of contract.

All corrective actions from incidents shall be closed out within 90 days from the date of the incident. Action that have not been addressed within the specified timeframes shall be raised non-conformances that may warrant the issue of a penalty should they still not be addressed with the required target dates.

Cases of fraud that are brought the attention of the SAM SHEQ / Project representatives will be handed over to RW forensic department for further investigation and judgement of thereafter.

10. OPERATIONAL CONTROL REQUIREMENTS

a. Notices & Signs

All symbolic safety signage, that the Principal Contractor or his/her sub-contractors are to use/display are to conform the requirements of SANS 1186.

The display of the following signs is mandatory:

- For Contractors with Site Establishment: The Contractor Company sign must be posted at their site offices to reflect the name and contact details of the: Construction Supervisor; Health and Safety Manager/Officer; First Aider; Health and Safety Representative and Evacuation Warden. Sign to also include site specific number as per the construction work permit where applicable.

- "Radio-Active Material" symbolic signs at radioactive storage areas.

- The location of every first aid box; fire extinguisher and emergency exit is to be clearly indicated by means of a sign.

- At the entrance to premises where machinery is used: Restricted access i.e. **"Authorised Person Only"** signs on entry.

- When in use, an Explosive Power Tool shall have a sign, warning people of its use.

- The Contractors shall provide the signage where work is conducted and where unauthorised entry is prohibited and/or where alerting and cautioning passers-by to be aware of potential dangers.

- Notices & Signs at entrances / along perimeters indicating"No Unauthorised Entry".

- Notices & Signs at entrance instructing visitors and non – employees what to do, where to go and where to report on entering the site/yard with directional signs. E.g."Visitors to report to Site Office"

- Notices & Signs posted to warn of overhead work and other hazardous activities. E.g. **General Warning Signs.**

- All equipment brought onto the construction site, (including motorised equipment, e.g. bobcat) that requires PPE to be worn during operation, must have the relevant PPE mandatory sign/s attached. The type and use of PPE will be placed at all entry points to the construction site.

Note: *Signage to be adequate to ensure after hour safety.*

b. Fire Safety

Contractors must develop a fire safety plan/procedure for the specific construction site prior to commencing work. The procedure must take into consideration the size of the site, type of work being done (e.g. cutting, welding, grinding, etc.) and amount of combustible materials. All workers entering and working in the construction site need to be trained in fire safety and any duties they are required to perform. Pre-existing fire systems in buildings shall be maintained during construction whenever possible. Any changes must be approved by the Client/Agent.

The fire safety plan shall include:

- The designation and organization of site personnel to carry out fire safety duties, including fire watch service if applicable.
- The emergency procedures to be used in the case of fire, including: Sounding the fire alarm, notifying the fire department ,instructing site personnel ,Fire fighting procedures and integrating with existing emergency procedures.
- The control of fire hazards in and around the building.
- Maintenance of fire fighting facilities.

Cutting, Welding, and Hot Work

Prior to cutting or coring of concrete suspended slabs, cast in place or pre-cast walls, slab on grade the contractor must either X-ray the slab or if X-ray is not feasible provide other approved alternate method for determining live electrical concealed in slab or walls. Signage shall be posted to ensure no one enters the affected area during X-raying.

When welding or cutting work is performed, an adequate number of approved fire extinguishers shall be provided by the contractor. The contractor shall provide a thirty minute fire watch after the operations has ended to ensure that no fire starts. Extraction fans to be provided when welding work is performed.

Fire Guidelines:

- Fire alarm shut downs: Contractors must inform the Client/Agent in writing 7 days prior to any part of a fire system being shut down.
- Fire Warning: A suitable means of alerting site personnel to a fire shall be provided, and capable of being heard in all areas of the building.
- Portable Extinguishers: suitable extinguishers must be available in the construction site and in cases of hot work, be readily available at the location.
- Combustible Liquid and Flammable Liquid Storage: storage of combustible and flammable liquid in the construction site is not permitted unless stored in approved flammable cabinets or outdoors away from the buildings.
- Smoking Restrictions: Smoking is not permitted indoors, at entrances to buildings or near air intake systems as per Rand Water Smoking Policy and legislation requirements

c. Construction Vehicles and Mobile Plant

a) The Contractor shall implement a site traffic plan (circular movement) to ensure the safe movement of all Construction related mobile plant.

b) Contractors shall implement pedestrian and vehicle routings as part of the site traffic plan to demonstrate the route employees may proceed when coming on or going off shift

c) All motor vehicles operated by Contractors within the area shall, in all respects, comply with the Road Traffic Ordinance and Road Traffic Act. Designated drivers shall be in possession of a driver's licence, valid for the class of vehicle as well as an operator certificate where applicable. The driver's license shall be kept by the person so authorised and shall produce such card on request.

d) All drivers of construction vehicles and mobile plant to have medical certificates of fitness.Each Project site will have system/ process to manage vehicle access to site.

e) The contractor shall attach identification markers on all of his/her vehicles that are permitted to enter the site.

f) The speed limit within the bounds of the construction site is __30___ km/h. (To be completed by the project team). A consolidated traffic plan must be in place where there are many vehicles within a project site.

g) No drivers or operator may talk on cell phones or two way radios whilst driving, unless a hands free kit is used.

h) It is the responsibility of the driver to ensure:

- He/She and his/her passengers wear seat belts whilst the vehicle is in motion.
- Comply with all safety, direction and speed signs.
- Ensure that vehicle loads are properly secured and loaded onto vehicles.

- Ensure that vehicles are not overloaded.

i) All requirements with regard to the transportation of tools/equipment/material and persons on the back of construction vehicles must be adhered to:
   - No Personnel to be transported in the back of construction vehicles with tools.
   - Tools, equipment and material to be secured in order to prevent movement;
   - Fixed and firmly secured seats with seat belts – adequate for the number of passengers being transported;
   - The driver and all passengers to be seated with seatbelts fastened whilst the vehicle is in motion.(National Road Traffic Act no 93 of 1996).

j) The Principal Contractor shall ensure that his employees and those of his subcontractors do not.
   - Ride on back of elevators, cranes or other mobile plant equipment.
   - Leave vehicles unattended with the engine running.
   - Park vehicles in unauthorised zones/areas.

k) Rand Water reserves the right to search any vehicle on the premises or when entering or leaving the premises.

l) The Contractor shall be solely responsible for the safety and security of any of his vehicles (including private vehicles) on the premises.

m) A current maintenance logbook is required for all cranes and large plant equipment, and shall be available for inspection at any time. The logbook shall be located in the cabin of the crane or plant equipment.

n) Principal contractor is to ensure that visibility (e.g.: switching on of lights, reflectors, barricades equipped with lights, etc.) is enhanced on all Construction Vehicles and Mobile plants in order to identify the location of the vehicles or plant.

o) The Contractor must maintain his vehicles in roadworthy condition and a valid license. These vehicles shall be subject to inspection by the Client/Agent's representative. Vehicles which are not roadworthy will not be allowed onto the site. If mobile plant equipment is used on the public road, the same requirements as for vehicles apply and should be adhered to.

p) In the event where the principal Contractor and his sub-contractor do not own the equipment, the principal Contractor is still responsible for ensuring all conditions are complied with by all of his subcontractors or hire companies.

q) Drivers/operators shall be responsible for the travel-worthiness of all loads conveyed by them. Precautions shall be taken to lash all loads properly. Loads projecting from vehicles shall be securely loaded and in daytime a red flag and during darkness a red light or red reflective material shall be attached to the extreme end of such projecting material.

r) All servicing and repairs must be carried out by the Contractor in a designated area.

s) All waste from servicing must be disposed of in accordance with the environmental legislation.

t) Every mobile machine whose vision is impaired when reversing must have a siren/hooter, which sounds, when the machine is reversing. This includes trucks, cranes, loaders, etc.

u) Operators have great difficulty in seeing light vehicles behind their machines. Drivers of light vehicles must avoid stopping or parking in the vicinity of machines. At least 30 (thirty) meters must be left clear between such a vehicle and such a machine.

v) Drip Trays to be placed under the vehicles where are possible leaks to avoid soil and ground pollution.

d. Personal Protective Equipment

In terms of Section 8 of the OHS Act, the duty of the employer is to take steps to eliminate or mitigate (hierarchy of control measures) any hazard or potential hazard to the safety or health of employees before resorting to PPE.

Principal contractor's employees and his sub-contractor employees at the construction site, including visitors, shall use the following SANS or the relevant internationally recognised authority approved risk based PPE at all times, as a minimum:

- Head protection (Hard hat).
- Steel toe capped safety boots.
- Eye protection.
- Long sleeved and long pants protective clothing.*NB: At least two of each to be issued to each employee.*
- High visibility vests.
- Refer to General Safety Regulation 2 of the OHS Act- if there are particular activities/areas/risk assessments that require a specific type of PPE, then that specific PPE requirement must be adhered to (e.g.: for dusty environments – eye goggles; for welding – welding helmet; etc.).

The Contractor shall ensure that his employees understand why the personal protective equipment is necessary and that they use them correctly.

Strict non-compliance measures must be administered to any employee not complying with the use of PPE and shall be removed from the Site.

PPE shall be worn in any designated area requiring such a PPE.

Issue, Replacement and Control of PPE: The Principal contractor must provide a detailed programme on the issuing, maintenance and replacement of PPE for all his employees and subcontractors on site. The Principal contractor is required to keep an updated register of all PPE issued to staff, including that of his sub-contractors

e. Housekeeping

Principal Contractors and Sub-contractors

- The Principal Contractor and his sub-contractor shall maintain a high standard of housekeeping within the site. Ensure prompt disposal of waste materials, scrap and rubbish is essential. Also refer to what the requirements are in the EMP

Scrap/Waste Removal System

- Scrap management as per agreement with Project Manager.
- All items of Scrap/Unusable Off-cuts/Rubble and redundant material removed from working areas on a regular basis.
- Scrap/Waste disposed of in designated containers/areas
- Removal from site/yard on a regular basis.

Stacking & Storage

- Before stacking any material, the Contractor, sub-contractor or their employees must consult the Rand Water Project/site Manager for allocation of a stacking area, General Safety Regulations 8 of OHS Act.
- Adequate care must be taken by the Contractor to ensure that storage and stacking is correctly and safely carried out.
- Materials/objects shall not be left unsecured in elevated areas –falling objects may cause serious injuries/fatalities
- All packaging material including boxes, pallets, crates, etc. to be removed from the work area immediately.

Waste Control/Reclamation

- Re-usable off-cuts and other re-usable material removed frequently and kept to a minimum in the work areas.
- All re-usable materials neatly stacked/stored in designated areas. (Nails removed/bent over in re-usable timber).

After job completion

- On completion of his work, the contractor is responsible for clearing his work area of all materials, scrap, temporary buildings and building bases to the satisfaction of the Client/Agent.

Inadequate standard of housekeeping

- The Rand Water Project/Site Manager has the right to instruct the Principal Contractor and his sub-contractor to cease work until the area has been tidied up and made safe. Neither additional costs nor extension of time to the Contract shall be allowed as a result of such a stoppage. Failure to comply will result in site cleaning by another cleaning contractor company at the cost of the Principal Contractor

Regular safety/housekeeping inspections

- The Principal Contractor shall carry out regular safety/housekeeping inspections (at least weekly) to ensure maintenance of satisfactory standards. The Principal Contractor shall document the results of each inspection and shall maintain records for inspection.

f. Permit to Work

Contractors must adhere to the approved Rand Water Permit to work system to control identified high risk activities.

If the type of work requires that contractors must be trained, competence assessed and authorised in writing to perform the duties of an authorised or responsible person as contemplated in the applicable Rand Water regulations e.g. Hot Work, Radiation, confined space work, excavation, blasting etc.

The RW Project Manager is to provide more details on the permit to work system for the specific work to be conducted by the Principal Contractor.

Shutdown work

- All shutdowns must be planned for well in advance.
- The particular risks associated with the shutdown work must be assessed and adequately controlled.
- Isolation procedures are to be put in place and implemented during execution of the work.
- The contractor must ensure that adequate staff are available throughout the shutdown. Employees must not be permitted to work double shifts and must be afforded enough time to rest. Working hours must strictly be guided by the Basic Conditions of Employment Act.
- Shutdown work must be supervised by competent persons at all times.
- Adequate lighting, comfort and rest facilities must be provided for work that takes place during the night.
- Isolation processes also known as 'lockout / Tagout' are to be to used isolate any machinery and equipment from their energy source. It is important to ensure the isolation of any unsafe machinery/equipment from potential uncontrolled energy sources during shutdown work. Any stored energy (hydraulic or pneumatic power, for instance) should also be dissipated before the work starts. Before entering or working on the equipment, it is essential that the effectiveness of the isolation is verified by a suitably competent person.

g. Hazardous Materials/Chemicals Management

The aim of this section is to outline to the Principal Contractors and his sub-contractors how hazardous substances, as defined in the Hazardous Chemical Substances Regulations (OHS Act), should be managed.

- Prior to any HCS being brought onto the site or produced on the site, the Principal Contractor shall supply the Rand Water Project Manager with the following: Material Safety Data Sheets (MSDS) in accordance with the requirements of the OHS Act – Regulations for Hazardous Chemical Substances; Purpose for bringing the hazardous substance onto the site; Proposed arrangements for safe storage; Proposed methods for handling/usage; Proposed method of disposal; and Hazard communication / training plan.
- The information is to be provided at least **two (2) working days** prior to the expected delivery on site.
- The Rand Water Project Manager shall approve the use of any hazardous substance after receiving the above information.
- No HCS are not to be brought onto the site until the Rand Water Project Manager approval is received.
- All HCS containers to be clearly labelled. Containers that are not marked will not be allowed. No HCS to be stored in food or drink containers.
- Users of HCS to wear/use the correct PPE as per the HCS material safety data sheet.
- Users of HCS to be adequately trained in the HCS that they are handling.
- The Contractors to have and maintain a register with all the HCS that they have on site
- Site Risk Control/SHEQ Teams **must** be notified of any HCS, explosive, and radiation sources that may enter the premises.

Flammable and Combustible Liquids

- Proposals to store fuel on site must have written approval from the Rand Water Project Manager.
- The volumes of fuel allowed to be stored will depend on site conditions and Statutory Regulations. A maximum storage of 40 litres of fuel is allowed to be stored. Anything greater than 40 litres to be stored in a licensed flammable/combustible liquid store.
- Adequate numbers of dry chemical fire extinguishers shall be provided, installed and maintained.
- Before a machine is refuelled, the motor must be stopped. Refuelling shall take place at designated safe areas and appropriate warning signs installed. Suitable drip trays must be used to prevent spillage at the filling nozzle.
- All fuel storage areas must comply with the following requirements: -
  Storage should be well clear of buildings, Storage areas must be kept free from all combustible materials. All danger signs must be prominently displayed, i.e. Flammable Liquid, No Smoking, No Naked flames. Hazchem identification. Adequate fire fighting equipment must be available. Diesel tanks will be installed in a bund area; bund area must be able to contain 110% of tank capacity. Bund area shall be of a concrete or steel

construction. Bund area shall have a lockable drain valve. No other material/equipment shall be stored in the bund area. See Construction Regulation 23, of the OHS Act.

Hazardous Chemical Substance Use During Commissioning

- During commissioning of major hazardous installations, the PC must ensure that they obtain authorisation from the client prior to bringing large quantities of hazardous chemical substances to site. The suppliers of hazardous chemicals shall ensure that the MSDSs of the substance are provided to the client and that adequate method statements and risk assessments are in place for the activity. The PC must submit an emergency plan that will take into consideration the relevant RW site emergency plan prior to commissioning. In addition, the supplier of the hazardous substance shall provide service that shall be readily available on a 24-hour basis to RW and other relevant stakeholders to provide information and service in the case of a major incident.

Explosives

- Explosives shall not be brought onto the site or be used without the express permission of the relevant Rand Water /Representative.
- Explosives or detonators shall not be stored on the site.
- Detonators and other explosives shall never be carried in the same box.
- The provisions of all relevant Acts and Regulations shall be strictly observed.

Compressed Gas Cylinders(General Safety Regulation 9) and SABS 1548

The following requirements apply to all gas cylinders storage:

- Contractors shall establish storage areas as approved by the Rand Water Project Manager.
- Storage areas should be well clear of buildings.
- The storage areas shall be fenced, shaded, stable, and solid surfaces.
- For security and ventilation purposes, a wire mesh fence should surround the storage area. Keep the enclosure locked.
- All danger signs must be prominently displayed at storage area; e.g.
- No Smoking and naked flames.
- A protective covering must be provided.
- Adequate ventilation must be provided.
- Storage areas must be kept free from all combustible materials; no other materials must be stored in cylinder enclosure.
- Full cylinders must be kept apart from empty cylinders so that it will not be necessary to open valves to check whether cylinders are empty or full.
- Cylinders must always be chained separately in an upright position and special stands must be used for cylinders.
- Cylinders must be stored in rows with aisle in-between for easy removal in event of fire.
- Mark empty cylinders clearly and move to approved storage areas.
- Adequate fire fighting equipment must be available.
- Cylinders for different gasses must be stored separately.
- Flammable and oxidising gasses must not be stored together; greases and oils must never be allowed to come in contact with oxygen.
- Only flame-proof electrical lighting should be used, if required.
- Cylinders will only be allowed on site in an approved trolley, properly secured and with a chain.
- All gas cylinder torches to have flashback arrestors fitted on both sides.
- Clamps are to be used to separate cables

h. Radiography, Ultrasonic, Non-Destructive Testing (NDT)

The Contractor carrying out radiography, ultrasonic or other non-destructive testing (NDT) on the site must comply with the requirements of the relevant legislations, codes of practice and any specific Client/Agent procedures. In particular, the Contractor shall ensure that:

- No radioactive sources may be brought onto site without prior written consent of the Client/Agent.

- Where a statutory appointment exists, he has appointed, in writing, a suitably qualified and experienced RPO to provide advice on the observance of the law and other relevant health and safety matters.

- Radiography areas and clearly identified by the erection of suitable barriers, sirens, warning notices and / or flashing lights. Vehicles transporting shall be clearly identified.

- Radiation operators must submit proof of certification and an annual permit issued by the department of health.
- All contractors must be informed of X-ray activities.
- X-ray work may only commence with a valid permit to work.
- When removing a radioactive source, The contractor must write a letter to the Department of Health in order to have an authorisation to remove the source
- There must also be an authorisation letter to Rand Water for the source to be removed from their register
- Safe disposal certificate for radio source must be submitted to the Client
- Refer to requirements in:SANS code of practice: 100228: "Code of Practice for the Identification and Classification of Dangerous Substances and Goods". Published by the South African Bureau of Standards.

Storage requirements of Storage Areas

No radioactive material or instrument or apparatus containing such material may be stored on any permises zoned for domestic purposes

When in storage the source assembly must be locked in the 'off' or fully shielded position

Warning signs, of a design approved by the Department must be displayed at the entrance to be the storeroom or storage area to indicate the presence of radioactive material. The 'trefoli' symbol must appear on the sign, as it should also include the wording "Danger – Radiation".

Dose rates outside the store should not exceed 2.5µSv/h (0.25 mR/h)

i. Falling Risk Positions

Whenever persons are required to work in a fall risk position where there potential exposure to falling either from, off, or into, a fall protection plan (which includes fall prevention) will be compiled, implemented and reviewed and every possible and practicable means shall be adopted to provide such persons with effective training and safeguards.

All persons required to work in fall risk positions shall be declared medically fit.

Working on fall risk positions shall only be carried out under the supervision of a competent person.

Safety belts are not allowed to be used in Rand Water. Appropriate fall protection equipment e.g. full body safety harness will be worn when working at an elevated position unless working from a solid platform protected by suitable barricading

Mitigation measures to be put in place:

- All tools in fall risk positions must be attached to lanyards, attached to person or structure or effectively prevented from falling.
- Equipment in fall risk positions must be tied back to the structure.
- Loose items in fall risk positions. E.g. Bolts and nuts to be kept in tins or similar robust containers and not in paper boxes.
- When working at fall risk positions, nets and/or other suitable material should be used catch falling debris and sparks directly below where the task is being performed
- Roof work discontinued when there is bad/hazardous weather
- Fall protection measures (including warning notices) when working close to edges or on fragile roofing material
  Fall protection includes: Safety harnesses and double lanyards; approved lifelines; and other approved means.
  Fall protection equipment to be implemented where fall prevention is not possible and shall comply with SANS Standards -: SANS 503&508 Series and other recognised international standards.
- Provision must be made for employee rescue.

Scaffolding

- All scaffolding used shall comply with the OHS Act and Regulations as well as SANS 10085.
- Scaffolding erectors to be trained as specified in SANS 10085.
- Scaffolding access ladders shall form part of the scaffold structure and not the ladder register.

Ladders (Portable)

- All ladders used on the site shall be in compliance with the OHS Act and Regulations.
- All Ladders shall have an identification tag, logged in a register, and inspected on a monthly basis and prior to use.
- Damaged ladders shall be marked as “DAMAGED” and removed from the project site.
- Prior to work being performed, a risk assessment must be conducted, and work must be conducted as per General Safety Regulation 6 and 13A and Construction Regulation 10 of the OHS Act.

j. Excavations, Trenches and Floor Openings

a) Digging, excavation, or driving a peg, pile or spike into the ground operations by the Contractor may not commence without the written authorisation from the Client/Agent’s representative.

b) Prior to commencing work on any excavation or trench, utility owners shall be contacted and advised of the proposed work and to determine the location of all underground installations; i.e., sewer, telephone, water, fuel, electric, etc. Overhead hazards shall be assessed and dealt with prior to commencement of work. Where details of existing services are not available from the client, the contractor is to make an assessment of the area for such services.

c) Adequate precautions shall be taken by the Contractor to prevent slumping of excavations, as well as to prevent rocks and loose material falling onto workers.

d) All excavations done by the Contractor are to be clearly demarcated and barricaded to prevent accidental access.

e) Only solid barricading will be used at areas where a fall hazard is present. Solid barricading and / or hole covers shall be provided around all holes or openings to prevent any person being injured as a result of a fall.The solid barricading must be visible to prevent persons from coming close to the danger area.

f) Barricading must be placed as close as possible to the excavation.(Also refer to item 22.11)

g) If an excavation or trench endangers the stability of buildings or walls, shoring, bracing, or underpinning will be provided. Excavations and trenches that are adjacent to backfilled excavations or trenches, or which are subject to vibrations from railroad traffic, road traffic, blasting in open cast mining or the operation of machinery (e.g., shovels, cranes, trucks), must be secured by a support system, shield system or other protective systems (i.e., Steelpile shoring, bracing).

h) Where it is impracticable to provide fixed guard railing, effective removable barriers shall be provided at all unguarded openings in guard railing or floors, and shall be maintained in position at all times until the hazard no longer applies.

i) Warning signs and flashing warning lights at night shall be displayed in suitable positions to warn any persons approaching the area of the location and extent of any excavation.

j) No material to be within 1m of the excavation edges.

k) No work shall commence in an excavation unless the excavation has been declared safe by the competent person

l) Whilst work is being performed in an excavation, there shall be a supervisor, at all times

m) All excavations must be on register and inspected daily before work commences and after inclement weather by the contractor’s appointed competent person, declared safe and his findings noted in the register

n) Emergency – access ladders – access may not be further than 6 meters from the point where any worker within the excavation is working.

k. Barricading (Guarding of Excavations, Trenches and Floor Openings)

Areas where the restriction or prevention of unauthorised persons/members of public/passer-bys is required

- Name and contact detail of person and Contractor Company that is responsible for the barricading shall be posted on the actual barricading.

- *All barricading shall be of the rigid type. Chambers are to be fenced off, on residential and industrial areas; diamond mesh fence of at least 1.5m height with overhanging orange net will be used on all sides. All openings and edges must be barricaded with solid barricading to withstand an impact of at least 100 kg and adequately maintained.

- Only solid (scaffolding or stand-alone) barricading with Orange “Snow Netting” will be allowed.

- Physical barriers to prevent persons falling into openings in floors, stairwells, staircases, open-sided buildings and any structure in the course of erection, where dangerous openings exist.

- Contractors must pre-plan the delivery of floor grating, stair treads, landings and handrails to ensure safe access and protection for persons working on structures.

Areas where health or safety hazards exist shall be barricaded and posted with a barricade tag / label or symbolic signage at all approaches where applicable. This includes restricted access areas, locations where potential or actual safety hazards exist and no employee may enter without authorization such as demolition areas, excavated areas, open chambers and any other areas that have been identified as being potentially unsafe.
Barricade tags / labels or symbolic signage shall be readily visible, legible, and display the nature of the hazard and any protective action required. Access to barricaded areas is limited to only personnel authorised.
Areas within a project or construction site requiring restricted access to authorized employees only because of a specific task include, but are not limited to the following:

- When explosive materials or initiating systems are brought to the blast site, the blast site shall be attended; barricaded and posted with warning signs, such as "Danger," "Explosives," or "Keep Out;" or flagged against unauthorized entry.
- When covers are removed from enclosed spaces, the opening shall be promptly guarded by a railing, temporary cover, or other barrier intended to prevent an accidental fall through the opening and to protect employees working in the space from objects entering the space.
- Areas beneath floor openings shall be barricaded. When this is not practical, they shall be plainly marked.
- Barricades shall be used in conjunction with safety signs where it is necessary to prevent or limit employee access to work areas exposing them to unauthorized areas. Conductive barricades may not be used where they might cause an electrical contact hazard.
- Before work is started in the vicinity of vehicular or pedestrian traffic which may endanger employees, warning signs and / or flags or other traffic control devices shall be placed
- Where further protection is needed, barriers shall be utilized. For example, at night, warning lights shall be prominently displayed, and excavated areas shall be enclosed with protective barricades.
- Before any "Hot Work" is performed, the area (same level and below) must be barricaded or flagged.
- The area in which scaffolds are being erected, used, or dismantled shall be barricaded for a sufficient distance to prevent passers-by from being struck by falling materials and to prevent unauthorized entry into the area. Where travel is permitted under a scaffold, screens shall be required between the toe-board and mid-rail
- Where overhead work is being conducted, barricades must be erected around the work area to protect others from falling objects.
- A warning system for persons and mobile equipment must be in place surrounding all excavations. The warning system shall consist of barricades, hand or mechanical signals, and flashing lights at night.

Barricading Selection
When selecting the type of barricade (soft or hard), the following factors are to be considered as part of a risk assessment:

- risk associated with the hazard;
- visibility of the hazard;
- required strength of the barrier, for example, impact potential; and
- The amount of clearance provided from the hazard by the barricade.

In addition, the pre-task risk analysis and toolbox talk will include instructions: i) not to tamper with or alter the barricading in any way and, ii) not to bridge the barricading to gain access to the area and iii) not to reach over the barricading with arms or extended body.

Erection of Barricading

Furthermore, barricading shall be secured at a height of 1.8 meter and be allowed to sag to a minimum height of 1.5 meter measured from the ground or elevated floor level to the top of the barricading.

Net support stand

a) Support structures should secure the barricading net at a height of 1.8 meters
b) Such structures shall be manufactured from non-conductive material
c) The weight to base diameter ratio should sustain a typical wind speed of 60 kmh-1

Types of Barricades to be used on site:

Type	**Access Conditions & Application**	**Examples of types of barricades**
Barrier Mesh	Barrier mesh and bunting flags are high visibility soft barricading options where a solid barricade is not required. May be used in conjunction with appropriate barricading tape and signage to delineate work areas that require authorized access, or used to highlight the boundary of a work area.	
Solid / Hard Barriers e.g. Jersey, Expandable Barriers, Scaffolding equipment	**Jersey type barriers** Hard barrier control options include but are not limited to: A modular device used to segregate areas where plant and equipment is being operated and as a traffic safety control. The barrier is established to maintain a safe distance that segregates pedestrians and workers from plant and equipment. **Expandable/concertina barriers** Are a free standing, portable hard barrier. **Scaffolding equipment** Where the barrier is required to perform the same function as a permanent handrail/guardrail.	**Jersey Type**:   **Expandable/concertina barriers:**  **Sacffolding equipment:** 

Solid / Hard Barriers e.g fencing	A perimeter fence or barricade can prevent unauthorised persons from gaining access to your work site, where they can be exposed to construction or maintenance hazards such as exposed steel reinforcing, trenches, excavations or electrical sources. • The safety fencing should be high enough so people (especially children) cannot climb over it • It should be of a design that makes it difficult to climb • It should have reinforcement at the bottom so that one cannot climb underneath it • The safety fencing should be strong enough and durable enough to withstand the elements • Gates or joins should not provide a security threat	

l. Blasting

a) A copy of the written permission from the Chief Inspector of Department of Labour shall be obtained before use of any explosive material – refer to requirement in Explosives Regulation 13 of the OHS Act.

b) Requirements for the transporting and storage of explosives to be in accordance to Explosives Regulation 13.4 of the OSH Act and SANS 100228 "**Code of Practice for the Identification and Classification of Dangerous Substances and Goods**" Published by the South African Bureau of Standards.

c) Should blasting be necessary during the construction phase, the necessary authorisation must be secured from the relevant authorities. Adjacent land owners must be notified prior to the blasting activities on site.

d) The Construction operations may necessitate that ground and rock be blasted. Prior to a blast a siren will have to be sounded. Warning flags will have to be displayed at the entrance to the area of the blast and guards will be placed at strategic points.

e) Should the Contractor be required to carry out blasting operations, he is to fully acquaint himself with, and adhere to the blasting procedures and legislation. Every blast must be cleared with the appropriate Client/Agent representative before charges are placed.

f) Only a licensed operator is allowed to blast.

g) For all blasting operations, a blasting mat shall be used to cover the blasting area so as to reduce the amount of flying debris. The method statements and blasting pattern must be approved by the appropriate Rand Water personnel before and blasting commences. Before any open trench blasting commences, the Contractor shall be in possession of a Blasting Permit (BLP Form) as well as Transport Permit (TTP Form) from the South African Police Service Explosives Section. All tunnel blasting (i.e. Pipe Jacking), shall comply with the Mine Health and Safety Act and the permits shall be issued by the Department of Minerals and Energy.

m. Working near Public Roads

The Principal Contractor, his employees and subcontractors required to work on or nearby roadways shall wear high visibility vests, and be protected by red cones or flags during daylight and by red or amber flashing lamps at night.

Work areas must be adequately barricaded so as to preventing unauthorised access.

Road traffic warning signs shall be placed well ahead of the work area in a comprehensive traffic plan.

n. Machinery, Tools and Equipment

The aim of this section is to outline the process used by Rand Water project management team to ensure that all equipment brought onto site by the Principal Contractor and their sub-contractors is appropriate to the task being performed and in good condition.

The Contractor shall ensure that all machinery, tools and equipment are identified, safe to be used and is maintained in a good condition.

a) All machines driven by means of belts, gear wheels, chains and couplings shall be adequately guarded. A machine is guarded when persons cannot gain inadvertent access to the moving parts.
b) The Principal Contractor shall ensure that all machinery, tools and equipment to be listed on an inventory list and handed to security with a copy kept on site.
c) All machinery, tools and equipment to be regularly inspected at least monthly or as required by legislation and risk assessments, registers of tools shall be kept in the SHE file. The equipment should be numbered or tagged so that it can be properly monitored and inspected.
d) All machinery, tools and equipment must have the necessary approved test or calibration documentation where applicable prior to being brought onto the premises and the records shall form part of the SHE plan.
e) All fuel driven equipment must be inspected by the Rand Water SHE Practitioners/Officers prior to mobilizing it onto site.
f) All fuel driven equipment must be properly maintained in accordance with the manufacturer's recommendations and legal requirements.
g) The Contractor shall supply, at his cost, all items of plant and equipment necessary to perform the work else otherwise indicated.
h) The Client/Agent reserves the right to inspect items of plant or equipment brought to site by the Contractor for use on this Contract. Should the Client/Agent find that any item is inadequate, faulty, unsafe or in any other way unsuitable for the safe and satisfactory execution of the work for which it is intended, the Client/Agent shall advise the Principal Contractor in writing and the Principal Contractor shall forthwith remove the item from the site and replace it with a safe and adequate substitute. In such cases, the Principal Contractor shall not be entitled to extra payments or extensions of time in respect of delay caused by the Client's/Agent's instructions.
i) The Principal Contractor/sub-contractor will ensure that he has all the necessary registers to record all tools and equipment.
j) All employees shall be competent when operating or using machines and tools i.e. have a valid certificate. And proof of any form of task related training.

o. Machine Guarding

a) An assessment should be conducted in writing to ensure that all machines and tools are fitted with a guard and the assessment should be kept on the SHE file.

b) The machine or tool should be guarded to prevent limbs or loose clothing from getting under, into, above or around the dangerous moving parts.

c) Every shaft, pulley, wheel-gear, sprocket, coupling, clutch, friction drum, spindle end screw, key , bolt on a revolving shaft, driving belt, chain rope or similar object shall be securely fenced or guarded .

d) Guards should form a permanent part of the machine or tool, easy to remove non corrosive, rigged and as far as reasonable heat resistant.

e) Machine guards must be painted on the outside in the same colour as the machine or tool.

f) Inside of guards and moving or rotating parts must be painted orange.

g) All guards must be inspected by a competent person on a monthly basis as well as by users prior to use. These inspections and proof of corrective action taken must be recorded and kept on site.

Records:
- A register should be used which indicate the name, number of the machine or tool and the number of guards.
- The register should be kept on the safety file.

p. Hand Tools and Pneumatic Tools/Explosive Actuated fastening Tools

a) All hand tools (hammers, chisels, spanners, etc.) must be recorded on a register and inspected by the supervisor on a monthly basis as well as by users prior to use.

b) All pneumatic tools (tools driven by gas, usually compressed air) should be numbered, recorded and inspected at least monthly as well as by users prior to use. And the revolutions per minutes measured in accordance with the manufacturer specifications.

c) Tools with sharp points in tool boxes must be protected with a cover.

d) All files and similar tools must be fitted with handles.

e) It is illegal for a pneumatic tool to be operated by using a compressed gas cylinder. Pneumatic equipment shall only draw supply from mobile air compressors or from compressed air lines installed within the premises after gaining permission from the Client/Agent Representative.

f) When using the interlocking type of connection of an airline, connectors shall be secured with wire clips through holes provided to prevent accidental disconnection.

g) Compressed air shall NOT be used for any purpose other than that for which it is provided. Compressed air should not be used to remove dust from clothing.

h) Hoses to be orderly routed and elevated if required in order to prevent tripping hazards.

Records:
- Check list for hand tools
- Check list for air tools including records of the measurement of revolutions on grinders
- Gas cylinder trolley checklist
- Register

q. Explosive Actuated fastening Tools

a) Written permission to use these tools on site must be obtained by the Rand Water Project/Site Manager
b) Only used by trained / authorised and appointed personnel.
c) Prescribed warning signs placed / displayed where tool is in use.
d) Work area must be properly isolated/ demarcated during use of tool.
e) Inspected at least monthly by competent person and results recorded.
f) Issue and return recorded including cartridges / nails and unused cartridges / nails / empty shells recorded.
g) Cleaned daily after use.
h) Users should be issued with suitable protective equipment.
i) Cartridges and explosive power tools to be stored separately

Records:
- Register for the issue and return of cartridges.

r. Lifting Machines and Lifting Tackle

a) A risk assessment shall be conducted prior to commencing with the task to identify the risk involved and appropriate mitigation measures must be put in place.

b) If it is the Principal Contractor's intention is to use lifting machines on site, it should be indicated in the Principal Contractor's SHE plan as well as the inspection so that the Rand Water Project/Site Manager can conduct an inspection when equipment is brought onto site If his/her intention is to use a sub-contractor he must enter the name of the sub-contractor into the notification letter to the Department of Labour.

c) All lifting machine operators shall be competent to operate a lifting machine. They must be in possession of a valid permit.

d) The Principal Contractor should verify if the lifting machines have been examined and a performance test done.

e) The training should have been done according to the Code of practice by a provider registered by the Department of Labour.

f) Before using any lifting machines or tackle the operator should inspect it.

g) All lifting machines shall be examined be colour-coded and subjected to a performance test by an accredited person/company at intervals not exceeding 12 months.

h) All lifting tackle should be examined and be colour-coded (colour tagged and not 'painted')by an accredited person/company at intervals not exceeding 3 months.
i) See the below table for example

	1st Term	2nd Term	3rd Term	4th Term	Scrapped

Colour Coding per term	Jan – Mar	Apr – June	July – Sep	Oct – Dec	
	Orange	Green	Blue	Yellow	Red

j) Refer to the requirements of the Driven Machinery Regulation 18 and Construction Regulation 19 and 22 of the OHS Act.

k) All lifting tackle should be recorded on a register.

l) All hooks shall be fitted with a safety latch/catch.

m) A work system should be implemented to ensure that only an operator that is competent can draw lifting machines and fork lifts.

n) All lifting tackle should be conspicuously and clearly marked with identification particulars and the maximum mass load which it is designed for.

o) No person shall be moved or supported by means of a lifting machine unless such a machine is fitted with a cradle approved by an inspector.

p) A risk assessment should be conducted prior to starting with the task.
- Account should be taken of wind forces.
- Lifting machines are erected taking into account a safe distance from excavations.
- When working in close proximity to power lines, the contractor must apply for a permit. Refer to Electrical Machinery Regulation 15 of the OHS Act.
- Account should be taken of the bearing capacity of the ground.

q) Principal Contractors and their employees shall keep out from under suspended loads, including excavators, and between a load and a solid object where they might be crushed if the load should swing or fall. They shall not pass or work under the boom or any crane or excavator.

r) Contractors and their employees shall ensure that crane loads are not carried over the heads of any workmen.

s) Guide ropes to be used to prevent loads from swinging.

t) Rigger requirements: Rigger ID document, medicals, induction card, National Rigging Certificate (NRC) Competency certificate which states the tons to be lifted, Trade test certificate in accordance with the standards recognized by the National Apprenticeship Board in terms of Section 7 of the training of Artisans Act, Lifting tackle & equipment certification and Industry ID Skills card

Records:

- Record books and test certificates of lifting machined and tackle should be kept on the safety file.
- A copy of the risk assessment should be kept on the safety file.
- A certificate of approval shall be obtained from the Department of Labour Inspector.
- Register of all lifting machines and tackle on site (For inspection purposes).
- Training certificates and certificates of fitness for operators of the equipment

s. Pipe Jacking

No person may enter a tunnel, which has a height dimension of **less than 800 millimetres**.
Pipe Jacking shall be supervised and undertaken only by persons fully conversant with this work.
Pipe Jacking to comply to SANS standards (SPEC 1200 LG-1983), Mine Health and Safety Act. 29 of 1996 and Mineral and Petroleum Resources Development Act (Act 28 of 2002).
Adequate ventilation and lighting must be provided to employee working inside the tunnel at all times.
Employees involved in drilling and operation of jackhammers must be provided with ear muffs and shock absorbing gloves
The launch and reception pits should be properly secured from collapsing, and must be inspected daily by a competent person appointed in writing.
The working area must be completely fenced off and the pits must be adequately barricaded.
Where there is presence of groundwater or mud, steel toed gumboots must be provided.

Employees shall be trained by a competent person on the safe use of the Hydraulic Power pack or winch used to push the pipes
Hydraulic power packs and winches shall be pressure and load tested and records thereof retained
Detailed method statements for each area shall be submitted to Rand Water prior to the commencement of the work.
A calibrated gas tester/ oxygen measuring meter shall at all times be placed at the working area, and employees will be trained on the use thereof
An adequate emergency procedure must be submitted to Rand Water prior to the commencement of the work.

t. Asbestos Control Management

The Contractor shall inform the RW Project Manager and SHEQ if during construction work, asbestos or suspected asbestos containing material is found. Only Asbestos Approved Contractor can work on asbestos containing material. Asbestos monitoring should be carried out in accordance with MDHS 39/4 during asbestos work. Monitoring should be performed by and Approved Inspection Authority. Medical surveillance should be carried out on all people working with asbestos. The asbestos area should be demarcated and relevant signs should be posted at all entrances and exits. After the asbestos work is finished, a clearance certificate should be issued by a competent person.

No person shall:-

- Sell, donate, reuse, re-install or recycle any asbestos or ACM
- Temporary store asbestos waste for longer than 3 months after completion of asbestos work.
- Temporary store asbestos waste in such a way that it may contaminate ground and or water or it can cause asbestos dust.
- Use compressed air to remove asbestos dust for surface or person
- Use electrical power tools to cut, grind, drill ACM
- Smoke, eat or drink or keep food in asbestos area
- Clean or prepare ACM surfaces using,
- High pressure water cleaning.
- Chemical cleaning
- Dry or wet scraping
- Dry or wet brushing
- And other cleaning method
- Any other vacuuming except HEPA vacuuming
- Carry out any demolition before identification in an inventory and safe removal of all asbestos and asbestos containing materials as far as reasonable practicable

u. Boilers, Pressurised Systems and Vessels under Pressure

a) The Principal Contractor shall ensure that all vessels under pressure are inspected by an Approved Inspection Authority and he shall be in possession of the manufacturer's certificate.

b) All pressure vessels shall be provided with at least one safety valve and such safety valve should be kept locked.

c) The vessel under pressure should be provided with a manufacturer's plate.

d) The vessel under pressure should be fitted with a pressure gauge in Pascal and the maximum permissible operation pressure marked with a red line on the dial.

Records:

- Inspection registers for vessels under pressure
- The certificate from the manufacturers
- Registration certificate of an Approved Inspection Authority

v. Confined Space Working

Whenever persons are required to work in confined space, the contractor shall ensure the following:

- The air in the confined space has been tested and evaluated by a person who is competent to pronounce on the safety thereof and who has certified in writing that the confined space is safe and will remain safe while any person is in the confined space.
- Appropriate personal protective equipment has been provided for all employees entering the confined space.

- All necessary equipment is available on site in accordance with the risk assessment, method statement or any procedure, such as confined space entry permit, testing and monitoring of hazardous gases and fumes, ventilation, lighting arrangements including emergency lighting, communication methods, access and egress from confined space, via prevention equipment and procedure, emergency and rescue procedures(including first aid), medical surveillance
- Only authorised trained personnel are permitted to enter the confined space.
- All safety equipment is regularly checked and maintained, records kept of the checks and any defects in equipment rectified immediately
- Lighting or electrical power tools are specially protected from damp and flammable atmospheres

w. Electrical Safety

These Regulations shall apply to every user or lesser of an electrical installation as well as approved inspection authorities, as well carrying out work whilst using electrical machinery at a workplace. The contractor shall so as far as is reasonably practicable, ensure compliance to

- Safe installation, operations and maintenance of the electrical installation in use
- Electrical installation be carried out by a competent person and be registered as an electrical contractor as per Electrical Installation Regulations 6(1)
- Training of the employees at all levels-induction, supervisory and technical
- Testing, inspections or investigations are on equipment installed shall be done by an approved inspection authority.
- Protective system are catered for in terms of fuse, circuit breakers, insulations, isolation, reduced low voltage system, residual current devices and double insulation.
- Safe Working Procedure is available including permits to work on live electricity and the contractor must ensure that the procedures are adhered to strictly to.
- Adequate emergency rescue arrangements are in place
- Provision of appropriate personal protective equipment
- Selection of suitable equipment for the work and environment by considering the following-: atmosphere(flammable, damp), weather conditions, high or low temperatures, dirty or corrosive conditions, complying with applicable standards, rated operating conditions
- All safety equipment must be regularly checked and maintained, records should be kept of the checks and any defects in equipment rectified immediately.
- In areas where underground services may be present, only hand digging tools should be used with insulated tools, Spades, shovels should be used
- Issuing of certificate of compliance
- Compliance with all the requirements of the Electrical Installation Regulations and Electrical Machinery Regulations.