C3.2. SCOPE OF WORK

1. Background

Corrosion in aging steel pipelines is currently causing major issues for Rand Water, including leaks and bursts. Corrosion causes leaks in steel pipes by removing material over time, decreasing the thickness and strength of the pipe walls. Cathodic Protection system is an important mitigation measure to minimize the corrosion of steel pipeline to prevent leaks and bursts, which lead to increasing non-revenue water loss. However, due to theft, vandalism and lack of power, the Cathodic protection system is ineffective and compromising the integrity of the steel pipeline.

Therefore, the project aim is to repair and replace the damaged Cathodic protection systems (equipment) on the entire Rand Water pipeline to reinstate the effectiveness of the Cathodic Protection system for protection of the steel pipeline against corrosion leading to leaks. Additionally, due to the lack of maintenance resources the project also aims to assist and enable Rand Water in doing proper maintenance by appointing the contractor to perform Cathodic Protection maintenance on the entire Rand Water pipeline for a period of 3 years.

1.1 Purpose

The purpose of the document is to outline the scope of work required in the tender to supply, delivery, and installation of all damaged rectifiers (TRUs, FDUs and NDUs) and monitoring points along Rand Water pipelines and to incorporate the maintenance of Cathodic Protection systems on entire four Rand Water systems.

1.2 Project Scope Summary

To supply, deliver, install and commission damaged rectifiers (TRUs and FDUs) and monitoring points along the Rand Water pipeline network.

The tender includes the following subsections, namely:

1.2.1 Manufacture, supply, storage, testing and commissioning and installation of CP equipment.

1.2.2 Perform maintenance on Cathodic protection system in the entire Rand Water pipelines network.

2. Supply and Delivery of CP Equipment

The Service Provider or Contractor shall supply and deliver the required Cathodic Protection equipment (rectifiers, monitoring points, coke breeze, MMO anodes, cables, etc.) to the Contractor's site office/site camp as per the detailed Bill of Quantities' (BOQ) for installation and Rand Water Cathodic Protection System Technical Specification 7.5 rev 3.

2.1. Installation of Rectifiers

The scope of work for the re-instatement of the damaged rectifiers or Cathodic Protection system shall include but not limited to the following activities: -

2.1.1. Contractor to supply, deliver, and install supply cable (aluminum 25mm^2 PVC/PVC four core cable or four core 16mm^2 PVC/PVC single galvanized steel black cable) from the power utility to the Kiosk.
2.1.2. Contractor to apply for power supply or reinstate where applicable and these costs shall be carried by the Contractor.
2.1.3. The Contractor shall supply mix concrete of a minimum of 20MPa to encase the supply cable 0.2m breadth X 0.3m width X length of the cable, and
2.1.4. The Contractor shall excavate a cable trench of 1m deep X 0.3m width X cable length.
2.1.5. Contractor to supply, deliver, and install black 16mm^2 PVC copper pipe cable for 40m.
2.1.6. Contractor to supply, deliver, and install permanent reference electrode (PRE) and coupon with a tail cable of a minimum of 5m.
2.1.7. Contractor to supply, deliver, and install of the kiosk for power supply cable termination as per the Rand Water Cathodic Protection System Technical Specification 7.5 rev 3.
2.1.8. Contractor to supply, deliver, and install 100A/100V Transformer Rectifier Unit (TRU/FDU).
2.1.9. Contractor to supply, deliver, and install termination of power cable, ground bed cable, coupon cable, permanent reference electrode cable, pipe cable and monitoring cable inside the rectifier's specified position.
2.1.10. Contractor to supply, deliver, and install the steel cabinet TRU's housing as per the Rand Water Cathodic Protection System Technical Specification 7.5 rev 3, to prevent vandalism.
2.1.11. The Contractor shall excavate a ground bed trench of 2.5m deep X 0.5m width X 91m length for ground bed installation.
2.1.12. Contractor to supply, deliver, install 91 meters ground bed comprising of 30 MMO canister anodes, 31 canisters spacers and coke breeze of 8 tons as per Rand Water Cathodic Protection System Technical Specification 7.5 rev 3.
2.1.13. Contractor to supply, deliver, and install Clearview fence around the TRU and Eskom/Municipality transformer to prevent un-authorized entry as per Rand Water Cathodic Protection System Technical Specification 7.5 rev 3.
2.1.14. Service detection shall be done before any excavation work in the vicinity for installation of rectifier, power supply cable, ground bed and tail cable, etc.
2.1.15. Contractor to apply for servitude for all CP structures (i.e., ground bed, TRU's, power supply, e.tc.) outside the existing Rand Water servitude and apply for wayleave to relevant parties or stake holders.
2.1.16. All the installation shall be as per the attached Rand Water Cathodic Protection System Technical Specification 7.5 rev 3.
2.1.17. Compilation of final documentation and handover.

2.2. Installation of Cathodic Protection Monitoring Points

There's a significant number of damaged monitoring points to be replaced along the Rand Water pipeline network. The damaged monitoring bunkers will be replaced using AK47 CP anti-vandalism bunkers, chamber monitoring point and mushroom bonding test points to prevent vandalism.

2.2.1. Supply and Installation of AK47 CP Anti-vandalism Bunkers

The scope of work for the installation of the AK47 CP monitoring points shall include but not limited to the following activities:

2.2.1.1 Supply of AK47 CP monitoring point, delivery to site, and installation of the AK47 CP monitoring points with the link panel as per RW CP Installation Specification 7.5 rev 3.
2.2.1.2 Supply of permanent reference electrode (PRE) and coupon, delivery to site and installation of permanent reference electrode (PRE) and coupon.
2.2.1.3 Supply and installation of the black 16mm^2 PVC copper pipe cable for 40m and 10mm^2 PVC monitoring copper cable with 5m tail cable.
2.2.1.4 Perform service detection on all identified sites before any excavation work in the vicinity of the AK47 bunkers installation.
2.2.1.5 Supply of AC and DC current density coupons, delivery to site and installation of AC and DC current density coupons at strategic points (High AC Voltage vicinity).
2.2.1.6 The location for installation shall be verified on site.

2.2.2. Supply and Installation of Chamber Monitoring Points

The scope of work for the installation of the chamber monitoring points shall include but not limited to the following activities: -

2.2.2.1 Supply of chamber CP monitoring points, delivery to site, and installation of the chamber CP monitoring points with the link panel as per RW CP Installation Specification 7.5 rev 3.
2.2.2.2 Supply of permanent reference electrode (PRE) and coupon, delivery to site and installation of permanent reference electrode (PRE) and coupon.
2.2.2.3 Supply of 20mm² steel conduit with steel saddles for chamber monitoring cables, delivery to site and installation of the chamber monitoring point.
2.2.2.4 Supply and installation of the black 16mm^2 PVC copper pipe cable for 40m and 10mm^2 PVC monitoring copper cable with 5m tail cable.
2.2.2.5 Perform service detection on all identified sites before any excavation work in the vicinity of the chamber monitoring point.
2.2.2.6 Supply of AC and DC current density coupons, delivery to site and installation of AC and DC current density coupons at strategic points (High AC Voltage vicinity).
2.2.2.7 The location for the chamber monitoring point shall be verified on site.

2.2.3. Supply and Installation of Mushroom Bonding Monitoring Points

The scope of work for the installation of the mushroom bonding monitoring point shall include but not limited to the following activities: -

2.2.3.1 Supply of chamber CP monitoring point, delivery to site and installation of the mushroom bonding monitoring point with the link panel as per RW CP Installation Specification 7.5 rev 3.
2.2.3.2 Supply of permanent reference electrode (PRE) and coupon, delivery to site and installation of permanent reference electrode (PRE) and coupon.

2.2.3.3 Supply and installation of the black 16mm^2 PVC copper pipe cable for 40m and 10mm^2 PVC monitoring copper cable with 5m tail cable.
2.2.3.4 Service detection shall be done before any excavation work in the vicinity of the mushroom monitoring point
2.2.3.5 The location for the mushroom bonding monitoring points to be verified on site.

2.2.4. Supply and Installation of Cathodic Protection Cross-bonding Bunker with Foreign Pipelines

The scope of work for the installation of the Cross-bonding bunker shall include but not limited to the following activities: -

2.2.4.1 Supply of cross-bonding bunkers monitoring point, delivery and installation of the cross-bonding bunker as per RW CP Installation Specification 7.5 rev 3 with the chassis and link panel.
2.2.4.2 Supply, delivery, and installation of the cross-bonding bunker as per foreign pipeline's specification.
2.2.4.3 Supply, delivery, and installation of the resistive bond for both bunkers.
2.2.4.4 Supply of permanent reference electrode (PRE) and coupon, delivery to site and installation of permanent reference electrode (PRE) and coupon.
2.2.4.5 Supply and installation of the black and red 35mm^2 PVC copper pipe cable for both Rand Water pipeline and foreign lines for the minimum length of 40m per installation.
2.2.4.6 The location for the cross-bonding bunker point to be verified on site.

3. Cathodic Protection Maintenance Duties

The maintenance of Cathodic Protection system on the entire four Rand Water systems for the period of 3 years shall be as per Rand Water Cathodic Protection Technical Specification 7.5 rev 3 and NACE SP0169.

3.1. Cathodic Protection System Surveys

a. DC stray current interference from railway lines,
b. DC stray current interference between Rand Water and foreign pipelines, etc.
c. Perform current drain test survey at specific site.
d. Perform pipe-to-soil potential surveys.

3.2. Coating Surveys

Carry out a coating survey after the completion of the pipeline, soil survey, stray-current survey, current drain survey and just after the first raining season. First carry out a quick coating survey on the whole pipeline length and then together with the CP survey results identify the critical corrosion pipe sections that needs to be investigate in detail. The following coating surveys shall be done: -

a. DCVG surveys
b. PCM surveys
c. CIPS survey as soon as the ICCP system is energised. Holiday detector surveys.

d. Compile a detailed survey report for approval.
e. Identify coating defect's locations and excavate concerning defects and repair.

3.3. Cathodic Protection Monitoring (Bunker/ Mushroom/ Chamber) Point

a. Perform 24-hour recording using a logger for along the Rand Water pipeline network on monitoring bunkers, chambers, mushroom test points, etc.
b. Perform or collect spot potentials along the pipeline network on monitoring bunkers, chambers, mushroom test points, etc.
c. Perform instant on and off spot potentials at each recommended monitoring facility,
d. Conduct interference tests with other pipelines owners,

3.4. Bonding facilities Monitoring Points

a. Perform 24-hour recordings for cross-bonding facilities with the third party.

3.5. Locate Possible Power Supply Points, 380V to 22kV 3 phase AC for CPS as and when required.

a. Re-in state and apply for power for all rectifiers and carry all the associated costs.
b. Supply the power cable and installation.

3.6. Rectifiers Inspections

a. Perform two weekly rectifier inspections and record the output voltage, output current, pipe-to-soil potentials '**OFF'**, pipe-to-soil potentials '**ON**' and AC pipe potentials.
b. Clean the rectifier and do visual inspection on all components and cables (report defects and repair).
c. Do fault finding on defective rectifiers and repair.
d. Compile the monthly inspection report and submit for approval.

3.7. Cathodic Protection commissioning survey

a. Perform CP commissioning on old and new pipelines as and when required.

3.8. Negotiate with Local Authorities.

a. Negotiate with foreign pipe and / or railway line crossings authorities,
b. Conduct interference tests with third party or foreign pipelines
c. Apply for blue bonds for FDU's and NDU's on relevant railway line authorities.
d. Apply for power and make necessary follow-ups to the relevant authorities.
e. Servitude and wayleave application.

3.9. Cathodic Protection Reports

a. Compile a commissioning report with recommendations.
b. Compile interference test report with recommendations
c. Compile the maintenance monthly rectifiers report for Mapleton system, Palmiet system, Combine system and Eikenhof system with findings and recommendations.
d. Compile the quarterly 24-hour recordings report for Mapleton system, Palmiet system, Combine system and Eikenhof system with findings and recommendations.
e. Compile coating survey report with recommendations.

4. Applicable Standards

No.	Description	Details
1	Rand Water Cathodic Protection System Technical Specification 7.5 rev 3.	7.5 rev 3
2	NACE International Standard Practice – Control of external corrosion on underground or submerged metallic piping systems	NACE SP0169
3	Petroleum and Natural gas industries – Cathodic Protection of pipeline transportation systems	SANS 15589-1
4	Protection against corrosion by stray current from direct current systems	SANS 50162
5	Cathodic protection measurement techniques	SANS 53509

5. QUALITY ASSURANCE

1.1 Quality Management Plan

The contractor shall implement a formal quality management system that conforms to the latest ISO 9001 standard or any applicable standard of quality management system (latest applicable revision) and in accordance with the requirements of this specification

The system shall consist of the appropriate documentation such as a quality manual, quality plans, work procedures, work instructions, method statements, workflow documentation, Templates, Checklists.

1.2 Quality Control Plan/Inspection and Test Plan

The contractor shall submit the discipline /activity Quality Control Plan within 14 days prior to the commencement of work, for review and approval by Rand Water.

1.3 Document Management

a) The contractor shall ensure that all documents are accessible and readily available
b) Documents to be managed not limited to the following: Method Statements, Test and inspection plans. Drawings
c.) The contractor must submit all the working document e.g method statement, plans, drawings to the Project Manager for review, acceptance and/or approval by the Rand Water engineer or their representative
d) Any changes to the working documents must be recorded

1.4 Record Management

The contractor shall control and manage the project information not limited to, Test results, daily diaries, method statements, Non-conformances, concessions, drawings, Training records etc.
All documented information should form part of the data pack to be submitted on project completion, Rand Water requires 2copies 1 hard copy and 1 soft copy

1.5 Resource Management

People

The Contractor shall provide a full-time Building Quality Inspector for the duration of the contract to ensure compliance with project specifications, standards, and quality requirements.
The Contractor shall provide the following Quality Control Officers as required

- Mechanical Inspector with Mechanical NQF 5 qualification and 5 years' experience
- Electrical Inspector with Electrical NQF 5 qualification and 5 years' experience
- Civil Inspector with Civil NQF 5 qualification and 5 years' experience
- Welding Inspector -Welding and Fabrication Level 2
- Coating Inspector -Coating Inspection Level 1

Materials, products, and services

The contractor shall ensure that all materials used conform to the specifications and the material certificates must be kept

1.6 Equipment

The contractor shall supply all the equipment/instruments required in the Contract documents to perform the specified quality inspection services.

The supplied equipment/instruments shall be calibrated by the SANAS accredited bodies, and the calibration certificate shall be kept for the duration of the project

1.7 Training

The contractor shall provide training to personnel who perform activities that affect quality of works All personnel who perform quality activities shall have their training needs identified and documented. The required training shall be implemented in accordance with the company's training management and competency control procedures. All the training certificates shall meet the SETA requirements in terms of having the unit standard completed and the accreditation number of the service providers

1.8 Inspection and Testing Services

a) The contractors shall conduct the first line quality inspection, tests, and should be carried out in accordance with the specifications and the approved QCP by the qualified quality control officer
b) The contractor shall adhere intervention points as specified by the Rand Water,
c) Hold point tests or inspections must be conducted in the presence of the design engineer or his/her representative
d) All tests and inspection shall be as per specification/ requirements
e) Where the specification has limitations and the tests not included in the Quality Control Plan the Engineer may request such test to be conducted at Rand Water costs
f) Any changes to the approved method statement and Quality control plan shall follow the same approval process

1.9 Quality Audits

Rand Water shall conduct quality audits annually during the contract duration, and the contractor shall provide all resources to support these activities.

1.10 Non-Conformances /Deviation and Concessions Management

The contractor shall close all non-conformances within the agreed specified time failure to close the findings shall results in penalties as per the SHEQ penalty table.
Deviation to specification /drawing shall be communicated in writing to the design engineer for consideration. Request for concession must be in writing, and shall be reviewed and accepted by the design engineer /Project Engineer

6. SAFETY AND HEALTH

NOTE TO SERVICE PROVIDERS/CONTRACTORS/CONSULTANTS:

Rand Water has developed a site-specific H&S specification and H&S baseline risk assessment for this project that must be complied with by the contractor. The Service Provider/Contractor/Consultant to ensure that reference is made to the Project Health & Safety (H&S) specification and the Health & Safety (H&S) baseline line risk assessment as follows:

A1. The Project Health and Safety Specification (SAM SHE 00811Spec)

The project H&S specification are Rand Water's minimum requirements that is attached to the tender document. The Service Provider/Contractor/Consultant is expected to put together a H&S file which meets these requirements 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 service provider/contractor/consultant's legal responsibilities.

The service provider/contractor/consultant is and remains accountable for the quality and the execution of his Health and Safety programme. The H&S specification reflects the minimum requirements and should not be construed as all-encompassing or fixed in terms of this or other amendments made during the project.

The service provider/contractor/consultant must consider all information in the specification and ensure that their tenders include adequate resource and competence to deal with the matters detailed in the specification so that all relevant contents are dealt with in a way which is in compliance with legislation. The H&S specification forms an integral part of the contract, and the service provider/contractor/consultant shall make it an integral part of their Contracts with the appointed resources.

A2. Baseline Risk Assessment (SAM SHE 00304F)

The H&S Baseline Risk Assessment is attached to the tender document to make potential Contractors aware of the hazards. The baseline risk profile must be utilised by the Service Provider/Contractor/Consultant when compiling their own project baseline risk assessment/register document as part of their H&S Plan submissions. However, the Principal Contractor shall make his own assessment of the hazards and risks associated with the work under the Contract.

It is however pointed out to the service provider/contractor/consultant that the list may not be totally comprehensive, and it is the duty of each service provider/contractor/consultant 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.

Project Health and Safety Goals

Rand Water is determined that the highest Health and Safety (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 as per the design specifications and tender.

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

In order for the project H&S goals to be achieved, H&S must be adequately resourced by the contractor. A BOQ for H&S has been included under the commercial part of the tender to cater for all costs associated with implementing, maintaining, and continually improving the H&S management system (HSMS). A concise description of the BOQ line items is included in the H&S Specification. Prospective contractors will be assessed as part of tender evaluation to ensure that they have the required competencies/resources, adequately planned for, and priced the H&S requirements of the project.

Roles and Responsibilities – Client

All parties involved in the design, procurement, construction, and maintenance of the project are expected to actively promote H&S and strive to meet the H&S goals articulated in this document for the term of their engagement on the project.
The Client's Agent (Project Manager) shall ensure that the H&S goals of the project are being met with the assistance of the relevant Rand Water SHEQO and or the Pr Construction Health and Safety Agent. To assist in achieving these objectives, the SHEQO and or the Pr Construction Health and Safety Agent must be involved in the design stage to participate in the design review, in the compiling of the HS documentation for tender, shall participate in the site-based H&S programmes including but not limited to attending H&S audits, conducting site H&S walkabouts, participating in awareness sessions, attending site/project meetings, participating in incident investigations and verification on sub-contractors' approvals.

Roles and Responsibilities – Contractor

D1. Appointment of Designer (s)

The Contractor must appoint a competent designer(s) (professionally registered with ECSA/SACAAP) on the onset before embarking on any early works (investigations and specialist studies) for the project and a designer for temporary works during the construction of works where applicable. The H&S plan/file for all early works to be submitted to Rand Water for approval.

During the design stage, the appointed designers shall develop the design brief relating to the work methodology, and design features of the item to be constructed. In terms of Section 6: construction

regulations, the Designer must consider all the H&S aspects including ergonomics throughout the life of the building or structure. Some example(s) include:

- The chamber design must allow for sufficient working space inside chamber for valves, pipe connections, pipe or valve supports, cat ladders and steel platforms for operations staff to access valves and conduct routine maintenance,
- The pipeline laying designs must allow for trench stabilisation to avoid trench collapse incidents and the working space under the pipe or alongside the trench,

The Designer should apply the hierarchy of risk control when making any design decisions to eliminate or minimise the risk of injury throughout the life of the building or structure.

During the construction, the designer must undertake the following duties in terms of Section 6 (g-i) of the Construction regulations 2014:

- Designers must periodically inspect construction sites to ensure compliance to specifications and drawings,
- Designers must stop any contractor from executing any construction work which is not in accordance with the relevant design's health and safety aspects, and
- Designers must conduct the final inspection of the completed structure in accordance with the National Building Regulations, include the health and safety aspects of the structure as far as reasonably practicable, declare the structure safe for use, and issue a completion certificate to Rand Water.

D2. Appointment of Construction Health and Safety Officer

The Contractor must appoint a Construction Health and Safety Officer who is professionally registered as such in terms of The South African Council for the Project and Construction Management Professions (SACPCMP) during the design stage to participate in the design review/hazard; early works monitoring and the tender stage to assist in the preparation of project specific health and safety documentation for distribution to contractors for inclusion into the tender submissions.

D3. Construction Stage

The Contractor must develop a comprehensive H&S plan and risk assessment/register for the project; and implement and maintain a H&S management system (HSMS) based on these documents and the methods to be used in the execution of the works including applicable legislation such as the Occupational Health and Safety (OHS) Act 85 of 1993 and all relevant regulations, the Compensation for Occupational Injuries and Diseases Act (COIDA), etc. The contractor may also implement the ISO 45001 standard that specifies the management system

requirements for the health and safety management system. The HSMS must be based on the plan-do-check-act (PDCA) method.

The Project H&S plan/file and the H&S risk assessment for the construction of works must be submitted by the Contractor to the Rand Water for approval and the construction work permit (CWP) or notification of construction works to be obtained from Department of Employment and Labour (DEL) prior to the commencement of construction work including site establishment. The CWP application must be submitted to the provincial director at least 30 days before construction work is to be carried out. The Contractor can only establish site after the CWP application has been approved by DEL and after being taken through the Rand Water induction training programme. The contractor shall ensure that their employees, visitors, RW project personnel, service providers and suppliers have undergone the contractor induction training before being allowed access to site. Once work commences on site, the Contractors Project H&S File is to be updated on a continuous basis. The Contractor is to ensure that all relevant documentation and permits are contained in the file pertaining to the project and available on request.

Rand water reserves the right to conduct unannounced audits or inspections on the Contractor and/or their Contractors. Audits and inspections will be done 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 in the form of work stoppages or penalties. Penalties shall be enforced on the contractor for SHE related non-conformances identified for both the Contractor and/or his/her sub-contractor(s) and/or supplier(s) pertaining to Rand Waters SHE requirements. To avoid penalties, the Contractors must ensure that:

All SHE non-conformances, corrective and preventative actions are resolved within the agreed target dates,

The reporting of SHE incidents (within the shift/ flash within 24 hrs.) or to Department of Employment and Labour (DEL) (Section 24),

The submission of statistics and reporting within the required timeframe (weekly on Fridays and Last day of month),

No repeat SHE non-conformances are raised for the project site, and

Overtime or unauthorised work not performed without the relevant approvals/permits or licenses

The contractor is required to conduct internal audits and do audits on their contractors monthly, or more frequently if it involves high risk activities. The contractor must submit a weekly contractor report every Friday, and a monthly report on a RW template on the last day of the month. In addition, a flash incident notification and all documentation relating to the incident must be communicated to the RW project team following a SHE incident on the project site. The contractor must complete the temporary closure checklist to ensure the site is safe should the project site close for more than 5 days and or during the festive Dec/Jan period.

D4. Project Close-Out

On completion of the construction work, a site clearance and project close out report is completed to ensure that the area is made safe. The Contractor must convert all documentation contained in the H&S file into electronic format and submit both formats (Hard and electronic) to Rand Water. The H&S files must be clearly labelled and indexed and provided in boxes if the number of files is exceeding 4.

The contractor must also refer to the both the project H&S specification and baseline risk assessment that outlines the specific requirements on the project.

7. ENVIRONMENTAL AUTHORISATION AND COMPLIANCE (EAC)

7.1 Background

The National Environmental Management Act 107 of 1998, National Water Act 38 of 1998 and National Heritage Resources Act, 1999 (Act No. 25 of 1999), requires authorisation as per relevant listed activities. These activities pertain to certain infrastructure development projects being implemented within the Republic of South Africa. Furthermore, the regulations requires that independent Environmental Assessment Practitioners (EAP) be appointed to undertake environmental authorisation and conduct scheduled legislative compliance monitoring which includes auditing.

The proposed supply, delivery and installation of cathodic protection damaged rectifiers and monitoring points along the Rand Water pipeline network triggers an Environmental Management Programme report (EMPr) approval in terms of National Environmental Management Act 107 of 1998 and a Water use approval in terms of the National Water Act 38 of 1998, for the CPs located within watercourses. Rand Water will provide the necessary environmental approvals.

The duty of care principle, as required under Section 28 of NEMA, must be exercised to ensure the protection of the environment through effective implementation of the Rand Water Generic EMP. It should be noted that, should there be any deviations in the scope of work, EAC must be consulted for further guidance.

7.2 Environmental Scope of Work for Rand Water Contractors – Compliance Monitoring

The Environmental Scope of work for Rand Water contractors document outlines the environmental specifications, licenses, and compliance requirements for contractors tendering for jobs with Rand Water. The scope of work (SOW) detail the environmental obligations that

must be adhered to throughout the project lifecycle, from initial planning through to completion and post-project monitoring.

7.3 Pre-construction and construction Activities - Contractor

- The contractor to submit an environmental file for approval by the Rand Water ECO 14 days before commencement of construction activities (based on RW's environmental file approval checklist).
- The contractor must appoint a fulltime Site Environmental Officer (SEO) for the duration of the project with a recognised environmental science/management qualification (Diploma/Degree) and experience (3-4 years) in managing environmental compliance on a construction projects.
- The contractor must identify fauna specialists (e.g. bees, snakes, birds etc.) for the project to be on standby to assist with rescuing should any fauna be identified during implementation of the project. The identified specialist's contact information to form part of the site emergency contact list.
- The contractor must identify the possible site camp area which will be assessed by the Rand Water ECO for approval before site establishment.
- The contractor must identify a landfill site for disposal of waste (general) for the duration of the project.
- The contractor must identify a registered service provider for collection of hazardous waste.
- The contractor must identify a source of drinking water, water for dust suppression and electricity for the duration of the project.
- The contractor must identify a registered service provider for the providing and servicing of ablution facilities for the site.

7.4 Environmental Officer responsibilities

- Site Environmental Officer (SEO) must continuously induct the newly appointed construction staff and conduct weekly environmental awareness on site.
- The appointed Site Environmental Officer to ensure enforcement of the EA, WUL and EMPr conditions daily on site through site inspections.

- Site Environmental Officer (SEO) must report weekly on progress of closing the environmental findings as reported by the Rand Water ECO.
- The appointed Site Environmental Officer must report and investigate on all environmental incidents on site and ensure that corrective measures are implemented as required.
- The appointed Site Environmental Officer must ensure continuous update of the environmental file on site.
- The Site Environmental Officer must ensure that all environmental incidents are report ed to the Rand Water ECO within 24 hours.
- Site Environmental Officer must generate records of all properties to be affected by the project by taking before pictures using an App/camera that captures property details (e.g. date, time, address etc.).

7.5 Reinstatement Phase- Contractor

- Contractor must ensure that all excessive materials (e.g. soil) and construction waste (e.g. boulders) are removed from site for proper disposal at a registered landfill site.
- The contractor shall ensure that all affected properties are reinstated back to the original state (unless there are formal arrangements with the property owner). This includes roads, walls, gardens (only on new servitudes), fencing etc.
- The contractor shall ensure that topsoil is reinstated in all areas that were affected by construction and the harden surfaces are loosened (ripped) across the slope) to prepare the site for rehabilitation.
- The contractor shall ensure that “happy letters” are received from all affected property owners. All completed construction areas are to be handed over formally to Rand Water for rehabilitation to start.
- All rehabilitation works must be undertaken by Rand Water EMS department.

7.6 Site Closure- Contractor

- The appointed Site Environmental Officer to ensure that the updated environmental file is scanned into a USB and submitted to Rand Water (both the hard (1) and soft (1) copies).

- The contractor shall ensure that all the “happy letters”/sign off letters (including deviation arrangements communications) from the affected property owners are scanned and send to Rand Water on email.

7.7 On site inspection and audits

The Rand Water ECO will be on site at random times. The ECO must be accompanied by a site environmental officer for site inspection and or audits. Rand Water ECO's roles and responsibilities include, but are not limited to the following:

- Review of the Environmental Authorisation, Environmental Management Plan and Water Use License prior to commencement with compliance monitoring/audits.
- Monitor and verify compliance with conditions set out in the environmental authorisation, Environmental Management Plan and water use license issued for the project under implementation.
- Monitor and verify compliance with all conditions and mitigation measures of the approved Environmental Management Plan (EMP).
- Reporting to the authorities on the frequency stipulated on the EMPR or authorisations.
- Advising the applicant and the site supervisor about the interpretation, implementation and enforcement of the EMP.

7.8 Implementation of Penalties

- Non-conformance not addressed as per the agreed time frames will result in the issuance of a penalty.
- The environmental penalties will be administered as stipulated within the project EMP and the tender contract.
- The Rand Water ECO will recommend penalties on non-conformances that are not addressed as per the agreed time frames which will be approved by the Project Manager and send to the contractor for acknowledgement. The Project Manager will then implement the penalty by deducting the penalty funds from the contractor’s payment certificate.
- The values for penalties may differ according to the EMPr and the tender contract.

- The contractor must ensure compliance to the project authorization (s), specific EMPr, and search and rescue of flora, fauna and heritage procedure, through effective implementation of the documents referenced below.

References:

- SAM EAC 00001 Ge (Generic Environmental Management Programme for Construction)
- SAM EAC 00003 PR (Search and Rescue Of Fauna, Flora And Heritage Resources procedure)
- Provisional sums (SAM EAC 00035 F)

NB: All inputs in the form are dependent on the type of project that is being assessed

8. Land and Rights

8.1 Land and Rights

The Bidder will be responsible for the following activities: -

Route selection as per **SAMLR00005F**
Servitude / Property Valuations (New servitudes and Working Strip), including Cathodic Protection as per **SAMLR00013T**
Servitude / Property Negotiations (New servitudes and Working Strip),
Detailed Survey of existing and new infrastructure as per **SAMLR00012T**
Service Detection of underground services as per **SAMLR00011T**
Setting out of pipeline route / infrastructure as per **SAMLR00015T**
As-built Survey as per **SAMLR00010T**

8.2 Wayleaves

The Bidder shall obtain all wayleaves from all relevant authorities/ utilities/agencies/ municipalities and any other organisation affected by the design and construction of the project. All costs associated to wayleaves, wayleave conditions, application process, design, construction, commissioning and close out shall be for the bidder's account. Wayleaves must be applied for and obtained at three project phases (Planning, Design and Construction).

The Bidder shall be responsible for:

Submission of Wayleave applications to all Authorities and stakeholders including Rand Water.

Wayleave applications to external stakeholders will be applied for by the bidder as well as in line with external stakeholders' process and procedures

The bidder will use their own letter to apply to external stakeholders and state that it is for and on behalf of Rand Water.

Ensuring that the respective application processes are followed and communicated with the respective stakeholders

Ensuring that valid approvals are in place for the duration of the Projects

Bidder responsible for renewal of expired wayleaves

Wayleave approvals and responses to be visible for the duration of the project

Uploading and storing all approvals, communications, agreements, meeting notes and minutes associated with wayleaves on the Rand Water online wayleave system.

Arranging of kick-off site meetings with affected stakeholders to discuss conditions stipulated on wayleave approvals and close out requirements before work commences

Adhering to Wayleave Conditions from authorities during the project

Close out and hand over of all wayleave conditions to all affected stakeholders when the project is complete, then upload signed close out forms on the Rand Water online wayleave system.

The Bidder must refer to **Annexure C3.2: Scope of Work (including drawings, where applicable)** provided with this bid document.

PART C4: SITE INFORMATION

C4. SITE INFORMATION

The site information shall be provided on award.