ERWAT
EXCELLENCE IN WATER CARE

CIDB 6 EP

PROJECT NO: ERW2407/04

PUBLISH DATE: FRIDAY, 16 MAY 2025

DESCRIPTION: APPOINTMENT OF SERVICE PROVIDER/S TO SUPPLY, DELIVER & INSTALL ALL ANALYTICAL INSTRUMENTATION AND ASSOCIATED EQUIPMENT ON AS AND WHEN REQUIRED BASIS IN ALL ERWAT WATER CARE WORKS FOR A PERIOD OF 36 MONTHS

DEPARTMENT: INFRASTRUCTURE PLANNING AND PROJECTS

COMPULSORY VIRTUAL BRIEFING SESSION: *TUESDAY, 10TH JUNE 2025 @ 10H30*

Zoom Link: https://erwatza.zoom.us/meeting/register/98BZSamxTBCn3iJvrPtj4w

CLOSING DATE: *TUESDAY, 24TH JUNE 2025 @ 12:00*

NAME OF BIDDER:

_____

CONTACT PERSON : _____

TEL NUMBER : _____

E-MAIL : _____

CIDB REGISTRATION NO. : CRS_____

CENTRAL SUPPLIER DATABASE REG NO. : M_____

BID AMOUNT (VAT INCLUSIVE) : **RATE BASED TENDER**

ERWAT STAMP

ERWAT
EXCELLENCE IN WATER CARE

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ERWAT
EXCELLENCE IN WATER CARE

T1.1 REQUEST FOR PROPOSAL NOTICE AND INVITATION

TENDER NOTICE

Bidders are hereby invited to submit tender offers for the project listed below:

Project No.	Project Description	CIDB Grading	Contact	Compulsory virtual Briefing Session Date	Closing Date
ERW2407/04	APPOINTMENT OF SERVICE PROVIDER/S TO SUPPLY, DELIVER & INSTALL ALL ANALYTICAL INSTRUMENTATION AND ASSOCIATED EQUIPMENT ON AS AND WHEN REQUIRED BASIS IN ALL ERWAT WATER CARE WORKS FOR A PERIOD OF 36 MONTHS	6EP	Ms.H Nhlapho 011 929 7000	TUESDAY, 10TH JUNE 2025 AT 10H30. Note: Kindly register to attend the briefing session	TUESDAY, 24TH JUNE 2025 AT 12H00 NOON

Potential bidders may download the bid document from the ERWAT tender site free of charge. Bidders must however note that it remains their responsibility to print the full document and any omissions submitted due to not printing the full tender document may result in your bid being null and void. Bidders may not alter the downloaded document in any form what so-ever.

Compulsory virtual briefing session date and time. *Kindly refer to Clause F.2.7 of the bidding document relating to the Clarification Meeting (provisions for attending briefing sessions).*

Completed Tenders in ink and clearly marked ***"Contract No.: ERW2407/04* APPOINTMENT OF SERVICE PROVIDER/S TO SUPPLY, DELIVER & INSTALL ALL ANALYTICAL INSTRUMENTATION AND ASSOCIATED EQUIPMENT ON AS AND WHEN REQUIRED BASIS IN ALL ERWAT WATER CARE WORKS FOR A PERIOD OF 36 MONTHS** must be placed in the Tender Box, ERWAT Head Office, Hartebeestfontein Office Park, R25 (Bapsfontein/ Bronkhorstspruit), Kempton Park, not later than **12:00 noon on Tuesday, 24th June 2025** at which hour and date the Tenders will be opened in public at ERWAT Head Office. Tenders shall remain valid for a period of 120 days from closing date and no late, faxed or other form of Tender will be accepted.

All SCM Enquiries shall be addressed to Brenda Matlala at brenda.matlala@erwat.co.za and All Technical Enquiries shall be addressed to MS. H Nhlapho at hlengiwe.zwane@erwat.co.za

Bids will be evaluated in terms of ERWAT' Supply Chain Management Policy, the MFMA SCM Regulations, the Preferential Procurement Policy Framework Act and its Regulations, 2022, the General Conditions of Contract for construction (GCC) and, if applicable, any other special conditions of contract.

"The Special Conditions of Contract are supplementary to that of the General Conditions of Contract. In the event of any contradiction between the GCC or any other applicable contractual agreement, the Municipal Financial Management Act and its applicable regulations will take precedence."

NB: NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE (as defined in Regulation 44 of the Local Government: Municipal Supply Chain Management Regulations).

ERWAT accepts no responsibility for bidders accessing the tender notices from other sites/sources other than the newspapers used, its website (www.erwat.co.za/procurement) and the National Treasury's e-tender portal (www.etenders.gov.za).

FRIDAY, 16TH MAY 2025 (date of advert is available on the website and advertised)

PROJECT NO: ERW2407/04

APPOINTMENT OF SERVICE PROVIDER/S TO SUPPLY, DELIVER & INSTALL ALL ANALYTICAL INSTRUMENTATION AND ASSOCIATED EQUIPMENT ON AS AND WHEN REQUIRED BASIS IN ALL ERWAT WATER CARE WORKS FOR A PERIOD OF 36 MONTHS

T1.2 TENDER DATA

General

The conditions of tender are the Standard Conditions of Tender as contained in Annex F of Board Notice 136 of 2015 in Government Gazette 38960 of 10 July 2015, Construction Industry Development Board (CIDB) Standard for Uniformity in Construction Procurement. See www.cidb.org.za which is reproduced without amendment or alteration for the convenience of tenderers as an Annex to this Tender Data.

The Standard Conditions of Tender make several references to the Tender Data for details that apply specifically to this tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the standard Conditions of Tender. Each item of data given below is cross-referenced to the clause in the Standard Conditions of Tender to which it mainly applies.

The following variations, amendments and additions to the Standard Conditions of Tender as set out in the Tender Data below shall apply to this tender.

Clause No.	TENDER DATA
F1.1 F1.2	**The Employer is:** Ekurhuleni Water Care Company (ERWAT) Hartebeestfontein Office Park R25 (Bapsfontein/Bronkhorstspruit Road) Kempton Park **The Tender document's contents is as follows:** **THE TENDER** **Part T1: Tender Procedures (Pink)** T1.1 Tender notice and invitation to Tender T1.2 Tender Data **Part T2: Returnable Documents (Pink)** T2.1 List of returnable documents T2.2 Returnable schedules

	THE CONTRACT **Part C1: Agreements and Contract Data (Yellow)** C1.1 Form of Offer and Acceptance C1.2 Contract Data C1.3 Form of Guarantee C1.4 Occupational Health and Safety C1.5 Corporate Governance Breach Clause **Part C2: Pricing Data (Yellow)** C2.1 Pricing Instructions C2.2 Bill of Quantities **Part C3: Scope of Work (Blue)** C3.1 Description of Works C3.2 Engineering C3.3 Construction C3.4 Management of Works C3.5 Health and Safety C3.6 Environmental Management During Construction
F1.3	**Interpretation** The Tender data and additional requirements contained in the Tender schedules that are included in the returnable documents are deemed to be part of these Tender conditions.
F1.4	**The Employer's Representatives are:** **Supply Chain Management:** **Brenda Matlala - 011 929-7000** E-mail Address: brenda.matlala@erwat.co.za **Technical:** Hlengiwe Nhlapho **- 011 929 7000** E-mail Address: hlengiwe.zwane@erwat.co.za Attention is drawn to the fact that verbal communication given by the Employer's representative prior to the close of Request for Proposals (Tender) will not be regarded as binding on the employer. Only information issued formally by the employer in writing to the bidders, under the signature of the Accounting Officer or his nominee will be regarded as amending the Tender documents. Tender offer communicated on paper shall be submitted as an original. In the event that no correspondence or communication is received from ERWAT within one hundred and twenty (120) days after the stipulated closing date and time of the Tender, the Tender proposal will be deemed to be unsuccessful.
F1.5	**Reject or Accept** The Employer may accept or reject any variation, deviation, Tender offer, or alternative Tender offer, and may cancel the Tender process and reject all Tender offers at any time before the formation of a contract. The

	employer shall not accept or incur any liability to a bidder for such a cancellation and rejection, but will give written reasons for such action upon written request to do so.
F1.6	**Appointment of Multiple Bidders** ERWAT reserves the right to award this contract to one or more bidders. The lowest bidder or any bid will not necessarily be accepted. The intention of ERWAT is to appoint a Minimum of One (1) bidder, and a Maximum of Four (4) Bidders for this Framework Contract. The decision to appoint multiple bidders will be based on the evaluation of bids received, the nature and scope of the work, and the Company's discretion to ensure optimal project delivery.
F2.1	**CIDB Requirements** Only those Bidders who are registered with the CIDB, or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations, for a **6 EP class** of construction work, are eligible to have their tenders evaluated. Furthermore, the contractor grading designations (**6 EP class)** for construction works taking place over an agreed number of years (36 Months) shall be based on the entire contract value where such work is: • on an "as and when required" basis Joint ventures are eligible to submit tenders provided that: 1. Every member of the joint venture is registered with the CIDB: 2. The lead partner has a contractor grading designation in the **6 EP class** of construction work; and 3. The combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a **6 EP Class** of construction work or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations. 4. The bulk of the work for this Contract is Mechanical, however it may also include civil, electrical and control & instrumentation aspects. Should these portions be sub-contracted, each Sub-Contractor shall have a sufficient CIDB grading in their field to cover their portion of the Contract price. An indication of the portion of the total Contract price allocated to each Sub-Contractor as well as proof of each Sub-Contractors CIDB grading shall be included in the Bidders submissions.
F2.2	**Cost of Bidding** Accept that the Employer will not compensate the Bidders for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer satisfy requirements.
F2.3	**Check documents** The Bidder shall satisfy himself that the set of tender documents is complete and in accordance with the index. If any page has been omitted or duplicated, or if the script or dimensions, or anything else in the tender document is indistinct, or if doubt exists as to the meaning of any description, or if the tender document contains any obvious errors, the Bidder shall immediately notify the Employer accordingly, in writing, so that such discrepancy or indistinctness can be clarified and rectified, as ERWAT or the Agent will not accept any

<table>
<tr><td></td><td>responsibility or consider any claim in connection with such discrepancy or indistinctness, which are not rectified during the tender period.</td></tr>
<tr><td>F2.4</td><td>Confidentiality and copyright of documents

Treat as confidential all matters arising in connection with the Tender. Use and copy the documents issued by the employer only for the purpose of preparing and submitting a proposal offer in response to the invitation.</td></tr>
<tr><td>F2.5</td><td>Reference Documents

Obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, conditions of contract and other publications, which are not attached but which are incorporated into the tender documents by reference.</td></tr>
<tr><td>F2.6</td><td>Acknowledge Addenda

Acknowledge receipt of addenda to the proposal documents, which the employer may issue, and if necessary apply for an extension of the closing time stated in the Tender data, in order to take the addenda into account.</td></tr>
<tr><td>F2.7</td><td>The arrangements for a compulsory Virtual briefing/clarification meeting are:

<table>
<tr><td>Date:
TUESDAY, 10TH JUNE 2025
Time: 10:30</td><td>Online: Kindly register to attend the virtual compulsory briefing session at:
Zoom Link:
https://erwatza.zoom.us/meeting/register/98BZSamxTBCn3iJvrPtj4w</td></tr>
</table>
Attendance of ERWAT Briefing Sessions

Bidders must take note of the provisions for site/briefing sessions as advertised in the media, ERWAT website and or on the e-tender portal.

In the event that a compulsory briefing session will be conducted, bidders must attend the session either on site or via zoom platform as indicated in the bid document and advertisement. Bidders will be given a link on the advert and tender document to register prior to the briefing session. On the day of the briefing session, bidders must log onto the link to attend. The zoom platform keeps record of bidders registered and in attendance.

Documents will only be accepted from bidders whose names appear on the attendance register. Failure to attend the compulsory briefing sessions and bidders whose names do not appear on the register, will render the bidder's submission invalid and will not be considered for evaluation.

Kindly note that the company representative that attends this session will be accepted as a person with the relevant technical expertise applicable to this bid. Please list a minimum of one representative that attended the briefing session below.

Kindly indicate the company representative/s e-mail address who <u>attended</u> the briefing session:

Name: _____ Name:_____

Email address:_____ Email address: _____

Contact number:_____ Contact number:_____

Kindly note that the above e-mail address/s will be utilised to verify your attendance at the compulsory briefing session conducted on Zoom or on-site. In the event that the indicated e-mail address/es cannot be traced on the physical attendance register; zoom registration and/or on-line attendance register, it will be taken that your</td></tr>
</table>

	company did not attend the briefing session and will result in your bid not being evaluated. It is the bidder's responsibility to provide correct e-mail address and/or contact details. ***Joint Venture:*** *In the event that the bidding entity wishes to submit an offer as a joint venture, one or both company representatives must attend the briefing session.* *Kindly indicate above one or both representatives e-mail address who attended the briefing session.* Bidders are encouraged to collect/access bidding documents before the briefing session to allow them sufficient time to peruse the scope so that any queries can be dealt with at the briefing session. Bidders will be allowed 10 days from the date of the compulsory briefing session to direct further queries to the SCM department per e-mail. An addendum will be sent to the attending bidders with clarity on questions raised during these 10 days. A copy of the minutes and attendance register will be attached thereto for ease reference. No individual should represent more than one bidder at the compulsory briefing session. At least one member of the JV be represented at the compulsory clarification meeting.
F2.8	**Seek clarification** Questions or queries must be submitted to the Employer at least five (5) working days before the stipulated closing date and time of the Tender. However, ERWAT shall not be liable nor assume liability for failure of the bidder to receive response to any questions and / or queries raised by the bidder by the closing time.
F2.9	**Pricing the Tender** State the rates and prices in South African Rand (ZAR). • Prices shall be **FIXED** and **FIRM** for the first 12 months of the **Contract. Price increments will be based on CPI annually on the anniversary of this tender.** •
F2.10	**Alterations to documents** Bidder must not make any alterations or additions to the proposal documents, except to comply with instructions issued by the employer, or necessary to correct errors made by the bidder. All signatories to the Tender offer shall sign next to all such alterations. Erasures and the use of masking fluid are prohibited. Copies are not allowed, only original documents will be accepted.
F2.11	**Submitting a Tender offer** No late, faxed or other form of Tender will be accepted. Completed Tenders with attached documents, if any, must be submitted in Black ink in sealed envelopes and clearly marked: ***"CONTRACT NO ERW2407/04* APPOINTMENT *OF SERVICE PROVIDER/S TO SUPPLY, DELIVER & INSTALL ALL ANALYTICAL INSTRUMENTATION AND ASSOCIATED EQUIPMENT ON AS AND WHEN REQUIRED BASIS IN ALL ERWAT WATER CARE WORKS FOR A PERIOD OF 36 MONTHS*** and must be placed in Tender Box at ERWAT Head Office, Hartebeestfontein Office Park, R25 (Bapsfontein / Bronkhorstspruit), Kempton Park. Accept that the tender submitted to the employer cannot be withdrawn or substituted. **No substitute tender offers will be considered**. All Tenders received by ERWAT will remain in the Company's possession.

	A Special Request: Bidders are required to submit the fully tender document and their priced Bill of Quantities (BOQ) in both hard copy (as part of the comprehensive tender document submission) and digital electronic format (Microsoft Excel file) to facilitate efficient evaluation. The hard copy BOQ submitted with the tender documents will take precedence over digital electronic submission. Submission of the digital format is not mandatory, and failure to provide it will not lead to disqualification. However, providing digital excel priced BOQ is highly encouraged for smoother processing. Bidders shall submit their tender document and priced Bill of Quantities (BOQ) in Microsoft Excel format via email to specialrequests@erwat.co.za. The subject line of the email must clearly state the project number, project description and the name of the bidding entity.
F2.12	**Information and data to be completed in all respects** To facilitate review of this Tender by ERWAT, it is requested that submissions conform to the following format: 1. **Coversheet:** List Tender Statement, the name of your firm, and the name, address and telephone number of a contact person for questions concerning the Tender submitted. 2. **Executive Summary:** Provide a brief overview of the project, description of the overall approach to the project, key features of the technologies offered and an overview of the performance guaranteed. 3. **Relevant Experience and Reference Projects:** Information of similar sized projects completed by the Bidder (in South Africa and worldwide) using the specific technologies requested must be provided. The referenced projects must be comparable in size, complexity and performance achieved to the tendered project. Operation and maintenance experience must also be included here. 4. **Project Team:** Provide a project team organogram showing the structure and composition of the proposed team. A CV highlighting the relevant project specific experience for each team member must be supplied. Permanent staff and contracted staff must be distinguished. 5. **Project Schedule:** A detailed project schedule must be submitted showing details with respect to the different phases of the project as well as the different aspects pertaining to engineering, procurement, construction, installation, commissioning and start up. The key milestones during the project must be indicated. 6. **Technical Specification & Datasheets**: All information asked for regarding the technical equipment shall be included here. Accept that Tender offers, which do not provide all the data or information requested completely and in the form required, may be regarded by the employer as non-responsive. Responsive Tenders are ONLY those Tenders with all documents and pages, contained herein, that have been signed by the responsible person duly authorised to sign all documents indicated on the returnable document **"FORM C Authority of Signatory".** The above is to be read in conjunction with F3.11 below as well as the Project Specifications detailed in Section C3: Scope of Works.
F2.13	**Closing time** **Closing Date: TUESDAY, 24TH JUNE 2025** **Closing Time: 12h00**

F2.14	**Tender offer validity** The Tender offer validity period is 120 Days.
F2.15	**Provide other information** **The bidders are required to submit following documents and if requested to resubmit in case if it was not initially submitted, it will result in automatic disqualification:** (1) Proof of SARS Tax status (pin issued by the South African Revenue Services); (2) Completion of MBD 1, 2, 3.2, 4, 5, 6.1, 8 and 9 forms (3) Copy of municipal Statement not older than 3 months or letter from landlord stating that rates and taxes are not in arrears for more than 90 days from date of closing of bid. (4) In case of Joint Venture – the Joint Venture Agreement **NB: - Please note that non-compliance to specification may be deemed as an automatic disqualification. Service Providers must quote for all aspects as per the specification.**
F2.16	**Certificates** The Bidder is required to submit with his Tender a letter of intent from an approved insurer undertaking to provide the Performance Guarantee to the format included in Part C1.3 of this Tender Document.
F3.1	**Opening of tender** Tenders will be opened in public at the ERWAT Head Office, Hartebeestfontein Office Park, R25 (Bapsfontein / Bronkhorstspruit), Kempton Park.
F3.2	**Two-envelope System** A two-envelope procedure will **NOT** be followed.
F3.3	**Non-disclosure** After the opening of the Tender offers, no information relating to the clarification, determination of responsiveness, evaluation and comparison of Tender offers and recommendations concerning the award of the Tender shall be disclosed to any other Bidder or persons not concerned with such process until the award of the Tender has been announced by ERWAT.

F3.4	**Arithmetical errors, omissions and discrepancies** ERWAT is to check BID offers for arithmetical errors in the following manner: a) Where there is a discrepancy between the amounts in words and amounts in figures, the amount in words shall govern. b) If bills of quantities or pricing schedules apply and there is an error in the line-item total resulting from the product of the unit rate and the quantity, the line item total shall govern and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line-item total as quoted shall govern, and the unit rate shall be corrected. c) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the Bidder's addition of prices, the total of the prices shall govern and the Bidder will be asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices. Consider the rejection of a tender offer if the Bidder does not correct or accept the correction of the arithmetical error in the manner described above.
F3.5	**1. Evaluation of tender offers** The Bidder's notice is drawn to the fact that the evaluation, adjudication and awarding of this Tender will be in terms of the Supply Chain Management Policy of ERWAT and the Preferential Procurement Regulations of 2022. If the submitted Tender does not comply with the Tender conditions, the Tender may be rejected. If specifications are not met, the Tender may also be rejected. With regard to the above, certain actions or errors are unacceptable, and warrant **REJECTION OF THE TENDER,** for example: ▪ Proof of SARS Tax status (pin issued by the South African Revenue Services); ▪ Non submission of company registration certificates. ▪ Pages that were to be completed being removed from the Tender document and have therefore not been submitted. ▪ Failure to fully complete form of offer. ▪ Scratching out without initialling next to the amended rates or information. ▪ Writing over / painting out rates / the use of Tippex/correction fluid or any erasable ink. ▪ Failure to attend compulsory briefing meetings ▪ The Tender has not been properly signed by a party having the authority to do so, according to the **Form C– "Authority for Signatory".** ▪ No authority for signatory submitted. ▪ Particulars required in respect of the proposal have not been provided: non- compliance of Tender requirements and/or specifications. ▪ The Bidder's attempts to influence or has in fact influenced the evaluation and/or awarding of the contract. ▪ The Proposal has been submitted after the relevant closing date and time. ▪ If any municipal rates and taxes or municipal service charges owed by that Bidder or any of its directors to the company, or to any other company or municipal entity, are in arrears for more than three months (90 days). ▪ If any Bidder who during the last five years has failed to perform satisfactorily on a previous contract with the company or any other organ of state after written notice was given to that Bidder that performance was unsatisfactory.

2. Good standing with SA Revenue Services

- Determine whether the bidders tax matters are in order as provided for by SARS.
- The Bidder must complete the MBD 2 form in the returnable schedule and or attach their valid SARS Pin to verify their Tax matters to the designated page of the Tender document.

If the Tender does not meet the requirements contained in the ERWAT Supply Chain Policy, and the mentioned framework, it will be rejected and may not subsequently be made acceptable by correction or withdrawal of the non-conforming deviation or reservation.

3. Penalties

ERWAT will, if upon investigation it is found that a preference in terms of the Preferential Procurement Policy Framework Act, 2000 and these regulations has been obtained on a fraudulent basis, or any specified goals are not attained in the performance of the contract, one or more of the following penalties will be imposed:

- Cancel the contract and recover all losses or damages incurred or sustained from the Bidder.
- Impose a financial penalty of twice the theoretical financial preference associated with the claim, which was made in the Tender.
- Restrict the firm, its shareholders and directors on obtaining any business from ERWAT for a period of 5 years and blacklisted on the National Treasury database of restricted suppliers.

4. Evaluation Criteria

ERWAT will establish a Bid Evaluation Committee (BEC) whose responsibility it is to make recommendations to the Bid Adjudication Committee (BAC). The Bid Evaluation Committee will short list, evaluate the bid document in accordance with the criteria below, and make recommendations to the BAC.

1) Pre compliance evaluation to be done and pre-qualified bidders goes through for the functionality evaluation. Where some pre compliance information is not provided the ERWAT supply chain will contact the responsible bidder to submit within 5 working days and failure to do so will result in disqualification.

2) Score Bid evaluation points for price and preference points

3) Calculate total Bid evaluation points, to two decimal places

4) Rank Bid offers from the highest number of Bid evaluation points to the lowest

5) Recommend Bidders with the highest number of Bid evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.

	FUNCTIONALITY CRITERIA: - Note: The minimum required score for functionality is stipulated in the functionality table listed elsewhere in the document. Bidders scoring less than the stipulated threshold on functionality shall not proceed to the next stage of the evaluation. Functionality criteria maximum points in respect of each criterion shall be as set out at the bottom of this table. All Tender submission will be evaluated by at least three evaluators against the Table below. Bidders shall ensure that their tender submissions are sufficiently detailed and that all required information is included in their submissions. Information not provided will result in zero points awarded for the respective item. **Tender evaluation points** Tender evaluation points will be allocated as per the Supply Chain Management policy and the Preferential Procurement Policy Framework Act, 2000: Preferential Procurement Regulations, 2022 including the following: The points allocation for this Tender is: a) Price: 80 b) B-BBEE Status Level of Contribution: 20 Regulations of disputes, objections, complaints and queries will be handled in accordance with the Supply Chain Management Policy of ERWAT.
F3.6	**Contract Documents** The Service Level Agreement (if applicable), Bid document and related attachments shall constitute the complete contract agreement. It should be noted that all ERWAT contracts are subject to the Municipal Financial Management Act (MFMA Act 56 of 2003), therefore in the event that there is any contradiction between the MFMA (*Act 56 of 2003*) and the GCC or any other applicable contractual agreement, the MFMA (*Act 56 of 2003*) and its applicable regulations shall take precedence. **This is a CIDB Contract, and the CIDB Board has initiated a B.U.I.L.D Programme, which focuses on Targeted Enterprise Development and/or Skills Development. This contract is affected by CIDB B.U.I.L.D Programme for Skills Development; therefore, the CIDB standard for Developing Skills through Infrastructure Contracts (Government gazette 28 April 2023) which forms part of the B.U.I.L.D Programme Standards shall form part of the contract. This standard requirement as well as any other regulatory or legislative requirements will be included during the Service Level Agreement (SLA) stage.**
F3.7	**Provide copies of the contracts** The number of paper copies of the signed contract to be provided by the Employer is **one**.
Additional conditions	The additional conditions of the proposal are: 1) ERWAT may also request that the Bidder provide written evidence that his financial, labour and resources are adequate for carrying out the project.

	2) ERWAT reserves the right to appoint a firm of chartered accountants and auditors and / or execute any other financial investigations on the financial resources of any Bidder. The Bidders shall provide all reasonable assistance in such investigations. 3) ERWAT reserves the right to award this contract to one or more bidders. The lowest bidder or any bid will not necessarily be accepted. 4) The decision to appoint multiple bidders will be based on the evaluation of bids received, the nature and scope of the work, and the Company's discretion to ensure optimal project delivery. 5) The number of bidders that will be appointed and the allocation of activities or items per bidder will be at ERWAT's discretion. 6) The lowest bidding price will not necessarily be accepted and ERWAT reserves the right to determine market related rate to be offered to the successful bidders. 7) The rates of the highest scoring bidder subject to market evaluation (market related rate) will be offered to the second and third highest scoring bidders. 8) If the tender is found to be unauthorised, fruitless and wasteful or irregular as informed through a formal investigation, internal and or external audit outcome, the Auditor General, Council, ERWAT Board of Directors or National Treasury, ERWAT reserves the right to cancel the tender with immediate effect and the bidder will have no claim to his effect whatsoever. The final terms of payment (where applicable) will be negotiated with the bidder at the time for final close out of the contract.

1.1 TECHNICAL EVALUATION

Mandatory Requirements

Scope related Information and Documentation required:	
Please ensure that the following supporting documents are attached to your Bid Document. Failure to submit the below mentioned documents will result in disqualification of your bid.	
Item	**Description of Document/Proof Sought**
1.	Proof of Electrical Contractors Board registration for the bidding company.
2.	The Contract CIDB Rating required for this Contract is_ CIDB 6EP _ Bidders shall submit proof of Current Registration.

1.2 FUNCTIONALITY EVALUATION

Potential service providers will have to achieve a minimum **point out of 100** for their technical proposals before their financial proposals and B-BBEE status are evaluated. This is required so that there is a level of comfort that the potential service provider can deliver the project with the required professionalism and quality.

1.2.1 SCORING PROCESS

The Functional Evaluation Task Team will be established to determine the following:

- Whether or not the Bidder understood the project specifications.
- The bidders experience with similar projects.
- The qualifications and experience of the key staff proposed.
- The bidder's financial resources.
- OEM support to bidders.

No alteration of functionality proposals will be permitted after the deadline for receipt of bids. Questions may be asked for clarification needed to evaluate their proposals, but bidders would not be permitted to change the substance or price of their bids after bid opening. Requests for clarification and the bidder's responses would be made in writing. No interviews will be conducted in this regard.

SCORING CRITERIA FOR CIDB CONTRACTS:

The score for the Functionality Evaluation will be calculated in accordance with the table below:

CRITERION	CRITERION DETAILS	POINTS
Company Experience	**Please provide reference letters or completion certificates of completed projects, on the relevant clients' company letterhead, for the Supply and installation of the Online Dissolved Oxygen and Mixed Liquor Suspended Solids Meters equipment. The reference letters or completion certificates must at minimum include Installation of Online Dissolved Oxygen and Mixed Liquor Suspended Solids Meters, Work completed should not be older than 5 years.** • 4 and more Letters/Certificates = 30 • 3 Letters/Certificates = 20 • 2 Letters/Certificates = 10 • 1 Letter/Certificate = 5 • None, uncontactable or denied references = 0	**30**
Expertise of key staff	**Experience of key staff will be evaluated based on post qualification attainment.** **Project Manager (National Diploma or Higher)** • 0 – 47 Months Experience = 0 • 48 - 59 Months Experience = 5 • 60 - or more Months experience = 10 **Instrumentation Technician (National Diploma or Higher)** • 0 – 23 Months Experience = 0 • 24 - 35 Months Experience = 3 • 36 - or more Months experience = 5 **Instrumentation Mechanician (Trade Test)** • 0 – 47 Months Experience = 0 • 48 - 59 Months Experience = 3 • 60 - or more Months experience = 5 **Electrician (Trade Test)** • 0 – 23 Months Experience = 0 • 24 - 35 Months Experience = 5 • 36 - or more Months experience = 10	**30**
Financial Resources **Kindly submit a bank rating from the company's bank institution (not older than six months)**	**Based on reference checks with Bidder's Bank.** • Bank Rating A - Undoubted for the amount of enquiry = 10 • Bank Rating B - Good for the amount of your enquiry = 8 • Bank Rating C - Good for the amount quoted, if strictly in the way of business = 6 • Bank Rating D - Fair trade risk for the amount of your enquiry =4 • Bank Rating E - Figures considered too high = 2 • Failure to produce a bank document explicitly stating the Bank rating will result in 0 points being awarded in this category = 0	**10**

CRITERION	CRITERION DETAILS	POINTS
Letters of Support	**Bidders must supply letters from the official suppliers addressed to the bidder and clearly stipulate that the Manufacturer or Official Supplier or Authorised Agent of the Online Dissolved Oxygen and Mixed Liquor Suspended Solids Meters, will provide Installation and Operational Support for the equipment.** The letter from Manufacturer/Supplier/Agent of Online Dissolved Oxygen and Mixed Liquor Suspended Solids Meters Statement of Support = 30 Failure to supply the letter from Manufacturer/Supplier/Agent = 0	**30**
TOTAL	**Bidder must score a minimum of 75 points to be considered for further evaluation**	**100**

ERWAT
EXCELLENCE IN WATER CARE

PROJECT NO: ERW2407/04

APPOINTMENT OF SERVICE PROVIDER/S TO SUPPLY, DELIVER & INSTALL ALL ANALYTICAL INSTRUMENTATION AND ASSOCIATED EQUIPMENT ON AS AND WHEN REQUIRED BASIS IN ALL ERWAT WATER CARE WORKS FOR A PERIOD OF 36 MONTHS

T 2.1 LIST OF RETURNABLE DOCUMENTS

1. Failure to fully complete and sign the relevant returnable documents shall render such a tender offer unresponsive.

2. Bidders shall note that their signatures appended to each returnable form represents a declaration that they vouch for the accuracy and correctness of the information provided, including the information provided by candidates proposed for the specified key positions.

3. Notwithstanding any check or audit conducted by or on behalf of the Employer, the information provided in the returnable documents is accepted in good faith and as justification for entering into a contract with a Bidder. If subsequently any information is found to be incorrect such discovery shall be taken as wilful misrepresentation by that Bidder to induce the contract. In such event the Employer has the discretionary right to terminate the contract.

THE BIDDER MUST COMPLETE AND SIGN THE FOLLOWING RETURNABLE SCHEDULES:

RETURNABLE SCHEDULES REQUIRED FOR TENDER EVALUATION PURPOSES

MBD 1	INVITATION TO BID
MBD 2	TAX CLEARANCE REQUIREMENTS
MBD 3.2	PRICING STRUCTURE: NON-FIRM PRICES
MBD 4	DECLARATION OF INTEREST
MBD 5	DECLARATION FOR PROCUREMENT ABOVE R10 MILLION (ALL APPLICABLE TAXES INCLUDED)
MBD 6.1	PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022
MBD 7.1	CONTRACT FORM: PURCHASE OF GOODS/SERVICES
	PART 1: TO BE COMPLETED BY THE BIDDER
	PART 2: TO BE COMPLETED BY ERWAT
MBD 8	DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES
MBD 9	CERTIFICATE OF INDEPENDENT BID DETERMINATION
FORM A	MUNICIPAL SERVICES, RATES AND TAXES OR RENTAL AGREEMENT WITH LANDLORD: Copy of Municipal Statement not older than 3 months before date of closing of bid OR Letter from landlord stating that you are renting from his/her property OR a Copy of Lease agreement and Contact details. Rates and taxes must not be in arrears for longer than 90 (ninety) days of date of closing of bid.
FORM B	NATIONAL TREASURY CENTRALISED SUPPLIER DATABASE
FORM C	AUTHORITY OF SIGNATORY
FORM D	FINANCIAL REFERENCES /BIDDER'S CREDIT RATING AND BANK DETAILS
FORM E	RECORD OF ADDENDA TO TENDER DOCUMENTS
FORM F	CERTIFICTE OF AUTHORITY FOR SIGNATORY TO AGREEMENT IN TERMS OF OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO
FORM G	OCCUPATIONAL HEALTH AND SAFETY AGREEMENT
FORM H	PREFERENCE SCHEDULE
FORM I	CURRENT CERTIFICATE OF GOOD STANDING FROM COMPENSATION COMMISSIONER
FORM J	PROGRAM OF WORKS/SERVICES
FORM K	EXPERTISE OF THE KEY PERSONNEL

FORM L	SANS/SABS/ISO CERTIFICATION OR TQM CERTIFICATION OR OTHER CERTIFICATES REQUIRED IN TERMS OF THE REGULATORY AUTHORITY AS SET OUT IN THE SPECIAL CONDITIONS OF CONTRACT
FORM M	LETTER OF INTENT TO SUBMIT THIRD PARTY LIABILITY INSURANCE AND ALL RISK CONTRACTORS' INSURANCE TO COVER THIS CONTRACT
FORM N	COPY OF COMPANY REGISTRATION DOCUMENTS
FORM O	SUB-CONTRACTING AS CONDITION OF TENDER FOR A CONTRACT
FROM P	PROTECTION OF PERSONAL INFORMATION ACT, 4 OF 2013

Returnable Documents that will be incorporated into the contract

C1.1	OFFER PORTION OF FORM OF OFFER AND ACCEPTANCE
C1.2	CONTRACT DATA (PART 2)
C1.3	FORM OF GUARANTEE (THIRD PARTY LIABILITY AND ALL RISK INSURANCE)

T2.1.1 IMPORTANT: Required Returnable Documentation:

Please ensure that the following supporting documents are attached to your Bid Document. Failure to submit the below mentioned documents will result in disqualification of your bid.

Item	Description of Document/Proof Sought	To be completed by the Bidder: Please fill in Yes or No if Proof/ Documentation attached	For Office Use Only Verified by SCM Official: Please fill in Yes or No if Proof/ Documentation attached
1	A valid Tax Clearance Certificate/SARS issued pin		
2	Certified Copy of ID documents of owners/members/shareholders (see Bidders Information Section).		
3	Copy of Municipal Statement not older than 3 months OR Letter from landlord stating that you are renting from his/her property OR Copy of Lease agreement and Contact details (Statement and arrears should not be older than 3 months)		
4	Current Certificate of Good Standing from Compensation Commissioner		
5	Occupational Health & Safety Plan		

T2.1.2 Other Returnable Documents required for the evaluation

Item	Description of Document/Proof Sought	To be completed by the Bidder: Please fill in Yes or No if Proof/ Documentation attached	For Office Use Only Verified by SCM Official: Please fill in Yes or No if Proof/ Documentation attached
1	Copy of Company/ Registration Documents (see Bidders Information Section). – Failure to submit will result in disqualification.		
2	Original or Certified copy of B-BBEE Verification certificate from an accredited Verification Agency or B-BBEE Affidavit signed by Commissioner of Oaths, as provisioned in the B-BBEE Act and its Regulations. **Failure to submit will result in a zero score for B-BBEE Contribution Level Status points awarded.**		
3	Certificate that there are no outstanding commitments for municipal rates and taxes for more than 90 days – failure to submit this information will result in disqualification.		
4	Proof of CSD registration (Supplier number and unique reference ID) – failure to supply this information will result in disqualification. This tender may not be awarded to a person who is not registered on the CSD database.		

ERWAT
EXCELLENCE IN WATER CARE

PROJECT NO: ERW2407/04

APPOINTMENT OF SERVICE PROVIDER/S TO SUPPLY, DELIVER & INSTALL ALL ANALYTICAL INSTRUMENTATION AND ASSOCIATED EQUIPMENT ON AS AND WHEN REQUIRED BASIS IN ALL ERWAT WATER CARE WORKS FOR A PERIOD OF 36 MONTHS

T2.2 RETURNABLE SCHEDULES

MBD 1

PART A
INVITATION TO BID

You are hereby invited to bid for requirements of ERWAT	
Bid Number	**ERW2407/04**
Compulsory Briefing session date and time. *Kindly refer to Clause F.2.7 of the bidding document relating to the Clarification Meeting (provisions for attending briefing sessions)*	**TUESDAY, 10TH JUNE 2025 @ 10:30** **VIA ZOOM PLATFORM**. Kindly register to attend the briefing. Zoom Link: https://erwatza.zoom.us/meeting/register/98BZSamxTBCn3iJvrPtj4w
Closing date	**TUESDAY, 24TH JUNE 2025**
Closing time and venue	12h00 noon at ERWAT Head Office, R25 Bapsfontein Road, Norkem Park
The successful bidder will be required to fill in and sign a written contract form (MBD7).	

Bidder Information	
Name of Bidding Company	
Company physical address	
Company postal address	
Contact details	Company Representative (Name):
	Telephone:
	Cell phone:
	E-mail address:
National Treasury Central Supplier Database number: (Compulsory)	MAAA
CIDB Grading CRS number	
Vat registration number	
Tax Compliance status	TCS Pin:
Are you the accredited representative in South Africa for the goods/ services/ works offered? If yes, attach proof from the agency your company is accredited to represent	
Total number of items offered	N/A
Total price (including VAT)	**Rates based tender**
SCM related enquiries:	Ms Brenda Matlala E-mail: brenda.matlala@erwat.co.za Tel: 011 929 7000
Technical enquiries	Ms. Hlenqiwe Nhlapho E-mail: hlengiwe.zwane@erwat.co.za Tel: 011 929 7000

PART B
TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION:

1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.

1.2. **ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED– (NOT TO BE RE-TYPED)**

1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2022, THE GENERAL CONDITIONS OF CONTRACT FOR CONSTRUCTION WORKS (GCC 2015, THIRD EDITION) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.

2. TAX COMPLIANCE REQUIREMENTS

2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.

2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VIEW THE TAXPAYER'S PROFILE AND TAX STATUS.

2.3 APPLICATION FOR THE TAX COMPLIANCE STATUS (TCS) CERTIFICATE OR PIN MAY ALSO BE MADE VIA E-FILING. IN ORDER TO USE THIS PROVISION, TAXPAYERS WILL NEED TO REGISTER WITH SARS AS E-FILERS THROUGH THE WEBSITE WWW.SARS.GOV.ZA.

2.4 FOREIGN SUPPLIERS MUST COMPLETE THE PRE-AWARD QUESTIONNAIRE IN PART B:3.

2.5 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.

2.6 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.

2.7 WHERE NO TCS IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.

3. QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS

3.1. IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)? ☐ YES ☐ NO

3.2. DOES THE ENTITY HAVE A BRANCH IN THE RSA? ☐ YES ☐ NO

3.3. DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA? ☐ YES ☐ NO

3.4. DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA? ☐ YES ☐ NO

3.5. IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION? ☐ YES ☐ NO

IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 ABOVE.

NB: Failure to provide any of the above particulars may result in your bid being disqualified.

Name & Surname of Representative: _____

Signature Of Bidder: _____

Capacity Under Which This Bid Is Signed: _____

Date: _____

MBD 3.2

PRICING SCHEDULE – NON-FIRM PRICES (PURCHASES)

NOTE: PRICE ADJUSTMENTS WILL BE ALLOWED AT THE PERIODS AND TIMES SPECIFIED IN THE BIDDING DOCUMENTS.

IN CASES WHERE DIFFERENT DELIVERY POINTS INFLUENCE THE PRICING, A SEPARATE PRICING SCHEDULE MUST BE SUBMITTED FOR EACH DELIVERY POINT

Name of Bidder: _____	Bid number: **ERW2407/04**
Closing Time : **12:00 NOON**	Closing Date: **TUESDAY, 24TH JUNE 2025**

OFFER TO BE VALID FOR 120 DAYS FROM THE CLOSING DATE OF BID.

ITEM NO.	QUANTITY	DESCRIPTION	BID PRICE IN RSA CURRENCY **(ALL APPLICABLE TAXES INCUDED)
-		Required by:	**EKURHULENI WATER CARE WORKS**
-		At:	**INFRSTRUCTURE PROJECTS AND PLANNING**
-		Brand and model	_____
-		Country of origin	_____
-		Does the offer comply with the specification(s)?	*YES/NO
-		If not to specification, indicate deviation(s)	_____
-		Period required for delivery	_____
-		Delivery:	*Firm/Not firm

** ”all applicable taxes” includes value- added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies.

*Delete if not applicable

MBD 3.2

PRICE ADJUSTMENTS

A NON-FIRM PRICES SUBJECT TO ESCALATION

1. IN CASES OF PERIOD CONTRACTS, NON-FIRM PRICES WILL BE ADJUSTED (LOADED) WITH THE ASSESSED CONTRACT PRICE ADJUSTMENTS IMPLICIT IN NON FIRM PRICES WHEN CALCULATING THE COMPARATIVE PRICES

2. IN THIS CATEGORY PRICE ESCALATIONS WILL ONLY BE CONSIDERED IN TERMS OF THE FOLLOWING FORMULA:

$$Pa = (1-V)Pt\left(D1\frac{R1t}{R1o} + D2\frac{R2t}{R2o} + D3\frac{R3t}{R3o} + D4\frac{R4t}{R4o}\right) + VPt$$

Where:

Pa	=	The new escalated price to be calculated.
(1-V) Pt	=	85% of the original bid price. **Note that Pt must always be the original bid price and not an escalated price.**
D1, D2..	=	Each factor of the bid price e.g. Labour, transport, clothing, footwear, etc. The total of the various factors D1,D2…etc. must add up to 100%.
R1t, R2t……	=	Index figure obtained from new index (depends on the number of factors used).
R1o, R2o	=	Index figure at time of bidding.
VPt	=	15% of the original bid price. This portion of the bid price remains firm i.e. it is not subject to any price escalations.

The following index/indices must be used to calculate your bid price:

Index……. Dated……. Index……. Dated……. Index……. Dated…….

Index……. Dated……. Index……. Dated……. Index……. Dated…….

FURNISH A BREAKDOWN OF YOUR PRICE IN TERMS OF ABOVE-MENTIONED FORMULA. THE TOTAL OF THE VARIOUS FACTORS MUST ADD UP TO 100%.

FACTOR (D1, D2 etc. eg. Labour, transport etc.)	PERCENTAGE OF BID PRICE

MBD 3.2

PRICES SUBJECT TO RATE OF EXCHANGE VARIATIONS

Please furnish full particulars of your financial institution, state the currencies used in the conversion of the prices of the items to South African currency, which portion of the price is subject to rate of exchange variations and the amounts remitted abroad.

PARTICULARS OF FINANCIAL INSTITUTION	ITEM NO	PRICE	CURRENCY	RATE	PORTION OF PRICE SUBJECT TO ROE	AMOUNT IN FOREIGN CURRENCY REMITTED ABROAD
				ZAR=		
				ZAR=		
				ZAR=		
				ZAR=		
				ZAR=		
				ZAR=		

Adjustments for rate of exchange variations during the contract period will be calculated by using the average monthly exchange rates as issued by your commercial bank for the periods indicated hereunder: (Proof from bank required)

AVERAGE MONTHLY EXCHANGE RATES FOR THE PERIOD:	DATE DOCUMENTATION MUST BE SUBMITTED TO THIS OFFICE	DATE FROM WHICH NEW CALCULATED PRICES WILL BECOME EFFECTIVE	DATE UNTIL WHICH NEW CALCULATED PRICE WILL BE EFFECTIVE

MBD 4

DECLARATION OF INTEREST

1. No bid will be accepted from persons in the service of the state.

2. Any person, having a kinship with persons in the service of the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid. In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons connected with or related to persons in service of the state, it is required that the bidder or their authorised representative declare their position in relation to the evaluating/adjudicating authority.

3. A Person who is an advisor or consultant contracted with the municipality.

4. In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.

   4.1 Full Name of bidder or his or her representative:

   _____

   4.2 Identity Number: | | | | | | | | | | | | | |

   4.3 Position occupied in the Company (director, trustee, shareholder[2]):

   _____

   4.4 Company Registration Number: _____

   4.5 Tax Reference Number: _____

   4.6 VAT Registration Number: _____

   4.7 The names of all directors / trustees / shareholders members, their individual identity numbers and state employee numbers must be indicated in paragraph 5 below.

   4.8 Are you presently in the service of the state? **YES / NO**
   If so, furnish particulars.

   _____

   _____

   4.9 Have you been in the service of the state for the past twelve months?

   YES / NO

   If so, furnish particulars.

   _____

   _____

   4.10 Do you have any relationship (family, friend, other) with persons in the service of the state and who may be involved with the evaluation and or adjudication of this bid?

   YES / NO

If so, furnish particulars.

_____

_____

4.11 Are you, aware of any relationship (family, friend, other) between any other bidder and any persons in the service of the state who may be involved with the evaluation and or adjudication of this bid?

YES / NO

If so, furnish particulars.

_____

_____

4.12 Are any of the company's directors, trustees, managers, principle shareholders or stakeholders in service of the state?

YES / NO

If so, furnish particulars.

_____

_____

4.13 Are any spouse, child or parent of the company's directors, trustees, managers, principle shareholders or stakeholders in service of the state?

YES / NO

If so, furnish particulars.

_____

_____

4.14 Do you or any of the directors, trustees, managers, principle shareholders, or stakeholders of this company have any interest in any other related companies or business whether or not they are bidding for this contract? ***(this refers to all companies involved in, regardless of the commodity)***

YES / NO

If so, furnish particulars.

_____

_____

5. Full details of directors / trustees / members / shareholders **in the service of the state.**

FULL NAME	IDENTITY NUMBER	STATE EMPLOYEE NUMBER

1 MSCM Regulations: "in the service of the state" means to be –

(a) *A member of –*
- *any municipal council/entity;*
- *any provincial legislature; or*
- *the national Assembly or the national Council of provinces;*

(b) *a member of the board of directors of any municipal entity;*
(c) *an official of any municipality or municipal entity;*
(d) *an employee of any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the public Finance Management Act, 1999 (Act No 1 of 1999);*
(e) *a member of the accounting authority of any national or provincial public entity; or*
(f) *an employee of Parliament or a provincial legislature.*

[2] Shareholder" means a person who owns shares in the company and is actively involved in the management of the company or business and exercises control over the company.

CERTIFICATION

I, THE UNDERSIGNED (NAME) _____
CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS CORRECT.

I ACCEPT THAT THE STATE MAY ACT AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

_____ _____
SIGNATURE **DATE**

_____ _____
POSITION **NAME OF BIDDER**

MBD 5

DECLARATION FOR PROCUREMENT ABOVE R10 MILLION (ALL APPLICABLE TAXES INCLUDED)

For all procurement expected to exceed R10 million (all applicable taxes included), bidders must complete the following questionnaire.

Bidders are required to submit **audited** financial statements for the **past three years** for bids where the threshold exceeds R10 million if they are required to prepare annual financial statements for auditing by law

1 **Are you by law required to prepare annual financial statements for auditing?**

***YES/NO**

1.1 If "**YES"**, submit **audited** annual financial statements (**as provided for under the Companies Act**) for the **past three years** or since the date of establishment if established during the past three years.

_____

_____

2 Do you have any outstanding undisputed commitments for municipal services towards any municipality for more than three months or any other service provider in respect of which payment is overdue for more than 30 days?

***YES/NO**

2.1 If no, this serves to certify that the bidder has no undisputed commitments for municipal services towards any municipality for more than three months or other service provider in respect of which payment is overdue for more than 30 days.

2.2 If yes, provide particulars.

_____

_____

_____

_____

3 Has any contract been awarded to you by an organ of state during the past five years, including particulars of any material non-compliance or dispute concerning the execution of such contract?

***YES/ NO**

3.1 If yes, furnish particulars

_____

_____

**** Delete if not applicable***

4 Will any portion of goods or services be sourced from outside the Republic, and, if so, what portion and whether any portion of payment from the municipality / municipal entity is expected to be transferred out of the Republic?

***YES / NO**

4.1 If yes, furnish particulars

_____

_____

CERTIFICATION

I, THE UNDERSIGNED (NAME) _____

CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS CORRECT.

I ACCEPT THAT THE STATE MAY ACT AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

_____ _____

SIGNATURE **DATE**

_____ _____

POSITION **NAME OF BIDDER**

MBD 6.1

PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022

This preference form must form part of all tenders invited. It contains general information and serves as a claim form for preference points for specific goals.

NB: BEFORE COMPLETING THIS FORM, TENDERERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF THE TENDER AND PREFERENTIAL PROCUREMENT REGULATIONS, 2022

1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to invitations to tender:

- the 80/20 system for requirements with a Rand value below R50 000 000 (all applicable taxes included).

1.2 The 80/20 preference point system will be applicable in this tender. The lowest/ highest acceptable tender will be used to determine the accurate system once tenders are received and shall be awarded for:

(a) Price; and
(b) Specific Goals.

1.5 The maximum points for this tender are allocated as follows:

	POINTS
PRICE	**80**
SPECIFIC GOALS	**20**
Total points for Price and SPECIFIC GOALS	**100**

1.3 Failure on the part of a tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.

1.4 The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

2. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

2.1 POINTS AWARDED FOR PRICE

2.1.1 THE 80/20 PREFERENCE POINT SYSTEMS

A maximum of 80 points is allocated for price on the following basis:

80/20

$$Ps = 80\left(1 - \frac{Pt - Pmin}{Pmin}\right)$$

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmin = Price of lowest acceptable tender

3. POINTS AWARDED FOR SPECIFIC GOALS

3.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:

Table 1: Specific goals for the tender and points claimed are indicated per the table below.

***Note to tenderers: The tenderer must indicate how they claim points for each preference point system.*)**

The specific goals allocated points in terms of this tender	**Number of points allocated (80/20 system)**	**Number of points claimed (80/20 system) (To be completed by the tenderer**
EME or QSE 51% owned by women	4	
EME or QSE 51% owned by youth	4	
EME or QSE 51% owned by people with disabilities	4	
EME or QSE 51% owned by military veterans	4	
EME or QSE within the boundaries of Ekurhuleni Municipality	4	

The above information will be verified in accordance with the bidders B-BBEE certificate, and or a certificate from the companies and intellectual property commission (CIPC), the department of Military Veterans and or other supporting documents. All supporting evidence must be submitted in order to claim the preferential procurement points claimed. ERWAT reserves the right to verify the information submitted.

In the case of multi-parties (Joint ventures, consortiums, partnerships, etc.), allocation of points will be calculated by adding the individual parties in the JV, etc. ownership % together; divide the total by the number of parties in the respective joint ventures, consortiums, partnerships, etc. The average % will thus be the indicating factor for the number of points to be scored limited to the maximum available points.

e.g. Joint venture:

Party 1 = 51% EME/QSE owned by women
Party 2 = 100% EME/QSE owned by women
= **151%** / 2 parties in the JV = 75% and will score = 4 points

The above principle will apply to points 1, 2, 3 & 4 indicated in Table 1 above.

For point 5: The collective JV agreement's address, or the Lead JV partners' domicile Address will be utilized for scoring of points.

DECLARATION WITH REGARD TO COMPANY/FIRM

Name of company/firm: _____

Company registration number: _____

TYPE OF COMPANY/ FIRM

☐	Partnership/Joint Venture / Consortium	Please indicated the % JV/Partner/Consortium Share (e.g., 49/1% indicating the lead partner % first	%
☐	One-person business/sole propriety		
☐	Close corporation		
☐	Public Company		
☐	Personal Liability Company		
☐	(Pty) Limited		
☐	Non-Profit Company		
☐	State Owned Company		

[TICK APPLICABLE BOX]

I, the undersigned, who is duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the specific goals as advised in the tender, qualifies the company/ firm for the preference(s) shown and I acknowledge that:

- The information furnished is true and correct;
- The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- In the event of a contract being awarded as a result of points claimed as shown in table 1 above, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;
- If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –
  - disqualify the person from the tendering process;
  - recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
  - cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;

- recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and

- forward the matter for criminal prosecution, if deemed necessary.

Company name: _____

Company address: _____

_____

Name& Surname of Representative: _____

Signature Of Bidder: _____

Designation: _____

Date: _____

MBD 7.1

CONTRACT FORM - PURCHASE OF GOODS/WORKS

THIS FORM MUST BE FILLED IN DUPLICATE BY BOTH THE SUCCESSFUL BIDDER (PART 1) AND THE PURCHASER (PART 2). BOTH FORMS MUST BE SIGNED IN THE ORIGINAL SO THAT THE SUCCESSFUL BIDDER AND THE PURCHASER WOULD BE IN POSSESSION OF ORIGINALLY SIGNED CONTRACTS FOR THEIR RESPECTIVE RECORDS.

PART 1 (TO BE FILLED IN BY THE BIDDER)

1. I hereby undertake to supply all or any of the goods and/or works described in the attached bidding documents to (name of institution)…….. in accordance with the requirements and specifications stipulated in bid number **ERW2407/04** at the price/s quoted. My offer/s remain binding upon me and open for acceptance by the purchaser during the validity period indicated and calculated from the closing time of bid.

2. The following documents shall be deemed to form and be read and construed as part of this agreement:

   (i) Bidding documents, *viz*
   - Invitation to bid;
   - Tax clearance certificate;
   - Pricing schedule(s);
   - Technical Specification(s);
   - Preference claims for Broad Based Black Economic Empowerment Status Level of Contribution in terms of the Preferential Procurement Regulations 2022;
   - Declaration of interest;
   - Declaration of bidder's past SCM practices;
   - Certificate of Independent Bid Determination;
   - Special Conditions of Contract;

   (ii) General Conditions of Contract; and
   (iii) Other (specify)

3. I confirm that I have satisfied myself as to the correctness and validity of my bid; that the price(s) and rate(s) quoted cover all the goods and/or works specified in the bidding documents; that the price(s) and rate(s) cover all my obligations and I accept that any mistakes regarding price(s) and rate(s) and calculations will be at my own risk.

4. It is noted that this is rates based tender. The contract is limited to Purchase orders issued within the available budget allocated for such on an as and when required basis.

5. I accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on me under this agreement as the principal liable for the due fulfilment of this contract.

6. I declare that I have no participation in any collusive practices with any bidder or any other person regarding this or any other bid.

7. I confirm that I am duly authorised to sign this contract.

NAME (PRINT)_____

CAPACITY _____

SIGNATURE _____

NAME OF FIRM _____

DATE _____

WITNESSES

1. _____

2. _____

DATE: _____

MBD 7.1

CONTRACT FORM - PURCHASE OF GOODS/WORKS

PART 2 (TO BE FILLED IN BY THE PURCHASER)

1. I _____ in my capacity as

_____ accept your bid under reference number:

ERW2407/04 dated……for the supply of goods/works indicated hereunder and/or further specified in the annexure(s).

1. An official order indicating delivery instructions is forthcoming.

2. I undertake to make payment for the goods/works delivered in accordance with the terms and conditions of the contract, within 30 (thirty) days after receipt of an invoice accompanied by the delivery note.

ITEM NO.	DESCRIPTION OF SERVICE	PRICE (ALL APPLICABLE TAXES INCLUDED)	COMPLETION DATE	B-BBEE STATUS LEVEL OF CONTRIBUTION	MINIMUM THRESHOLD FOR LOCAL PRODUCTION AND CONTENT (if applicable)
	Kindly refer to the BOQ*	***Kindly refer to the BOQ****	***Determined in the Service Level Agreement***	***Refer to MBD 6.1***	***N/A***

**** It is noted that this is rate-based tender. The contract is limited to Purchase orders issued within the available budget allocated for such on an as and when required basis.***

4. I confirm that I am duly authorized to sign this contract.

NAME (PRINT)_____

CAPACITY _____

SIGNATURE _____

NAME OF FIRM _____

DATE _____

WITNESSES

1. _____

2. _____

DATE:

MBD 8

DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

1 This Municipal Bidding Document must form part of all bids invited.

2 It serves as a declaration to be used by municipalities and municipal entities in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse of the supply chain management system.

3 The bid of any bidder may be rejected if that bidder, or any of its directors have:

a. abused the company's / municipal entity's supply chain management system or committed any improper conduct in relation to such system;
b. been convicted for fraud or corruption during the past five years;
c. wilfully neglected, reneged on or failed to comply with any government, municipal or other public sector contract during the past five years; or
d. Been listed in the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004).

4 In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.

Item	Question	Yes	No
4.1	Is the bidder or any of its directors listed on the National Treasury's Database of Restricted Suppliers as companies or persons prohibited from doing business with the public sector? (Companies or persons who are listed on this Database were informed in writing of this restriction by the Accounting Officer/Authority of the institution that imposed the restriction after the *audi alteram partem* rule was applied). The Database of Restricted Suppliers now resides on the National Treasury's website (www.treasury.gov.za) and can be accessed by clicking on its link at the bottom of the home page.	Yes ☐	No ☐
4.1.1	If so, furnish particulars:		
4.2	Is the bidder or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)? The Register for Tender Defaulters can be accessed on the National Treasury's website (www.treasury.gov.za) by clicking on its link at the bottom of the home page.	Yes ☐	No ☐

4.2.1	If so, furnish particulars:		
4.3	Was the bidder or any of its directors convicted by a court of law (including a court of law outside the Republic of South Africa) for fraud or corruption during the past five years?	Yes ☐	No ☐
4.3.1	If so, furnish particulars:		
4.4	Does the bidder or any of its directors owe any municipal rates and taxes or municipal charges to the company / municipal entity, or to any other municipality / municipal entity, that is in arrears for more than three months?	Yes ☐	No ☐
4.4.1	If so, furnish particulars:		
4.5	Was any contract between the bidder and the municipality / municipal entity or any other organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes ☐	No ☐
4.7.1	If so, furnish particulars:		

CERTIFICATION

I, THE UNDERSIGNED (FULL NAME_____

CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS TRUE AND CORRECT.

I ACCEPT THAT, IN ADDITION TO CANCELLATION OF A CONTRACT, ACTION MAY BE TAKEN AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

_____

SIGNATURE ON BEHALF OF BIDDER

MBD 9

CERTIFICATE OF INDEPENDENT BID DETERMINATION

1. This Municipal Bidding Document (MBD) must form part of all bids[1] invited.

2. Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging).[2] Collusive bidding is a *pe se* prohibition meaning that it cannot be justified under any grounds.

3. Municipal Supply Regulation 38 (1) prescribes that a supply chain management policy must provide measures for the combating of abuse of the supply chain management system, and must enable the accounting officer, among others, to:

    a. take all reasonable steps to prevent such abuse;

    b. reject the bid of any bidder if that bidder or any of its directors has abused the supply chain management system of the municipality or municipal entity or has committed any improper conduct in relation to such system; and

    c. cancel a contract awarded to a person if the person committed any corrupt or fraudulent act during the bidding process or the execution of the contract.

4. This MBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging.

5. In order to give effect to the above, the attached Certificate of Bid Determination (MBD 9) must be completed and submitted with the bid:

CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

DESCRIPTION: APPOINTMENT OF SERVICE PROVIDER/S TO SUPPLY, DELIVER & INSTALL ALL ANALYTICAL INSTRUMENTATION AND ASSOCIATED EQUIPMENT ON AS AND WHEN REQUIRED BASIS IN ALL ERWAT WATER CARE WORKS FOR A PERIOD OF 36 MONTHS

PROJECT NO: ERW2311/01

in response to the invitation for the bid made by:

EKURHULENI WATER CARE COMPANY (ERWAT)
(Name of Municipality/Entity)

do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of _____(Name of Bidder) that:

1. I have read and I understand the contents of this Certificate;

2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;

3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;

4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign, the bid, on behalf of the bidder;

5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:

    (a) has been requested to submit a bid in response to this bid invitation;

    (b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and

    (c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder

6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium[3] will not be construed as collusive bidding.

7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:

    (a) prices;
    (b) geographical area where product or service will be rendered (market allocation)
    (c) methods, factors or formulas used to calculate prices;
    (d) the intention or decision to submit or not to submit, a bid;
    (e) the submission of a bid which does not meet the specifications and conditions of the bid; or
    (f) bidding with the intention not to win the bid.

8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.

9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.

10. I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No. 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No. 12 of 2004 or any other applicable legislation.

_____	_____
SIGNATURE	**DATE**
_____	_____
POSITION	**NAME OF BID**

FORM A

MUNICIPAL SERVICES, RATES AND TAXES CLEARANCE CERTIFICATE FOR SUPPLY CHAIN MANAGEMENT PURPOSE

The purpose of this form is to obtain prove that municipal services, rates and taxes of the service provider are **not more than three months in arrears** with the relevant municipality / landlord in the municipal area where the service provider conduct his / her business. Kindly attach the latest municipal rates and taxes account not older than 3 months from date of advertising of bid.

Where bidders are not owners of a property and cannot submit a copy of the municipal account, the following must be completed together with a Rental/lease agreement:

(TO BE COMPLETED BY THE LANDLORD)			
Name of the Landlord: *			
Property Physical Address:			
Please tick below		**Yes**	**No**
Rental:	in arrears for more than 3 months		
Municipal services:	in arrears for more than 3 months		
Landlord Signature:			
Date: _____ **Landlord's business stamp here (where applicable)**			

FORM B

CONFIRMATION OF REGISTRATION ON NATIONAL TREASURY CENTRALISED SUPPLIER DATABASE

CONFIRMATION OF CSD VENDOR INFORAMTION		
1	VENDOR NAME	
2	CSD APPROVED NUMBER	**M**_____
3	COMPANY REG NUMBER	
4	COMPANY TAX NUMBER	
5	COMPANY VAT NUMBER	
6	COMPANY BEE LEVEL	
7	CONTACT PERSON	
8	OFFICE TEL. NUMBER	
9	OFFICE FAX NUMBER	
10	E-MAIL ADDRESS	
11	CELL NUMBER	

I, _____ in my capacity as _____ being the authorized signatory, hereby declare that the above information is true and correct.

_____ _____

AUTHORISED SIGNATORY DESIGNATION **NAME AND SURNAME**

_____

RESOLUTION DATE: AUTHORISED SIGNATORY APPOINTMENT

_____ _____

SIGNATURE **DATE**

FORM C

AUTHORITY OF SIGNATORY TO SIGN BIDS

The bid shall be signed by a person duly authorised thereto and the following is applicable:

Company: A resolution by its board of directors authorising a director or other official of the company to sign the documents on behalf of the company.

Close Corporation: A resolution by its members authorising a member or other official of the corporation to sign the documents on each member's behalf.

Partnership: All the partners shall sign the documents unless one partner or a group of partners has been authorised to sign on behalf of each partner, in which case proof of such authorisation shall be included in the bid.

Joint Venture: Should two or more firms jointly submit a bid, the bid shall be accompanied by the document of establishment of the joint venture, duly registered and authenticated by a notary public or other official deputed to witness sworn statements, which defines the conditions under which the joint venture will function, the period of duration, the persons authorised to represent the Joint Venture and who are obligated thereby, the participation of the several firms forming the joint venture, and well as any other information necessary to permit a full appraisal of its functioning.

One Man Concern: This shall be clearly stated and all documents shall be signed accordingly.

Details of person responsible for Bid Document process:

Name : .....

Contact number: .....

Office address: .....

Signatories for close corporations and companies shall confirm their authority by attaching to this form a **duly signed and dated original or certified copy on the Company Letterhead** of the relevant resolution of their members or their board of directors, as the case may be.

PRO-FORMA FOR COMPANIES AND CLOSE CORPORATIONS:

"By resolution of the board of directors passed on *(date)* _____

Prof./Dr/Mr/Ms _____

has been duly authorized to sign all documents in connection with the Bid Document for Contract Number _____ and any Contract which may arise there from on behalf of _____

(BLOCK CAPTIALS)

SIGNED ON BEHALF OF THE COMPANY_____

IN HIS CAPACITY AS _____

DATE _____

FULL NAMES OF SIGNATORY _____

AS WITNESSES: **1.** _____

2. _____

PRO-FORMA FOR JOINT VENTURES:
Certificate of Authority for Joint Ventures

We, the undersigned, are submitting this Bid Document offer in Joint Venture and hereby authorise Mr/Ms _____, authorised signatory of the company _____, acting in the capacity of lead partner, to sign all documents in connection with the Bid Document offer an any contract resulting from it on our behalf.

NAME OF FIRM	ADDRESS	DULY AUTHORISED SIGNATORY
		Signature: …….. Name: …….. Designation: ……..
		Signature: …….. Name: …….. Designation: ……..
		Signature: …….. Name: …….. Designation: ……..
		Signature: …….. Name: …….. Designation: ……..

N.B.: THE DULY SIGNED AND DATED ORIGINAL OR CERTIFIED COPY OF AUTHORITY OF SIGNATORY ON COMPANY LETTERHEAD SHOULD BE INCLUDED IN THE RETURNABLE DOCUMENTS PACK.

FORM D

FINANCIAL REFERENCES/ BIDDERS'S CREDIT RATING AND DETAILS OF BIDDERS BANKING INFORMATION

Notes to Bidder:

1. The Bidder shall attach to this form a letter from the bank confirming the bank account and details. Failure to provide the required letter with the Bid Document submission shall render the Bidder's offer unresponsive.
2. The Bidder's banking details as they appear below shall be completed.
3. In the event that the Bidder is a joint venture enterprise, details of all the members of the joint venture shall be similarly provided and attached to this form.

BANK NAME:	
ACCOUNT NAME: *(e.g. ABC Civil Construction cc)*	
ACCOUNT TYPE: *(e.g. Savings, Cheque etc)*	
ACCOUNT NO:	
ADDRESS OF BANK:	
CONTACT PERSON:	
TEL. NO. OF BANK / CONTACT:	
How long has this account been in existence:	0-6 months ☐ 7-12 months ☐ 13-24 months ☐ More than 24 months ☐ (Tick which is appropriate)

_____

Signature on behalf of Bidder

N.B.: ORIGINAL LETTER FROM BANK OR BANK STATEMENT (NOT OLDER THAN THREE MONTHS) SHOULD BE INCLUDED IN THE RETURNABLE DOCUMENTS PACK.

FORM E

RECORD OF ADDENDA TO BID DOCUMENTS

N.B: Please note that where appliable, bidders are required to complete the table below acknowledging receipt of Addendum/s. All pages in relation to the Addendum must be striked through with a note **"REPLACED** by **ADDENDUM/S"**. The revised pages in relation to the Addendum/s must be **attached** as an Annexure to the bid document. The initial documents must remain in the bid document and **MUST NOT BE REMOVED** as this will lead to a disqualification.

Kindly note that where addendums are issued, such are communicated to bidders who attended the briefing session at the e-mail address that is supplied by the bidder/s recorded on the attendance register.

The e-mail address supplied by bidders on the attendance register for physical briefings will be utilised as the official communication address. Where virtual briefings are held, the e-mail address submitted by the suppliers on the registration attendance register will be utilised as the official communication address.

It remains the responsibility of the bidder to ensure that the correct valid e-mail address is captured. ERWAT accepts no responsibility for returned messages reflecting to be undeliverable or due to invalid/non-existing details.

The addendum/s are uploaded onto the ERWAT website under the respective tender number and bidders should visit the website before the closing date and time to ensure that all communication has been accessed and taken into account with the submission of this bid.

I/We confirm that the following Addendum/s listed below have been received and added to this document as an Addendum. Please note you may not modify or remove any part of the original Bid document except for the strikethrough requirement.	
Date	**Addendum/s No**

SIGNATURE ON BEHALF OF BIDDER **DATE**

FORM F

CERTIFICATE OF AUTHORITY FOR SIGNATORY TO AGREEMENT IN TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO 85 OF 1993)

The signatory for the company that is the Contractor in terms of the above-mentioned Contract and the Mandatory in terms of the above-mentioned Act shall confirm his or her authority thereto by attaching to this page a duly signed and dated copy of the relevant resolution of the board of directors.

EXAMPLE OF CONTENT OF THE LETTER

By resolution of the board of directors passed at a meeting held on _____ 20 _____,

Mr//Ms_____..... whose signature

appears below, has been duly authorised to sign the AGREEMENT IN TERMS OF THE

OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT 85 OF 1993) on behalf of

SIGNED ON BEHALF OF THE COMPANY : _____

IN HIS/HER CAPACITY AS : _____

DATE : _____

SIGNATURE OF SIGNATORY : _____

WITNESS: _____ **WITNESS:** _____

NAME (in capitals): _____ **NAME:** _____

FORM G

OCCUPATIONAL HEALTH AND SAFETY AGREEMENT /PLAN (WHERE APPLICABLE)

FORM H

CERTIFIED COPY OF ID DOCUMENT/S OF OWNERS/MEMBERS/SHAREHOLDERS

FORM I

CURRENT CERTIFICATE OF GOOD STANDING FROM COMPENSATION COMMISSIONER

FORM J

PROGRAMME OF WORKS
(Not Applicable)

FORM K

EXPERTISE OF THE KEY PERSONNEL

1. **Personnel / Individual adequacy:** Portfolio of evidence (CV) should be provided. Indicating similar projects / jobs completed or undertaken by the personnel stated below.

2. Qualifications: Portfolio of evidence should be provided for the key staff with supporting Qualifications (SAQA, QCTO etc. accredited) and detailed organogram.

3. Pro-Forma CV: A pro-forma curriculum vitae shall be filled in full on the below given forms.

KEY STAFF EXPERIENCE				
Position on this Contract	**Full Name**	**ID No.**	**Qualifications**	**No. of Relevant Years of Experience**
Project Manager				
Installation Electrician				
Installation Instrumentation Mechanician				
Installation Instrumentation Technician				

PRO-FORMA CURRICULUM VITAE OF KEY PERSONNEL/STAFF

This form should be completed for each key person listed in the functionality criterion

Responsibility or role on the project (as per list in form k)	Project Manager
Name:	**Date of Birth:**
Profession:	**Nationality:**
Qualifications(Attach Proof of Qualification) :	
Professional Membership (If any):	
Name of Employer (Firm) :	
Current Position :	**Years with firm:**
Employment record: (List of chronological order starting with earliest work experience)	
Experience record pertinent to required service:	
Certification: **I, the undersigned, certify that to the best of my knowledge and belief, this data correctly describes my qualification, my experience and me and that I will be available to execute the work for which I have been nominated.** **(Signature of Person named in Schedule) Date**	

This form should be completed for each key person listed in the functionality criterion

Responsibility or role on the project (as per list in form k)	INSTALLATION ELECTRICIAN
Name:	**Date of Birth:**
Profession:	**Nationality:**
Qualifications (Attach Proof of Qualification) **:**	
Professional Membership (if any):	
Name of Employer (Firm) :	
Current Position :	**Years with firm:**
Employment record: (List of chronological order starting with earliest work experience)	
Experience record pertinent to required service:	
Certification: **I, the undersigned, certify that to the best of my knowledge and belief, this data correctly describes me, my qualification and my experience and that I will be available to execute the work for which I have been nominated.** **(Signature of Person named in Schedule) Date**	

This form should be completed for each key person listed in the functionality criterion

Responsibility or role on the project (as per list in form k)	INSTALLATION INSTRUMENTATION TECHNICIAN
Name:	**Date of Birth:**
Profession:	**Nationality:**
Qualifications (Attach Proof of Qualification) **:**	
Professional Membership (if any):	
Name of Employer (Firm) :	
Current Position :	**Years with firm:**
Employment record: (List of chronological order starting with earliest work experience)	
Experience record pertinent to required service:	
Certification: **I, the undersigned, certify that to the best of my knowledge and belief, this data correctly describes me, my qualification and my experience and that I will be available to execute the work for which I have been nominated.** _____ **(Signature of Person named in Schedule) Date**	

This form should be completed for each key person listed in the functionality criterion

Responsibility or role on the project (as per list in form k)	INSTALLATION INSTRUMENTATION MECHANICIAN
Name:	**Date of Birth:**
Profession:	**Nationality:**
Qualifications (Attach Proof of Qualification) **:**	
Professional Membership (if any):	
Name of Employer (Firm) :	
Current Position :	**Years with firm:**
Employment record: (List of chronological order starting with earliest work experience)	
Experience record pertinent to required service:	
Certification: **I, the undersigned, certify that to the best of my knowledge and belief, this data correctly describes me, my qualification and my experience and that I will be available to execute the work for which I have been nominated.** _____ **(Signature of Person named in Schedule) Date**	

FORM L

PROOF OF RELEVANT REGULATORY CERTIFICATION OR OTHER REQUIREMENTS IN TERMS OF THE REQUIRED REGULATORY AUTHORITY AS SET OUT IN THE SCOPE OF WORKS

BIDDERS MUST HAVE A MINIMUM CIDB GRADING OF 6 EP TO QUALIFY FOR EVLUATION.

FORM M

LETTER OF INTENT TO SUBMIT THIRD PARTY LIABILITY INSURANCE AND ALL RISK CONTRACTORS' INSURANCE TO COVER THIS CONTRACT

Not Applicable when submitting the bid, only required when the project has commenced

Bidders are required to ensure the safekeeping and insurance of items in place until such time that the works/goods or services are handed over to ERWAT and ERWAT has signed off thereon.

FORM N

INLCUDE THE FOLLOWING DOCUMENTS IN THE SUPPORING DOCUMENTS FILE TO BE SUBMITTED WITH THE ORIGINAL BIDDING DOCUMENT

1. **FOR CLOSED CORPORATIONS**

   CK1 or CK2 as applicable (Founding Statement).

2. **FOR COMPANIES**

   - A copy of the Certificate of Incorporation
   - Certified Copies of the ID's of the Directors and
   - The shareholders' register.

3. **FOR JOINT VENTURE AGREEMENTS**

   - Copy of the Joint Venture Agreement between all the parties,
   - As well as the documents in (1) or (2) and (6) of each Joint Venture member.

4. **FOR PARTNERSHIP**

   - Certified Copies of the ID's of the partners

5. **ONE-PERSON BUSINESS / SOLE TRADER/SOLE PROPRIETOR**

   - Certified Copy of ID

FORM O

BACKGROUND AND WORK EXPERIENCE

Briefly summarize the Company's experience with regard to Meters installations in industrial plants/ and/ or municipal wastewater treatment plants as bidders would have provided under the Functionality criteria. Attach a Certificate of Completion and/ or Reference Letter.

	EMPLOYER	EMPLOYER'S REPRESENTATIVE (NAME, TEL, E-MAIL)	PROJECT TITLE AND DESCRIPTION OF WORK Inc. CAPACITY OF THE WORKS	VALUE OF WORK (R- Rand)	COMPLETION DATE
PROJECT 1					
PROJECT 2					
PROJECT 3					
PROJECT 4					
PROJECT 5					

FORM P

POPIA CONSENT FORM

PROTECTION OF PERSONAL INFORMATION ACT, 4 OF 2013

By signing this referral form:

a) I/we hereby grant my/our voluntary consent that my/our personal information may be processed, collected, used and disclosed in compliance with the Protection of Personal Information Act, 4 of 2013.

b) I/we furthermore agree that my/our personal information may be used for the lawful and reasonable purposes in as far as the ERWAT (responsible party) must use my/our information in the performance of its public legal duty.

c) I/we understand that my/our personal information may be disclosed to a third party in as far as the ERWAT must fulfil its public legal duty.

d) I/we furthermore understand that there are instances in terms of abovementioned Act where my express consent is not necessary to permit the processing of personal information, which may be related to litigation or when the information is publicly available. Further details are available on the ERWAT website.

Company name: _____

Company address: _____

_____

Name& Surname of Representative: _____

Signature Of Bidder: _____

Designation: _____

Date: _____

ERWAT
EXCELLENCE IN WASTEWATER

PROJECT NO: ERW2407/04

APPOINTMENT OF SERVICE PROVIDER/S TO SUPPLY, DELIVER & INSTALL ALL ANALYTICAL INSTRUMENTATION AND ASSOCIATED EQUIPMENT ON AS AND WHEN REQUIRED BASIS IN ALL ERWAT WATER CARE WORKS FOR A PERIOD OF 36 MONTHS

C. AGREEMENTS AND CONTRACT DATA

Part C1: Agreements and Contract Data

C1.1 Form of Offer and Acceptance
C1.2 Contract Data
C1.3 Form of Guarantee
C1.4 Occupational Health and Safety
C1.5 Corporate Governance Breach Clause

Part C2: Pricing Data

C2.1 Pricing Instructions
C2.2 Schedule of Quantities

Part C3: Scope of Work

C3.1 Scope of Work

Part C4: Site Information

C4 Site Information

Part C5: Drawings and other Information provided by the Employer

C5 Drawings

ERWAT
EXCELLENCE IN WASTEWATER

PROJECT NO: ERW2407/04

APPOINTMENT OF SERVICE PROVIDER/S TO SUPPLY, DELIVER & INSTALL ALL ANALYTICAL INSTRUMENTATION AND ASSOCIATED EQUIPMENT ON AS AND WHEN REQUIRED BASIS IN ALL ERWAT WATER CARE WORKS FOR A PERIOD OF 36 MONTHS

C1 AGREEMENTS AND CONTRACT DATA

Part C1: Agreements and Contract Data

C1.1 Form of Offer and Acceptance

C1.2 Contract Data

C1.3 Form of Guarantee

C1.4 Occupational Health and Safety

C1.5 Corporate Governance Breach Clause

C1.1 FORM OF OFFER AND ACCEPTANCE

OFFER

The Employer, identified in the Acceptance signature block, has solicited offers to enter in contract in respect of the following works: ***PROJECT NO: ERW2407/04 APPOINTMENT OF SERVICE PROVIDER/S TO SUPPLY , DELIVER & INSTALL ALL ANALYTICAL INSTRUMENTATION AND ASSOCIATED EQUIPMENT ON AS AND WHEN REQUIRED BASIS IN ALL ERWAT WATER CARE WORKS FOR A PERIOD OF 36 MONTHS*** The Bidder, identified in the Offer signature block below, has examined the documents listed in the Tender Data and addenda thereto as listed in the Tender Schedules, and by submitting this Offer has accepted the Conditions of Tender.

By the representative of the Bidder, deemed to be duly authorised, signing this part of this Form of Offer and Acceptance, the Bidder offers to perform all of the obligations and liabilities of the Contractor under the Contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the Conditions of Contract identified in the Contract Data.

THE OFFERED RATES FOR THE GOODS, AS SET OUT IN THE PRICING SCHEDULE/BILL OF QUANTITIES (THE PRICES INCLUSIVE OF VALUE ADDED TAX), IS HEREBY CONFIRMED FOR THE PERIOD OF THE CONTRACT PERIOD INCLUDING THE PROVISIONS FOR THE ANNUAL ESCALATIONS (WHERE APPLICABLE)

This Offer may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document to the Bidder before the end of the period of validity stated in the Tender Data, whereupon the Bidder becomes the party named as the Contractor in the Conditions of Contract identified in the Contract Data.

Signature(s) ....

Name(s) ....

Capacity ....

For the Bidder .....
(Name and address of organisation)

Name & Signature
Of Witness ....
Name Date

ACCEPTANCE

By signing this part of this Form of Offer and Acceptance, the Employer identified below accepts the Bidder's Offer. In consideration thereof, the Employer shall pay the Contractor the amount due in accordance with the Conditions of Contract identified in the Contract Data. Acceptance of the Bidder's Offer shall form an agreement between the Employer and the Bidder upon the terms and conditions contained in this Agreement and in the Contract that is the subject of this Agreement.

The terms of the contract are contained in:

- Agreements and Contract Data (which includes this Agreement)
- Pricing Data
- Scope of Work
- Site information

And drawings and documents or parts thereof, which may be incorporated by reference into above stated terms.

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Tender Schedules as well as any changes to the terms of the Offer agreed by the Bidder and the Employer during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Agreement. No amendments to or deviations from said documents are valid unless contained in this Schedule, which must be duly signed by the authorised representative(s) of both parties.

The Bidder shall within two weeks after receiving a completed copy of this Agreement, including the Schedule of Deviations (if any), contact the Employer's agent (whose details are given in the Contract Data) to arrange the delivery of any bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the Conditions of Contract identified in the Contract Data at or just after the date this Agreement comes into effect. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this Agreement.

Notwithstanding anything contained herein, this Agreement comes into effect on the date when the Bidder receives one fully completed original copy of this document, including the Schedule of Deviations (if any). Unless the Bidder (now Contractor) within five days of the date of such receipt notifies the Employer in writing of any reason why he cannot accept the contents of this Agreement, this Agreement shall constitute a binding contract between the parties.

Signature(s) ....

Name(s) ....

Capacity ....

For the Bidder .....
(Name and address of organisation)

Name & Signature
Of Witness ....
Name Date

SCHEDULE OF DEVIATIONS

Notes:

1. The extent of deviations from the tender documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender.

2. A Bidder's covering letter shall not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid becomes the subject of agreements reached during the process of Offer and Acceptance; the outcome of such agreement shall be recorded here.

3. Any other matter arising from the process of offer and acceptance either as a confirmation, clarification or change to the Tender documents and which it is agreed by the Parties becomes an obligation of the contract, shall also be recorded here.

4. Any change or addition to the tender documents arising from the above agreements and recorded here shall also be incorporated into the final draft of the Contract.

1 Subject .....

Details.....

.....

2 Subject .....

Details.....

.....

3 Subject .....

Details.....

.....

4 Subject .....

Details.....

.....

5 Subject .....

Details.....

.....

By the duly authorised representatives signing this Schedule of Deviations, the Employer and the Bidder agree to and accept the foregoing Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and addenda thereto as listed in the Tender Schedules, as well as any confirmation, clarification or change to the terms of the Offer agreed by the Bidder and the Employer during this process of Offer and Acceptance.

It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the Tender documents and the receipt by the Bidder of a completed signed copy of this Agreement shall have any meaning or effect in the contract between the parties arising from this Agreement.

FOR THE BIDDER:

Signature(s) ....

Name(s) ....

Capacity ....

For the Bidder .....
(Name and address of organisation)

Name & Signature
Of Witness ....
Name Date

FOR THE EMPLOYER

Signature(s) ....

Name(s) ....

Capacity ....

For the Bidder .....
(Name and address of organisation)

Name & Signature
Of Witness ....
Name Date

C1.2 CONTRACT DATA

GENERAL CONDITIONS OF CONTRACT

This Contract will be based on the "General Conditions of Contract for Construction Works *General Conditions of Contract 2015 (GCC 2015, Third Edition*)

Documents can be ordered from SAICE who can be contacted through their website www.saice.org.za. Physical address: SAICE House, Block 9, Thornhill Office Park, Bekker Street, Midrand, Johannesburg. Telephone number: (011) 805 5947.

It is agreed that the only variations from the General Conditions of Contract 2015 are those set out hereafter under "Special Conditions of Contract".

SPECIAL CONDITIONS OF CONTRACT

These Special Conditions of Contract (SCC) form an integral part of the Contract. The Special Conditions of Contract shall amplify, modify or supersede, as the case may be, the General Conditions of Contract 2015 to the extent specified below, and shall take precedence and shall govern.

The clauses of the Special Conditions hereafter are numbered "SCC" followed in each case by the number of the applicable clause or subclause in the General Conditions of Contract 2015, and the applicable heading, or (where a new special condition that has no relation to the existing clauses is introduced) by a number that follows after the last clause number in the General Conditions, and an appropriate heading.

AMENDMENTS TO THE GENERAL CONDITIONS OF CONTRACT

DATA PROVIDED BY THE EMPLOYER

Clause	Data
	Definitions The definitions contained in Clause 1.1 are hereby amended and/or supplemented as follows:
SCC 1.1.1.7	**Contract** **Add the following:** **Contract Documents** The Service Level Agreement, Bid document and related attachments shall constitute the complete contract agreement. This is a CIDB Contract, and the CIDB Board has initiated a BULD Programme which focuses on Targeted Enterprise Development and/or Skills Development. This contract is affected by CIDB B.U.I.L.D Programme for Skills Development, therefore, the CIDB standard for Developing Skills through Infrastructure Contracts (Government gazette 28 April 2023) which forms part of the B.U.I.L.D Programme Standards shall form part of the contract. This standard requirement as well as any other regulatory or legislative requirements will be included during the Service Level Agreement (SLA) stage. **It should be noted that all ERWAT contracts are subject to the Municipal Financial Management Act (MFMA Act 56 of 2003), therefore in the event that there is any**

Clause	Data
	contradiction between the MFMA (*Act 56 of 2003*) and the GCC or any other applicable contractual agreement, the MFMA (*Act 56 of 2003*) and its applicable regulations shall take precedence.
SCC 1.1.1.13	The Defects Liability Period is **12** months from the date of the Certificate of Completion. The Defects Liability Period is **12** months from the date of the Certificate of Completion per installation
SCC 1.1.1.14	The Works shall be completed within **36** months from the commencement date on an "as and when required basis". The Purchase Orders of the Works shall be placed within **36** months from the commencement date on an "as and when required basis".
SCC 1.1.1.15 **1.2.1.2**	The Name of the Employer is **ERWAT** The address of the Employer is: The Managing Director Hartebeestfontein Office Park R25 (Bapsfontein/Bronkhorstspruit) Kempton Park Telephone: 011 929 7000
SCC 3.2.3	**Add the following:** Approval of the Employer is required for: i). Cessions – issuing of cessions by the Contractor is expressly prohibited except if and when prior written approval of the Employer under the signature of the Accounting Officer for the issue of the cession has been requested and obtained ii). Use of contingencies – for all items for which rates have not been approved in terms the contract. iii). Extension of Time – extension of time can only be granted by the Employer.
SCC 4.1.2	**Add the following:** **"**When completed, the parts of the works designed by the Contractor, to the extent specified in the Contract, shall be fit for the purposes for which the Works are intended"
SCC 4.4.1	**Add the following:** The Contractor is to submit to the Employer in writing a request for appointment of a particular sub-contractor. Accompanying this request is to be the full detail of the sub-contractor, including: ▪ Previous experience ▪ Work which will be sub-contracted to him/her ▪ Approximate value of the work to be sub-contracted

Clause	Data
	Before the Employer in terms of Clause 6.10 hereof issues any certificate that includes any payment in respect of work done or goods supplied by any sub-contractor appointed in accordance with the provisions of Clause 4.4 of the General Conditions of Contract for Construction works (2015, Third Edition), he shall be entitled to call upon the Contractor to furnish reasonable proof that all payments (less retention moneys) included in previous certificates in respect of the work or goods of such sub-contractors have been made or discharged by the Contractor, in default of which, unless the Contractor: ▪ Informs the Employer in writing that he has reasonable cause for withholding or refusing such payment; and ▪ Submits to the Employer reasonable proof that he has so informed such sub-contractor in writing.
SCC 4.9.1	**Add the following:** "All equipment on site shall be in a good working order, and is to be in such a condition that it can achieve production rates which are typical of the industry standards. Should any equipment, in the opinion of the Employer, be substandard or breaks down frequently to such an extent that it affects the progress on the project, the Employer may instruct the Contractor to replace such equipment.''
SCC 5.3.1	**Add the following to 5.3.1:** The documentation required before Commencement of the Works are: • Health & Safety Plan (Refer to Cl. 4.3 of GCC 3rd Ed 2015) • Initial Programme (Refer to Cl. 5.6 of GCC 3rd Ed 2015) • Security (Deed of Guarantee) (refer to Cl. 6.2 of GCC 3rd Ed 2015) • Insurances (Refer to Cl. 8.6 of GCC 3rd Ed 2015)
SCC 5.3.3	**Add the following:** The time to the documentation required before Commencement of the Works execution is **28** days
SCC 5.4.1	**Add the following:** The Commencement Date shall be the date the contractor is given possession of site.
SCC 5.8.1	**Add the following:** The special non-working days are the official builder's holiday plus all statutory public holidays.
SCC 5.12	**Add the following:** A delay caused by inclement weather conditions will be regarded as a delay only if, in the opinion of the Employer, all progress on an item or items of work on the critical path of the working programme of the contractor has been brought to a halt.

Clause	Data
	Delays on working days only (based on a five-day working week) will be taken into account for the extension of time, but the Contractor shall make provision in his programme of work for an expected delay of "n" working days caused by normal rainy weather, for which he will not receive any extension of time, where "n" equals 5 days. Extension of time during working days will be granted to the degree to which actual delays, as defined above, exceed the number of "n" workings days.
SCC 5.12.2.1	**Add the following:** Extensions of time in respect of clause 5.12 in respect of abnormal rainfall shall be calculated using the following formula for each calendar month or part thereof: $V = (Nw - Nn) + \frac{(Rw - Rn)}{X}$ Where: V = Extension of time in calendar days in respect of the calendar month under consideration. Nw = Actual number of days during the calendar month on which a rainfall of 10 mm or more has been recorded. Nn = Average number of days in the relevant calendar month, as derived from existing rainfall records, on which a rainfall of 20mm or more has been recorded for the calendar month. Rw = Actual average rainfall in mm recorded for the calendar month under consideration. Rn = Average rainfall in mm for the calendar month as derived from existing rainfall records as stated in the Site Information. For purposes of the Contract Nn, Rn, X and Y shall have those values assigned to them in the South African Weather Service's rainfall records of the nearest station to the site. If V is negative and its absolute value exceeds Nn, then V shall be taken as equal to minus Nn. The total extension of time shall be the algebraic sum of all monthly totals for the period under consideration, but if the total is negative the time for completion shall not be reduced due to subnormal rainfall. Extensions of time for part of a month shall be calculated using pro rata values of Nn and Rn. This formula does not take account flood damage which could cause further or concurrent delays and will be treated separately as far as extension of time is concerned. The factor (Nw – Nn) shall be considered to represent a fair allowance for variations from the average in the number of days during which rainfall exceeds 10 mm. The factor (Rw-Rn) shall be considered to represent a fair allowance for variations from the average in the number of days during which the rainfall did not exceed 10 mm but wet conditions prevented or disrupted work. For the purpose of applying the formula, accurate rain gauging shall be taken at a suitable point on the Site and the Contractor shall at his own expense, take all necessary precautions to ensure that rain gauges cannot be interfered with by unauthorized persons.

Clause	Data
SCC 5.13.1	**Add the following:** The penalty for failing to complete the works shall be calculated as follows; Purchase Order value multiply 0.5% per day
SCC 6.2.1	**Add the following:** The Security to be provided by the Contractor shall be the Performance guarantee liability of **10 %** of the Purchase Order. This guarantee shall be delivered within 21 days of the Commencement Date.
SCC 6.2.2	**Add the following:** The Form of Guarantee is to contain the wording of the pro-forma document included in the General Conditions of Contract (Pro-forma included in section C1.3 to this document). Form of Guarantee: construction guarantee: the successful bidder will be required to submit a construction guarantee that is equal to 10% of the total contract value all-inclusive and must be submitted to the SCM office within 10 working days from date of appointment. Only original guarantees issued by an accredited and registered financial institution will be accepted and will only be released on final completion of works. "
SCC 6.9.1	All materials shall comply with the requirements of the South African Bureau of Standards, and shall bear the official standardization mark. Where SABS standard does not exist for a certain material, or a material does not bear the official standardization mark, the Client's Representatives approval of such material must be gained before use thereof.
SCC 6.10.1.5	**Add the following:** The percentage advance on materials not yet built into the Permanent Works but received on site is **80** %.
SCC 6.10.3	**Add the following:** The **5%** retention of the purchase order value will be released upon completion of the works and the remaining **5%** retention amount shall e released at the end of **12 months** defects liability period
SCC 6.10.3	**Add the following:** The limit of retention money is 10 % of the purchase order value.
SCC 7.2.1	**Add the following:** All materials shall comply with the requirements of the South African Bureau of Standards, and shall bear the official standardization mark. Where SABS/SANS/ISO standard does not exist for a certain material, or a material does not bear the official standardization mark, the Employers approval of such material must be gained before use thereof.
SCC 8.6.1.1.2	**Add the following:** The value of the materials supplied by the Employer to be included in the insurance sum is nil.

Clause	Data
SCC 8.6.1.1.3	**Add the following:** The required insured amount to cover professional fees for repairing damaged infrastructure and equipment and loss of time on the construction schedule is to be 15% of the Purchase Order value.
SCC 8.6.1.3	**Add the following:** The limit of indemnity for liability insurance is 10 % of Purchase Order value. This will be finalized at Service Level Agreement (SLA)stage
SCC 1.1.1.8	**Add the following:** The rotation of the request for quotation will be done as follows. The bidders appointed on the panel will be divided into groups based on the number of successful bidders. The requested will rotated between the groups.

PART 2: DATA PROVIDED BY THE CONTRACTOR

Sub-Clause	Data
1.1.17	The Contractor is: Name: ..... The Address of the Contractor is: Address (physical): .... Address (postal): .... Telephone: ..... Facsimile: ..... E-mail: .....
1.1.22	Contractors Representative Name: ..... Telephone: ..... Facsimile: ..... E-mail: .....

C1.3 FORM OF GUARANTEE

PROJECT NO: ERW2407/04

APPOINTMENT OF SERVICE PROVIDER/S TO SUPPLY, DELIVER & INSTALL ALL ANALYTICAL INSTRUMENTATION AND ASSOCIATED EQUIPMENT ON AS AND WHEN REQUIRED BASIS IN ALL ERWAT WATER CARE WORKS FOR A PERIOD OF 36 MONTHS

WHEREAS

at .....

(Hereinafter referred to as "the Employer")

Entered into, on the..... day of .....20..... , at ..... .

a Contract with .....

at .....

(Hereinafter referred to as "the Contractor")

for the construction of .....

.....

AND WHEREAS it is provided by such Contract that the Contractor shall provide the Employer with security by way of surety ship for the due and faithful fulfilment of such Contract by the Contractor;

AND WHEREAS .....
has/ have at the request of the Contractor, agreed to give such security;

NOW THEREFORE WE, ... hereby guarantee and bind ourselves jointly and severally as Sureties and Co-Principal Debtors to the Employer under renunciation of the benefits of division and excursion for the due and faithful performance by the Contractor of all the terms and conditions of the said Contract, subject to the following conditions.

1. The Employer shall, without reference and/or notice to us, have complete liberty of action to act in any manner authorised and/or contemplated by the terms of the said contract, and/or to agree to any modifications, variations, alterations, directions or extensions of the Due Completion Date of the Works under the said Contract, and that its rights under this guarantee shall in no way be prejudiced nor our liability hereunder be affected by reason of any steps which the Employer may take under such Contract, or of any modification, variation, alterations of the Due Completion Date which the Employer may make, give, concede or agree to under the said Contract.

2. The Employer shall be entitled, without reference to us, to release any securities held by it, and to give time to or compound or make any other arrangement with the Contractor.

3. This guarantee shall remain in full force and effect until the issue of the Certificate of Completion in terms of the Contract, unless we are advised in writing by the Employer before the issue of the said Certificate of his intention to institute claims, and the particulars thereof, in which event this guarantee shall remain in full force and effect until all such claims have been paid or liquidated.

4. Our total liability hereunder shall not exceed the sum of (R.....).

5. We hereby choose *domicilium citandi et executandi* for all purposes arising hereof at

IN WITNESS WHEREOF this guarantee has been executed by us at ..... on this

day of …… 20.....

As witnesses:

1. ..... Signature

2. ..... Signature

Duly authorised to sign on behalf of.....

Address

.....

.....

.....

C1.4 OCCUPATIONAL HEALTH AND SAFETY

AGREEMENT IN TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO 85 OF 1993)

THIS AGREEMENT IS made at .....

on the ..... day of ..... in the year ……

Between EKURHULENI WATER CARE COMPANY (ERWAT) (hereinafter called "the Employer") of the one

part, herein represented by .....

In his capacity as .....

and delegate of the Employer in terms of the Employer's standard powers of delegation pursuant to the provisions of Act No 7 of 1998,

and .....

(hereinafter called "the Mandatory") of the other part, herein represented by .....

.....

in his capacity as .....

and being duly authorized by virtue of a resolution appended hereto as Annexure A;

WHEREAS the Employer requires certain works be constructed, viz ***APPOINTMENT OF SERVICE PROVIDER/S TO SUPPLY , DELIVER & INSTALL ALL ANALYTICAL INSTRUMENTATION AND ASSOCIATED EQUIPMENT ON AS AND WHEN REQUIRED BASIS IN ALL ERWAT WATER CARE WORKS FOR A PERIOD OF 36 MONTHS*** and has accepted a Bid by the Mandatory for the construction, completion and maintenance of such Works and whereas the Employer and the Mandatory have agreed to certain arrangements and procedures to be followed in order to ensure compliance by the Mandatory with the provisions of the Occupational Health and Safety Act, 1993 (Act 85 of 1993).

NOW THEREFORE THIS AGREEMENT WITNESSETH AS FOLLOWS:

1 The Mandatory shall execute the work in accordance with the Contract Documents pertaining to this Contract.

2 This Agreement shall hold good from its Commencement Date, which shall be the date of a written notice from the Employer or engineer requiring him to commence the execution of the Works, to either –

(a) the date of the Final Approval Certificate issued in terms of Clause 5.16 of the General Conditions of Contract for construction works 2015 (hereinafter referred to as "the GCC"), as contained in the Contract Documents pertaining to this Contract, or

(b) The date of termination of the Contract in terms of Clauses 9.1, 9.2, 9.3 of the GCC 2015.

3 The Mandatory declares himself to be conversant with the following:

(a) All the requirements, regulations and standards of the Occupational Health and Safety Act (Act 85 of 1993), hereinafter referred to as "The Act", together with its amendments and with special reference to the following Sections of the Act:
   (i) Section 8 : General duties of Employers to their employees
   (ii) Section 9 : General duties of Employers and self-employed persons to persons other than employees
   (iii) Section 37 : Acts or omissions by employees or mandatories

(iv) Sub-section 37(2) relating to the purpose and meaning of this Agreement

(b) The procedures and safety rules of the Employer as pertaining to the Mandatory and to all his subcontractors.

4 In addition to the requirements of Clause 8.4 of the GCC 2015 (as amended by Special Condition of Contract) and all relevant requirements of the above-mentioned Volume, the Mandatory agrees to execute all the Works forming part of this Contract and to operate and utilize all machinery, Plant and equipment in accordance with the Act.

5 The Mandatory is responsible for the compliance with the Act; the safety procedures and rules of the employer by all his subcontractors, whether or not selected and/or approved by the Employer.

6. The Mandatory warrants that all his and his subcontractors' workmen are covered in terms of the Compensation for Occupational Injuries and Diseases Act, 1993 (Act No 130 of 1993), which cover, shall remain in force whilst any such workmen are present on site. A letter of good standing from the Compensation Commissioner to this effect must be produced to the Employer upon signature of the agreement.

7. The Mandatory undertakes to ensure that he and/or subcontractors and/or their respective employers will at all times comply with the following conditions:

a) The Mandatory shall assume the responsibility in terms of Section 16.1 of the Act. The Mandatory shall not delegate any duty in terms of Section 16.2 of this Act without the prior written approval of the Employer. If the Mandatory obtains such approval and delegates any duty in terms of section 16.2 a copy of such written delegation shall immediately be forwarded to the Employer.

b) All incidents referred to in the Act shall be reported by the Mandatory to the Department of Labour as well as to the Employer. The Employer will further be provided with copies of all written documentation relating to any incident.

c) The Employer hereby obtains an interest in the issue of any formal enquiry conducted in terms of section 32 of the Act into any incident involving the Mandatory and/or his employees and/or his subcontractors.

In witness hereof the parties are to set their signatures hereon in the presence of the subscribing witnesses:

SIGNED FOR AND ON BEHALF OF THE EMPLOYER : .....

Witness ..... Witness .....

(Name) ..... (Name) .....
(Print) (Print)

SIGNED FOR AND ON BEHALF OF THE MANDATORY : .....

Witness ..... Witness .....

(Name) ..... (Name) .....
(Print) (Print)

ANNEXURE A

CERTIFICATE OF AUTHORITY FOR SIGNATORY TO AGREEMENT IN TERMS OF OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO 85 OF 1993)

The signatory for the company that is the Contractor in terms of the above-mentioned Contract and the Mandatory in terms of the above-mentioned Act shall confirm his or her authority thereto by attaching to this page a duly signed and dated copy of the relevant resolution of the board of directors.

By resolution of the board of directors passed at a meeting held on ..... 20.....,

Mr//Ms ..... whose signature

appears below, has been duly authorised to sign the AGREEMENT IN TERMS OF THE

OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT 85 OF 1993) on behalf of .....

.....

SIGNED ON BEHALF OF THE COMPANY : .....

IN HIS/HER CAPACITY AS : .....

DATE : .....

SIGNATURE OF SIGNATORY : .....

WITNESS : ..... WITNESS : .....

NAME (in capitals): ..... NAME :.....

C1.5 CORPORATE GOVERNANCE BREACH CLAUSE

1. Ekurhuleni Water Care Company ("ERWAT") requires [insert name of company] ("the Company") to comply, mutatis mutandis with the Code contained in the King III Report and Code of Good Corporate Governance (below "the Code") for the term of this Agreement and any extension thereof.

2. The Company irrevocably undertakes and agrees that it will, mutatis mutandis, comply with the Code for the term of this Agreement and any extensions thereof.

3. The Company acknowledges and agrees that:

   3.1 It is essential that the Company complies with the Code, in order to discharge all of its obligations under and in terms of the Agreement in a proper, efficient and professional manner, and

   3.2 ERWAT will be prejudiced and may suffer damages in the event of the Company failing to comply with the Code.

4. The Company shall be required, within seven (7) days of the end of each calendar month during the term of this Agreement (and any extensions thereof), to furnish ERWAT with a written certificate, signed by the directors of the Company [alternatively members of the Close Corporation], certifying that the Company has complied with the provisions of the Code during the preceding months.

5. ERWAT shall have the right, without assigning any reason therefore and at any time, to appoint either the Institute of Directors of South Africa or a firm of chartered accountants or attorneys, to conduct an audit of the business and affairs of the Company in order to ascertain whether the Company is indeed complying with the terms of the Code.

   To this end, the Company irrevocably undertakes and agrees to co-operate fully with the party conducting such investigation for and on behalf of ERWAT and to make available to such party all such documentation and all such information as the investigation party may require to fully discharge its obligations under and in terms hereof and to report fully to ERWAT.

   In the event of it being found that the Company is not complying with the Code, then ERWAT shall be entitled to (a) regard this as a breach of the agreement and (b) recover the costs of the investigation, on an attorney and client basis, from the Company. In the event of it being found that the Company is, in fact, discharging its obligations under and in terms of the Code, then ERWAT shall bear the costs incurred in such investigation. In either of the aforegoing events, the Company shall be entitled to receive a copy of the written report once same has been concluded by the investigating party.

6. In the event of the Code being replaced with another Code (or similar document), then such replacement document shall replace the Code and a reference to the Code shall be deemed to be a reference to such replacement document. The reference to the Code shall be deemed to include any statutory codification of directors' obligations and duties which may be enacted in the Republic of South Africa at any time in the future.

7. In entering into this Agreement, the Company represents and warrants to ERWAT that it is familiar with the Code, that it fully understands and appreciates the rights, obligations and recommendations therein contained and agrees to be bound thereby as herein recorded.

Initial: _____

ERWAT
EXCELLENCE IN WASTEWATER

PROJECT NO: ERW2407/04

APPOINTMENT OF SERVICE PROVIDER/S TO SUPPLY, DELIVER & INSTALL ALL ANALYTICAL INSTRUMENTATION AND ASSOCIATED EQUIPMENT ON AS AND WHEN REQUIRED BASIS IN ALL ERWAT WATER CARE WORKS FOR A PERIOD OF 36 MONTHS

C2 PRICING DATA

C2.1 Pricing Instructions

C2.2 Schedule of Quantities

ERWAT
EXCELLENCE IN WATER CARE

PROJECT NO: ERW2407/04

APPOINTMENT OF SERVICE PROVIDER/S TO SUPPLY, DELIVER & INSTALL ALL ANALYTICAL INSTRUMENTATION AND ASSOCIATED EQUIPMENT ON AS AND WHEN REQUIRED BASIS IN ALL ERWAT WATER CARE WORKS FOR A PERIOD OF 36 MONTHS

C2.1 PRICING INSTRUCTIONS

1. This Contract is a Agreement and shall be solely used to provide services on as-instructed basis, the Service Provider shall only tender rates against each item given in the Schedule of Rates so that as-and when the employer requires services scoped as per this contract; the Service Provider is in position, without delay, to render such services

2. The Service Provider shall tender his rates considering that the employer does not commit itself to offer the Service Provider any minimum or maximum volume and or value of work during the term of the Agreement.

3. The Service Provider shall ensure that a rate/amount is entered against each item in the Schedule of Rates. An item against which no rate or amount is entered shall be deemed grounds for a partially completed bid document and will lead to disqualification.

4. The rates/amounts tendered in the Schedule of Rates shall be the full inclusive rates/amounts to the Employer for the work described under the several items. Such rates/amounts shall cover all the costs and expenses that may be required in and for the construction of the work described, and shall cover the costs of all general risks, profits, overhead charges, taxes (including value-added tax), liabilities and obligations set forth or implied in the documents on which the Tender is based. The Service Provider shall ensure that all inserted rates are reasonable as these shall be used during bid evaluation and shall become the basis for payment of all work that will be carried out during the Term of the Agreement.

5. The applicable Conditions of Contract, the Contract Data, the Specifications (including the Project Specifications) and the Drawings (where attached) shall be read in conjunction with the Schedule of Rates.

6. Descriptions in the Schedule of Rates are abbreviated and may differ from those in the Standardized and Project Specifications. No consideration will be given to any claim by the Contractor submitted on such a basis.

7. Unless stated to the contrary, items are measured net in accordance with the Drawings without any allowance having been made for waste.

8. For the purposes of this Schedule of Rates, the following words shall have the meanings hereby assigned to them:

Unit	:	The unit of measurement for each item of work as defined in the Standardized, Project or Particular Specifications
Quantity	:	The number of units of work for each item
Rate	:	The payment per unit of work at which the Bidder Tenders to do the work
Amount	:	The quantity of an item multiplied by the tendered rate of the (same) item
Sum	:	An amount tendered for an item, the extent of which is described in the Schedule of Rates, the Specifications or elsewhere, but of which the quantity of work is not measured in units

9. The units of measurement indicated in the Schedule of Rates are metric units. The following abbreviations may appear in the Schedule of Rates:

mm	=	millimetre
m	=	metre
km	=	kilometre
km-pass	=	kilometre-pass
m^2	=	square metre
m^2-pass	=	square metre-pass
ha	=	hectare
m^3	=	cubic metre
m^3-km	=	cubic metre-kilometre
kW	=	kilowatt
kN	=	kilo Newton
kg	=	kilogram
t	=	ton (1 000 kg)
%	=	per cent
MN	=	mega Newton
MN-m	=	mega Newton-metre
PC Sum	=	Prime Cost Sum
Prov Sum	=	Provisional Sum

10. Payment for items which are designated to be constructed labour-intensively (either in this schedule or in the Scope of Works) will not be made unless they are constructed using labour-intensive methods. Any unauthorised use of plant to carry out work which was to be done labour-intensively will not be condoned and any works so constructed will not be certified for payment.

11. Mistakes made by the Bidder in completion of the Schedule of Rates shall not be erased or covered with correcting fluid. A line shall be drawn through the incorrect entry and the correct entry shall be written above the deletion and initialled by the Bidder. Failure to observe this Condition will lead to the Tender being disqualified.

12. **This is a Rates based contract developed under an indicative scope of work and therefore there are no quantities or Totals set out in the pricing schedule, Work Orders will only be generated on "as and when" required basis according to the rates tendered by the service provider as contained in the Schedule of Rates.**

13. Work Orders generated on "as and when" basis shall contain estimate quantities for the proposed Works. The actual quantities of work/services rendered as finally measured and accepted and certified for payment in accordance with the applicable Conditions of Contract, and not the estimate quantities set out in the Bill of Quantities for the Works Order, will be used to determine payments to the Contractor. The validity of the Contract shall in no way be affected by differences between the quantities in the Bill of Quantities for the generated Works Order and the quantities certified for payment.

14. The successful bidder will be required to submit a quote for the works required prior to being issued an official order and will be limited to the rates as set out herein.

15. Evaluation for price scoring will be done by calculating the line items in the table below to an indicative sum to determine the highest scoring bidder as provided for in the PPPFA Regulation 2022.

16. The effect of changes in prices or law on the amounts due shall be adjusted on the following basis:

    a) No price adjustment over the first 12-month period of the Contract.
    b) On the 12-month anniversary date of the signing of the agreement, the rates shall be adjusted by a twelve-month year on year CPI index (as published in the monthly bulletin PO141.1 of statistics South Africa) ruling on the 12-month anniversary date of the signing of the contract.

17. It is the Main Contractor's responsibility to make sure their offered Rates are market-related such that they can in turn pay market-related Rates to subcontractors. Should there be a deficit between the Main Contractor's rates and the Subcontractor's tendered or negotiated Rates, the main Contractor will have to cover for such difference.

18. The Contractor's monthly invoice shall be accompanied by confirmation from the Engineer or his duly authorised representative that items listed for payment have been successfully executed and/or delivered as required. Failure to obtain such confirmation from the Engineer or his duly authorised representative shall result in non-payment of the Contractor's invoice until the default has been corrected or the deemed incomplete items are excluded from the invoice.

19. The Contractor shall note that payment shall only be made for Works activities successfully (delivering the end result) executed, complying with the quality requirements and provided to the Engineer or his duly authorised representative.

20. The Provisional Sums and Tendered amounts/prices shall be applicable per Works Order or IPW issued, and should not be deemed to represent the maximum available budget for the entire Contract.

21. Bidders are **not permitted** to add any additional pricing to ERWAT's pricing schedule nor attach their own pricing schedule to this bid.

22. Bidders must complete the pricing schedule on the official ERWAT bid document issued.

23. Failure to adhere hereto will result in bidders' submission being disqualified.

The price should be inclusive of all direct and indirect costs (including transport, labour and other applicable fees).

Bidders are required to complete the pricing schedule in full. Failure to complete the pricing in full will result in disqualification.

The following will be accepted to be a fully completed pricing schedule:

Bidders to indicate accurately:

A price is written/typed in Ink. No pencil or tippex will be accepted. Please note that where bidders opt to type in the prices, the original bid document will be accepted by ERWAT. The document is not to be retyped and no additional pricing schedule in the bidder's format will be accepted. In the event that there are two pricing schedules submitted by the bidder, the original issued document from ERWAT will prevail.

Bidders are not allowed to STRIKE THROUGH the BOQ and only the abbreviations as stated below, will be accepted:

No charge = N/C
Included = Incl
R0 will be accepted as no charge.

If pricing is left blank, or the bidder indicated N/A, it will be accepted to be an incomplete and non-responsive bid.

C2.2 BILL OF QUANTITIES

BID ERW2407/04

APPOINTMENT OF SERVICE PROVIDER/S TO SUPPLY , DELIVER & INSTALL ALL ANALYTICAL INSTRUMENTATION AND ASSOCIATED EQUIPMENT ON AS AND WHEN REQUIRED BASIS IN ALL ERWAT WATER CARE WORKS FOR A PERIOD OF 36 MONTHS

C2.3 PRICING SCHEDULE FOR SUPPLY

The training on all the supplied equipment to a level of competency for effective use of instruments must be included is the supply and delivery pricing listed below:

1. SECTION A : PRELIMINARY AND GENERAL FOR VARIOUS EKURHULENI WATER CARE WORKS

CATEGORY 1: BILL OF QUANTITIES

a. PRELIMINARY AND GENERAL FOR VARIOUS SITES

i. Occupational Health and Safety Requirements

ITEM	DESCRIPTION	UNIT	QTY	RATE (VAT INCLUSIVE) R
1	**Provision for Health & Safety Cost** (Occupation Health and Safety Act)	Prov.Sum	1	R 200 000.00

ii. Planning, Execution and Quality Requirements for Various Sites

ITEM	DESCRIPTION	UNIT	QTY	RATE (VAT INCLUSIVE)
1	The removal of the existing equipment. ERWAT will tend to the disposal thereof.	sum	1	R
2	Disposal of rubble and transportation to the nearest approved local authority transfer station or land fill site	km	Per km	R
3	Tracing existing cabling(fibre optic, lighting, small feeder circuits, extend, re-route and reconnect same onto new Distribution Board/MCC Panel)	m	1	R
4	Labelling of all circuits and draw boxes with permanent screw on type labels as described in Project Detailed Specifications.	sum	1	R
6	Pre-inspection and Factory Acceptance Testing of all equipment covered by this contract including quality control plan (including accommodation or transportation to and from location where such testing / pre-inspection is to occur should it be outside the radius of 80km from related plant or head office for 3 of ERWAT's representatives.)	each	1	R
8	Commissioning and Hand Over Activities (including Commissioning Report)	each	1	R
9	40 Hours Training for Meters: Design, Operations, and Maintenance for Plant Personnel recognised within the SAQA National Qualification Framework	each	1	R

C2.3.1 SUPPLY OF ANALYTICAL INSTRUMENTATION AND ASSOCIATED EQUIPMENT

A. CLAMP ON FLOW METER – TIME OF FLIGHT PRINCIPLE

CLAMP ON FLOW METER – TIME OF FLIGHT PRINCIPLE – SUPPLY AND DELIVERY ONLY			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	Each	

CLAMP ON FLOW METER – TIME OF FLIGHT PRINCIPLE – SUPPLY AND INSTALLATION			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	Each	

B. CLAMP ON FLOW METER – DOPPLER PRINCIPLE

CLAMP ON FLOW METER – DOPPLER PRINCIPLE – SUPPLY AND DELIVERY ONLY			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	Each	

CLAMP ON FLOW METER – DOPPLER PRINCIPLE – SUPPLY AND INSTALLATION			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	Each	

C. SUPPLY OF DISSOLVED OXYGEN METER – SINGLE / DUAL CHANNEL ANALYSER

DISSOLVED OXYGEN METER SINGLE/DUAL CHANNEL ANALYSER – SUPPLY AND DELIVERY ONLY				
			SUPPLY SINGLE CHANNEL ANALYSER	SUPPLY DUAL CHANNEL ANALYSER
ITEM	DESCRIPTION	UNIT OF MEASURE	PRICE (VAT INCLUSIVE)	PRICE (VAT INCLUSIVE)
1	Supply complete instrument and the required auxiliary for full functionality excluding power are signalling cabling	Each		

MIXED LIQUOR SUSPENDED SOLIDS METER SINGLE/DUAL CHANNEL ANALYSER – SUPPLY AND INSTALLATION				
			SUPPLY SINGLE CHANNEL ANALYSER	SUPPLY DUAL CHANNEL ANALYSER
ITEM	DESCRIPTION	UNIT OF MEASURE	PRICE (VAT INCLUSIVE)	PRICE (VAT INCLUSIVE)
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	Each		

D. SUPPLY OF MIXED LIQUOR SUSPENDED SOLIDS METER –SINGLE / DUAL CHANNEL ANALYSER.

MIXED LIQUOR SUSPENDED SOLIDS METER SINGLE/DUAL CHANNEL ANALYSER – SUPPLY AND DELIVERY ONLY				
			SUPPLY SINGLE CHANNEL ANALYSER	SUPPLY DUAL CHANNEL ANALYSER
ITEM	DESCRIPTION	UNIT OF MEASURE	PRICE (VAT INCLUSIVE)	PRICE (VAT INCLUSIVE)
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	Each		

MIXED LIQUOR SUSPENDED SOLIDS METER SINGLE/DUAL CHANNEL ANALYSER – SUPPLY AND INSTALLATION				
			SUPPLY SINGLE CHANNEL ANALYSER	SUPPLY DUAL CHANNEL ANALYSER
ITEM	DESCRIPTION	UNIT OF MEASURE	PRICE (VAT INCLUSIVE)	PRICE (VAT INCLUSIVE)
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	Each		

E. SUPPLY OF PORTABLE DISSOLVED OXYGEN METER

BILL OF QUANTITIES – PORTABLE DISSOLVED OXYGEN METER – SUPPLY AND DELIVERY ONLY SUPPLY AND DELIVERY ONLY			
ITEM	DESCRIPTION	UNIT OF MEASURE	PRICE (VAT INCLUSIVE)
1	**Portable DO Meter LCD digital display** - should suitable for application in aerobic activated sludge in a biological nutrient removal (BNR) reac-tor, with the primary DO concentration reading having a resolution of at least ± 0.01mg/l and an accuracy of ± 0.1 mg/l. The secondary temperature reading must have at least 0.1ºC increments, with an accuracy of ± 1% of the reading	Each	
2	**Probe and probe cable** – The sensor cable should be long enough approximately 5-10 m long.DO sensor version is built with a stainless steel body ensuring sufficient weight to the probe for an easy outside handling, the sensing part is protected by a shroud, and the connection is ensured by strong and visible yellow coloured cable onto which you can clip depth markers (optional accessories), this models specially designed for field use	Each	
3	Battery back up	Each	
4	Membrane	Each	

F. SUPPLY OF PORTABLE MIXED LIQUOR SUSPENDED SOLIDS METER

BILL OF QUANTITIES – PORTABLE MIXED LIQUOR SUSPENDED SOLIDS METER – SUPPLY AND DELIVERY ONLY			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	**Portable MLSS Meter LCD digital display** - The MLSS meter should suitable for application in aerobic activated sludge in a biological nutrient removal (BNR) reactor, with the primary MLSS concentration reading having a resolution of at least ± 0.01mg/l and an accuracy of ± 0.1 mg/l.	Each	
2	**Probe and probe cable** – The sensor cable should be long enough approximately 5-10 m long. The instrument probe manufacture with stainless steel body with an option just to add other probes in future	Each	
3	Battery back up	Each	
4	Membrane	Each	

G. SUPPLY OF ONLINE INSTRUMENTATION

DIGITAL PH/ORP SENSOR ASSEMBLY WITH TEMPERATURE MEASUREMENT METER – SUPPLY AND DELIVERY ONLY			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	Each	

DIGITAL PH/ORP SENSOR ASSEMBLY WITH TEMPERATURE MEASUREMENT METER – SUPPLY AND INSTALLATION			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	Each	

DIGITAL pH COMBINATION ELECTRODE WITH ARMORING METER – SUPPLY AND DELIVERY ONLY			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	Each	
DIGITAL pH COMBINATION ELECTRODE WITH ARMORING METER – SUPPLY AND INSTALLATION			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	Each	

H. SUPPLY OF ONLINE MONITORING METER

ANALYSER FOR MEASURING ORTHOPHOSPHATE – SUPPLY AND DELIVERY ONLY			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	Each	

ANALYSER FOR MEASURING ORTHOPHOSPHATE – SUPPLY AND INSTALLATION			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	Each	

I. SUPPLY OF SPECTROPHOTOMETER

SPECTROPHOTOMETER – SUPPLY AND DELIVERY ONLY			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	Each	

SPECTROPHOTOMETER – SUPPLY AND INSTALLATION			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	Each	

J. SUPPLY OF RESIDUAL CHLORINE METER

CHLORINE ANALYZER – SUPPLY AND DELIVERY ONLY			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	Each	

CHLORINE ANALYZER – SUPPLY AND INSTALLATION			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	Each	

CHLORINE GAS LEAK DETECTOR – SUPPLY AND DELIVERY ONLY			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	Each	

CHLORINE GAS LEAK DETECTOR – SUPPLY AND INSTALLATION			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	Each	

K. SUPPLY SLUDGE BLANKET DETECTION METER

SLUDGE BLANKET DETECTION METER – SUPPLY AND DELIVERY ONLY			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	Each	

SLUDGE BLANKET DETECTION METER – SUPPLY AND INSTALLATION			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	Each	

L. SUPPLY TURBIDITY METER

TURBIDITY METER – SUPPLY AND DELIVERY ONLY			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	Each	

TURBIDITY METER – SUPPLY AND INSTALLATION			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	Each	

M. TOTAL SUSPENDED SOLIDS METER

TOTAL SUSPENDED SOLIDS METER – SUPPLY AND DELIVERY ONLY			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	

TOTAL SUSPENDED SOLIDS METER – SUPPLY AND INSTALLATION			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (EXCLUDING VAT)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	

N. OXIDATION REDUCTION POTENTIAL (REDOX) METER

OXIDATION REDUCTION POTENTIAL (REDOX) METER – SUPPLY AND DELIVERY ONLY			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	

OXIDATION REDUCTION POTENTIAL (REDOX) METER – SUPPLY AND INSTALLATION			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	

O. GAS FLOW METER

GAS FLOW METER – SUPPLY AND DELIVERY ONLY			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	

GAS FLOW METER – SUPPLY AND INSTALLATION			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	

P. ULTRASONIC FLOW METER

ULTRASONIC FLOW METER – SUPPLY AND DELIVERY ONLY			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	

ULTRASONIC FLOW METER – SUPPLY AND INSTALLATION			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	

Q. ULTRASONIC LEVEL METER (5 RELAY OUTPUTS)

ULTRASONIC LEVEL METER – SUPPLY AND DELIVERY ONLY			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	

ULTRASONIC LEVEL METER – SUPPLY AND INSTALLATION			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	

R. LEVEL METER (4 RELAY OUTPUTS)

ULTRASONIC LEVEL METER – SUPPLY AND DELIVERY ONLY			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	
ULTRASONIC LEVEL METER – SUPPLY AND INSTALLATION			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	

S. LEVEL METER (3 RELAY OUTPUTS)

ULTRASONIC LEVEL METER – SUPPLY AND DELIVERY ONLY			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	

ULTRASONIC LEVEL METER – SUPPLY AND INSTALLATION			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	

T. LEVEL METER (2 RELAY OUTPUTS)

ULTRASONIC LEVEL METER – SUPPLY AND DELIVERY ONLY			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	

ULTRASONIC LEVEL METER – SUPPLY AND INSTALLATION			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	

U. SUPPLY OF POCKET COLORIMETER

POCKET COLORIMETER – SUPPLY AND DELIVERY ONLY			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	

POCKET COLORIMETER – SUPPLY AND INSTALLATION			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	

V. SUPPLY OF MULTI GAS DETECTOR

MULTI GAS DETECTOR – SUPPLY AND DELIVERY ONLY			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	

MULTI GAS DETECTOR – SUPPLY AND INSTALLATION			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	

W. SUPPLY OF CONDUCTIVITY METER

CONDUCTIVITY METER – SUPPLY AND DELIVERY ONLY			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	

CONDUCTIVITY METER – SUPPLY AND INSTALLATION			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	

X. SUPPLY PORTABLE PH METER

PORTABLE PH METER – SUPPLY AND DELIVERY ONLY			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	

PORTABLE PH METER – SUPPLY AND INSTALLATION			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	

Y. SUPPLY TEMPERATURE METER

TEMPERATURE METER – SUPPLY AND DELIVERY ONLY			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	
TEMPERATURE METER – SUPPLY AND INSTALLATION			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply complete instrument and the requited auxiliary for full functionality excluding power are signalling cabling	each	

Z. SUPPLY OF AUTOMATIC SAMPLING MACHINES

AUTOMATIC SAMPLING MACHINES – SUPPLY AND DELIVERY ONLY			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1	Supply automatic sampling machine	Each	
2	Steel racking , steel conduits and steel trunking	Per m	
3	Power cable - 2, 5 mm² armored (SWA) cable 3 core	Per m	
4	Signal cable- Individual and overall screen (SWA) Cable, Twisted, 4 pair, and min 0.5mm ²	Per m	

AUTOMATIC SAMPLING MACHINES – SUPPLY AND INSTALLATION			
ITEM	**DESCRIPTION**	**UNIT OF MEASURE**	**PRICE (VAT INCLUSIVE)**
1.	Removal/Uninstall of existing automatic sampling machine	Each	
2.	Installation automatic sampling machine	Each	
3.	Steel racking , steel conduits and steel trunking	Per m	
4.	Power cable - 2, 5 mm² armored (SWA) cable 3 core	Per m	
5.	Signal cable- Individual and overall screen (SWA) Cable, Twisted, 4 pair, and min 0.5mm ²	Per m	
6.	Factory Testing	Each	

C2.3.2 PRICING SCHEDULE FOR INSTALLATION

C2.3.2.1 INSTALLATION OF ANALYTICAL INSTRUMENTATION AND ASSOCIATED EQUIPMENT

Activity Description	DISSOLVED OXYGEN METER SINGLE/DUAL CHANNEL ANALYSER		
	UNIT OF MEASURE	SUPPLY SINGLE CHANNEL **RATE (VAT INCLUSIVE)**	SUPPLY DUAL CHANNEL ANALYSER **RATE (VAT INCLUSIVE)**
Removal/Uninstall of existing Analyser	each		
Installation of New Analyser	each		
Installation of Sensor	each		
Installation of 230 VAC to 24VDC – 10 A Power Supply	each		
Installation of 4-20 mA Ethernet Converter	each		
Installation of Steel racking , steel conduits and steel trunking	each		
Installation of Power cable - 2, 5 mm^2 armoured (SWA) cable 3 core	m		
Installation of Signal cable- Individual and overall screen (SWA) Cable, Twisted, 4 pair, and min 0.5mm^2	m		
Installation of 304 stainless steel Sensor bracket material	each		
Installation of IP 68 rated polycarbon enclosures	each		
Installation of Lightning protection - 230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB	each		
Factory Testing	each		
Site Testing and Commission including quality control and handover	each		

Activity Description	MIXED LIQUOR SUSPENDED SOLIDS METER SINGLE/DUAL CHANNEL ANALYSER		
	UNIT OF MEASURE	SUPPLY SINGLE CHANNEL ANALYSER **RATE (VAT INCLUSIVE)**	SUPPLY DUAL CHANNEL ANALYSER **RATE (VAT INCLUSIVE)**
Removal/Uninstall of existing Analyser	each		
Installation of New Analyser	each		
Installation of Sensor	each		
Installation of 230 VAC to 24VDC – 10 A Power Supply	each		
Installation of 4-20 mA Ethernet Converter	each		
Installation of Steel racking , steel conduits and steel trunking	each		
Installation of Power cable - 2, 5 mm^2 armoured (SWA) cable 3 core	m		
Installation of Signal cable- Individual and overall screen (SWA) Cable, Twisted, 4 pair, and min 0.5mm^2	m		
Installation of 304 stainless steel Sensor bracket material	each		
Installation of IP 68 rated polycarbon enclosures	each		
Installation of Lightning protection - 230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB	each		
Factory Testing	each		
Site Testing and Commission including quality control and handover	each		

Activity Description	ANALYZER FOR MEASURING ORTHOPHOSPHATE	
	UNIT OF MEASURE	RATE (VAT INCLUSIVE)
Removal/Uninstall of existing Analyser	each	
Installation of New Analyser for measuring Orthophosphate with 230 V AC Supply voltage	each	
Installation of Sensor brackets – 304 stainless steel	each	
Installation of Enclosure - IP 68 rated polycarbon enclosures	each	
Installation of Lightning protection - 230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB	each	
Installation of DC power supply - 24 V DC	each	
Factory Testing	sum	
Site Testing and Commission including quality control and handover	each	

Activity Description	BACKUP CONTROLLER, WEB SERVER, ETHERNET , MODBUS TCP/IP MODULE FOR IQ SENSOR NET	
	UNIT OF MEASURE	RATE (VAT INCLUSIVE)
Removal/Uninstall of existing controller	each	
Installation of New Backup controller with 230V AC supply voltage	each	
Installation of DC power supply - 24 V DC	each	
Installation of Enclosure - PC - 20 % GF (polycarbonate with 20 % glass fiber	each	
Installation of Lightning protection - 230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB	each	
Factory Testing	each	
Site Testing and Commission including quality control and handover	each	
Activity Description	**DIGITAL PH COMBINATION ELECTRODE WITH ARMORING**	
	UNIT OF MEASURE	**RATE (VAT INCLUSIVE)**
Removal/Uninstall of DIGITAL pH	each	
Installation of New DIGITAL pH Combination Electrode with armouring - 230V AC supply voltage	each	

Installation of Electrolyte - Gel polymer solid electrolyte (AgCl-free)	each	
Installation of Armouring - PVC protective armouring, 2 x O-ring slide sealing's	each	
Installation of Lightning protection - 230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB	each	
Factory Testing	sum	
Site Testing and Commission including quality control and handover	each	

Activity Description	**DIGITAL PH/ORP SENSOR ASSEMBLY WITH TEMPERATURE MEASUREMENT**	
	UNIT OF MEASURE	**RATE (VAT INCLUSIVE)**
Removal/Uninstall of existing DIGITAL pH/ORP Sensor	each	
Install New DIGITAL pH/ORP Sensor with 230V AC supply voltage	each	
Install Armouring - 508 mm (incl. adapter of the sensor connection cable)	each	
Install Lightning protection - 230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB	each	
Factory Testing	sum	
Site Testing and Commission including quality control and handover	each	

Activity Description	**DIGITAL, OPTICAL SENSOR-COD, NITRITE & NITRATE INLET**	
	UNIT OF MEASURE	**RATE (VAT INCLUSIVE)**
Removal/Uninstall existing Digital, Optical Sensor-COD, Nitrite & Nitrate	each	
Install a New Digital, Optical Sensor-COD, Nitrite & Nitrate with 230V AC supply voltage	each	
Install DC power supply -24V DC	each	
Factory Testing	sum	
Site Testing and Commission including quality control and handover	each	
Activity Description	**AMMONIUM ARMATURE WITH TEMPERATURE MEASUREMENT, AMMONIUM REPLACEMENT ELECTRODE,**	

	AMMONIUM REFERENCE ELECTRODE AND COMPENSATION ELECTRODE	
	UNIT OF MEASURE	**RATE (VAT INCLUSIVE)**
Removal/Uninstall existing Ammonium armature electrode	each	
Installation of New Ammonium armature electrode	each	
Install Armouring - 392 mm (incl. adapter of the sensor connection cable)	each	
Install DC power supply -24V DC	each	
Factory Testing	sum	
Site Testing and Commission including quality control and handover	each	
Activity Description	**RESIDUAL CHLORINE METER**	
	UNIT OF MEASURE	**RATE (VAT INCLUSIVE)**
Removal/Uninstall existing residual chlorine meter	each	
Installation of New Residual Chlorine Meter	each	
Install Chlorine gas leak detector	each	
Install Siren and flasher alarm	each	
Install Extractor Fan – Dimensions min 450 *450 cm	each	
Install Plugged vacuum regulator with clamp type yoke connection (min 10 kg/h)	each	
Install Reinforced ejector up to min 20 bar 10 kg/h	each	
Install Dosing regulator min 10 kg/h	each	
Install 9-32VDC Power Supply	each	
Install 4-20 mA Ethernet Converter	each	
Install Ethernet to Fiber 6copper port and 2 fibre port switch	each	
Factory Testing	sum	
Site Testing and Commission including quality control and handover	each	
Activity Description	**SLUDGE BLANKET DETECTION METER**	
	UNIT OF MEASURE	**RATE (VAT INCLUSIVE)**
Removal/Uninstall existing Meter	each	
Install Sludge blanket detection meter	each	
Install Sensor - Clamp-on, single head ultrasonic, min of 0.5" to 180" (12.7 mm to 4.5 m) ID pipes	each	

Install Sensor cable - Min of 20 ft / 6 m shielded coaxial pair	m	
Install Silicone sensor compound kit	each	
Install PC4 Sensor mounting clamp - Min 0.6" - 32" (15 - 800 mm) OD pipes	each	
Install Display - White, backlit matrix	each	
Factory Testing	sum	
Site Testing and Commission including quality control and handover	each	
Activity Description	**TURBIDITY METER**	
	UNIT OF MEASURE	**RATE (VAT INCLUSIVE)**
Removal/Uninstall existing Turbidity Meter	each	
Install Turbidity meter - 230V AC supply voltage	each	
Install 24 Vdc Power Supply	each	
Install Lightning protection - 230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB	each	
Install Pedestal to hold the cabinets with controller	each	
Install polycarbon enclosures with (230 V ac) for live, neutral and mA (milliamp), with earth leakage and 6 A (amp) CB	each	
Factory Testing	sum	
Site Testing and Commission including quality control and handover	each	
Activity Description	**TSS METER**	
	UNIT OF MEASURE	**RATE (VAT INCLUSIVE)**
Removal/Uninstall existing TSS Meter	each	
Install TSS meter - 230V AC supply voltage	each	
2Install 4 Vdc Power Supply	each	
Install Lightning protection - 230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB	each	
Install Pedestal to hold the cabinets with controller	each	
Install polycarbon enclosures with (230 V ac) for live, neutral and mA (milliamp), with earth leakage and 6 A (amp) CB	each	
Factory Testing	sum	
Site Testing and Commission including quality control and handover	each	
Activity Description	**RADOX METER**	
	UNIT OF MEASURE	**RATE (VAT INCLUSIVE)**

Removal/Uninstall existing Radox Meter	each	
Install Radox meter - 230V AC supply voltage	each	
Install 24 Vdc Power Supply	each	
Install Lightning protection - 230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB	each	
Install Pedestal to hold the cabinets with controller	each	
Install polycarbon enclosures with (230 V ac) for live, neutral and mA (milliamp), with earth leakage and 6 A (amp) CB	each	
Factory Testing	sum	
Site Testing and Commission including quality control and handover	each	
Activity Description	**GAS FLOW METER**	
	UNIT OF MEASURE	**RATE (VAT INCLUSIVE)**
Removal/Uninstall existing Gas Flow Meter	each	
Install Gas flow meter with 230V AC supply voltage	each	
Install 24 Vdc Power Supply	each	
Install Lightning protection - 230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB	each	
Install Pedestal to hold the cabinets with controller	each	
Install polycarbon enclosures with (230 V ac) for live, neutral and mA (milliamp), with earth leakage and 6 A (amp) CB	each	
Factory Testing	sum	
Site Testing and Commission including quality control and handover	each	
Activity Description	**FLOW METER**	
	UNIT OF MEASURE	**RATE (VAT INCLUSIVE)**
Removal/Uninstall existing Flow Meter	each	
Install Flow meter - 230V AC supply voltage	each	
Install of Sensor	each	
Install of 230 VAC to 24VDC – 10 A Power Supply	each	
Install of Steel racking , steel conduits and steel trunking	each	
Install of Power cable - 2, 5 mm² armoured (SWA) cable 3 core	m	
Install of Signal cable- Individual and overall screen (SWA) Cable, Twisted, 4 pair, and min 0.5mm ²	m	

Install of 304 stainless steel Sensor bracket material	each	
Install 24 Vdc Power Supply	each	
Install Lightning protection - 230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB	each	
Install Pedestal to hold the cabinets with controller	each	
Install polycarbon enclosures with (230 V ac) for live, neutral and mA (milliamp), with earth leakage and 6 A (amp) CB	each	
Factory Testing	sum	
Site Testing and Commission including quality control and handover	each	
Activity Description	**LEVEL METER (5 RELAY OUTPUTS)**	
	UNIT OF MEASURE	**RATE(VAT INCLUSIVE)**
Removal/Uninstall existing Level Meter	each	
Install Level meter - 230V AC supply voltage	each	
Install of Sensor	each	
Install of 230 VAC to 24VDC – 10 A Power Supply	each	
Install of Steel racking, steel conduits and steel trunking	each	
Install of Power cable - 2, 5 mm² armoured (SWA) cable 3 core	m	
Install of Signal cable- Individual and overall screen (SWA) Cable, Twisted, 4 pair, and min 0.5mm ²	m	
Install of 304 stainless steel Sensor bracket material	each	
Install 24 Vdc Power Supply	each	
Install Lightning protection - 230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB	each	
Install Pedestal to hold the cabinets with controller	each	
Install polycarbon enclosures with (230 V ac) for live, neutral and mA (milliamp), with earth leakage and 6 A (amp) CB	each	
Factory Testing	sum	
Site Testing and Commission including quality control and handover	each	
Activity Description	**LEVEL METER (4 RELAY OUTPUTS)**	
	UNIT OF MEASURE	**RATE (VAT INCLUSIVE)**
Removal/Uninstall existing Level Meter	each	
Install Level meter - 230V AC supply voltage	each	
Install of Sensor	each	

Install of 230 VAC to 24VDC – 10 A Power Supply	each	
Install of Steel racking, steel conduits and steel trunking	each	
Install of Power cable - 2, 5 mm² armoured (SWA) cable 3 core	m	
Install of Signal cable- Individual and overall screen (SWA) Cable, Twisted, 4 pair, and min 0.5mm ²	m	
Install of 304 stainless steel Sensor bracket material	each	
Install 24 Vdc Power Supply	each	
Install Lightning protection - 230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB	each	
Install Pedestal to hold the cabinets with controller	each	
Install polycarbon enclosures with (230 V ac) for live, neutral and mA (milliamp), with earth leakage and 6 A (amp) CB	each	
Factory Testing	sum	
Site Testing and Commission including quality control and handover	each	
Activity Description	**LEVEL METER (3 RELAY OUTPUTS)**	
	UNIT OF MEASURE	**RATE (VAT INCLUSIVE)**
Removal/Uninstall existing Level Meter	each	
Install Level meter - 230V AC supply voltage	each	
Install of Sensor	each	
Install of 230 VAC to 24VDC – 10 A Power Supply	each	
Install of Steel racking , steel conduits and steel trunking	each	
Install of Power cable - 2, 5 mm² armoured (SWA) cable 3 core	m	
Install of Signal cable- Individual and overall screen (SWA) Cable, Twisted, 4 pair, and min 0.5mm ²	m	
Install of 304 stainless steel Sensor bracket material	each	
Install 24 Vdc Power Supply	each	
Install Lightning protection - 230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB	each	
Install Pedestal to hold the cabinets with controller	each	
Install polycarbon enclosures with (230 V ac) for live, neutral and mA (milliamp), with earth leakage and 6 A (amp) CB	each	
Factory Testing	sum	
Site Testing and Commission including quality control and handover	each	
	LEVEL METER (2 RELAY OUTPUTS)	

Activity Description	UNIT OF MEASURE	RATE(VAT INCLUSIVE)
Removal/Uninstall existing Level Meter	each	
Install Level meter - 230V AC supply voltage	each	
Install of Sensor	each	
Install of 230 VAC to 24VDC – 10 A Power Supply	each	
Install of Steel racking , steel conduits and steel trunking	each	
Install of Power cable - 2, 5 mm² armoured (SWA) cable 3 core	m	
Install of Signal cable- Individual and overall screen (SWA) Cable, Twisted, 4 pair, and min 0.5mm ²	m	
Install of 304 stainless steel Sensor bracket	each	
Install 24 Vdc Power Supply	each	
Install Lightning protection - 230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB	each	
Install Pedestal to hold the cabinets with controller	each	
Install polycarbon enclosures with (230 V ac) for live, neutral and mA (milliamp), with earth leakage and 6 A (amp) CB	each	
Factory Testing	sum	
Site Testing and Commission including quality control and handover	each	
Activity Description	**CONDUCTIVITY METER**	
	UNIT OF MEASURE	**RATE (VAT INCLUSIVE)**
Removal/Uninstall existing Conductivity Meter	each	
Install Conductivity meter - 230V AC supply voltage	each	
Install 24 Vdc Power Supply	each	
Install Lightning protection - 230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB	each	
Install Pedestal to hold the cabinets with controller	each	
Install polycarbon enclosures with (230 V ac) for live, neutral and mA (milliamp), with earth leakage and 6 A (amp) CB	each	
Factory Testing	sum	
Site Testing and Commission including quality control and handover	each	
Activity Description	**CLAMP-ON FLOW METER**	
	UNIT OF MEASURE	**RATE (VAT INCLUSIVE)**

Removal/Uninstall existing Clamp-on Flow Meter	each	
Install Clamp-On Flow Meter - 230V AC supply voltage	each	
Install 9-32VDC Power Supply	each	
Install 4-20 mA Ethernet Converter	each	
Install Ethernet to Fiber 6copper port and 2 fibre port switch	each	
Install and routing of all cables as per the specifications (per flow meter), Steel racking , steel conduits and steel trunking should be included	m	
Install cables - 2, 5 mm² armoured (SWA) cable 3 core (Bidder to take Correct Distances)	m	
Install Signal cable- Individual and overall screen (SWA) Cable, Twisted, 4 pair, and min 0.5mm ²	m	
Install Lightning protection - 230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB	each	
Install Pedestal to hold the cabinets with controller	each	
Install sensor mounting bracket and pedestals.	each	
Install polycarbon enclosures with (230 V ac) for live, neutral and mA (milliamp), with earth leakage and 6 A (amp) CB	each	
Factory Testing	sum	
Site Testing and Commission including quality control and handover	each	
Activity Description	**CLAMP-ON FLOW METER FOR CLEAN WATER**	
	UNIT OF MEASURE	**RATE (VAT INCLUSIVE)**
Removal/Uninstall existing Clamp-on Flow Meter for clean water	each	
Install Clamp-On Flow Meter for clean water - 230V AC supply voltage	each	
Install 9-32VDC Power Supply	each	
Install 4-20 mA Ethernet Converter	each	
Install Ethernet to Fiber 6copper port and 2 fibre port switch	each	
Install and routing of all cables as per the specifications (per flow meter), Steel racking , steel conduits and steel trunking should be included	m	
Install cables - 2, 5 mm² armoured (SWA) cable 3 core (Bidder to take Correct Distances)	m	
Install Signal cable- Individual and overall screen (SWA) Cable, Twisted, 4 pair, and min 0.5mm ²	m	
Install Lightning protection - 230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB	each	
Install Pedestal to hold the cabinets with controller	each	
Install sensor mounting bracket and pedestals.	each	

Install polycarbon enclosures with (230 V ac) for live, neutral and mA (milliamp), with earth leakage and 6 A (amp) CB	each	
Factory Testing	sum	
Site Testing and Commission including quality control and handover	each	
Activity Description	**TEMPERATURE METER**	
	UNIT OF MEASURE	**RATE (VAT INCLUSIVE)**
Removal/Uninstall existing temperature meter	each	
Install PHF Paperless Recorder	each	
Install Temperature Elements	each	
Install Head Mount Convertors	each	
Install Electrical Control Panel (With Circuit Breakers, Surge Arrestor, Terminal Rails and Cable Glands)	each	
Install PVC 4 core steel armoured cable 2.5 mm^2	m	
Install PVC 6 core Screened Industrial Cable 0.22 mm^2 (5.6 mm diameter)	m	
Install PVC 6 core Screened Industrial Cable 0.22 mm^2 (5.6 mm diameter)	m	
Install PVC 6 core Screened Industrial Cable 0.22 mm^2 (5.6 mm diameter)	m	
Excavation works for cable trenches, enclosures and compaction of surface after excavations	sum	
Tagging and labelling of all equipment	sum	
Factory Testing	sum	
Site Testing and Commission including quality control and handover	each	

Provisional Sum

*Provisional Sum subject to approval	R3 000 000.00

Provisional sum has been included in the pricing schedule and will only be applicable where related goods are required that are not catered for in the line items in the pricing schedule, including quality verification of products. Additional items required will be on an as and when required basis subject to prior approval of the items being required.

The awarded Service Provider/s must obtain quotations to be approved in writing by the relevant ERWAT Project Manager. ERWAT reserves the right to request three quotations to be submitted before proceeding with relevant goods and services outside of contractual scope. The quotations received should be market related and may be subject to review by ERWAT.

Payments for additional services will be on actuals with supporting documentation to be submitted with the invoice. The provisional sum value is valid for the total contract period.

NB. Warranty will take effect from the date of handover.

I, the undersigned, the authorised designated signatory, undertake to carry out the works in accordance with the conditions of contract, the specifications for the tender sum as indicated and within the time for completion as specified in the Contract.

BIDDER'S name: _____

BIDDER'S signature: _____ Date: _____

Name of Firm: _____

Address _____

_____

_____

Telephone number: _____

Fax Number: _____

Cellular number: _____

E Mail Address: _____

2.1 LIST OF IMPORTED ITEMS

Contractors to list all items which are not solely South African manufactured.

ITEM	DESCRIPTION	R VALUE	ROE
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

ALTERNATIVE OFFERS

If a bidder wishes to submit an alternative for any of the items in the schedule of quantities, the bidder must indicate on the pricing schedule and complete the form included in the bidding documents.

No alternative bid will be considered, unless an unqualified bid, strictly on the basis of the bid documents, is also submitted.

If subsequently required, the bidder shall submit fully detailed drawings and calculations of the alternative bid in the form set out by the Engineer, and the cost of checking calculations and drawings shall be for the bidder's account, if his bid is accepted.

Only ISO/SANS/SABS or items registered with the relevant regulatory authority will be considered.

Please note that ERWAT reserves the right to accept or not accept the alternative offered.

_____ _____

SIGNATURE OF BIDDER **DATE**

ERWAT
EXCELLENCE IN WATER CARE

C3 SCOPE OF WORK

PROJECT NO: ERW2407/04

APPOINTMENT OF SERVICE PROVIDER/S TO SUPPLY, DELIVER & INSTALL ALL ANALYTICAL INSTRUMENTATION AND ASSOCIATED EQUIPMENT ON AS AND WHEN REQUIRED BASIS IN ALL ERWAT WATER CARE WORKS FOR A PERIOD OF 36 MONTHS

APPOINTMENT OF SERVICE PROVIDER/S TO SUPPLY, DELIVER & INSTALL ALL ANALYTICAL INSTRUMENTATION AND ASSOCIATED EQUIPMENT ON AS AND WHEN REQUIRED BASIS IN ALL ERWAT WATER CARE WORKS FOR A PERIOD OF 36 MONTHS

	SECTION HEADING	COLOUR
C3	Scope of Work	BLUE
C3.1	Description of work	
C3.2	Datasheet	
C3.3	Site establishment	
C3.4	Health and Safety	
C3.5	Environmental Management during Construction	
C3.6	Technical Specifications	

DETAILED CONTENTS (VOLUME 3)

PART C3 SCOPE OF WORKS

C3.1 DESCRIPTION OF THE WORKS

C3.1.1 Background

The Ekurhuleni Water Care Company (ERWAT) is responsible for the treatment of wastewater from domestic and industrial sources emanating within the City of Ekurhuleni and Lesedi Municipality. ERWAT water care works are designed to operate continuously (24 Hours/day). ERWAT requires the services of a service provider/s to supply and install analytical instrumentation as well as hand held portable field instruments, laboratory instruments and associated equipment on as and when required basis. The equipment's mentioned are critical in the operation of ERWAT and therefore needs experienced service provider/s for Supply and Installation.

The Suppliers will be required to provide training on all supplied equipment to a level of competency for effective use of instruments

C3.1.2 Extent of the Works

The Scope of Work for this Contract is (but not limited to): The Contractor will be required to perform all detailed instruments system configuration, the construction of the foundations of the supports for the equipment and installation work associated with this project, including the supply of selected equipment and items as detailed within the schedule of quantities. The supply of all such equipment and or components must fully comply with the specification contained in this document and must be approved by the ERWAT Engineer.

- **SCOPE OF WORKS**

  The Contractor shall be contracted to ERWAT to supply, install and deliver on all the equipment as and when required.

  The equipment listed in the scope reflects the major items in the current installed base of instrumentation equipment. Any changes in this installed base of Instrumentation equipment are at the sole discretion of ERWAT.

  The contractor should note that the information provided in the pricing schedule is presumed correct. It is the responsibility of the contractor to ensure that the correct and current information to be used when performing supply, delivery and installation and quotations. ERWAT will not be held responsible for errors emanating from incorrect information used.

  Analytical instrumentation

  This section comprises of:

  a) Dissolved Oxygen meter – single / dual channel analyser.
  b) Mixed Liquor Suspended Solids meter –single / dual channel analyser.
  c) Portable Dissolved Oxygen meter
  d) Portable Mixed Liquor Suspended Solids meter
  e) Online monitoring Instrumentation
  f) Electrical Conductivity meters (EC meter)
  g) Spectrophotometer
  h) Online and hand held pH meter
  i) Chemical oxygen demand meter
  j) Residual chlorine meter
  k) Sludge blanket detection meter
  l) Turbidity meter
  m) Total suspended solids (TSS meter)
  n) REDOX meter
  o) GAS flow meter
  p) Gas Detector
  q) Colorimeter

r) Clamp-on Flow Meter

s) Flow meter

t) Level meter (5 relay outputs)

u) Level meter (4 relay outputs)

v) Level meter (3 relay outputs)

w) Level meter (2 relay outputs)

x) Temperature meter

y) Automatic sampling Machines

This specification shall cover all analytical instrumentation and associated equipment to be supplied, delivered, installed and tested that shall drive any of the items of equipment to be supplied under the contract. This specification shall be read together with those specifying the instruments driven equipment:

C3.1.2.1 **Interpretations**

A. Abbreviations

In this Specification, the following abbreviations will apply:

1. ANSI: American National Standards Institute
2. ASTM: American Society for Testing and Materials
3. BS: British Standards Institution
4. SANS: South African National Standards

B. Standards

The latest edition, including all amendments to until the date of tender, of the following particular national and international specifications, publications and codes of practice shall be read in conjunction with this specification and shall be deemed to form part thereof: The standards will be applicable to all equipment supplied and therefore does not form part of the evaluation criteria.

SANS-IEC.60439 (2007)	SANS-IEC.60439 (2007) Factory-built Assemblies of Low Voltage Switchgear and Control gear
IEC 60947	Low Voltage Switchgear and Control Gear

IEC 60947-1(2007)	General rules
IEC 60947-2(2003)	Circuit breakers
IEC 60947-3(2015)	Switches/Isolators/Switch Isolators and Combination Fuse Switch Units
IEC 60947-4(2018)	Contactors
IEC 60947-5(2016)	Relays
IEC 60228 (2004)	Bursars, Main Connections and Small Wiring for Switchgear
SANS 1507-3(2015)	PVC Cables and Cords
SABS 156 (2007)	MCBs and MCCBs
SANS 60439-1 (2004)	Low voltage MCCs
SANS 1507-2 (2015)	Low voltage cable
SANS 10313 (2018)	Earthing and lightning protection
SANS 10142 -1 (2017)	Regulations for the wiring of premises

C3.1.2.2 **General Requirements**

a. Site induction training has to be completed before any work can be undertaken.

b. Supplier must comply to the ERWAT Permit to Work and Safe operation procedure.

c. All the relevant work permits and authorization has to be obtained before any work can be under taken.

d. All work done and equipment supplied has to be in accordance with the applicable standards as listed in this document.

e. No work shall be undertaken without an official order or written confirmation via e-mail in case of an emergency from the designated ERWAT representative.

f. No equipment may be removed from site without written permission from the relevant plant manager.

g. The installation of any equipment shall include the putting back into operation, testing, special testing (if required) and adjustments on the equipment.

h. A project and quality control plan will be required for any installation of equipment.

i. All the required tools, consumables, testing facilities, and other requirements to perform the work as per the Contract shall be provided by the supplier.

j. ERWAT reserves the right to hold supplier responsible for any equipment that will be damaged due to supplier's negligence or poor workmanship.

k. The rates of the highest scoring bidder may be offered to the second, third and fourth highest scoring bidders.

l. The Contract is for a duration of ***Thirty Six 36 (No.) Calendar Months.***

m. Prices shall be **FIXED** and **FIRM** for the first 12 months of the **Contract. Price increments will be based on CPI annually on the anniversary of this tender**

n. ALL new Equipment and newly supplied parts shall carry A MINIMUM of twelve (12) calendar months WARRANTY from date of acceptance by ERWAT representative.

C3.1.2.3 **KEY STAFF**

Staff Complement			
Bidding companies are required to have the following staff complement available for the duration of this contract with a minimum of three years' experience from date of qualification per staff member.			
NO	**STAFF MEMBER**	**QUALIFICATION**	**BIDDERS TO PROVIDE PROOF OF QUALIFICATION WHERE THEY COMPLY. SUPPORTING DOCUMENTS**
1.	Project Manager	National Diploma: Electrical Engineering	Certified copy of Diploma
2.	Instrumentation Mechanician	Trade Tested as an Artisan	Certified copy of trade test certificate
3.	Instrumentation Technician	National Diploma	Certified copy of certificate
4.	Electrician	Trade Tested as an Electrician, registered as a installation or master installation electrician	Certified copy of trade test and installation electrician registration certificate

C3.1.2.4 **SPECIFICATION**

The following are the MINIMUM Specification for the equipment in this Contract. Bidders are required to price for all direct or indirect costs applicable to this bid (work and Equipment, etc. that has been OMITTED.
Failure to adhere to this requirement will lead to disqualification.

AA. Specification for Doppler clamp on flow meters(Sludge/solids)

- The instrument must have Sensor clamp-on, single head ultrasonic for min of 0.5" to 180" (12.7 mm to 4.5 m) ID pipes
- Sensor cable must be min of 20 ft / 6 m shielded coaxial pair
- The instrument Flow rate range of ± 0.1 to 40 ft/sec (± 0.03 to 12.2 m/sec)
- Installation - Silicone sensor compound kit
- PC4 Sensor mounting clamp for 0.6" - 32" (15 - 800 mm) OD pipes
- Instrument Enclosure must be watertight and lockable, NEMA4X (IP66) polycarbon
- Display - White, backlit matrix
- Totaliser - 12 digit
- Instrument must have built-in -key programmer for Calibrations

- Instrument Sensitivity must be keypad adjustable
- Output - isolated 4-20mA (1000 ohm)
- 2 control relays - 5 amp, SPDT - programmable for flow proportional pulse output, and/or flow alarm
- Power input - 100-240VAC 50/60Hz, 3 Watts maximum
- Electrical surge protection and RFI filters - AC, sensor, 4-20mA1 Manual - Installation and Operation
- The unit must be able to work in temperatures between minus ten and seventy-five degrees Celsius.
- All the panels should face South and all the outside panels must have Stainless Steel Canopy
- Cable glands should be IP55

BB. Design data for Specification for clean water clamp on flow meters.

- The instrument must have Sensor clamp-on detector and converter heads ultrasonic for min of 0.5” to 180” (12.7 mm to 4.5 m) ID pipes
- Zero adjustment to be one touch adjustment while the flow is stopped.
- Output may be cut when the flow rate is low. Setting range : 0 to 5m/s (setting in 0.01 m/s unit)
- When measurement cannot be made because the pipe is empty or bubbles are entrained in the fluid, contact output is activated while analog is held.
- 2 forward ranges are independently configurable. Digital output of operation is available.
- Contact output is made when the upper or lower limit values of the instantaneous flow rate are reached.
- Signal cable between the detector and convertor should be coaxial cable 60m max for compact type detector 300m max.
- The instrument Flow velocity range of 0 to ± 0.3 ……. (± 32 m/sec)
- Installation – detector sensor compound kit
- PC4 Sensor mounting clamp for 0.6” - 32” (15 - 800 mm) OD pipes
- Instrument Enclosure must be watertight, NEMA4X (IP66) polycarbon
- Display - White, backlit matrix
- Totaliser - 12 digit
- Instrument must have built-in -key programmer for Calibrations
- Instrument Sensitivity must be keypad adjustable
- Output - isolated 4-20mA (1000 ohm)
- 2 control relays - 5 amp, SPDT - programmable for flow proportional pulse output, and/or flow alarm
- Power input - 100-240VAC 50/60Hz, 3 Watts maximum
- Electrical surge protection and RFI filters - AC, sensor, 4-20mA1 Manual - Installation and Operation

- The unit must be able to work in temperatures between minus ten and seventy-five degrees Celsius.
- All the panels should face South and all the outside panels must have Stainless Steel Canopy
- Cable glands should be IP55.

CC. Enclosure Specification

- Supply, install and Commissioning of the Doppler Flow meters in a Poly Carbonate enclosures
- Panels should be pillar mounted with a base plate (minimum 200*200mm)
- Pedestal unit 304 stainless steel 50*50mm, height 635mm and width 430*250mm.
- The Poly Carbonate wall mounted enclosure has to be from a reputable manufacturer with data sheet.
- Standard temperature (-5° to 140°F/-20° to 60C)
- The cable entry to the Enclosure must be from the bottom using a suitable SABS approved glands.
- Cable has to be terminated in this enclosure using suitable terminal connectors that clips onto a din rail.
- All installed equipment in the wall mounted enclosures has to be from a reputable manufacturer with data sheet, the equipment must be interchangeable with the existing one.
- 4-20mA surge arrester min class for life and neutral
- Earth leakage and three double pole 6 amp CB
- 400 VA ONE to ONE ratio transformer
- Earth terminals
- Instrument Enclosure must be watertight and lockable
- 24v Power supply min of 3 amps
- All cables must be marked.
- All cable ends will be lugged or ferruled.
- Min cable size in panel must be 2,5 mm2 panel wire and all ends must be ferruled
- All external wires must run through terminals
- Must be fitted on the wall that will be indicated to you during the site meeting
- Supply cables must be a min of 2,5 mm2 armoured (SWA) cable 3 core

DD. Design Data for the Mixed Liquid Suspended Solid meters

Application for the Mixed Liquid Suspended Solid meters

- The MLSS meter is used to monitor the concentration of sludge in the waste water treatment, also control the sludge discharge in primary and secondary sedimentation tanks

Specification for Mixed Liquid Suspended Solid meters

- Supply voltage 24VDC by means of an interposing power supply supplied from 230 VAC.
- The MLSS meter should suitable for application in aerobic activated sludge in a biological nutrient removal (BNR) reactor, with the primary MLSS concentration reading having a resolution of at least ± 0.01mg/l and an accuracy of ± 0.1 mg/l.
- The secondary temperature reading must have at least 0.1ºC increments, with an accuracy of ± 1% of the reading
- Unit shall consist of an analyser (controller), with an accessible and readable local display, and a sensor (with required accessories) that is submerged to a depth of at least 0.2 m below
- Automated sensor jet cleaning system must be based on compressed air supplied by a suitable unit (proven for local process conditions) that is compatible for automated controller duty management.
- Cabinets must be IP68 rated polycarbon enclosures
- Pedestal to hold the cabinets with controller, compressor, and accessories at the reactor must be supplied. Material must be 304 Stainless steel.
- Lightning protection (230 V ac) for live, neutral and mA (milliamp), with earth leakage and 6 A (amp) circuit breaker. Existing power supply (220 V ac) at the proposed location will be used.
- The control unit must have isolated signal (4 to 20 mA) output capacity for all measurements.
- The control unit display must show all measurements, relay status, trend graph, and programming menus.
- The Instrument sensor has to be a Single Gap, Optical; self-cleaning type with an emitter/receptor combination with automatic colour compensation.
- The required minimum instrument range have to be 0 – 3000 up to 0 – 30 000mg/l and 0 – 3%.
- The required minimum instrument accuracy should be ± 5% of reading or ± 100 mg/l.
- The required minimum instrument repeatability should be ± 1% of reading or ± 20 mg/l.

EE. Design Data for Portable Mixed Liquid Suspended Solid meters

- The MLSS meter should suitable for application in aerobic activated sludge in a biological nutrient removal (BNR) reactor, with the primary MLSS concentration reading having a resolution of at least ± 0.01mg/l and an accuracy of ± 0.1 mg/l.
- The secondary temperature reading must have at least 0.1ºC increments, with an accuracy of ± 1% of the reading
- The control unit must have isolated signal (4 to 20 mA) output capacity for all measurements.
- The unit display must show all measurements, relay status, trend graph, and programming menus.
- The required minimum instrument range have to be 0 – 3000 up to 0 – 30 000mg/l and 0 – 3%.
- The required minimum instrument accuracy should be ± 5% of reading or ± 100 mg/l.
- The required minimum instrument repeatability should be ± 1% of reading or ± 20 mg/l.
- It should also come with a protective casing to protect the instrument against bumps.
- Instrument should be water proof.
- Probe and instrument should be suitable for rugged conditions.
- The instrument probe manufacture with stainless steel body with an option just to add other probes in future.
- The probe cable should be long enough approximately 5-10 m long.

FF. Design Data for Dissolved Oxygen Meters

Application for the Dissolved Oxygen meters

- The DO meter is used to measure the amount of the dissolved oxygen in its gaseous, liquid phase in mg/ppm

Specification for Dissolved Oxygen meters

- Supply voltage 24VDC by means of an interposing power supply supplied from 230 VAC.
- The DO meter should suitable for application in aerobic activated sludge in a biological nutrient removal (BNR) reactor, with the primary DO concentration reading having a resolution of at least ± 0.01mg/l and an accuracy of ± 0.1 mg/l.
- The secondary temperature reading must have at least 0.1ºC increments, with an accuracy of ± 1% of the reading
- Unit shall consist of an analyser (controller), with an accessible and readable local display, and a sensor (with required accessories) that is submerged to a depth of at least 1 m below reactor sludge sur-face.
- Automated sensor jet cleaning system must be based on compressed air supplied by a suitable unit (proven for local process conditions) that is compatible for automated controller duty management.
- Sensor bracket (quick release and accessible) must be designed, manufactured and material must be 304 Stainless steel.
- Cabinets must be IP68 rated polycarbon enclosures.

- Pedestal to hold the cabinets with controller, compressor, and accessories at the reactor must be supplied and Material must be 304 Stainless steel.
- Lightning protection (230 V ac) for live, neutral and mA (milliamp), with earth leakage and 6 A (amp) circuit breaker. Existing power supply (220 V ac) at the proposed location will be used. All cabling will be routed and supported in suitable conduit piping.
- The control unit must have isolated signal (4 to 20 mA) output capacity for DO and temperature.
- The control unit display must show at least DO, temperature, relay status, trend graph, and programming menus.
- The calibration must consist of an automatic, one-step push button function step that calibrates for DO, altitude, and salinity.
- Additional DO meter features required include temperature readout, basic calibration requirements, automatic temperature, altitude, and salinity compensation, self-diagnostics for sensor and analyzer, menu driven text help screens, electronic self-diagnostics, and a backlit display for a LCD digital dis-play.
- The contract includes all materials, accessories and consumables (including the supply and Delivery of brackets, detailed manual.

GG. Design data for Portable Dissolved Oxygen meters

- The DO meter should suitable for application in aerobic activated sludge in a biological nutrient removal (BNR) reactor, with the primary DO concentration reading having a resolution of at least ± 0.01mg/l and an accuracy of ± 0.1 mg/l. The secondary temperature reading must have at least 0.1ºC increments, with an accuracy of ± 1% of the reading
- The unit display must show at least DO, temperature, relay status, trend graph, and programming menus.
- The calibration must consist of an automatic, one-step push button function step that calibrates for DO, altitude, and salinity.
- Additional DO meter features required include temperature readout, basic calibration requirements, automatic temperature, altitude, and salinity compensation, self-diagnostics for sensor, menu driven text help screens, electronic self-diagnostics, and a backlit display for a LCD digital display.
- The contract includes all materials, accessories and consumables (including the supply and Delivery of detailed manual.
- The probe cable should be long enough approximately 5-10 m long.
- The meter shall be digital, luminescent/optical dissolved oxygen (LDO) probe.
- This Rugged DO sensor version is built with a stainless steel body ensuring sufficient weight to the probe for an easy outside handling, the sensing part is protected by a shroud, and the connection is ensured by strong and visible yellow coloured cable onto which you can clip depth markers (optional accessories), this models specially designed for field use.
- The meter is fitted with an automatic pressure sensor module and a temperature sensor.
- The DO sensing cap comes with an iButton to track days in use and remind remaining life of the sensing cap element.

- The LDO Rugged is ideal for measuring dissolved oxygen in all type of external environment such as river, surface and ground waters, ponds, lakes, sea, water plant, source water, drinking water reservoir for water quality, environmental and treatment process purposes.
- Rugged DO meter for outstanding and flexible field water testing.
- Intuitive user interface for simple operation, reliable and accurate results
- Trust your measurements - Intellical™ smart probes store all calibrations in the probe
- Designed for demanding field operating conditions and ease of use
- Complete convenient kit

HH. Design data of Open Channel Flow/Level Meter

Application for the Ultrasonic transducers

- The Transducer series are ultrasonic transducers that can measure level in a wide range of liquids and solids as well as open channel flow applications.
- The instrument must have a Non-contacting Ultrasonic Sensor.
- Installed 203 mm or more above highest water level.
- Sensor cable must be min 20m continuous RG62AU coaxial from sensor or splice up to 150 m with junction box.
- The instrument Flow rate range of 15ft (4.57m) with standard PZ15 sensor
- Instrument Enclosure must be flame resistant and lockable, (IP65) polycarbonate
- Display - White, backlit matrix
- Instrument must have built-in 5-key programmer for Calibrations
- Instrument Sensitivity must be keypad adjustable
- Output - isolated 4-20mA (1000 ohm)
- 2 on each control relays - 5 amp, SPDT - programmable level alarm
- Power input – 30VAC – 24VDC ,5Amp
- Electrical surge protection AC, sensor, 4-20mA Manual
- The units must be able to work in temperatures between minus twenty and sixty-five degrees Celsius

II. Design Data For Open Channel Flow/Level Meters Enclosure

- Supply, install and Commission an Open Channel Flow/Level Meter in a IP65 Polycarbonate.
- Minimum dimensions – Height 600mm, Width 600mm and depth 400mm.
- The enclosure has to be from a reputable manufacturer with data sheet.
- Standard temperature (-5° to 140°F/-20° to 60C)

- The enclosure has to be front window Polycarbonate and lockable.
- The cable entry to the Enclosure must be from the bottom using a suitable SABS approved glands.
- Cable has to be terminated in this enclosure using suitable terminal connectors that clips onto a din rail.
- All installed equipment and wall mounted enclosure has to be from a reputable manufacturer with data sheet.
- 4-20mA surge arrester min class for life and neutral
- 4- 20mA Ethernet convertor
- Earth terminals
- Earth leakage and double pole 6-amp CB
- 30VAC to 24V Power supply min of 5 amps
- All cables must be labelled.
- All cable ends will be lugged or ferruled and terminated
- Min cable size in panel must be 2,5 mm² panel wire and all ends must be ferruled
- All external wires must run through terminals
- The enclosure must be mounted on the stainless-steel pole that is secured to the ground
- Supply cables must be a min of 2,5 mm² armoured (SWA) cable 3 core

JJ. Design Data for Biogas Flow Meter

Application for the Biogas Flow Meter

- Ultrasonic Biogas Flowmeter is developed for the measurement of biogas output from anaerobic digester. It is designed to withstand the wet and corrosive conditions. The built-in temperature and pressure sensors enable to make compensation and reach high accuracy. The unique composition reading function requires no additional device and input, which making it possible to continuously monitor the biogas quality and quantity with lowest investment.

  - The instrument must have a Non-contacting Ultrasonic Sensor.
  - Accuracy - ±2 %.
  - Mounting accessory - Compression fitting ¾'' probe feed through by 1'' male NPT.
  - Sensor cable must be min 20m continuous RG62AU coaxial from sensor or splice up to 150 m with junction box.
  - The units must be able to work in temperatures -10℃ and 40℃.
  - The instrument Flow rate and totalized mass should be clearly indicated.
  - Instrument Enclosure must be flame resistant, (IP65) polycarbonate
  - Display – 2 X 12 Digit, backlit, LCD display.
  - Instrument must have built-in 5-key programmer for Calibrations
  - Instrument Sensitivity must be keypad adjustable
  - Output - isolated 4-20mA (1000 ohm) linear.
  - 2 on each control relays - 5 amp, SPDT - programmable level alarm
  - Power input – 18VAC – 30VDC ,5Amp
  - Electrical surge protection AC, sensor, 4-20mA Manual

KK. Data design for Spectrophotometer

- Photometric reproducibility 0.001A at 1.000A
- Photometric resolution 0.001A
- Measures absorbance, concentration, transmission
- Measuring range of absorbance -0,300A to 3.200A
- Tungsten halogen lamp to be included
- Cell compartment,10,20,50mm cuvettes + 16mm round cells
- Method for COD, ammonia, NOx and orthophosphate as a minimum
- 3 quality control modes
- Auto select function
- Automatic cell recognition
- Stores up to 1000 results
- 50 free programmable methods
- RS 232 C serial interface for printer and computer
- Simultaneous multi wavelength measurements to correct turbidity
- No warm up time, measuring time 2 seconds.

LL. Pocket Colorimeters

- Single Parameter go-anywhere portable photometer
- Battery operation for a maximum of 5000 tests
- Waterproof instrument IP67 (even better than PCII)
- Larger, better display
- Data connectivity. Bluetooth to Claros
- Bluetooth connectivity
- Measuring range is between 0.02 - 2.00 mg/L Cl2 0.1 - 8.0 mg/L Cl2
- Wavelength - 528 ±2 nm

MM. Multi Gas Detector

- With our multi gas detectors you can measure up to 1 to 6 hazardous substances at once
- Multi gas detectors can be used with different sensors to measure a large number of hazardous substances.
- High impact rubberized case
- Degree of protection (IP class) to be IP67

NN. Conductivity Meter

- This meter should measure specific conductivity (SC), cation conductivity (CC), and calculated pH in addition to degassed cation conductivity (DCC) after CO_2 removal from the sample stream.
- Reliable Measurements
- Save Time on Maintenance and Set-Up
- Flexible and Compact Design
- Reduce Training Complexity
- Compact, wall-mounted design

OO. Clamp-on Flow Meter

- The instrument must have Sensor clamp-on, single head ultrasonic for min of 0.5” to 180” (12.7 mm to 4.5 m) ID pipes
- Sensor cable must be min of 20 ft / 6 m shielded coaxial pair
- The instrument Flow rate range of ± 0.1 to 40 ft/sec (± 0.03 to 12.2 m/sec)
- Installation - Silicone sensor compound kit

- PC4 Sensor mounting clamp for 0.6" - 32" (15 - 800 mm) OD pipes
- Instrument Enclosure must be watertight, NEMA4X (IP66) polycarbon
- Display - White, backlit matrix
- Totaliser - 12 digit
- Instrument must have built-in -key programmer for Calibrations
- Instrument Sensitivity must be keypad adjustable
- Output - isolated 4-20mA (1000 ohm)
- 2 control relays - 5 amp, SPDT - programmable for flow proportional pulse output, and/or flow alarm
- Power input - 100-240VAC 50/60Hz, 3 Watts maximum
- Electrical surge protection and RFI filters - AC, sensor, 4-20mA1 Manual - Installation and Operation
- The unit must be able to work in temperatures between minus ten and seventy-five degrees Celsius.
- All the panels should face South, and all the outside panels must have Stainless Steel Canopy
- Cable glands should be IP55

PP. Clean Water Clamp-on Flow Meters

- The instrument must have Sensor clamp-on detector and converter heads ultrasonic for min of 0.5" to 180" (12.7 mm to 4.5 m) ID pipes
- Zero adjustment to be one touch adjustment while the flow is stopped.
- Output may be cut when the flow rate is low. Setting range: 0 to 5m/s (setting in 0.01 m/s unit)
- When measurement cannot be made because the pipe is empty or bubbles are entrained in the fluid, contact output is activated while analogue is held.
- 2 forward ranges are independently configurable. Digital output of operation is available.
- Contact output is made when the upper or lower limit values of the instantaneous flow rate are reached.
- Signal cable between the detector and convertor should be coaxial cable 60m max for compact type detector 300m max.
- The instrument Flow velocity range of 0 to ± 0.3 ……. (± 32 m/sec)
- Installation – detector sensor compound kit
- PC4 Sensor mounting clamp for 0.6" - 32" (15 - 800 mm) OD pipes
- Instrument Enclosure must be watertight, NEMA4X (IP66) polycarbon
- Display - White, backlit matrix
- Totaliser - 12 digit
- Instrument must have built-in -key programmer for Calibrations
- Instrument Sensitivity must be keypad adjustable
- Output - isolated 4-20mA (1000 ohm)
- 2 control relays - 5 amp, SPDT - programmable for flow proportional pulse output, and/or flow alarm
- Power input - 100-240VAC 50/60Hz, 3 Watts maximum
- Electrical surge protection and RFI filters - AC, sensor, 4-20mA1 Manual - Installation and Operation
- The unit must be able to work in temperatures between minus ten and seventy-five degrees Celsius.
- All the panels should face South, and all the outside panels must have Stainless Steel Canopy
- Cable glands should be IP55.

QQ. Temperature Meter

PHF Paperless Recorder

- Input type: Thermocouple, RTD and voltage
- Storage capacity: Up to 256 MB on Compact Flash (± 24 Months)
- Display: Bar graph, trend, digital, etc.
- Screen size/type: 5.7" 14 colour LCD with back light
- Installation: Panel mount
- Power required: 90 to 264 VAC
- Communication: Ethernet.

Temperature Elements;

- Type: RTD
- Length:2000 mm with 300 mm tails
- Material: Stainless Steel
- Termination: Type KH large aluminium head
- Output:4 to 20 mA via head mount convertor

Head Mount Converters;

- Input: RTD
- Output:4 to 20 mA
- Range:0 to 100°C
- Termination: Large aluminium head
- P/N: VT-TX-PACK-USB

Automatic sampling machine

- Enclosure
- Unit Installation (mechanical and civil)
- Electrical installation
- Communication installation

C3.1.2.5 **Datasheet**

Technical specifications listed in the table below is the minimum requirement for the instruments required in this document. Items 2 to 4 must be completed to ensure that instrument supplied complies to minimum specifications.

Failure to adhere to this requirement will lead to disqualification.

A. Data Sheet for Doppler Clamp Meter (Sludge/Solids)

Data Sheet for Doppler Clamp Meter (Sludge/Solids)		
Technical Specifications/Performance		
Item No.	**Description**	**Specified: Engineer**
Flow Meter		
1	Flow Meter Type	Doppler Clamp on Flow meter
2	Manufacturer	
3	Supplier	
4	Model No.	
5	Sensor	Clamp-on, single head ultrasonic, min of 0.5" to 180" (12.7 mm to 4.5 m) ID pipes
6	Sensor cable	Min of 20 ft / 6 m shielded coaxial pair
7	Flow Rate range	Min ± 0.1 to 40 ft/sec (± 0.03 to 12.2 m/sec)
8	Installation	Silicone sensor compound kit
	PC4 Sensor mounting clamp	Min 0.6" - 32" (15 - 800 mm) OD pipes
10	Display	White, backlit matrix
11	Totalizer	12 digit
12	Calibration	Built-in -key programmer
13	Sensitivity	Keypad adjustable
14	Output	4-20 m A outputs capacity of all measurements/any protocol e.g. RS485
Technical Specifications/Performance		
Item No	**Description**	**Specified: Engineer**
15	2 Control relays	5 amp, SPDT - programmable for flow proportional pulse output, and/or flow alarm
16	Data Logger	2-million-point Data Logger (with USB output, PC software)
Flow Meter		
17	Power Input	9-32VDC
18	Enclosure	Watertight, (IP65) polycarbon
Enclosure		

19	Enclosure Type	Explosion Proof IP 65,
20	Minimum dimensions	Height 500mm, Width 500mm and depth 200mm Cast Iron
21	Standard temperature	-5° to 140°F/-20° to 60C
22	Heater and thermostat	230 VAC, 15 Watts
23	Electronic Protection	Standard - no circuit board coating/ Conformal Coating
24	Main Power Input	100-240VAC 50/60Hz, 3 Watts maximum
25	Intrinsic safety barrier	(built into electronics enclosure) Standard, General-Purpose locations, not rated Intrinsically Safe, 2ISB Intrinsic Safety Barriers for Sensor installation in Class I, II, III, and Div. I,II, Groups C,D,E,F,G
Technical Specifications/Performance		
Item No	**Description**	**Specified: Engineer**
26	Min cable size in panel	2,5 mm^2 panel wire and all ends must be ferruled
27	Supply cables	2,5 mm^2 armoured (SWA) cable 3 core
28	Surge arrestors	min class 2 for life and neutral
29	Circuit Breakers	Double pole, 6 amps
30	Earth leakage	To be included
31	Earth terminals	To be included
32	Cables entry	Bottom and clearly marked
33	Delivery period	To be estimated by a contractor

B. Data Sheet for Mixed Liquid Suspended Solids Meters

Data Sheet for Mixed Liquid Suspended Solids Meters		
Technical Specifications/Performance		
Item No.	**Description**	**Specified: Engineer**
MLSS meters		
1	Meter Type	Mixed Liquid Suspended Solids meter
2	Manufacturer	
3	Supplier	
4	Model No.	
5	Power supply	230 VAC to 24VDC – 10 A
6	MLSS concentration reading	At least ± 0,01 mg/l and accuracy of ± 0,1 mg/l
7	Sensor brackets material	Must be 304 stainless steel
8	Cabinets	Must be IP 68 rated polycarbon enclosures
9	Isolated signals	4-20 m A outputs capacity of all measurements/any protocol e.g. RS485
10	Range	0-3000 up to 0-30000 mg/l and 0-3%
11	Minimum accuracy	± 5% of reading or ± 100mg/l
12	Minimum repeatability	±1% of reading or ± 20mg/l
13	Lightning protection	230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB
14	Delivery period	To be estimated by a contractor

C. Data Sheet for Dissolved Oxygen Meters

Data Sheet for Dissolved Oxygen Meters		
Technical Specifications/Performance		
Item No.	**Description**	**Specified: Engineer**
DO meters		
1	Meter Type	Dissolved Oxygen meter
2	Manufacturer	
3	Supplier	
4	Model No.	
5	Power supply	230 VAC to 24VDC – 10 A
6	DO concentration reading	At least 0,01 mg/l and an accuracy of 0,1 mg/l
7	DO Range	0 up to15 mg/l
8	Secondary temperature and 2 NO) for each end position	At least 0,1 % increments and accuracy of ± 1%
9	Sensor bracket material	Must be 304 stainless steel
10	Cabinets	Must be IP 68 rated polycarbon enclosures
11	Isolated signal	4-20 m A outputs capacity of all measurements
12	Calibration	Must consist of an automatic one-step push button function step that calibration for DO altitude and salinity
13	Lightning protection	230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB
14	Delivery period	To be estimated by a contractor

D. Data Sheet for Portable Mixed Liquid Suspended Solids Meter

Data Sheet for Portable Mixed Liquid Suspended Solids Meter		
Technical Specifications/Performance		
Item No.	**Description**	**Specified: Engineer**
Portable MLSS meters		
1	Meter Type	Portable Mixed Liquid Suspended Solids meter
2	Manufacturer	
3	Supplier	
4	Model No.	
5	MLSS concentration reading	At least ± 0,01 mg/l and accuracy of ± 0,1 mg/l
6	Range	0-3000 up to 0-30000 mg/l and 0-3%
7	Minimum accuracy	± 5% of reading or ± 100mg/l
8	Minimum repeatability	±1% of reading or ± 20mg/l
9	Delivery period	To be estimated by a contractor

E. Data Sheet for Portable Dissolved Oxygen Meters

Data Sheet for Portable Dissolved Oxygen Meters		
Technical Specifications/Performance		
Item No.	**Description**	**Specified: Engineer**
Portable DO meters		
1	Type	Dissolved Oxygen meter
2	Manufacturer	
3	Supplier	
4	Model No.	
5	Range	0 up to15 mg/l
6	DO concentration reading	At least ± 0,01 mg/l and an accuracy of ± 0,1 mg/l
7	Secondary temperature and 2 NO) for each end position	At least 0,1 % increments and accuracy of ± 1%
8	Isolated signal	4-20 m A outputs capacity of all measurements/any protocol e.g. RS485
9	Calibration	Must consist of an automatic one-step push button function step that calibration for DO altitude and salinity
10	Lightning protection	230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB
11	Delivery period	To be estimated by a contractor

F. Data Sheet for Flow /Level Meters

Data Sheet for Flow /Level Meters		
Technical Specifications/Performance		
Item No.	**Description**	**Specified: Engineer**
Flow/Level Meter		
1	Flow Meter Type	Open Channel Flow Meter
2	Level Meter Type	Level meter
3	Manufacturer	
4	Supplier	
5	Model No.	
6	Sensor	Non-Contacting Ultrasonic Sensor
7	Sensor cable	30 m continuous coaxial from sensor
8	Flow Rate range	15ft (4.57m) with standard PZ15 sensor
9	Display	White, backlit matrix
10	Calibration	Built-in 5-key programmer (to be included)
11	Sensitivity	Keypad adjustable
12	Output	4-20 m A outputs capacity of all measurements/any protocol e.g. RS485
13	5,4,3 AND 2 Control relays	5 amp, SPDT - programmable for flow proportional pulse output, and/or flow alarm
14	Data Logger	2-million-point Data Logger (with USB output, PC software)
15	Power Input	24VDC
16	Enclosure	(IP65) polycarbonate

Enclosure		
17	Enclosure Type	Polycarbonate with glass door
18	Minimum dimensions	Height 600mm, Width 600mm and depth 400mm Cast Iron
19	Standard temperature	-5° to 140°F/-20° to 60C
20	Electronic Protection	Standard - no circuit board coating/ Conformal Coating
21	Main Power Input	100-240VAC 50/60Hz
22	Intrinsic safety barrier	(built into electronics enclosure) Standard, General-Purpose locations, not rated Intrinsically Safe, 2ISB Intrinsic Safety Barriers for Sensor installation in Class I, II, III, and Div. I,II, Groups C,D,E,F,G
23	Min cable size in panel	2,5 mm^2 panel wire and all ends must be ferruled
24	Supply cables	2,5 mm^2 armoured (SWA) cable 3 core
25	Surge arrestors	min class 2 for life and neutral
Technical Specifications/Performance		
Item No	**Description**	**Specified: Engineer**
26	Circuit Breakers	Double pole, 6 amps
27	Earth leakage	To be included
28	Earth terminals	To be included
29	Cables entry	Bottom and clearly labelled
30	Delivery period	To be specified by the contractor

G. Data Sheet for EC Meter

Data sheet for EC Meter		
Technical Specifications/Performance		
Item No.	**Description**	**Specified: Engineer**
1	Meter Type	EC Meter
2	Manufacturer	
3	Supplier	
4	Model No.	
5	Power Supply voltage	External plug-in power supply 220VCA/12 VDC, 3.3 W.
6	Conductivity	1mS/m to 3000mS/m.
7	Salinity	5.85 mg/l ... 311.1 g/l NaCl
8	Sensor brackets material	Must be 304 stainless steel
9	Cabinets	Must be IP 68 rated polycarbon enclosures
10	Isolated signals	4-20 m A outputs capacity of all measurements
11	Temperature Range	-20.0 ... 150.0 ˚C (-4...302 ˚F)
12	Physical parameters	350 x 200 x 110 mm.
13	Data Logger	Storage capacity up to 400 readings.
14	Display	Graphic, backlit liquid crystal, 128 x 64 dots.
15	Connectable sensors	Conductivity cell with Pt 1000 probe, telephone connector.
16	Delivery period	To be specified by the contractor

H. Data sheet for Analyzer for measuring Orthophosphate

Data sheet for Analyzer for measuring Orthophosphate		
Technical Specifications/Performance		
Item No.	**Description**	**Specified: Engineer**
1	Meter Type	Analyzer for measuring Orthophosphate
2	Manufacturer	
3	Supplier	
4	Model No.	
5	AC Supply voltage	230 V AC
6	Measuring range	A: 0,05 - 15,00 B: 1 - 50 mg/l PO4-P
7	Sensor brackets material	Must be 304 stainless steel
8	Cabinets	Must be IP 68 rated polycarbon enclosures
9	Isolated signals	4-20 m A outputs capacity of all measurements
10	Minimum range	A: 0,05 - 15,00 mg/l B: 1 - 50 mg/l PO4-P
11	Minimum accuracy	A: ± 2 %, ± 0,05 mg/l B: ± 2 %, ± 1 mg/l
12	Minimum resolution	A: 0,05 mg/l PO4-P B: 1 mg/l PO4-P
13	Reaction time	T90: <5 min
14	Temperature Range	operating range: 15°C ...45°C storage range: -20°C ... 50°C sample temperature range: 4°C ... 40°C SX

15	pH-range	5 ... 9
16	Weight	ca. 30kg without reagents
17	Dimensions	678 x 780 x 395 mm
18	Outputs	Relays, current outputs, bus interface over IQ SENSOR NET components
19	Protection class	IP 54
20	Lightning protection	230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB
21	DC power supply	24 V dc
22	Blue PS for communication	On a distance over 100m
Technical specifications/performance		
Backup Controller, Web server, Ethernet , MODBUS TCP/IP module for IQ SENSOR NET		
Item No.	**Description**	**Specified: Engineer**
1	Type	Backup controller or equivalent
2	Manufacturer	
3	Supplier	
4	Model No.	
5	AC supply voltage	230V AC
6	Power Supply	Directly via the IQ SENSOR NET (low voltage max. 24 VDC)
7	Line voltage	Depending on power supply module 90-264 VAC or 24 V AC/DC.
8	System communication	Digital transmission technique
9	Instrument protection	IP 66 type of protection
10	Measuring Ranges	defined by the connected sensor.
11	Digital output	Optional via MIQ/IF 232.
12	Temperature Range and 2 NO) for each end position	Operating range: -20 °C ... 55 °C Storing range: -25 °C ... 65 °C

13	Power consumption	1.6 watt
14	Protective class / overvoltage category:	II / II
15	Test certificate	CE, cETL, ETL
16	Enclosure material	PC - 20 % GF (polycarbonate with 20 % glass fibre
17	Dimensions	144 x 144 x 52 mm (W x H x D)
18	Isolated signal	4-20 m A outputs capacity of all measurements
19	Calibration	Must consist of an automatic one-step push button function step that calibration for altitude and salinity
20	Lightning protection	230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB
21	DC power supply	24V DC

I. Data sheet for DIGITAL pH Combination Electrode with armouring

DIGITAL pH Combination Electrode with armouring		
Technical Specifications/Performance		
Item No.	**Description**	**Specified: Engineer**
1	Type	DIGITAL pH Combination Electrode with armouring or equivalent
2	Manufacturer	
3	Supplier	
4	Model No.	
5	AC Supply voltage	230 V AC
6	Measuring range	2 ... 12 pH, 0 ... 60 °C 10 bar/20°C ,1 bar/60°C
7	Electrolyte	Gel polymer solid electrolyte (AgCl-free)
8	Junction	Hole junction
9	Armouring	PVC protective armouring, 2 x O-ring slide sealing's
10	Connection	Watertight plug head connector
11	Isolated signals	4-20 m A outputs capacity of all measurements
12	Minimum range	A: 0,05 - 15,00 mg/l

		B: 1 - 50 mg/l PO4-P
13	Lightning protection	230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB

DIGITAL pH/ORP Sensor Assembly with temperature measurement		
Technical Specifications/Performance		
Item No.	**Description**	**Specified: Engineer**
1	Type	DIGITAL pH/ORP Sensor or equivalent
2	Manufacturer	
3	Supplier	
4	Model No.	
5	AC Supply voltage	230 V AC
6	Material (Sensor head/protective hood) Enclosure shaft Stainless steel	PVC V4A 1.4571
7	Length of Armouring	508 mm (incl. adapter of the sensor connection cable)
8	Type of protection	IP68, (with the SACIQ sensor connection cable connected)
9	Power consumption	0.2 watt
11	Lightning protection	230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB

Digital, Optical Sensor-COD, Nitrite & Nitrate INLET		
Technical specifications/performance		
Item No.	**Description**	**Specified: Engineer**
1	Type	Digital, Optical Sensor-COD, Nitrite & Nitrate
2	Manufacturer	
3	Supplier	

4	Model No.	
5	System communication	Digital transmission technique
6	Measuring Ranges	0,5..4000 mg/l COD, 5..2500 mg/l TOC bzw. 0,5..3000 1/m SAK 0..25 mg/l NO2-N, 0..100 mg/l NO3-N
7	Pressure Resistance	up to 1 bar
8	Operating conditions	pH range: pH 4 ... pH 12 Flow rate: up to 3 m/s
9	Dimensions and weight	Length: approx.802 mm Max. diameter: 59,9 mm Weight: approx. 4 kg
10	Material (Measurement window)	Sapphire glass Enclosure shaft: Titanium, PEEK
11	Type of protection IP 68	IP 68
12	Temperature Range	Operating range: 0 °C ... 45 °C Storing range: -10 °C ... 50 °C
13	Power consumption	Approx. 8 watt
14	DC power supply	24V DC
Ammonium armature with temperature measurement, ammonium replacement electrode, ammonium reference electrode and compensation electrode.		
Technical specifications/performance		
Item No.	**Description**	**Specified: Engineer**
1	Type	Ammonium armature electrode
2	Manufacturer	
3	Supplier	
4	Model No.	
5	Length of armouring	392 mm (incl. adapter of the sensor connection cable)

6	Material (Sensor head /protective hood)	PVC/POM
7	Enclosure shaft	V4A stainless steel 1.4571
8	Pressure resistance	Armature with installed electrodes: max. 0.2 bar overpressure
9	Type of protection	IP68, (with the SACIQ sensor connection cable connected)
10	Power consumption	0.2 Watt
11	DC power supply	24V DC
12	Project duration	12 weeks

J. Data Sheet for Gas Meters

DATA SHEET FOR GAS METERS		
Technical Specifications/Performance		
Item No.	Description	Specified: Engineer
1	Meter Type	Gas meter
2	Manufacturer	
3	Supplier	
4	Model No.	
5	Power supply	230 VAC to 18 -30 VDC – 10 A
6	Minimum Accuracy	At least ± 2%
7	Probe length	Approximately 230mm
8	Enclosure	Must be IP 65 direct on probe
9	Isolated signals	4-20 m A outputs capacity of all measurements/any protocol e.g. RS485
10	Output	4 – 20 ma linear
11	Mounting accessory	Compression fitting ¾ '' probe feed through by 1'' male NPT
12	Display	2 x 12 digit, backlit, LCD display
13	Working pressure	± 0 to 200kPA
14	Lightning protection	230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB
15	Delivery period	To be specified by the contractor

K. Data Sheet for Multi Gas Detector

DATA SHEET FOR MULTI GAS DETECTOR		
Technical Specifications/Performance		
Item No.	Description	Specified: Engineer
1	Meter Type	Multi Gas Detector
2	Manufacturer	
3	Supplier	
4	Model No.	
5	Power supply	230 VAC to 18 -30 VDC – 10 A
6	Minimum Accuracy	At least ± 2%
7	Sensor ports	4
8	Number of gases	1 to 6
9	Operation time	>12 hours
10	Degree of protection (IP class)	IP67
11	Casing	High impact rubberised case
12	Delivery period	To be specified by the contractor

L. Data Sheet for Spectrophotometer

DATA SHEET FOR SPECTROPHOTOMETER		
Technical Specifications/Performance		
Item No.	Description	Specified: Engineer
1	Meter Type	Spectrophotometer
2	Manufacturer	
3	Supplier	
4	Model No.	
5	Power supply	230 VAC to 18 -30 VDC – 10 A
6	Measuring rang absorbance	-0.300 A to 3.200 A
7	Photometric Resolution	0.001A
8	Photometric Reproducibility	0.001A at 1.00A
	Enclosure	Must be IP 65 direct on probe
9	Isolated signals	4-20 m A outputs capacity of all measurements/any protocol e.g. RS485
10	Control modes	3 quality control and auto select function
11	Storage	Up to 1000 results and 50 free programmable methods
12	Serial interface	RS282 For printer and computer simultaneous multi wavelength measurements to correct turbidity.
13	Tungsten halogen light	To be included
14	Lightning protection	230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB
15	Delivery period	To be specified by the contractor

M. Data Sheet for Chlorine Residual Analyser

DATA SHEET FOR CHLORINE RESIDUAL ANALYSER		
Technical Specifications/Performance		
Item No.	**Description**	**Specified: Engineer**
1	Analyzer Type	Chlorine Residual Analyser
2	Manufacturer	
3	Supplier	
4	Model No.	
5	Chlorine Residual Analyser	Free residual chlorine analyser series is designed for measurement and control of drinking water, waste water treatment The unit consists of: - Two electrodes (gold and copper - measurement electrodes) - Measurement cell with mechanical cleaning - Flow armature with optional pH and redox electrode -Controlled display units with automatic temperature compensation Each control is equipped with two galvanic separated passive 4-20 mA signal on the amplifiers output and optionally with PI regulator Output and can control dosing pumps or motor rate valve. User can easily communicate with control unit over graphic display and four keys.
6	Min cable size in panel	2,5 mm^2 panel wire and all ends must be ferruled
7	Supply cables	2,5 mm^2 armoured (SWA) cable 3 core
8	Surge arrestors	min class 2 for life and neutral
	Circuit Breakers	Double pole, 6 amps
9	Earth leakage	To be included
10	Earth terminals	To be included
11	Cables entry	Bottom and clearly marked
12	Delivery period	To be estimated by a contractor

N. Data Sheet for Pocket Colorimeter

DATA SHEET FOR POCKET COLORIMETER		
Technical Specifications/Performance		
Item No.	**Description**	**Specified: Engineer**
1	Analyzer Type	Pocket Colorimeter
2	Manufacturer	
3	Supplier	
4	Model No.	
5	Battery operation	maximum of 5000 tests
6	Protection	Waterproof instrument IP67
7	Data connectivity	Bluetooth to Claros
8	Delivery period	To be estimated by a contractor

O. Data Sheet for Portable pH Meter

DATA SHEET FOR PORTABLE PH METER		
Technical Specifications/Performance		
Item No.	**Description**	**Specified: Engineer**
1	Meter Type	Portable pH Meter
2	Manufacturer	-
3	Supplier	-
4	Model No.	-
5	pH Electrode calibration:	1 - 3 Calibration points Calibration summary data logged and displayed
6	Protection	Waterproof instrument IP67
7	pH Measurement Range	0 - 14 pH
8	IP Rating	IP54 (Resistant to spray of water; Dust-proof)
	Data Memory	500 records

9	Delivery period	To be estimated by a contractor

P. Data sheet for Sludge blanket detector meter

DATA SHEET FOR SLUDGE BLANKET DETECTOR METERS		
Technical Specifications/Performance		
Item No.	Description	Specified: Engineer
1	Meter Type	Sludge blanket detector meter
2	Manufacturer	
3	Supplier	
4	Model No.	
5	Power supply	230 VAC to 18 -30 VDC – 10 A
6	Minimum Accuracy	At least ± 2%
7	Probe length	Approximately 230mm
8	Enclosure	Must be IP 65 direct on probe
9	Isolated signals	4-20 m A outputs capacity of all measurements/any protocol e.g. RS485
10	Output	4 – 20 ma linear
11	Mounting accessory	Compression fitting ¾ '' probe feed through by 1'' male NPT
12	Display	2 x 12 digit, backlit, LCD display
13	Lightning protection	230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB
14	Delivery period	To be specified by the contractor

Q. Data sheet for Turbidity meter

DATA SHEET FOR TURBIDITY METERS		
Technical Specifications/Performance		
Item No.	Description	Specified: Engineer
1	Meter Type	Turbidity meter
2	Manufacturer	
3	Supplier	
4	Model No.	
5	Power supply	230 VAC to 18 -30 VDC – 10 A
6	Minimum Accuracy	At least ± 2%
7	Probe length	Approximately 230mm
8	Enclosure	Must be IP 65 direct on probe
9	Isolated signals	4-20 m A outputs capacity of all measurements/any protocol e.g. RS485
10	Output	4 – 20 ma linear
11	Mounting accessory	Compression fitting ¾ '' probe feed through by 1'' male NPT
12	Display	2 x 12 digit, backlit, LCD display
13	Lightning protection	230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB
14	Delivery period	To be specified by the contractor

R. Data sheet for TSS (Total suspended solids) meter

DATA SHEET FOR TSS METERS		
Technical Specifications/Performance		
Item No.	Description	Specified: Engineer
1	Meter Type	TSS (Total suspended soilds) meter
2	Manufacturer	
3	Supplier	
4	Model No.	
5	Power supply	230 VAC to 18 -30 VDC – 10 A
6	Minimum Accuracy	At least ± 2%
7	Probe length	Approximately 230mm
8	Enclosure	Must be IP 65 direct on probe
9	Isolated signals	4-20 m A outputs capacity of all measurements/any protocol e.g. RS485
10	Output	4 – 20 ma linear
11	Mounting accessory	Compression fitting ¾ '' probe feed through by 1'' male NPT
12	Display	2 x 12 digit, backlit, LCD display
13	Lightning protection	230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB
14	Delivery period	To be specified by the contractor

S. Data sheet for REDOX meter

DATA SHEET FOR REDOX METERS		
Technical Specifications/Performance		
Item No.	Description	Specified: Engineer
1	Meter Type	REDOX meter
2	Manufacturer	
3	Supplier	
4	Model No.	
5	Power supply	230 VAC to 18 -30 VDC – 10 A
6	Minimum Accuracy	At least ± 2%
7	Probe length	Approximately 230mm
8	Enclosure	Must be IP 65 direct on probe
9	Isolated signals	4-20 m A outputs capacity of all measurements/any protocol e.g. RS485
10	Output	4 – 20 ma linear
11	Mounting accessory	Compression fitting ¾ '' probe feed through by 1'' male NPT
12	Display	2 x 12 digit, backlit, LCD display
13	Lightning protection	230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB
14	Delivery period	To be specified by the contractor

T. Data Sheet for Conductivity Meter

DATA SHEET FOR CONDUCTIVITY METERS		
Technical Specifications/Performance		
Item No.	Description	Specified: Engineer
1	Meter Type	Conductivity meter
2	Manufacturer	
3	Supplier	
4	Model No.	
5	Power supply	230 VAC to 18 -30 VDC – 10 A
6	Minimum Accuracy	At least ± 2%
7	Probe length	Approximately 230mm
8	Enclosure	Must be IP66 / NEMA 4X
9	Isolated signals	4-20 m A outputs capacity of all measurements/any protocol e.g. RS485
10	Output	4 – 20 ma linear
11	Mounting accessory	Compression fitting ¾ '' probe feed through by 1'' male NPT
12	Display	2 x 12 digit, backlit, LCD display
13	Lightning protection	230V ac for live, neutral and m A (milliamps) with earth leakage and 6A(Amps) CB
14	Delivery period	To be specified by the contractor

U. Data Sheet for Clamp-on Flow Meter

DATA SHEET FOR CLAMP-ON FLOW METER		
Item No.	**Description**	**Specified: Engineer**
Flow Meter		
1	Flow Meter Type	Clamp on Flow meter
2	Manufacturer	
3	Supplier	
4	Model No.	
5	Sensor	Clamp-on, single head ultrasonic, min of 0.5" to 180" (12.7 mm to 4.5 m) ID pipes
6	Sensor cable	Min of 20 ft / 6 m shielded coaxial pair
7	Flow Rate range	Min ± 0.1 to 40 ft/sec (± 0.03 to 12.2 m/sec)
8	Installation	Silicone sensor compound kit
9	PC4 Sensor mounting clamp	Min 0.6" - 32" (15 - 800 mm) OD pipes
10	Display	White, backlit matrix
11	Totalizer	12 digit
12	Calibration	Built-in -key programmer
13	Sensitivity	Keypad adjustable
14	Output	4-20 m A outputs capacity of all measurements/any protocol e.g. RS485
Technical Specifications/Performance		
Item No	**Description**	**Specified: Engineer**
15	2 Control relays	5 amp, SPDT - programmable for flow proportional pulse output, and/or flow alarm
16	Data Logger	2 million point Data Logger (with USB output, PC software)
Flow Meter		
17	Power Input	9-32VDC
18	Enclosure	Watertight, (IP65) polycarbon
Enclosure		
19	Enclosure Type	Explosion Proof IP 65,
20	Minimum dimensions	Height 500mm, Width 500mm and depth 200mm Cast Iron
21	Standard temperature	-5° to 140°F/-20° to 60C
22	Heater and thermostat	230 VAC, 15 Watts

23	Electronic Protection	Standard - no circuit board coating/ Conformal Coating
24	Main Power Input	100-240VAC 50/60Hz, 3 Watts maximum
25	Intrinsic safety barrier	(built into electronics enclosure) Standard, General Purpose locations, not rated Intrinsically Safe, 2ISB Intrinsic Safety Barriers for Sensor installation in Class I, II, III, and Div. I,II, Groups C,D,E,F,G
Technical Specifications/Performance		
Item No	**Description**	**Specified: Engineer**
26	Min cable size in panel	2,5 mm^2 panel wire and all ends must be ferruled
27	Supply cables	2,5 mm^2 armoured (SWA) cable 3 core
28	Surge arrestors	min class 2 for life and neutral
29	Circuit Breakers	Double pole, 6 amps
30	Earth leakage	To be included
31	Earth terminals	To be included
32	Cables entry	Bottom and clearly marked
33	Delivery period	To be estimated by a contractor

V. Data Sheet for Clamp-on Flow Meter for clean water

Technical Specifications/Performance		
Item No.	**Description**	**Specified: Engineer**
Flow Meter		
1	Flow Meter Type	Clamp on Flow meter
2	Manufacturer	
3	Supplier	
4	Model No.	
5	Sensor	Clamp-on, double head ultrasonic, min of 0.5" to 180" (12.7 mm to 4.5 m) ID pipes
6	Sensor cable	Shielded coaxial pair 60m max for compact type detector FSSA
7	Flow Rate range	Min 0 to ± 0.3 ….. (± 32 m/sec)
8	Installation	Silicone sensor compound kit
9	PC4 Sensor mounting clamp	Min(Ø 13mm - Ø 6000 mm) Detector
10	Display	White, backlit matrix
11	Totalizer	8 digit
12	Calibration	Built-in -key programmer
13	Sensitivity	Keypad adjustable
14	Output	Isolated 4-20mA (600 ohm)

15	Communication	RS485
Technical Specifications/Performance		
Item No	**Description**	**Specified: Engineer**
16	2 Control relays	5 amp, SPDT - programmable for flow proportional pulse output, and/or flow alarm
17	Data Logger	2 million point Data Logger (with USB output, PC software)
Flow Meter		
18	Power Input	20-30VDC
19	Enclosure	Watertight, (IP66/IP 67) polycarbon
Enclosure		
20	Enclosure Type	Explosion Proof IP 66 OR IP 67
21	Minimum dimensions	Height 500mm, Width 500mm and depth 200mm Cast Iron
22	Standard temperature	-5° to 140°F/-20° to 60C
23	Heater and thermostat	230 VAC, 15 Watts
24	Electronic Protection	Standard - no circuit board coating/ Conformal Coating
25	Main Power Input	100-240VAC 50/60Hz, 3 Watts maximum
26	Intrinsic safety barrier	(built into electronics enclosure) Standard, General Purpose locations, not rated Intrinsically Safe, 2ISB Intrinsic Safety Barriers for Sensor installation in Class I, II, III, and Div. I,II, Groups C,D,E,F,G
Technical Specifications/Performance		
Item No	**Description**	**Specified: Engineer**
27	Min cable size in panel	2,5 mm^2 panel wire and all ends must be ferruled
28	Supply cables	2,5 mm^2 armoured (SWA) cable 3 core
29	Surge arrestors	min class 2 for life and neutral
30	Circuit Breakers	Double pole, 6 amps
31	Earth leakage	To be included
32	Earth terminals	To be included
33	Cables entry	Bottom and clearly marked
34	Delivery period	To be estimated by a contractor

W. Data Sheet for Temperature Meter

DATA SHEET FOR TEMPERATURE METERS		
Technical Specifications/Performance		
Item No.	Description	Specified: Engineer
1	Meter Type	Thermocouple
2	Manufacturer	
3	Supplier	
4	Model No.	
PHF PAPERLESS RECORDER		
5	Manufacturer	
6	Supplier	
7	Model No.	
8	Input Type	Thermocouple, RTD and Voltage
9	Storage Capacity	Up to 256 MB on Compact Flash (± 24 Months)
10	Display	Bar Graph, Trend, & Digital
11	Screen Size/Type	5.7" 14 Colour LCD with Back Light
12	Installation	Panel Mount
13	Power Required	90 to 264 VAC
14	Communication	Ethernet
TEMPERATURE ELEMENTS		
15	Type	RTD
16	Length	2000mm with 300mm Tails
17	Material	Stainless Steel
18	Termination	Type KH Large Aluminium Head
19	Output	4 to 20 mA via Head Mount Converter
HEAD MOUNT CONVERTORS		
20	Input	RTD
21	Output	
22	Range	0 to 100 °C

23	Termination	Large Aluminium Head
24	P/N	VT-TX-PACK-USB
ELECTRICAL CONTROL PANEL		
25	Type	Polycarbonate Enclosure outdoor type - pedestal mount
26	Power Supply	220 VAC to 24 VDC
CABLES		
27	PVC 4 core steel armoured cable	Minimum 2,5mm^2
28	PVC 6 core Screened Industrial Cable (5.6 mm diameter)	Minimum 0,22mm^2
29	Cable trays	Hot dip galvanised steel
30	Delivery period	To be estimated by a contractor

X. Data Sheet For Automatic Sampling Machine

DATA SHEET FOR AUTOMATIC SAMPLING MACHINE		
Item	**Description**	**Specified: By ERWAT**
1	Instrument Name	Automatic sampler
2	Manufacturer	
3	Model No.	
4	Materials	Enclosure: Expanded UV protected PVC Bottle/Reservoir: Polyethylene Pick up hose: 15' reinforced PVC ¼" ID Polyethylene flexible tubing section with intake strainer Pump tubing: Neoprene ¼" ID, 7/16" OD
5	Inputs	Analogue: 4-20mA
6	Outputs	Digital: 5VDC
7	Control/Program	User friendly PC software Freely programmable user programs (sample mode, frequency and volume selections)

8	Interface	USB/ RJ45 Ethernet
9	Communication	LAN/Web communication
10	Power supply	12 VDC, via step down power supply 230V to 12V
11	Battery	Rechargeable 7AH Gel Cell.
12	Operating Temperature	Minimum requirement; -10 °C to + 50 °C
13	Ingress Protection	Minimum requirement; IP 65
14	Sample pump	Flow rate: 1000ml per min at 4 foot head Maximum lift = 20 feet 12V DC motor

C3.1.3 SITE INFORMATION

ITEM	REGION/SITE	Physical Address	COORDINATES
A.	**DD3 Region Equipment**		
1.	Olifantsfontein WCW	Keramiek Road, Olifantsfontein	25°56'24.48" S, 28°12'57.96" E
2.	Hartebeestfontein WCW	R25 (Bapsfontein/Hartebeestfontein)	26°01'11.58" S, 28°17'04.80" E
3.	Benoni WCW	6 Lancaster Road, Actonville, Benoni	26°12'30.19" S, 28°19'00.48" E
4.	Esther Park WCW	Parkland Drive, Esther Park, Kempton Par	26°06'02.43" S, 28°10'57.80" E
5.	Rynfield WCW	Valkfontien Farm 69 ,Sarel Cilliers Street,Rynfield	26°09'31.05" S, 28°21'21.41" E
B.	**DD4 Region Equipment**		
6.	JP Marais WCW	Corner of N12/Kingsway Road, Benoni	26°10'13.46" S, 28°23'49.21" E
7.	Welgedacht WCW	1 Carnation Road, Welgedacht Agricultural Holdings, Springs	26°11'29.18" S, 28°28'26.86" E
8.	Ancor WCW	Ermelo Road, Strubenvale, Springs	26°16'08.45" S, 28°29'00.15" E
9.	Daveyton WCW	Plot 4, Holfontein Road, Etwawa Ext 1, Benoni	26°08'08.72" S, 28°27'49.20" E
10.	Jan Smuts WCW	Corner Escombe and Wanderers Street, Brakpan	26°13'24.45''S, 28 22'33.01''E
C.	**DD5 Region equipment**		
11.	Heidelberg WCW	Farm Bosch Hoek 385, Vaaldam Road, Heidelberg	26°32'22.98" S, 28°19'52.36" E
12. .	Ratanda WCW	Farm Klipstapel, Vaaldam Road, Ratanda	26°34'58.82" S, 28°18'10.64" E
13.	Carl Grundlingh WCW	Vorsterkroon, Nigel	26°23'17.69" S, 28°28'28.00" E
14.	Herbert Bickley WCW	Heidelberg Road, Plot 14, Maraisdrift, Nigel	26°26'40.37" S, 28°26'46.89" E
15.	Tsakane WCW	Corner Modjadji and Khama Street, Tsakane, Brakpan	26°22'31.93" S, 28°21'58.20" E
D.	**DD6 Region equipment**		
16.	Dekema WCW	536 Sontonga Street, Motsamai Section, Katlehong	26°20'39.40" S, 28°10'01.31" E
17.	Waterval WCW	1 Eike Road, Klip River	26°26'14.12" S, 28°06'03.55" E
18.	Vlakplaats WCW	Corner Brickfield/Bierman Streets, Vosloorus	26°20'47.85" S, 28°10'55.11" E
19.	Rondebult WCW	Corner Kalk/Van Dyk Roads, Rondebult	26°17'57.92" S, 28°13'37.82" E

C3.1.3.1 *Services and Facilities provided by the Employer.*

1. Electricity Supply

The Site is provided with ESKOM/Municipality power. One or more 380 V 50 Hz power supply points can be made available to the Contractor. The contractor shall be responsible for providing an installation which complies in all respects with the standing regulations of the supply authority. Failure on the part of the Contractor to observe these requirements or maintain his installations in terms therefore will result in the termination of electrical power supplies until such time as any shortcomings in this regard are rectified.

No warranty is offered or given by the Employer that the existing available electricity supply will be adequate for the Contractor's purposes nor that such supply is in any way guaranteed.

2. Telephone Services

To be provided by Contractor

3. Area for Contractor's Site Establishment

The proposed site of the Contractor's offices, workshops, stores and plant yard will be indicated on site if requested where applicable.

C3.1.3.2 *Facilities provided by the Contractor*

The Contractor is required to provide a construction camp including offices, workshop, materials, store, sanitary facilities, offices and equipment for his own use as required.

C3.1.4 Site Usage

The Contractor; his personnel; and his subcontractors; and suppliers; shall confine their activities to the demarcated site of the Works and the direct access roads thereto. Temporary routes shall be subject to the written approval of the Engineer and be subject to the applicable Standardized Specifications.

C3.2 MANAGEMENT OF THE WORKS

C3.2.1 Planning and Programming

The programme referred to in the General Conditions of Contract shall be a network- based programme in accordance with the precedence method; a detailed cash flow graph indicating projected monthly invoice amounts shall also be provided. The critical path of the programme of work shall be clearly indicated and the programme monitored continually and updated monthly by the Contractor in accordance with his progress.

(1) In compiling the programme of work, the Contractor shall incorporate the following important specific requirements and constraints:

(a) The identification and marking of affected services prior to commencing construction works.

(b) The requirements of the Environmental Management Plan (EMP) as specified in the relevant sections of the Particular Specifications and the requirements in respect of inspections and community liaison.

(c) The requirements of the Occupational Health Safety (OHS) Act of 1993 and the Construction Regulations, 2014.

(d) The relocation of services.

(e) An allowance to accommodate “normal” rain days.

(2) The programme submitted shall include at least the following details:

(a) A work breakdown structure identifying the major activity groups.

(b) The critical path shall be indicated and floats on non-critical activities shall be shown.

(c) The working hours per day, week and month allowed for in the programme with details of resource allocations per activity.

(d) Production rates for key activities, e.g. engineering, fabrication, delivery, installation, commissioning, etc.

(3) In addition the Contractor shall submit to the Engineer at monthly intervals a progress report indicating the following details:

(a) Work completed in previous month and total progress to date, per activity.

(b) Activities behind programme, for which the Contractor shall detail all reasons for such delays as well as the measures to be implemented to make up delays.

(c) A GANTT chart showing the original programme, the latest approved version of the programme, actual progress achieved and revised completion sates, if and when applicable.

- Failure to comply with all of the foregoing requirements shall entitle the Engineer to use a programme based on his own assumptions to evaluate claims for extension of time for completion of the works, or for additional compensation.

STANDARD REQUIREMENTS FOR THIS CONTRACT

- The Contractor will be required to decommission, remove and transport the existing meters to the designated area by ERWAT Management, equipment and old cables (that need to be removed).
- The Contractor will be required to perform all detailed electrical design, cable works including cable trunking, superstructure and civil work related, the construction of the foundations of the supports for the equipment and installation work associated with this project, including the supply of selected equipment and items as detailed within the schedule of quantities. The supply of all such equipment and or components must fully comply with the specification contained in this document be approved by the Engineer.
- Contractor to do necessary calculations to determine the size and type of cables suitable for use on meters to be controlled via plc and all necessary cable work (immediate/internal/short cables) to be removed and replaced. All terminations to be done at the bottom, as per existing.
- The awarded bidder should submit the calculations done for determination of cable size, layout schematics of the cable routing from equipment to panel together with its technical specifications to the responsible engineer.
- The scope of work includes the furnishing of all labour, material and services for the Design, Supply, Manufacture, Testing, Works Inspection, Delivery to Site, Offloading, Placing into Position, Site Assembly, Pre-commissioning, Commissioning Assistance and Rectification of defects during Warranty period of 36 months(stipulating turn-around time) for various online meters and portable meters as specified below.
- Only locally produced and locally manufactured cables with a minimum threshold of 90% for local production and content will be considered as per national treasury regulations.
- All equipment and services shall comply with the mandatory requirements of the Occupational Health and Safety Act 85 of 1993 (as amended). Particular reference is made to Section 21 of the Act which, in terms of sub-clause 4, requires the preparation and submission of a risk analysis before any equipment is delivered, off-loaded or erected on site.
- Manufacture and supply of Online meters Control Panel in accordance with SANS 10142 requirements so as to fulfil certification thereof.
- Installation and commissioning risk assessment in relation to all the work and activities to be undertaken with regards to this contract as part of submissions.
- Delivery of units to the construction site. It is expected of the manufacturer that deliveries to be received and stored by the electrical subcontractor. All equipment (electronic components and cable works) remains a responsibility of the contractor until the project is handed over.
- Prior arrangements of delivery to be coordinated with the Engineer, two weeks prior to delivery.

- Two set of any special tools required per switchgear board that will be required for operation or maintenance purposes including three spare sets of each type of fuse.
- Recommended spares for guaranty period should be OEM product.
- Technical assistance if requested during checking for operational readiness.
- Bidders must include project program with time frames on his/her submission.
- Cleaning and Housekeeping of the area during and after the completion of the Project should be to the satisfaction of the Engineer or their appointed representative
- On completion of the work the contractor must supply ERWAT with three sets of as build drawings as well as COC for the meter panels.
- Manufacture/ Bidder will be responsible for ensuring heat from the Panels is conceded in the design in accordance to manufactures requirements and site conditions. Any additional cooling requirements due to the commissioning and installation of the new equipment will be for the account of the appointed contractor.

CABLE TRAYS

- Material used should be mild steel sheet, coated with grey or silver enamel paint for internal use or a hot-dipped galvanized coating where damp conditions might be encountered.
- Trunking may be secured direct to a surface or suspended by means of brackets.
- Size should be of such dimensions that will accommodate the volume of cable work to be installed therein, contractor to determine this based on cables requiring to be replaced.

- The ratio of the space occupied by all the cables in trunking to the whole space enclosed by the trunking is known as the space factor. The space factor for cables within a trunking should not exceed 45%, this means that the cables must not fill more than 45% of the space enclosed by the trunking.
- The quantities stipulated in the BOQ is estimates only for evaluation purposes. Therefore the contractor is required to review and verify materials, quantities, field measurements and site construction criteria related to this project. (Including soil resistivity measurements, materials of relative structures, size of area and structures to work on). Billing and payment will be done on actuals as confirmed by the bidder and the engineer.

CABLE TRUNKING

- Material used for trunking should be a non-conductive material preferably PVC.
- Sizing of PVC Trunking and related conductors shall comply with SANS 0142
- Additional 25% Spare capacity shall be allowed. The contractor shall ensure that all trunking is adequately sized to house the necessary wiring.
- Allowance shall be made during LV Cabinet Layout design to ensure that a minimum distance of 50mm is maintained between terminals and PVC Trunking, in order to ensure that conductor core idents are visible at all times. The manufacturer shall also ensure that a space of not less than 50mm shall be maintained between trunking and any component or object.

PANEL ACCESS CONTROL

- The panel must be accessible via panel key
- The panel must be lockable (must be able to lock with padlock minimum size 40mm)

DUTY DESCRIPTION

The distribution switchgear shall be capable of continuous duty at full rating under the following conditions;

- Altitude: 500m - 1800
- Installation location; see Tender Document C4: Site Information
- Exposed to vermin and dust depredations
- Maximum air temperature 40°C
- Minimum air temperature -4°C
- Relative Humidity; 95% Non-condensing
- Operation 24 hours per day, 365 days per year

DESIGN CRITERIA

System details;

- Bursar voltage 400V ±10%
- Phases 3 + N

- Frequency 50 Hz
- Phase rotation R-W-B-R (anti - clockwise)

Note:

The duration of the maximum short circuit currents shall be deemed to be a minimum of one second. Evidence (in the form of Certificates by ERWAT recognized Testing Authorities) of the ability of the 400V distribution switchgear boards offered to withstand satisfactorily the prospective fault conditions shall be furnished with the tender.

GENERAL MANUFACTURING AND CONSTRUCTION DETAILS

Boards shall conform to IEC 604339.

- **Mechanical construction**

  - The distribution boards shall be adjustable pattern comprising one or more fully interchangeable modular, rigid, free standing sections bolted together to form an extensible, composite, rigid, free standing, vermin proof distribution board of uniform appearance to conform to Form 3b of the specifications. The **maximum height** of the sections shall **not exceed 2200mm.** Each section shall be divided vertically into panels. Each panel shall be divided into one or two cubicles one above the other.

  - A channel shall be provided under each completed section of transportable length which shall be so constructed that it can be used for lifting the transportable section without distortion taking place.

  - All completed sections shall be provided with lifting facilities and shall have sufficient strength to withstand all stresses occurring during transportation, installation and operation without distortion or damage.

  - The distribution board shall be compartmentalized to segregate bursar, cable, circuit-breaker and instrument zones. Power bursars shall be completely separated from any other compartment by means of suitably earthed metallic barriers.

  - Separate compartments shall be provided for circuit breaker and instrument sections.

  - Access to all power bus bar compartments shall be by removable bolted covers. Removable covers shall be provided with captive screws.

  - Incoming feeder, outgoing feeder, relay, control transformer and metering and instrumentation cubicles shall have doors suitably constructed to ensure rigidity. Doors shall be fitted with robust steel or brass (Barker Nelson 41200 EMB or equivalent) hinges with at least two 6mm square recessed quick close/open latches (Barker Nelson 26013 Din lock or equivalent). Hinges shall be provided at 500mm intervals per door with a minimum of two hinges per door. Each door, front and rear, shall be fitted with an equal number of hinges and latches. At least one of these latches shall be pad lockable.

  - Doors and covers shall be provided with a sufficient gasket to form a firm seal. The neoprene seal shall be a nominal 5mm thick compressed to 3mm on closing of the door. The entire switchboard shall be effectively dust and splash proof to IP54.

  - All hinged doors shall open to a minimum of 135° from the closed position, to facilitate easy access for maintenance reinforcement.

  - Attention shall be given to ventilation to prevent the accumulation of ionized gases. Suitable drip proof, fine mesh screened, vermin proof openings shall be provided to facilitate air movement by convection. These openings shall be arranged such that the hot gasses or other materials cannot be discharged in a manner injurious to operating personnel.

  - Sectionalized removable gland plates shall be fitted and shall be fixed by means of captive nuts or screws and so located that ample space is available for the satisfactory entry and termination of cables. Cable entry shall be at the bottom of the board. All gland plates are to be connected to the main panel earth bar via suitably sized copper conductors and unused sections shall be left blank. Gland plates for 3 core cable of cross-sectional area 70mm2 and above shall be minimum 5mm plate.

- Gland plates shall be galvanized. The cable gland compartments shall have removable covers attached with standard 6mm square recessed quick close/open latches.

- Suitable termination points shall be provided to enable any multiple three core cables to be terminated without cross-over of different phases and with minimum lengths of cable "tails". All cable termination points and associated connections shall be suitably braced to withstand the available fault currents without damage. If necessary cable support clamps shall be provided for the individual cores after glanding off.

- In addition to any support/bracing required by the electrical conditions, the bursars shall also have sufficient support to prevent stresses being transmitted to the circuit breakers or any components by cable terminations. Particular attention must be paid to the termination arrangements of any multiple incoming 3 core cables.

- The general structure of the board shall be designed and fabricated to ensure that no excessive vibration caused by the operation of any component is transmitted to any other components thereby causing spurious tripping of any device.

- Unless otherwise agreed or stated in this specification all screws, bolts and nuts shall be hexagonal to ISO metric commercial standards and shall be rust proof.

- The switchboard steelwork shall be a minimum of 2mm thick irrespective of the type of steel used Annexure A6 and chassis members shall be a minimum 2.0mm thick steel

- Each cubicle/compartment door shall be labelled with the reference letter(s) of that compartment using durable designation label with 20mm high black letters on a white background. The labels shall have two designation letters, the 1st being the tier, numbered from A left to right and the 2nd the cubicle numbered from top to bottom (e.g. A1,A2, etc.).

- Every door and/or removable cover giving access to a cubicle shall bear a durable designation label suitably inscribed with the description and the equipment number where applicable; using engraved black characters at least 6mm high on white background. Incomers shall be labelled as indicated on the single line diagrams.

- The 400V switchgear shall be provided with a Main Identity label, engraved with 20mm black on white characters and shall be mounted on top of the switchgear.

- All identity labels shall be agreed with the Engineer before manufacture.

- All removable covers/doors protecting live equipment shall be fitted with warning labels. Warning labels shall be engraved white characters 6mm high on a red background.

- Each circuit shall be provided with a blank white/black white trifoliate type label or Gravoply type (or engraved in accordance with designations on drawings).

- All electrical components/equipment shall be labelled (with designations corresponding to those of the schematic diagrams) to facilitate recognition. Engraving shall be left to the discretion of the manufacturer but shall be legible and durable. The component labels shall be affixed adjacent the component they refer to.

- All labels and label brackets except those for components shall be affixed by machine screws.

- Incomers shall be labelled "INCOMER FED FROM ..." and the standby bus coupler (where applicable) shall be labelled "STANDBY BUS COUPLER".

- Doors to compartments shall be so arranged that normally they cannot be opened whilst the apparatus contained is alive unless this apparatus is fully shrouded or screened to IP20C to

prevent inadvertent contact. Doors shall be designed to ensure rigidity and shall be a neat fit in the framework and around the circuit breaker escutcheon plate.

- Circuit breakers shall be interlocked with the panel door to prevent opening of the door when the circuit breaker is in the "ON" position.

- A non-apparent interlock defeat shall be provided for the opening of the door with the circuit breaker in the on position for testing and maintenance. In addition, there shall be provision for the attaching of three padlocks to each operating handle in the "OFF" position, which prevents the circuit breaker from being operated.

- All access doors, front and rear, are to be effectively and permanently earthed to the main panel enclosure of the switchgear, by means of a suitable braided copper earth strap, not less than 16mm^2, crimped with lugs and bolted at each end to the door and enclosure.

a. Panels shall be generally of the wall or floor standing cubicle type, suitable for cable entry from the bottom for both power and control cables as per existing. Cables shall be glanded in the rear of the panels in cable compartments (on an individual MCC tier basis).
b. All internal cables (cables in the immediate MCC panel room) to be replaced, joining of short cables strictly prohibited, contractor to determine the size of cables to be used through calculations and length of the.
c. Should a need arise to extend the external cables, these are to be joined using a standard approved method and type jointing.

Cable glanding

Unless stated otherwise, all cabling, inclusive of power, control, data and instrument shall be bottom entry. Cable entry shall be via pre-punched gland plates, and shall be glanded within the cabinet to which the associated cable is terminated. Glanding of cables in cabinets different to that in which the cable is terminated shall not be permitted. Spare cable entries shall be plugged using appropriately sized blanking plugs. The use of “push-out” blanking inserts to plug cable entries shall not be permitted.

Wiring

Each switchgear board shall be fitted and wired completely at the factory and, only after satisfactory testing, be split if necessary for transport.

*No power cabling to run in PLC and marshalling cubicles.

Control and instrumentation wiring shall be of flexible stranded annealed untinned copper construction and shall comply with the table below. Conductors shall comply with SANS. 1411, Part 1, Table 4, and Class 5.

CT wiring; 2.5mm^2 phase coloured, common return black insulated, earth link

General control wiring ; (AC) 1,0mm^2 Live Brown

(AC) 1,0mm^2 Neutral unprotected - Black

(AC) 1,0mm^2 Neutral Protected - Blue

(DC) 2,5mm^2 Red +

(DC) 2,5mm^2 Black –

LED's and PLC Inputs (DC) 0,75mm^2 (DC) 2,5mm^2 Red + (DC) 2,5mm^2 Black -

Digital Inputs	Grey
Digital Outputs	Orange
Analogue Inputs	Yellow
Analogue Outputs	Purple
(AC) 0,5mm^2 Digital Inputs	White
(AC) Digital Outputs	Pink

Notwithstanding the above requirements the vendor shall ensure wire size used is amply rated for the current under ambient conditions. Each end of every wire shall be marked with a wire number by means of the Legrand Cab 3 or equivalent system.

All control/instrument panel wiring shall terminate by means of suitably sized compression crimp lugs or bootlace feral. The minimum voltage rating of the control wiring shall be 600/1000V grade to SANS 1507 and SABS 1411 Pt I and III.

All wiring shall be of the stranded type. Wiring shall be run in plastic trunking. Only where a space problem exists will loomed wiring be acceptable.

Sticks on harness holders are not acceptable.

Wire numbering

Cable/wire marking ferrules shall be to the codes laid down in SANS 0142-1 and shall correlate to the appropriate schematic or wiring diagrams.

Split or open type marking ferrules shall not be used.

Preferred types are:

- Grapho or equivalent markers for wires
- Stainless steel engraved markers and steel clips to secure marker in place

Terminals

Rating for motor terminal blocks shall be **40A.** Minimum rating for other terminal blocks shall be in accordance of manufacturing specifications. Terminal strips/blocks shall be marked with designations corresponding with the suppliers/buyers drawings. Generally terminal numbers shall be the same as the relevant wire number. No more than two wires may be connected to any one side of a terminal. 10% spare terminals shall be furnished.

Terminals are to be provided for all door mounted components, diodes, etc.

Preferred type is:

Weidmuller or equivalent

Circuit Breakers

Circuit breakers shall be either fixed pattern moulded case circuit breakers or **withdraw able** pattern air circuit breakers complying with the following requirements:

INSTALLATION materials

Any INSTALLATION, filling putty, etc, used shall be selected such that it can withstand without injurious effect (mechanically or electrically), all temperatures encountered within the switchboard.

Instruments and meters

All current transformers shall conform to IEC 285. For protection purposes class 10P CTs are to be used: for indicating purposes Class 1 CT's are to be used. In general current transformer mechanical and thermal ratings shall be co-ordinate with the short circuit ratings of the equipment. In general voltmeters and ammeters will predominate and shall be included as follows:

- Incoming feeders shall be equipped with a **single Power meter PM 820MG with a comms module PM8 ECC (Schneider** or equivalent),
- Outgoing feeders shall be equipped with a suitably sized operated 72mm x 72mm 90^{o} movement suppressed maximum ammeter having an overload rating of 40 x rated current for one second.
- All instruments are to be mounted internally in the outer door/cover to enable external observation of the instruments.

VERY VALUABLE DOCUMENT REQUIRED

Installation References

The contractor is required to submit equipment references (Brochure) with the tender document for evaluation during the adjudication/evaluation process.

Drawings

The contractor is required to submit a General Layout of the installation with the tender for evaluation during the adjudication/evaluation process. Drawings shall be Hard Copy of A3 size.

Technical Warrantee

All equipment supplied shall have a guarantee/warrantee. Proof of this guarantee shall be submitted with after successful commissioning and commencing on the same day as the final site acceptance test certificate.

Confirmation on Spares Availability

Bidder should supply ERWAT with a confirmation from their supplier that spares of this particular equipment will still be available in 10 years' time.

CIDB Rating

The Contract CIDB Rating required for this Contract is CIDB GRADING 6EP/6 EP. Bidders shall submit proof of current registration or application to register for this Grading or higher.

Failure to adhere to this requirement will lead to disqualification.

Contract

The contract to be used for this tender will be the ERWAT standard SLA (Service Level Agreement) which will be the binding contract between ERWAT and the successful bidder.

Payments

All payments will be discussed and agreed upon on the SLA

Security of Materials and Equipment

It is the responsibility of the contractor as no uninstalled equipment shall be left on site. The Contractor shall replace any materials damaged or stolen from site prior to first handover with no cost to ERWAT.

Therefore, bidders are responsible for insurance on all items until official handover to ERWAT.

Finishing and Tidying

In view of the concentration of construction and other activities likely to be experienced during the Contract period, progressive and systematic finishing and tidying will form an essential part of this Contract. On no account will soil, rubble, materials, equipment or unfinished operations be allowed to accumulate in such a manner as to unnecessarily impede the activities of others. In the event of this occurring the ERWAT will have the right to withhold payment for as long as may be necessary in respect of the relevant Works in the area(s) concerned without thereby prejudicing the rights of others to institute claims against the Contractor on the ground of unnecessary obstruction.

Finishing and tidying shall therefore not be left to the end of the Contract, but shall be a continuous operation.

All removed items/rubble must be removed from ERWAT site to the nearest ERWAT site or approved landfill site/transfer station as indicated by the ERWAT representative and must be priced for.

Certificate of Compliance and Samples

The tenderer shall indicate, section-by-section, whether or not his tender complies in every respect with this specification.

If alternative quotations are submitted, all divergences from this specification shall be clearly stated.

Technical literature consisting of brochures, technical description and configurations shall be submitted for comparative evaluation with the tender.

Failure to comply with the above will invalidate the tender.

Samples of the various equipment shall be forwarded on request from the Engineer.

COC to be issued in accordance with SANS at time of hand over.

Training of Operating and Maintenance Staff

a. The Contractor shall undertake to train the Employer's operating and maintenance staff to be fully competent in the operation, maintenance, fault finding, replacement and repair of the equipment.

b. Before or on completion of the installation, when the system is in running order, the Contractor shall instruct operators in the operation of the system until they are fully conversant with the equipment and the handling thereof.

c. The Contractor shall take full responsibility for the safety of personnel during training and for the quality of work produced by such personnel under his supervision.

d. Tenderers have to include in the tender price for a training course for at least two persons of both the operation and maintenance staff over periods of at least 4 hours each. The training has to be in relation to the operating and maintenance of the system that is supplied under this contract.

e. The operations training course have to contain at least the functions, facilities and operation of the system on the different levels and shall include:

1. Description of the system.
2. Operating instructions and procedures for all levels of control personnel.

f. The maintenance-training course has to contain all normal maintenance procedures and repairs to be done for everyday problems with the system.

g. All material included in the courses, shall be included in the operating and maintenance manuals.

h. The contractor shall supply the Engineer with a proposed training course, one month prior to the commissioning of the system.

i. In the eleventh maintenance month, final courses have to be presented to refresh to the memory of the staff. These courses shall each be for 2 persons over a 4-hour period. The staff shall receive a rounding off course in the maintenance and operating procedures.

Tests and Commissioning

General

The Contractor shall draw up procedures for and execute the following tests and inspection in accordance with Occupational Health and Safety Act and the relevant ISO/SANS/SABS standards :

- Factory tests.
- Site inspections.
- Site tests.
- Acceptance tests.

a. The Employer and Engineer will have the right to attend any or all tests and inspections.

b. The Contractor must supply all the necessary test equipment to execute the tests.

c. All completed test and inspection reports must be submitted to the Engineer before acceptance of the system.

d. The Contractor must execute all tests and submit completed test reports to the Engineer. The Engineer shall have the right to request the Contractor to perform all or some tests in the presence of the Engineer and the Employer.

e. In the event of failure of the system to pass any of the tests, a re-test will be required within 14 days of the original test. The cost associated with all re-tests will be for the account of the Contractor.

Factory tests

- All equipment must undergo factory testing before being delivered to site.
- The factory tests must ensure that only specified equipment is supplied.
- The factory test procedures must include at least the following:
    - Item/equipment description and serial number.
    - Test equipment description and serial number.
    - Logical explanation of actions and/or measurements to be taken in order to determine the compliance with the specifications.
- Test reports containing the following:
    - Specified values/requirements.
    - Measures/observed values/requirements.
    - Remarks.
    - Name and capacity of person that performed the test.
    - Date of tests.
    - Space for acceptance of test report by Engineer.
- The test procedures must be submitted to the Engineer for approval at least two weeks before the scheduled test date.

Site inspections

a. Inspections must be done on all equipment and material delivered to site.
b. The site inspections must ensure that all equipment and material being delivered complies with the requirements with regard to size, colour, finish, model, etc.
c. The site inspection procedures must include at least the following:

    i. Item/material/equipment description and lot/serial number.

    ii. Logical explanation of characteristics to be checked.

    iii. Inspection reports containing the following:
        - Characteristics required.
        - Characteristics observed.
        - Remarks.

- Name and capacity of person that performed the inspection.
- Date of inspection

- Space for acceptance of inspection report by the Engineer.

- **Site Usage**

  The Contractor; his personnel; and his subcontractors; and suppliers; shall confine their activities to the demarcated site of the Works and the direct access roads thereto. Temporary routes shall be subject to the written approval of the Engineer and be subject to the applicable Standardized Specifications. Contractors staff and sub-contractors must be issued with a valid security pass upon induction on site at time of site establishment available from the Surety and Loss control office/section. All contractors are required to abide by all ERWAT health and safety requirements.

Penalties and Calculation Criteria

Penalties will take effect as soon as delivery period agreed upon has lapsed. The date of official order is the date when both parties have agreed on terms and signed the service level agreement. The penalties are further discussed on the SLA

ERWAT
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SECTION 3: THE CONTRACT

DESCRIPTION		BIDDER TO CONFIRM THAT ALL PAGES COMPLETED & SIGNED: YES/NO	FOR OFFICE USE ONLY VERIFIED BY SCM OFFICIAL: YES/NO
3.1	STANDARD CONDITIONS OF BIDDING		
3.2	FORM OF OFFER AND ACCEPTANCE		
3.3	SCHEDULE OF DEVIATIONS		
3.4	MBD 7.1: CONTRACT FORM – GOODS/WORKS:		
	PART A: TO BE COMPLETED BY THE BIDDER		
	PART B: TO BE COMPLETED BY EKURHULENI WATER COMPANY		
3.5	OCCUPATIONAL HEALTH AND SAFETY AGREEMENT IN TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO 85 OF 1993)		
3.6	PERFORMANCE MANAGEMENT SYSTEM: DRAFT PMS		
3.7	INDEMNITY FORM		

3.1 STANDARD CONDITIONS OF BIDDING

The Standard Conditions of Tender make several references to the Tender Data for details that apply specifically to this tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the Standard Conditions of Tender.

Each item of data given below is cross-referenced to the clause in the Standard Conditions of Tender to which it mainly applies.

Part No.	Content
1.2.1	**The Employer:** EKURHULENI WATER Care Company (ERWAT) Hartebeestfontein Office Park R25 (Bapsfontein/Bronkhorstspruit Road) Kempton Park Hereby represented by: Ms. Hlengiwe Nhlapho Technical related queries can be directed to her at Tel: 011 929 7193 E-mail: Hlengiwe.zwane@erwat.co.za
1.2.2	**Bid pricing:** The tendered price must provide for items required, supply, delivery, installation, commissioning, direct and indirect costs applicable to the execution of the required works/goods/services as per the specifications and provided for in the pricing scheduled/Bill of Quantities. Bidders are required to check their calculations for arithmetical errors as the total Tender price, as submitted, will remain fixed. The Value Added Tax (Act 89 of 1991) as amended, is applicable. All prices quoted are to INCLUDE Value Added Tax (VAT), unless specifically stated to the contrary and all prices must be quoted in ZAR, i.e. the currency of the Republic of South Africa. Where the whole or a portion of the tendered price may be affected by rates of currencies or variations in the rate of exchange, the bidder shall, in terms of the tender requirements, state in his tender the amount in foreign currency to be paid or remitted abroad and the exchange rate applied in the conversion of this amount into South African currency in calculating the tender price.
1.2.3	**Payment Terms:** Payments will be effected within 30 days from receipt of a valid Invoice/Tax Invoice **and** Statement. All invoices/tax invoices and statements must comply with the **VAT Act No 89 of 1991** before payment can be effected.

1.2.4	**Briefing/clarification/Site inspections/meetings (where applicable):** Before tendering, bidders should visit the site and acquaint themselves with all the local conditions, the accessibility of the site, the full extent and nature of the operations, the supply of and conditions affecting labour, carriage, carting, unloading, storage and safe custody of materials, workshop accommodation, the scaffolding, tackle and tools necessary for the execution of the contract generally. Bidders are required to thoroughly acquaint themselves with the nature and extent of the work to be done, and to make allowance for items obviously intended and necessary for the proper completion of the work although not specifically specified. Claims due to lack of knowledge will not be entertained. All uncertainties shall be cleared out with the end user department before the tender closing date. No individual should represent more than one bidder at the briefing session. At least one member of the JV must be present at the clarification meeting. *Kindly note that the company representative that attends this session will be accepted as a person with the relevant technical expertise applicable to this bid.* Non-completion in full of the fields required on the attendance register may lead to automatic disqualification. ***Please note**: Where a **clarification meeting is compulsory**, no bids will be accepted if the contractor has not attended this session and documents will only be accepted from contractors whose names appear on the attendance register.*
1.2.5	**Alterations to documents:** No alterations, erasure or addition is to be made in the text of the Document or pricing schedule/BOQ, except to comply with instructions issued by the employer. All signatories to the Tender offer shall sign next to any alterations in such case. Any alteration, erasure or addition made will not be recognised and the original wording of the Document will prevail. Copies are not allowed; only original documents will be accepted. Bidders shall clarify any doubt about the meaning of any wording in the pricing schedule/bill of quantities **before** the Tender closing date. The use of correction fluid/tape is strictly prohibited and will render your bid invalid.

1.2.6	**Technical Specification and standard of work/goods/services:** The Standard Technical Specifications cover the general technical requirements w.r.t. works/goods/services. These specifications shall be read in conjunction with the rest of this contract in its entirety. All works/goods/services provided under this contract shall be new and unused, and the best of their respective kinds and shall comply with the requirements laid down in the latest editions of the relevant SANS, ISO, BS or other relevant regulatory authorities and standards and their amendments and with the requirements of this specification.
1.2.7	**Factory Inspections and Tests:** The Bidder shall advise the End user department in writing of any routine, type or specific tests or commissioning to be carried out on equipment during the course of manufacture in the manufacturer's factory or works or of any stage of completion in the manufacturing process which requires inspections in terms of the Contract and Specifications. The contractor will issue the required COC where applicable. The successful bidder will be required to dispatch goods from the factory at his own risk if the tests have not been witnessed and inspections not been carried out by and approval given by ERWAT for dispatch. ERWAT will only accept risk and responsibility of the works/goods/services on final completion/handover in accordance with the approved guarantee/warranty stipulation and includes insurance.
1.2.8	**Existing Works and Service:** The bidder is responsible for obtaining information regarding services and existing works, which may be affected by this bid. Before the Bidder commences with delivery of works/goods/services, they shall discuss with and have the approval of the end user department. The Bidder shall be held responsible for any damage, injury or accident caused as a result of his failure to take the necessary precautionary measures. Should the Bidder in any event be responsible for the interruption of services without approval, the contractor shall be held responsible for any claims that may arise in this regard.
1.2.9	**Quality Assurance:** The workmanship shall be of the highest grade and to the satisfaction of the end user department. It will be the full responsibility of the Bidder to undertake appropriate quality control and quality assurance measures during implementation/manufacturing of works/goods/services as well as on site. A quality control procedure shall be forwarded with the program to the end user department (applicable to technical works).

	Bidders are required to guarantee their products/works for not less than 1 year (12 months) on new goods and services Unless specified otherwise in the SCC the warranty/guarantee shall remain valid for a period of not less than 1 (one) year after the works/goods/services, or portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the contract; or for eighteen (18) months after the date of shipment from the port of place of loading in the source country whichever period concludes earlier. No guarantee or warranty less than 6 months on refurbished goods will be considered. Bidders are required to indicate the relevant guarantee and or warrantee period offered on their products. Bidders must however submit the guarantees upon request from ERWAT to the end user department at any given time.
1.2.10	**Acknowledge Addenda:** Acknowledge receipt of addenda to the proposal documents, which the employer may issue, and if necessary apply for an extension of the closing time stated in the Tender data, in order to take the addenda into account. All the Contractor's designs are in any event still subject to approval by the Engineer.
1.2.11	**Submitting a Tender offer:** No late, faxed or other form of Tender will be accepted. Completed Tender documents with attached documents, if any, must be submitted in Black ink in sealed envelope and clearly marked **with the bid number and full description**.
1.2.12	**Proof for confirmation:** It may be required from a contractor, before acceptance of this tender, to furnish proof to the satisfaction of the owner that the bidder is in a position to secure all the required resources complete this contract within the time provided for in the specification or the time indicated by the bidder. The bidder shall, when requested by the Employer to do so, submit the names of all management and supervisory staff that will be employed to supervise the Labour Intensive portion of the works together with satisfactory evidence that such staff members satisfy the eligibility requirements.
1.2.13	**Seek clarification:** Questions or queries must be submitted to the Employer at least 10 days before the stipulated closing date and time of the Tender. However, ERWAT shall not be liable nor assume liability for failure of the bidder to receive response to any questions and / or queries raised by the bidder by the closing time.

1.2.14	**Tender offer validity:** Unless otherwise specified in the invitation to bid, this bid shall remain open for acceptance for a period OF ***ONE HUNDRED AND TWENTY (120) CONSECUTIVE DAYS*** from the date on which bids are due and during this period the Bidder shall agree not to withdraw his/her bid or impair or derogate from its effect; The written approval of this bid by ERWAT, by way of letter of acceptance, shall constitute a contract binding on both parties; Notwithstanding anything to the contrary in this agreement, the contract shall come into existence with effect from the signature date signed by both parties.
1.2.15	**Opening of Tender documents:** Bids are opened in public on closing date and time at ERWAT Head Office, Hartebeestfontein Office Park, R25 (Bapsfontein / Bronkhorstspruit), Kempton Park.
1.2.16	**Patents:** The Bidder shall pay all royalties and expenses and be liable for all claims in respect of the use of patent rights, trade marks or other protected rights and hereby indemnifies ERWAT against any claims arising there-from. All intellectual property rights including, without limitation, copyright, database rights, design and registered design rights, patents and trade mark rights, in the deliverables shall be owned by ERWAT. The contractor, bidder or service provider shall execute any documents to ensure vesting of such rights in the Entity (ERWAT). No trade mark, patent, design or other registration shall be made in the name of the contractor, bidder or service provider, its employees, directors and agents, in relation to any of the deliverables.
1.2.17	**Registration with relevant regulatory authority:** Bidders who are compelled to register with controlling authorities regarding their goods/services to be delivered/rendered, should ensure that their relevant registrations are in order prior to the closure of the bids. ERWAT may at any given time request bidders to submit proof thereof.
1.2.18	**Penalties:** Should the bidder fail to deliver any or all the goods or perform the services within the period specified in the contract or as concluded in the Service Level Agreement, ERWAT may, without prejudice to its other remedies under the contract, deduct from the contract price, as a penalty, a sum calculated on the delivered price of the delayed goods or unperformed services using the current prime interest rate calculated for each day until actual delivery of performance or as stipulated in Schedule 2. ERWAT may consider termination of the contract at it sees fit in terms of the General Conditions of Contract.
1.2.19	**Increase/decrease in scope of work** The Employer reserves the right to award the bid in part, split the bid or award in total. The Bidder will have no claim in this respect. Funds allocated to complete the works may be limited. The Employer thus reserves the right to reduce or add to the scope of work to suit the available budget, in which case the contractor will have no claim in this respect.

1.2.20	**Inspection of plant, equipment and premises** ERWAT may at any stage during the production or execution, or on completion, be subject to inspect the premises of the bidder or contractor at all reasonable hours for inspection of the bidders plant, equipment and premises prior to the bid being awarded. These inspections shall be carried out as follows: The HOD, designated supervisor or Technical Evaluation Committee will visit the premises upon a formal appointment to inspect all plant and equipment and other items deemed necessary prior to the issue of the bid to the bid adjudication committee.
1.2.21	**Domicile & South African Jurisdiction** The laws of the Republic of South Africa shall be applicable to each Contract created by the acceptance of a Bid, and each Bidder shall indicate a place in the Republic and specify it in his Bid as his *domicilium citandi et executandi* where any legal process may be served on him. Each Bidder shall bind himself to accept the jurisdiction of the Courts of Law of the Republic of South Africa. The parties choose as their respective *domicilia citandi et executandi* the Following addresses: ***ERWAT*** ERWAT Head Office, Hartebeestfontein Office Park, R25 (Bapsfontein / Bronkhorstspruit), Kempton Park. ***The Contractor (physical address):*** _____ _____ _____ Change of these addresses will only be valid if the other party has been notified in writing. All notices between the parties concerned must be in writing. If a notice or document is delivered by hand, written proof of delivery must be obtained. If a document is delivered by official of ERWAT, a statement to that effect will be sufficient. If not delivered by hand, notices and documents will be sent by registered post.
1.2.30	**Bid Award** Please note that even though a bid may be awarded and a successful bidder be approved to supply, deliver or render the applicable services to ERWAT, it is not a guarantee that orders will be placed on a regular basis and may only be required on an as and when required basis and will be valid on receipt of an official ERWAT order only.
1.2.31	**Non-Awards** Kindly note that bidders, who have submitted a tender, may visit the ERWAT website: www.ERWAT.co.za to view the outcome of the relevant bid. In the event that no correspondence or communication is received from ERWAT within 120 consecutive days after the stipulated closing date and time of the Tender, the tender will be deemed to be

	unsuccessful. The unsuccessful bidder may on written request (in terms of the Access to Information Act) be given reason why their bid was unsuccessful.
1.2.32	**Objections and complaints** Persons my lodge a written objection or complaint to the Accounting Officer, where aggrieved by decisions or actions taken by the municipal entity in the implementation of its supply chain management system, within 14 (fourteen) days of the decision or action taken in terms of Regulation 49 of the Municipal Finance Management Act, Act 56 of 2003 – Supply Chain Management Regulations published under GenN 868 in GG 27636 of 30 May 2005 effective 1 July 2005.
1.2.33	**EPWP requirements for labour intensive projects** ERWAT supports labour intensive projects and other services relating to where physical labour is required. All service providers will be required to maximize the use of local unemployed labour on projects or when supplying or delivering services to ERWAT where applicable. All relevant questionnaires and reports are to be completed in full and submitted as part of this bid document.

3.2 FORM OF OFFER AND ACCEPTANCE

BIDDERS OFFER:

Please note that this is rates based tender. The contract is limited to Purchase orders issued within the available budget allocated for such on an as and when required basis.

The Employer, identified in the Acceptance signature block, has solicited offers to enter into a contract in respect of the following works: **BID ERW2407/04**

The Bidder, identified in the Offer signature block below, has examined the documents listed in the Bid Document Data and addenda thereto as listed in the Bid Document Schedules, and by submitting this Offer has accepted the Conditions of Bid Document.

By the representative of the Bidder, deemed to be duly authorised, signing this part of this Form of Offer and Acceptance, the Bidder offers to perform all of the obligations and liabilities of the Contractor under the Contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the Conditions of Contract identified in the Contract Data.

THE OFFERED RATES FOR THE GOODS, AS SET OUT IN THE PRICING SCHEDULE/BILL OF QUANTITIES (THE PRICES INCLUSIVE OF VALUE ADDED TAX), IS HEREBY CONFIRMED FOR THE PERIOD OF THE CONTRACT PERIOD INCLUDING THE PROVISIONS FOR THE ANNUAL ESCALATIONS (WHERE APPLICABLE)

This Offer may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document to the Bidder before the end of the period of validity stated in the Bid Document Data, whereupon the Bidder becomes the party named as the Contractor in the Conditions of Contract identified in the Contract Data.

Signature(s) _____ _____

Name(s) _____ _____

Capacity _____ _____

For the Bidder _____

(Name and address of organisation)

Name & Signature of Witness: _____ _____

Name Date

ACCEPTANCE

By signing this part of this Form of Offer and Acceptance, the Employer identified below accepts the Bidder's Offer. In consideration thereof, the Employer shall pay the Contractor the amount due in accordance with the Conditions of Contract identified in the Contract Data. Acceptance of the Bidder's Offer shall form an agreement between the Employer and the Bidder upon the terms and conditions contained in this Agreement and in the Contract that is the subject of this Agreement.

And drawings and documents or parts thereof, which may be incorporated by reference into Parts 1 to 4 above. Deviations from and amendments to the documents listed in the Bid Document Data and any addenda thereto listed in the Bid Document Schedules as well as any changes to the terms of the Offer agreed by the Bidder and the Employer during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Agreement. No amendments to or deviations from said documents are valid unless contained in this Schedule, which must be duly signed by the authorised representative(s) of both parties.

The Bidder shall within 7 days after receiving a completed copy of this Agreement, including the Schedule of Deviations (if any), contact the Employer's agent (whose details are given in the Contract Data) to arrange the delivery of any bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the Conditions of Contract identified in the Contract Data at or just after the date this Agreement comes into effect. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this Agreement.

Notwithstanding anything contained herein, this Agreement comes into effect on the date when the Bidder receives one fully completed signed copy of this SLA, including the Schedule of Deviations (if any). Unless the Bidder (now Contractor) within five days of the date of such receipt notifies the Employer in writing of any reason why he cannot accept the contents of this Agreement, this Agreement shall constitute a binding contract between the parties.

Signature(s) _____ _____

Name(s) _____ _____

Capacity _____ _____

For the Bidder _____

(Name and address of organisation)

Name & Signature of Witness: _____ _____

Name Date

3.3 SCHEDULE OF DEVIATIONS

Notes:

1. The extent of deviations from the Bid documents issued by the Employer prior to the Bid Document closing date is limited to those permitted in terms of the Conditions of Bid Document.

2. A Bidder's covering letter shall not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid becomes the subject of agreements reached during the process of Offer and Acceptance; the outcome of such agreement shall be recorded here.

3. Any other matter arising from the process of offer and acceptance either as a confirmation, clarification or change to the Bid documents and which it is agreed by the Parties becomes an obligation of the contract, shall also be recorded here.

4. Any change or addition to the Bid documents arising from the above agreements and recorded here shall also be incorporated into the final draft of the Contract.

1 Subject: _____

Details: _____

2 Subject: _____

Details: _____

3 Subject: _____

Details: _____

4 Subject: _____

Details: _____

5 Subject: _____

Details: _____

6 Subject: _____

Details: _____

7 Subject: _____

Details: _____

By the duly authorised representatives signing this Schedule of Deviations, the Employer and the Bidder agree to and accept the foregoing Schedule of Deviations as the only deviations from and amendments to the documents listed in the Bid Document Data and addenda thereto as listed in the Bid Document Schedules, as well as any confirmation, clarification or change to the terms of the Offer agreed by the Bidder and the Employer during this process of Offer and Acceptance.

It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the Bid Document documents and the receipt by the Bidder of a completed signed copy of this Agreement shall have any meaning or effect in the contract between the parties arising from this Agreement.

FOR THE BIDDER:

Signatures (s) _____ _____

Name(s) _____ _____

Capacity _____ _____

_____

(Name and address of Organisation)

Witness: _____ _____

Name Signature

Date: _____

FOR THE EMPLOYER

Signatures (s) _____ _____

Name(s) _____ _____

Capacity _____ _____

_____

(Name and address of Organisation)

Witness: _____ _____

Name Signature

Date: _____

3.4 CCUPATIONAL HEALTH AND SAFETY AGREEMENT IN TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO 85 OF 1993)

THIS AGREEMENT IS made at _____ on the _____

day of _____ in the year _____.

Between EKURHULENI WATER CARE COMPANY (ERWAT) (hereinafter called "the Employer") of the

one part, herein represented by _____

In his capacity as _____

and delegate of the Employer in terms of the Employer's standard powers of delegation pursuant to the provisions of Act No 7 of 1998, and

_____

(hereinafter called "the Mandatory") of the other part, herein represented by:

_____

in his capacity as _____

and being duly authorized by virtue of a resolution appended hereto as Annexure A;

WHEREAS the Employer requires certain works be constructed, viz DESCRIPTION: and has accepted a Bid by the Mandatory for the construction, completion and maintenance of such Works and whereas the Employer and the Mandatory have agreed to certain arrangements and procedures to be followed in order to ensure compliance by the Mandatory with the provisions of the Occupational Health and Safety Act, 1993 (Act 85 of 1993).

NOW THEREFORE THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. The Mandatory shall execute the work in accordance with the Contract Documents pertaining to this Contract.

2. This Agreement shall hold good from its Commencement Date, which shall be the date of a written notice from the Employer or engineer requiring him to commence the execution of the Works, to either -

   (a) the date of the Final Approval Certificate issued in terms of Clause 5.16 of the General Conditions of Contract 2010 (hereinafter referred to as "the GCC"), as contained in the Contract Documents pertaining to this Contract, or

   (b) The date of termination of the Contract in terms of Clauses 9.1, 9.2, 9.3 of the GCC.

3. The Mandatory declares himself to be conversant with the following:

   (a) All the requirements, regulations and standards of the Occupational Health and Safety Act (Act 85 of 1993), hereinafter referred to as "The Act", together with its amendments and with special reference to the following Sections of The Act:(i) Section 8: General duties of Employers to their employees

   (ii) Section 9: General duties of Employers and self-employed persons to persons other than employees

(iii) Section 37: Acts or omissions by employees or mandatories

(iv) Sub-section 37(2) relating to the purpose and meaning of this Agreement

(b) The procedures and safety rules of the Employer as pertaining to the Mandatory and to all his subcontractors.

4. In addition to the requirements of Clause 8.4 of the GCC (as amended by Special Condition of Contract) and all relevant requirements of the above-mentioned Volume, the Mandatory agrees to execute all the Works forming part of this Contract and to operate and utilize all machinery, Plant and equipment in accordance with the Act.

5. The Mandatory is responsible for the compliance with the Act; the safety procedures and rules of the employer by all his subcontractors, whether or not selected and/or approved by the Employer.

6. The Mandatory warrants that all his and his subcontractors' workmen are covered in terms of the Compensation for Occupational Injuries and Diseases Act, 1993 (Act No 130 of 1993), which cover, shall remain in force whilst any such workmen are present on site. A letter of good standing from the Compensation Commissioner to this effect must be produced to the Employer upon signature of the agreement.

7. The Mandatory undertakes to ensure that he and/or subcontractors and/or their respective employers will at all times comply with the following conditions:

a) The Mandatory shall assume the responsibility in terms of Section 16.1 of the Act. The Mandatory shall not delegate any duty in terms of Section 16.2 of this Act without the prior written approval of the Employer. If the Mandatory obtains such approval and delegates any duty in terms of section 16.2 a copy of such written delegation shall immediately be forwarded to the Employer.

b) All incidents referred to in the Act shall be reported by the Mandatory to the Department of Labour as well as to the Employer. The Employer will further be provided with copies of all written documentation relating to any incident.

c) The Employer hereby obtains an interest in the issue of any formal enquiry conducted in terms of section 32 of the Act into any incident involving the Mandatory and/or his employees and/or his subcontractors.

In witness hereof the parties are to set their signatures hereon in the presence of the subscribing witnesses:

SIGNED FOR AND ON BEHALF OF THE EMPLOYER : _____

Witness 1 _____ Witness 2 _____

(Name) _____ (Name) _____

(Print) (Print)

SIGNED FOR AND ON BEHALF OF THE MANDATORY: _____

Witness 1 _____ Witness 2 _____

(Name) _____ (Name) _____

(Print) (Print)

3.5 DRAFT PERFORMANCE EVALUATION MANAGEMENT

The Municipal Finance Management Act (No. 56 of 2003) Section 116 (2) (d) determines that a Municipality must enter into a Performance Management System (PMS) with all service providers.

A PMS will be concluded with the appointed bidder and the costing for this project will run during the 2025/2026, 2026/2027 and 2027/2028 financial budget years.

The following document is a draft of the performance evaluation that will be conducted with the awarded bidders on a regular basis as determined in the Service Level Agreement. The final performance evaluation document will be finalised at SLA stage and signed together with the SLA and will be annexed to the SLA.

The IPAP Department will monitor performance on a monthly basis at scheduled meetings with the service provider where minutes of progress, activities, challenges, risks encountered, and planned work will be recorded. Evaluation will be based on progress, outputs, targets on key deliverables and compliance to the reporting timelines as specified. The draft Performance Evaluation Document is attached to this document for ease of reference and will be finalised at signing of the service level agreement.

3.6 ERWAT INDEMNITY

1. The Contractor hereby agrees to indemnify, hold harmless and defend ERWAT and their officers, employees, agents and representatives, from and against the following liabilities arising as a result of the execution of the work:

1.1 Any liability with regard to claims by governmental authorities or others for non-compliance by Contractor of any Act of Parliament, law, ordinance, regulation or by-law made by a lawful authority provided that such compliance therewith was required for the execution of the Contract or at Law.

1.2 Any liability arising from actual or alleged public or private nuisance arising out of negligent acts or omissions to act of Contractor or its Subcontractors, or of their employees.

1.3 Any liability arising from loss or damage to Contractor and/or Subcontractor's equipment and their other property on site.

1.4 Any liability arising from claims with regard to the death of/or injury or sickness or disease to Contractor' employees or the death of/or injury or sickness or disease to third parties.

1.5 Any liability arising from any loss of/or damage to property belonging to a third party.

1.6 Any liability arising from actual or asserted infringement or improper appropriation or use of patents, copyrights, proprietary information or know- how in respect of the work designed by/or under the responsibility of the Contractor.

1.7 Any liability arising from the death or injury or loss or damage to property of third parties or ERWAT's property as a result of the negligent acts or omissions of contractors or its subcontractor's employees.

1.8 Contractor shall indemnify ERWAT against all claims, proceedings, damages and costs of whatsoever nature arising out of contravention of environmental legislation.

I, _____ the undersigned (duly authorised to sign) hereby declare that I have read and understood the abovementioned and agree to all the above.

COMPANY:	
ADRESS:	
TEL:	
CELL:	
DATE:	
SIGNATURE:	

APPOINTMENT OF SERVICE PROVIDER/S TO SUPPLY , DELIVER & INSTALL ALL ANALYTICAL INSTRUMENTATION AND ASSOCIATED EQUIPMENT ON AS AND WHEN REQUIRED BASIS IN ALL ERWAT WATER CARE WORKS FOR A PERIOD OF 36 MONTHS

HEALTH AND SAFETY SPECIFICATIONS

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C3.5 INTRODUCTION AND BACKGROUND

C3.5.1.1 BACKGROUND TO THE HEALTH AND SAFETY SPECIFICATION

The Construction Regulations (2014) place the onus on the Client to prepare a preconstruction Health and Safety specification, highlighting all risks not successfully eliminated during design setting standards for Health and Safety during construction phase.

C3.5.1.2 PURPOSE OF THE HEALTH AND SAFETY SPECIFICATION

To assist in achieving compliance with the Occupational Health and Safety Act 85/1993 and the promulgated Construction Regulations (2014) in order to reduce incidents and injuries. These specifications shall act as the basis for the drafting of the construction phase Health and Safety plan by the Contractor.

The specification sets out the requirements to be followed by the Principal Contractor and their Contractors so that the Health and Safety of all persons potentially at risk may receive the same priority as other facets of the project e.g. Cost, programmed, environment, quality etc.

C3.5.2 HEALTH AND SAFETY SPECIFICATION

C3.5.2.1 SCOPE

This specification covers the requirements for eliminating and mitigating incidents and injuries on the **APPOINTMENT OF SERVICE PROVIDER/S TO SUPPLY , DELIVER & INSTALL ALL ANALYTICAL INSTRUMENTATION AND ASSOCIATED EQUIPMENT ON AS AND WHEN REQUIRED BASIS IN ALL ERWAT WATER CARE WORKS FOR A PERIOD OF 36 MONTHS Project.**

The scope also addresses legal compliance, hazard identification and risk assessment, risk control and promoting a Health and Safety culture amongst those working on the project. The specification also makes provision for the protection of those persons other than employees.

C3.5.2.1.2 Provision for Health & Safety Cost

The Principal Contractor must make adequate provision for the cost of Health & Safety Measures during the construction process as required by the Construction Regulation 5(1)(g).

The health and safety cost will be recovered from the provisional sum allocated for this purpose

C3.5.2.2 INTERPRETATIONS

C3.5.2.2.1 APPLICATION

This specification is a compliance document drawn up in terms of the South African legislation and is therefore binding. It must be read in conjunction with relevant legislation as noted previously.

C3.5.2.2.2 DEFINITIONS

The definitions as listed in the Occupational Health and Safety Act 85/1993 and Construction Regulations 2014 shall apply.

C3.5.2.3 MINIMUM ADMINISTRATIVE REQUIREMENTS

C3.5.2.3.1 NOTIFICATION OF INTENTION TO COMMENCE CONSTRUCTION WORK

The Principal Contractor shall notify the provincial Director of the Department of Employment and Labour in writing that construction work commences.

C3.5.2.3.2 ASSIGNMENT OF CONTRACTOR'S RESPONSIBLE PERSONS TO SUPERVISE HEALTH AND SAFETY ON SITE

The Principal Contractor shall submit supervisory appointments as well as any relevant Appointments in writing (as stipulated by the OHSA and Construction Regulations), prior to commencement of work. Proof of competency must be included. See annexure B.

C3.5.2.3.3 COMPETENCY FOR CONTRACTOR'S APPOINTED COMPETENT PERSON

The Principal Contractors' competent persons for the various risk management portfolios shall fulfil the criteria as stipulated under the definition of Competent in accordance with the Construction Regulations (2014). Proof of competence for the various appointments must be included.

C3.5.2.3.4 COMPENSATION OF OCCUPATIONAL INJURIES AND DISEASES ACT 130 OF 1993 (COIDA)

The Principal Contractor shall submit a letter of good standing from their Compensation Insurer-FEM or Compensation Commissioner to the Client's Representative as proof of registration. Contractors shall submit proof of registration to their Contractor before they commence work on site.

The Principal Contractor shall ensure that the letter of good standing is kept valid for the duration of the contract period.

C3.5.2.3.5 OCCUPATIONAL HEALTH AND SAFETY POLICY

The Contractor and their Contractors shall submit a Health and Safety policy signed by their Chief Executive Officer. The Policy must outline objectives and how they will be achieved and implemented by the Company / Contractor.

C3.5.2.3.6 HEALTH AND SAFETY ORGANOGRAM

The Principal Contractor and their Contractors shall submit an organogram, outlining the Health and Safety site Management Structure including the relevant appointments / competent persons. In cases where appointments have not been made, the organogram shall reflect the intended positions. The organogram shall be updated when there are any changes in the site Management Structure.

C3.5.2.3.7 PRELIMINARY HAZARD IDENTIFICATION AND RISK ASSESSMENT AND PROGRESS HAZARD IDENTIFICATION AND RISK ASSESSMENT

- Roof Work
- Mobile Cranes Management System

- Mechanical
- Working at heights, as per CR8 – Fall Protection Plan, Scaffolding Management
  - Person falling
  - Material falling
  - Protection of decking edges, finished floor slab edges, stairways, floor penetrations, lift shafts, any other openings and areas from where persons may fall.
- Excavations
  - Collapse of Walls
  - People/Equipment falling in Excavations
  - Shoring
  - Underground services
  - Drainage
  - Pipe-Jacking operations
- Confined Space entry
- Formwork and Support Work
  - Casting of Concrete
- Manual and Mechanical Handling o Lifting and placement of pipes o Overhead works
- Noise Control
- Dust Control

Principal Contractor to ensure that these risk assessments as well as other risks identified by them are updated monthly or as the risk change and communicated to all relevant parties. CR 9(3).

C3.5.2.3.8 HEALTH AND SAFETY REPRESENTATIVE(S)

The Principal Contractor and their Contractors shall ensure that Health and Safety Representative(s) are appointed under consultation and trained to carry out their functions. The appointment must be in writing.

The Health and Safety Representative shall carry out regular inspections, keep records and report all findings to the Responsible Person forthwith and at Health and Safety meetings.

C3.5.2.3.9 HEALTH AND SAFETY COMMITTEES

Principal Contractor shall organize monthly Health & Safety meetings. Minutes and records shall be kept. Principal Contractors Health & Safety representative and responsible person shall attend this meeting.

C3.5.2.3.10 HEALTH AND SAFETY TRAINING

C3.5.2.3.10.1 Induction

Principal Contractor shall ensure that all undergo site-specific induction presented by a competent person and proof of it too.

C3.5.2.3.10.2 Awareness

The Principal Contractor shall ensure that, on site, periodic toolbox talks take place at **least**

once per week. These talks should deal with risks relevant to the construction work at hand. A record of attendance shall be kept in the Health and Safety file. All Principal Contractor have to comply with this minimum requirement.

C3.5.2.3.10.3 Competency

All competent persons shall have the knowledge, experience, training and qualifications specific to the work they have been appointed to supervise, control, and carry out. This will have to be assessed on a regular basis e.g.

Periodic audits by the Client's Health & Safety Agent, progress meetings, etc. The Contractor is responsible to ensure that competent Contractors are appointed to carry out construction work.

C3.5.2.3.11 GENERAL RECORD KEEPING

The Principal Contractor and their Contractors shall keep and maintain Health and Safety records to demonstrate compliance with this Specification, with the OHS Act 85/1993, and with the Construction Regulations (2014). The Principal Contractor shall ensure that all records of incidents / accidents, emergency procedures training, inspections, audits, etc. are kept in a Health and Safety file held in the site office.

The Health and Safety File shall be submitted for approval prior to commencement of work and Annexure D shall be used to evaluate the file.

The Principal Contractor must ensure that every sub-Contractor keeps its own Health and Safety file, maintains the file and make it available on request (The file must include the Sub-Contractor's health and safety plan). These records are crucial for inclusion in the Principal Contractors' consolidated health and safety file for handover to the Client on completion of construction work.

C3.5.2.3.12 HEALTH AND SAFETY AUDITS, MONITORING AND REPORTING

The Client's Health & Safety Agent shall conduct monthly Health and Safety audits of the work. Operations including a full audit of physical site activities as well as an audit of the administration Health and Safety. *The Principal Contractor is obligated to conduct similar audits on their Contractors.*

Detailed reports of the audit findings and results shall be reported on at all levels of project management meetings / forums. Copies of the Client audit reports shall be kept in the Primary Project Health and Safety file while the Principal Contractor audit reports shall be kept in their file, a copy being forwarded to the Client. Principal Contractor has to audit their Contractors and keep records of these audits in their Health and Safety files, available on request.

C3.5.2.3.13 EMERGENCY PROCEDURES

The Principal Contractor shall compile a comprehensive Evacuation Plan with assemble point and contact details in the case of any emergency supplied by the Client's Health & Safety Agent.

C3.5.2.3.14 FIRST AID BOXES AND FIRST AID EQUIPMENT

The Principal Contractor and their Contractors shall appoint in writing First Aider(s). The appointed First Aider(s) are to be sent for accredited first aid training. Valid certificates are to be kept on site. All Principal Contractor with more than 5 employees shall supply their own first aid box. Principal Contractor with more than 10 employees shall have trained, certified first aider on site at all times & First aid Box adequately stocked at all times.

C3.5.2.3.15 ACCIDENT / INCIDENT REPORTING AND INVESTIGATION

Injuries are to be categorized into first aid, medical, disabling and fatal. The Principal Contractor must stipulate in its construction phase Health and Safety plan how it will handle each of these categories. When reporting injuries to the Client, these categories shall be used. All contractors must investigate and report on the 4 categories of injuries to the Principal Contractor at least monthly. Contractors must investigate injuries and accidents involving their employees within seven days of the incident in the form on Annexure1 (General Administrative Regulations) and forward a copy on the investigation report to the principal contractor forthwith. **All incidents reportable in terms of the provision of Section 24 of the OHS Act 1993 must be reported to the local Dept. of Employment and Labour in the prescribed manner.**

The Principal Contractor must report all injuries to the Client in the form of a spreadsheet, which includes all contractor injuries/incidents and man-hours worked for the month as well as the cumulative total. This report must be done on a monthly basis and must form part of the Principal Contractor's progress report.

C3.5.2.3.16 HAZARDS AND POTENTIAL SITUATIONS

The Principal Contractor shall immediately notify the Client's Health & Safety Agent of any hazardous or potentially hazardous situations that may arise during the performance of construction activities.

C3.5.2.3.17 PERSONAL PROTECTIVE EQUIPMENT (PPE) AND CLOTHING

The Principal Contractor shall ensure that all workers are issued and wear hard hats, protective footwear and overalls. The Principal Contractor and their Contractors shall make provision and keep adequate quantities of SABS or SANS approved PPE on site at all times.

C3.5.2.3.18 OCCUPATIONAL HEALTH AND SAFETY SIGNAGE

The Principal Contractor shall provide adequate on-site OHS signage. Including but not limited to: "no unauthorized entry", "report to site office", "site office", and "hardhat area". Signage shall be posted up at all entrances to site as well as on site in strategic locations e.g. Access routes, entrances to structures and buildings, scaffolding and other potential risk areas / operations. All Contractors to adhere to it.

C3.5.2.3.19 CONTRACTORS

The Principal Contractor shall ensure that all Contractors appointed by them comply with this Specification, the OHS Act 85/1993, and Construction Regulation (2014).

The Principal Contractor may only appoint a sub-contractor after approving the sub-contractor's health & safety plan. The Principal Contractor must audit each of its Contractors on a monthly basis, with audit reports filed in the health & safety file on site. The audit must include an administrative assessment as well as a physical inspection of the contractor's health & safety

system.

The Principal Contractor must stop any Contractor from carrying out construction work that is not in accordance with the Principal Contractor's or Contractor's health & safety plan or if there is an immediate threat to the health and safety of persons.

The Principal contractor shall take all reasonable steps necessary to ensure co- operation between all Contractors to enable each of those Contractors to comply with the provisions of these regulations;

The Principal Contractor must ensure that their Contractor is registered and in good standing with a recognized compensation fund or with a licensed compensation insurer prior to work commencing on site;

The Principal Contractor must ensure that potential Contractors submitting tenders have made provision for the cost of health and safety measures during the construction process; The Principal Contractor shall discuss and negotiate with their Contractor the contents of the health and safety Plan and shall finally approve that plan for implementation;

C3.5.2.3.20 PENALTIES

Penalties may be imposed for ongoing non-compliance to the provisions of the Client's Health and Safety specification and Principal Contractors' health & safety plans. The penalty procedure shall consist of a written warning with a compliance time frame. **Failure to comply within the time frame stipulated would result in a R1000 penalty per non-compliance item per day that the non- compliance persists.**

C3.5.2.3.21 A HEALTH AND SAFETY OFFICER CR 8(5)

The Principal Contractor shall provide a safety officer on site and proof of their competency.

C3.5.25.4 PHYSICAL REQUIREMENTS

C3.5.2.4.1 CIVIL WORK

Principal Contractor to ensure that the Contractor complies with Construction regulation 21 and that the following is undertaken during civil work:

- A competent site supervisor to be on site at all times.
- Plant and equipment inspected daily and registers kept.
- All employees performing construction work shall have a valid medical certificate of fitness issued by an Occupational Health Practitioner.
- All operators of plant and vehicles: trained, competent and physically and psychologically fit. Certificates to be put in their Health & Safety File.
- Workers that are working close to the traffic to be visible and are to wear reflective vests.
- Adequate safety signage to be posted ahead of any work area in the road.
- All signage, including delineators to be maintained and kept clean at all times.
- The required PPE must be worn at all times (Hard hats, safety shoes, overalls, etc.)
- Risk assessments to be conducted on all high-risk activities.
- Speed reduction road signs to be posted.

- Dust control practices used to limit dust generation.

Laying of pipes / Backfilling

- A competent site person to supervise lifting operations at all times.
- No employee to stand under any suspended loads.
- Loads must not be slewed over personnel, plant, site huts or property.
- All lifting equipment and accessories must be marked with the Safe Working Load.
- Slings must not be placed on sharp edges.
- Workers to wear proper PPE at all times.
- Work to be stopped when weather conditions prevent safe operations during trenching work or lying of pipes.
- Everyone to stand clear of any area being backfilled by mobile plant.

C3.5.2.4.2 EXCAVATIONS, SHORING, DEWATERING OR DRAINAGE

The Principal Contractor and any relevant Contractors shall make provision at tendering stage for shoring, dewatering or drainage of any excavations as per this specification.

The Principal Contractor shall make sure that:

- The excavations are inspected before every shift, after any blasting, after an unexpected fall of ground, after any substantial damage to the shoring and after rain, records kept thereof.

- Safe work procedures have been communicated to the workers,

- The safe work procedures are enforced and maintained by the Contractor's Responsible Persons at all times,

- The requirements as per section 13 of the Construction Regulations are adhered to.
- Where pipe-jacking activities are taking place safe work procedures/method statements to be submitted to Client's Health & Safety Agent prior to these activities.

Method statement to be developed where shoring will be done, especially near public roads and also where explosives will be / are used.

C3.5.2.4.3 CONFINED SPACE ENTRY

The Principal Contractor to prepare a confined space procedure in line with General Safety Regulation (5) OHSA Act

C3.5.2.4.4 EXISTING STRUCTURES

Any adjacent structures that may be affected by work must be considered in the planning process. Precautionary measures must be detailed and applied to prevent damage, uncontrolled collapse of existing structures and/or loss to property and persons during the entire construction phase.

C3.5.2.4.5 EDGE PROTECTION AND PENETRATIONS

The Principal Contractor must ensure that all exposed edges and openings are guarded and demarcated at all times until permanent protection has been erected. The Principal Contractors' risk assessment must include these items finished floor slab edges, floor penetrations, and all other openings and areas where a person may fall.

C3.5.2.4.6 HAZARDOUS CHEMICAL AGENTS (HCA)

The Principal Contractor working with Hazardous chemical substances to obtain copies of all the (MSDS) Material Safety Data Sheets and this is to be kept on site and a copy to be forwarded to Client's Health & Safety Agent.

C3.5.2.4.7 STACKING OF MATERIALS

The Principal Contractor shall ensure that there are sufficient appointed stacking supervisors and that all materials and equipment is stacked and stored safely. Double handling of material should be avoided and for this purpose, pallets and other stacking options should be used.

C3.5.2.5 PLANT AND MACHINERY

C3.5.2.5.1 CONSTRUCTION PLANT

The Principal Contractor shall ensure that all such plant complies with the Requirements of the OHS Act 85/1993 and Construction Regulations (2014). The Principal Contractor shall inspect and keep records of inspections of construction plants used on site. Only authorized / competent persons are to use machinery under proper supervision. Appropriate PPE must be provided and maintained at all times.

C3.5.2.5.2 VESSELS UNDER PRESSURE (VUP) AND GAS BOTTLES

The Principal Contractor shall comply with the Vessels under Pressure Regulations, including:

Providing competency and awareness training to the operators, Providing PPE, Inspect Equipment regularly and keep record of inspections, Provide appropriate firefighting equipment (Fire Extinguishers) on hand.

C3.5.2.5.3 FIRE EXTINGUISHERS AND FIRE FIGHTING EQUIPMENT

The Principal Contractor shall provide adequate, regularly serviced firefighting equipment located at strategic points on site, specific to the classes of fire likely to occur. The appropriate notices and signs must be posted as required.

C3.5.2.5.4 HIRED PLANT AND MACHINERY

The Principal Contractor shall ensure that any hired plant and machinery used on site is safe for use. The necessary requirements as stipulated by the OHS Act 85/1993 and Construction Regulations (2014) shall apply. The Contractor shall ensure that operators hired with machinery are competent and that certificates are kept on site in the Health and Safety file. All relevant Contractors must ensure the same.

C3.5.2.5.5FORMWORK AND SUPPORT WORK FOR STRUCTURES

The Principal Contractor shall ensure that the regulation 12 of Construction Regulations (2014) are adhered to. These provisions must include but not be limited to ensuring that all equipment used is examined for suitability before use, that all formwork and support work is inspected by a competent person immediately before, during and after placement of concrete or any other imposed load and thereafter on a daily basis until the formwork and support work has been removed. Records of all inspections must be kept in a register on site.

C3.5.2.5.6 GENERAL MACHINERY

The Principal Contractor shall ensure compliance with the Driven Machinery Regulations, which include inspecting machinery regularly, appointing a competent person to inspect and ensure maintenance, issuing PPE, and training those who operate the machinery.

C3.5.2.5.7 HIGH VOLTAGE & ELECTRICAL INSTALLATIONS

If high voltage electrical lines are present on the site perimeter, the Contractor must be aware of the location of them and are to demarcate its positions.

These demarcations must be maintained throughout the duration of the construction work. The minimum safety clearances as per Electrical Machinery Regulation 15 must be adhered to**. All installation must comply with SANS 10142 & the regulations of the OHS Act 85/1993 and Construction Regulation 24.**

All temporary electrical installations must be inspected at least weekly.

C3.5.2.5.8 PORTABLE ELECTRICAL TOOLS AND EXPLOSIVE POWERED TOOLS

The Principal Contractor shall ensure that use and storage of all explosive powered tools and portable electrical tools are in compliance with relevant legislation.

The Contractor shall ensure that all electrical tools, electrical distribution boards, extension leads, and plugs are kept in safe working order. Regular inspections and toolbox talks must be conducted to make workers aware of the dangers and the control measures that are to be implemented e.g. Personal protection equipment, guards, etc.

A competent person to undertake routine inspections and records are to be kept on file. Only authorized trained persons are to use the tools, the safe work procedures to apply. Awareness training to be carried out, compliance enforced at all times, and PPE are provided and maintained,

C3.5.2.5.9 WELDING EQUIPMENT

- Only authorised / trained persons to use the equipment.
- The operators are to wear correct PPE - eye/ face/foot/body/respirator.
- Flashback arrestors are to be fitted on cylinders and gauges when using gas welding equipment. Fire prevention methods to be applied.
- Where electric arc welders are used, equipment only to be used in a dry area, protected from wetness.

C3.5.2.5.10 PUBLIC AND SITE VISITOR HEALTH AND SAFETY

Both the Client and the Principal Contractor have a duty in terms of the OHS Act 85/1993 to do all that is reasonably practicable to prevent members of the public and site visitors from being affected by the construction activities. Site visitors must be briefed on the hazards and risks they may be exposed to and what measures are in place or should be taken to control these hazards and risks. A record of these inductions must be kept on site in accordance with the Construction Regulations. Principal Contractor to ensure that no unauthorized personal enter the construction area.

Method statements are to be drafted on traffic management on site, including work near the public.

C3.5.2.5.11NIGHT WORK

Adequate lighting to be provided where required. Personnel should not work alone at night.

C3.5.2.6 OCCUPATIONAL HEALTH

C3.5.2.6.1 OCCUPATIONAL HYGIENE

Exposure of workers to occupational health hazards and risks is very common in any work environment, especially in construction. Occupational exposure is a major problem and Principal Contractor must ensure that proper health and hygiene measures are put in place to prevent exposure to these hazards.
The Risk to be looked at includes:

Ventilation
Adequate ventilation / extraction / exhausting in hazardous areas e.g. chemicals / adhesives / welding / petrol or diesel/ motors running and in confined spaces / basements.

Noise
Tasks identified where noise exceeds 85 dBa. All reasonable steps are to be taken to reduce noise levels. Hearing protection is to be used where noise levels cannot be reduced to below 85 dBa.

Dust
Principal Contractor to ensure that employees working with grinders, saws & jackhammers, etc. are issued with dust masks and dust exposure to be minimized at all times.

C3.5.2.6.2 WELFARE FACILITIES

The Principal Contractor shall ensure that welfare facilities complies with the requirements of regulation 30 of the Construction Regulations (2014).

The Principal Contractor will provide ablution facilities for all on site, including changing facilities & hand washing facilities. Safe and adequate facilities will be provided. Waste bins must be strategically placed and emptied regularly. Safe and clean storage areas must be provided for workers to store personal belongings and personal protective equipment.

C3.5.2.6.3 ALCOHOL AND OTHER DRUGS

The Principal Contractor is to ensure that no alcohol and other drugs are allowed on site. No person may be under the influence of alcohol or any other drugs while on the construction site. Any person on prescription drugs must inform his/her superior, who shall in turn report this to the Contractor forthwith. Any person suffering from any illness / condition that may have a negative effect on his/her safety performance must report this to his/her superior, who shall in turn report this to the Principal Contractor forthwith.

Any person suspected of being under the influence of alcohol or other drugs must be sent home immediately, to report back the next day for a preliminary inquiry. The Contractor concerned must follow a full disciplinary procedure and a copy of the disciplinary action must be forwarded to the Principal Contractor for his records.

HEALTH AND SAFETY SPECIFICATIONS (HSS)

APPOINTMENT OF SERVICE PROVIDER/S TO SUPPLY , DELIVER & INSTALL ALL ANALYTICAL INSTRUMENTATION AND ASSOCIATED EQUIPMENT ON AS AND WHEN REQUIRED BASIS IN ALL ERWAT WATER CARE WORKS FOR A PERIOD OF 36 MONTHS

HEALTH AND SAFETY SPECIFICATIONS (HSS)

Annexure A

The Principal Contractor must submit compliance with Annexure A within **one week** of receiving this Specification.

HSS Item no.	REQUIREMENT	OHSA REQUIREMENT	SUBMISSION DATE
2.3.1	Assignment of Responsible Persons to manage and supervise Construction work	OHS Act (section 16.2) & Construction Regulation 8(1) and 8(7)	Before commencement on site
2.3.2	Competence of Responsible Persons	OHS Act (section 16.2) & Construction Regulation 6	Together with H & S plan
2.3.3	Compensation of Occupational Injuries and Diseases - Proof of Registration- FEM or CC	COIDA	Together with H & S plan
2.3.4	Occupational Health and Safety Policy	OHS Act	Together with H & S plan
2.3.5	Health and Safety Organogram	Client Requirement	Together with H & S plan
2.3.6	Initial Hazard Identification and Risk Assessment based on the Client/s assessment	Construction Regulations.	Together with H & S plan
2.3.7	Health and Safety Representative	OHS Act	Submit as soon as There are more than 20 employees on site
2.3.8	Detailed breakdown of Safety cost	OHS Act	During SLA

HEALTH AND SAFETY SPECIFICATIONS (HSS)

PROJECT: APPOINTMENT OF SERVICE PROVIDER/S TO SUPPLY, DELIVER & INSTALL ALL ANALYTICAL INSTRUMENTATION AND ASSOCIATED EQUIPMENT ON AS AND WHEN REQUIRED BASIS IN ALL ERWAT WATER CARE WORKS FOR A PERIOD OF 36 MONTHS

Annexure B

The Principal Contractor shall make the following appointments according to the initial risk assessment: (further appointments could become necessary as the project progresses). Contractors shall make the relevant appointments as per their operations. The Client reserves the right to insist on any appointment as determined by its risk assessment of the Contractor concerned.

APPOINTMENT	OHSA REFERENCE	REQUIREMENT
CEO Assignee	Section 16(2)	A competent person to assume the overall H & S responsibility - Contractor's Responsible Person
Construction Work Manager	CR 8.1	A competent person to manage construction activities and be responsible for Health and Safety related issues on site
Construction Work Supervisors	CR 8.7	A competent person to assist with the daily supervision of construction / building work. The person(s) assist the Construction Work Supervisor
Health and Safety Representative(s)	Section 17	A competent person(s) to supervise construction activities and be responsible for Health and Safety related issues on site.
Incident Investigator	GAR 8	A competent person to investigate incidents / accidents on site, this could either be: * The 8.1 or 8.2 Person * H & S Representative * Member of the H & S Committee * H & S officer
Risk Assessment Co-ordinator	CR 9	A competent person to co-ordinate all assessments on behalf of the Principle Contractor. The same applies to Contractors.
Fall protection plan co-ordinator	CR 10	A competent person to prepare and amend the fall protection plan
First Aiders	GSR 3	A qualified person to address all on site first aid cases
Lifting machine and equipment Inspector	DMR 18	A competent person to inspect lifting machines and equipment
Lifting tackle Inspector	DMR 18	A competent person to inspect lifting tackles
Scaffolding Inspector	SANS 10085-1:2004	A competent person to inspect scaffolding before use and every time after bad weather, etc.
Scaffolding Erector	SANS 10085-1:2004	A competent person to erect scaffolding
Scaffolding Supervisor	SANS 10085-1:2004	A competent person to supervise scaffolding
Stacking Supervisor	CR 28	A competent person to supervise all stacking and storage operations
Explosive powered tools	CR 21	A competent person to inspect and clean the tools

APPOINTMENT	OHSA REFERENCE	REQUIREMENT
Inspector / Supervisor		daily and controlling all operations thereof
Temporary electrical installations Supervisor	CR 24	A competent person to control all temporary electrical installations
Fire-fighting equipment Inspector	CR 29	A competent person to inspect fire-fighting equipment

Detailed breakdown of Safety cost (Construction Regulations 2014)				
Tenderer (Company)	**Responsible Person**	**Designation**		**Date**
Project/Tender Title	**Project/Tender No.**	**Project Location / Description**		
#	**Cost element**	**Unit Cost (R)**	**# of Units**	**Total Cost (R) (VAT incl)**
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				

14.				
15.				
Total Health and Safety Cost (R VAT incl)				

OTHER REQUIREMENTS

Annexure C

The Principal Contractor shall comply but not be limited to the following requirements: Reports on these to the addressed to the Client at progress meetings or at least monthly whichever is sooner. A report with supporting documents shall be tabled at the Contractor/s monthly Health and Safety meeting.

WHAT	WHEN	OUTPUT	ACCEPTED BY CLIENT WITH DATE
Construction-phase Health and Safety plan	Within one weeks of receipt of the Spec.	Principal Contractor to report on status of Principal Contractors' Health and Safety plans	
Health and Safety file	Open file when construction begins and maintain throughout	Have file on hand at meetings	
Awareness Training (Tool Box Talks)	At least weekly	Attendance registers	
Health and Safety Reports	Monthly	Report covering: * Incidents/Accidents and Investigations * Non conformances by employees & contractor * Internal & External H & S audit reports	
Risk assessment	Updated and signed off at least monthly	Documented risk assessment	
Method statements (safe work procedures)	Drawn up before workers are exposed to new risks	Documented set of safe work procedures (method statements) updated and signed off	
General Inspections	Weekly and Daily	OHS Act compliance Registers: * Scaffolding * Excavations * Formwork & support work * Explosive tools * Temporary electrical Installations	
General Inspections	Monthly	* Fire-fighting equipment * Portable electrical equipment * Ladders	
General Inspections	3 - Monthly	* Lifting tackle * Oxy-acetylene cutting and welding sets * Fall prevention and arrest equipment	

General Inspections	6 - Monthly	* Lifting machines	
Workman's Compensation	Updated Weekly	Table list of Principal Contractors' workman's compensation proof of good standing	
Construction site rules & Section 37.2 Mandatory Agreement	Update Weekly	Table a report of all signed up Mandatory's	

OTHER REQUIREMENTS

Annexure D

The following checklist shall be used to approve the Health and Safety File

CONTRACTOR SAFETY FILE ASSESSMENT CHECKLIST

SCOPE/COVERAGE:	**Contractor Safety file Assessment**	**ERWAT CONTRACTING DEPT:**	
CONTRACTOR NAME:		**INSPECTION BY:**	
SERVICE RENDERED:		**INSPECTION DATE:**	

No.	**Are items on file and meet requirements?**	**Approved**	**Not Approved**	**N/A**
1	Scope of Work			
2	Valid Letter of Good Standing with Compensation Fund or licensed insurer			
3	Public Liability Insurance			
4	Notification Letter of Construction Work (If Applicable)			
5	Health and Safety Organogram			
6	All required legal appointments signed and on file i.e Section 16(2), SHE Reps, First Aiders, Risk Assessor, Incident Investigators, Construction Work Appointments etc			
7	All employees have valid Medical Certificate of Fitness			
8	Health and Safety Policy			
9	Health & Safety Plan,			
10	Client Health and Safety Specification			
11	Section 37(2) Mandatary Agreement			
12	Risk Assessments: Method Statements: Safe Operating Procedures (including LOTO where applicable)			
13	Incidents / Accidents Register and Investigation Reports			
14	Emergency Plan			
15	Health and Safety Induction			
16	Documented Proof of Daily Toolbox Safety Talks/ DSTI			
17	Personal Protective Equipment (PPE)			
18	Equipment Registers, Inspections Checklist and testing certificates			

19	List of Hazardous Chemicals and MSDS (If applicable)			
20	Environmental Management Plan			
21	Fall Protection Plan (If Applicable)			
22	Training Records and Competency Certificates			
23	Other, as per scope of work			

Annexure E

Acknowledgement of Receipt of the Health and Safety Specifications:

I,_____representing

_____Contractor

_____ _____

Have satisfied myself with the content of the construction Health and Safety Specification and shall ensure that the Contractor and its personnel comply with all obligations / requirements in respect thereof._____

COMMENTS:

C3.6 ENVIRONMENTAL MANAGEMENT DURING CONSTRUCTION

C3.6.1 INTRODUCTION

A comprehensive Environmental Scoping Report was prepared as part of the environmental and social assessment of the preceded project. Included in the report is an Environmental Management Plan (EMP) and the purpose of this Particular Specification is to make the Contractor aware of his obligations in terms of the EMP during construction and to afford him the opportunity to insert rates and prices in the Schedule of Quantities to cover these obligations.

Sub-Contractors and their employees must comply with all the requirements of this specification. Absence of specific reference to any sub-contractor in any specification does not imply that the sub-contractor is not bound by this specification.

The Contractor must arrange for all his employees and those of his sub- contractors to be informed of this specification before the commencement of construction to ensure:

a.) basic understanding of the key environmental features of the work site and environments, and

b.) familiarity with the requirements of this document.

C3.6.2 MONITORING AND ASSESSMENT OF COMPLIANCE

The environmental management performance of the Contractor (including his subcontractors and staff) will be reviewed on a regular basis by the Employer's ECO. The Contractor will be deemed not to have complied with the EMP if:

a.) There is evidence of negligence or recklessness resulting in the contravention of any of the clauses, both within and outside the boundaries of the construction site;

b.) The Contractor fails to comply with corrective or other instructions within a time specified by the Engineer;

c.) The Contractor fails to respond adequately in terms of the contract, to complaints from the public.

The Contractor will be given a period of 2 weeks after the commencement date of the contract, before compliance is enforced.

Via these environmental specifications the Contractor has been made aware of what actions are required of him and/or his subcontractors. Certain do's and don'ts have been given and onus for these controls rests with the Contractor as he is the only person capable of controlling these aspects and a fine/reward system will be implemented to encourage compliance.

Compliance to the EMP will be reported by the ECO in the form of a monthly Environmental Compliance Report which will include all transgressions of the EMP and the environmental

specification and rate them in order of significance. The Environmental Compliance Report will be forwarded to the Engineer, the Employer and GDACE on a monthly basis.

A percentage point will be given based on a questionnaire which is attached to the Report. Any percentage compliance above 80% will be considered to be within acceptable limits. If the Contractor has not complied with any of the clauses of the EMP, or the score in the monthly environmental audit drops to below 80% compliance, the ECO will advise the Engineer who shall order the Contractor in terms of the contract to remedy the deficiencies. Failure on the part of the Contractor to carry out such order shall be dealt with in terms of the contract.

Should compliance drop below 60% the ECO shall immediately advise the Engineer who shall have the right in terms of the contract to order in writing the suspension of the Works.

C3.6.3 COMPLIANCE WITH SANS 1200

All environmental clauses stated in the SANS 1200 "Standard Specification for Civil Engineering Construction" as amended in this document shall be adhered to by the Contractor. Where the EMP is in conflict with the Standard Specification, the EMP shall take precedence.

C3.6.4 SITE MANAGEMENT

C3.6.4.1 General

The Contractor shall draw up a plan of all parts of the construction site, showing the layout of site establishment, stockpiles, planned access and circulation routes, etc. to depict the scope of his planned operations. The plan shall be submitted to the ECO for comment and approval by the Engineer.

The Works area will be indicated on the layout plan and shall never exceed the boundaries of the site at any given location during the construction period.

Every precaution shall be taken, in accordance with this specification, to prevent pollution of air, soil, ground, and surface water as a result of construction or associated activities.

All equipment must be inspected regularly for oil or fuel leaks before it is operated. Leakages must be repaired on mobile equipment or containment trays placed underneath immobile equipment until such leakage has been repaired.

C3.6.4.2 Housekeeping

The Contractor shall ensure that his working areas are kept clean and tidy at all times. The ECO shall inspect these areas on a regular basis.

C3.6.4.3 Works area

Routes for temporary access and haul roads shall be located within the approved Works area and vehicle movement shall be confined to these roads. Movement of vehicles outside the Works area shall not be permitted without authorisation from the Engineer, after consultation with the ECO.

All construction activities shall be restricted to working areas designated on the drawings and/or demarcated and approved by the Engineer. Materials, including spoil, shall only be stockpiled in the Works area.

C3.6.4.4 Fire risk and burning

Burning of vegetation including tree trunks and stumps cut during site clearing and establishment shall not be permitted.

The Contractor shall ensure that the risk of fire at any location on the site is kept to a minimum.

The Contractor shall supply fire-fighting equipment in proportion to the fire risk presented by the type of construction and other on-site activities and materials used on site. This equipment shall be kept in good operating order.

Open fires for heating and cooking shall only be permitted in protected areas designated by the ECO for this purpose.

No fires will be allowed adjacent to the boundary fence, either inside or outside the construction site.

Any welding or other sources of heating of materials must be done in a controlled environment, wherever possible and under appropriate supervision, in such a manner as to minimise the risk of veld fires and/or injury to staff.

C3.6.4.5 Storage of fuel and other materials

Fuel, lubricants, transmission, and hydraulic fluids shall only be stored in the Works area.

All fuel tanks must be installed above ground, depending on the volume of stored fuel, for easy detection of fuel leaks. All fuel tanks must be placed on a thick plastic sheet so as to prevent soil pollution, be set in a bund with earthen walls, and maintained throughout the contract.

Areas made available for fuelling or greasing of equipment and vehicles must be clearly demarcated on the layout plan. In order to prevent soil pollution, these areas must be covered with a protective material (e.g. a thick plastic sheet). No fuelling, greasing, or filling of oils may take place outside these demarcated areas.

The Contractor must provide adequate and approved facilities for the storage and recycling of used oil and contaminated hydrocarbons. Such facilities must be designed and sited with the intention of preventing pollution of the surrounding area and environment.

Cement must be stored and mixed on an impermeable substratum.

C3.6.4.6 Concrete batching plants

Concrete must be mixed only in an area demarcated for this purpose. All concrete spilled outside this area, must be promptly removed by the Contractor and taken to a permitted waste disposal site. After all concrete mixing is complete all waste concrete must be removed from the batching area and disposed of at an approved dumpsite.

The batching plant shall be enclosed by a bund wall with divisions and dedicated compartments for the various types of materials. Air filters shall be monitored and cleaned and replaced as per the supplier's guidelines.

Storm water must not be allowed to flow through the batching area.

Water laden with cement must be collected in a retention area for evaporation and not allowed to escape the batching area. This pond will be cleaned monthly.

Operators must wear suitable safety clothing.

C3.6.4.7 Safety

Equipment and stores should be locked up and not left unattended.

The Contractor must ensure that no unemployed labour seekers are permitted to gather at the site and no camp followers/shebeen operators shall be allowed to operate on or adjacent to the site.

Measures must be taken to prevent any interference that could result in flashover of power lines due to breaching of clearances or the collapse of power lines due to collisions by vehicles and equipment.

Measures must be taken during thunderstorms to protect workers and equipment from lightning strikes.

All tall structures must be properly earthed and protected against lightning strikes.

The Contractor must have a first aid box available on site and on all vehicles working on site.

The Contractor must submit a copy of the minutes of weekly health and safety meetings to the ECO.

C3.6.4.8 Blasting and drilling

A written warning of 2 days indicating the date and approximate time period of blasting activities shall be given to affected residents for the temporary removal of sensitive domestic animals such as horses, dogs, cats, birds, and cattle, before blasting and/or drilling activities commence during that period.

During blasting the stipulations of the Minerals Act, Act 50 of 1991 shall apply.

Should any warning not be given within the period specified above, the Contractor will be held liable for injuries to or deaths of the affected animals.

In order to minimise the potential impact on animals, it is proposed that soft explosives and/or noise mufflers be used.

When blasting, the Contractor shall take measures to limit flying rock. This may be achieved by matching the charge to the rock type, by using milli-second delay detonators or by using rubber blasting mats placed over the area to be blasted. Flying rock 150mm and larger which falls beyond the cleared working area shall be collected and removed together with the rock spoil.

When blasting under power lines the Contractor shall arrange for power to be temporarily switched off or have the lines moved.

C3.6.4.9 Fencing

Fencing shall be erected around sensitive natural or cultural elements to protect them from damage. No pedestrian or vehicular access shall be allowed to such fenced areas.

In places where temporary fencing is required, the Contractor shall erect such fencing and, when and where required by the Engineer, re-erect and maintain temporary fencing as necessary. Temporary fencing shall remain in position either until it is replaced by permanent fencing or until completion of the whole of the Works, unless the Contractor requires, or the Engineer directs its earlier removal. The Contractor shall erect and maintain the aforementioned temporary fencing in the locations and for the period described in the Contract.

If temporary fencing is removed temporarily for the execution of any part of the Works, it shall be reinstated as soon as practicable by the Contractor.
The clearing for permanent fencing shall be limited to the removal of trees and shrubs within 1m of the fence line. Where possible, the fence line must be aligned to retain trees or tree groups. There shall be no removal of the grass cover or topsoil within this width.

C3.6.5 CONTROL OF DAMAGE TO VEGETATION AND ANIMALS

The Contractor shall ensure that all works are undertaken in a manner which minimises the impact on vegetation and animals inside or outside of the Works area.

C3.6.5.1 Vegetation

As much of the existing vegetation as possible shall be retained. The removal of existing vegetation shall only occur at the sites designated for construction activities. Only woody vegetation may be cleared. During clearing of woody vegetation no basal cover or grass and topsoil shall be removed and damage to this layer shall be minimised as far as possible.

Bush and grass veld must only be cleared to provide essential access for construction purposes.

No indigenous shrubs and/or trees shall be cut down by the Contractor. Removal, damage or disturbance of any vegetation outside the Works area is not permitted. Special care shall be taken not to disturb or destroy riverine vegetation.

Trees which have been selected for preservation by the ECO within or adjacent to the Works areas shall be fenced around their drip line. The fence shall be clearly marked with danger tape. No open fires shall be allowed within this fenced area, nor shall vehicles be parked underneath these trees. The area shall also not be used for materials storage or as allocation for temporary buildings. If such trees are located within the 15m working width of the pipeline, the pipeline shall be aligned to avoid these trees wherever possible.

Gathering of firewood shall not be permitted.

The Contractor shall take care that seeds are collected during the removal of alien vegetation in order to counter the spread of this vegetation type. Failure to do so may result in prosecution in terms of the Conservation of Agricultural Resources Act (Act 43 of 1983). A fine not exceeding R5000 and/or 2 years imprisonment can be imposed.

No vehicular access will be allowed on the grassy parts of the construction site.

C3.6.5.2 Disturbance of animals

Under no circumstances shall any animals be handled, removed, killed or interfered with by the Contractor, his employees, his sub-contractors or his sub-contractors employees. Snakes and other reptiles that may be encountered on the construction site must not be killed unless the animal endangers the life of an employee. Disturbances to nesting sites of birds must be minimized. Anthills and/or termite nests that occur in the Works area must not be disturbed unless it is unavoidable for construction purposes.

The Contractor and his employees shall not bring any domestic animals onto the site.

The Contractor shall ensure that the work site is kept clean and tidy and free from rubbish which would attract animal pest species. There shall be no feeding of native animals.

The Contractor shall ensure that domestic and native animals are safe from injury that may arise from unprotected Works.

The Contractor shall advise his workers and subcontractors of the penalties associated with the needless destruction of wildlife, as set out in the Animals Protection Act (Act 71 of 1962) sec. 2 (fine R2 000 and/or 12 months imprisonment).

C3.6.6 CONTROL OF DAMAGE TO SOIL AND WATER

C3.6.6.1 Stripping of topsoil

Topsoil shall be deemed to be the top 300mm layer of soil. This layer contains organic material, nutrients and plant and grass seed. For this reason it is an extremely valuable resource for the rehabilitation and re-vegetation of disturbed areas.

Topsoil shall be stripped from all areas that are to be utilized during the construction period

and where permanent structures and access is required. These areas will include the area comprising the permanent works, pipeline trenches, stockpiles, temporary and permanent access roads, construction camps, lay down areas, and any other area as indicated on the Works area drawings. Topsoil shall be stripped after clearing of woody vegetation and before excavation or construction commences.

Soil shall be stripped to a minimum depth of 150mm and maximum depth of 300mm or to the depth of bedrock where soil is shallower than 300mm. Herbaceous vegetation, overlying grass and other fine organic matter shall not be removed from the stripped soil.

No topsoil which has been stripped shall be buried or in any other way be rendered unsuitable for further use by mixing with spoil or by compaction by machinery.

Topsoil shall be stripped when it is in a dry condition in order to prevent compaction.

Stripping of topsoil shall be undertaken in such a way as to minimise erosion by wind or runoff.

C3.6.6.2 Stockpiling of topsoil

Topsoil should be temporarily stockpiled, separately from (clay) subsoil and rocky material, when areas are cleared. The Contractor shall ensure that subsoil and topsoil are not mixed during stripping, excavation, reinstatement, and rehabilitation. If mixed with clay sub-soil the usefulness of the topsoil for rehabilitation of the site will be lost. Temporary soil stockpiles shall not be higher than 2,5m, and the slopes of soil stockpiles shall not be steeper than 1 vertical to 1,5 horizontal.

Areas from which topsoil is to be removed shall be cleared of any foreign material which may come to form part of the topsoil during removal including bricks, rubble, any waste material, litter any other material which could reduce the quality of the topsoil.

Soil must not be stockpiled on drainage lines or near watercourses.

No vehicles shall be allowed access onto the stockpiles after they have been placed. Topsoil stockpiles shall be clearly demarcated in order to prevent vehicle access and for later identification when required.

After topsoil stockpiling has been completed, the Contractor shall apply soil conservation measures to the stockpiles where and as directed by the Engineer / Environmental Officer. This may include the use of erosion control fabric and/or grass seeding.

C3.6.6.3 Placement of topsoil

Topsoil shall be placed to a minimum depth of 150mm over all areas where it has been stripped, after construction in those areas has ceased. Topsoil placement shall follow as soon as construction in an area has ceased.

All areas onto which topsoil is to be spread shall be graded to the approximate original landform with maximum slopes of 1:2,5 and shall be ripped prior to topsoil placement. The entire area to be covered with top soil shall be ripped parallel to the contours to a minimum

depth of 300mm.

Topsoil shall be placed in the same soil zone from which it had been stripped. However, if there is insufficient topsoil available from a particular soil zone to produce the minimum specified depth, topsoil may be brought from other soil zones on approval by the Engineer after consultation with the ECO.

Where topsoil that has been stripped by the Contractor is insufficient to provide the minimum specified depth, the Contractor shall obtain suitable substitute material from other sources at no cost to the employer. The suitability of the substitute material shall be determined by means of a soil analysis which is acceptable to the Engineer.

No vehicles shall be allowed access onto or through topsoil after it has been placed.

After topsoil placement is complete, cleared and stockpiled vegetative matter shall be spread randomly by hand over the area covered with topsoil.

C3.6.6.4 Klip river and Rietspruit

The Klip River is situated approximately 250 m to the west of the construction site at its closest point, and the Rietspruit approximately 300 m to the east.

Site staff shall not be permitted to use the Klip River or the Rietspruit for the purpose of bathing, washing of clothing or vehicles nor disposal of any type of waste.

The Contractor shall not in any way modify nor damage the banks or bed of the Klip River or the Rietspruit and its drainage lines, unless required as part of the construction project specification and in consultation with the Project Manager and the ECO. Abstraction of water from the Klip River is allowed provided that no damage to the banks of the Klip River shall occur. Should damage occur the Contractor will be held liable for any reparation and/or rehabilitation to the banks of the Klip River and for prosecution in terms of the National Water Act (Act No. 36 of 1998).

All fuel, chemical, oil, etc spills must be confined to areas where the drainage of water can be controlled. Appropriate structures and methods to confine spillages such as the construction of berm shall be provided.

C3.6.7 Control of pollution

As a minimum requirement all waste emissions (hazardous, airborne, liquid and solid) from the site shall be kept within the limits of standards set in terms of relevant national and local pollution legislation and regulations.

C3.6.7.1 General

No waste of a solid, liquid or gaseous nature shall be emitted from the site without approval by the Engineer.

Precautionary measures must be taken to prevent any form of pollution.

Accidental pollution incidents shall be reported to the Engineer and the ECO immediately after they occur and shall be cleaned-up by the Contractor or a nominated clean-up organisation at the expense of the Contractor.

C3.6.7.2 Soil

Vehicle and plant maintenance shall be confined to the areas demarcated for this purpose. Should any amount of fuel, oil transmission or hydraulic fluids be spilled onto the soils the Engineer and the ECO shall be informed immediately. If ordered by the Engineer, tests must be conducted to determine the extent of soil contamination. The polluted soil shall be rehabilitated or remediated to the satisfaction of the Engineer, after consultation with the ECO. Proof of disposal of contaminated soil must be submitted by the Contractor to GDACE within 14 days of the disposal thereof.

C3.6.7.3 Water

Water containing waste shall be prevented from entering the Klip River or the Rietspruit either by seepage or natural flow. Oil absorbent fibres must be used to contain oil spilled in water.

Cost effective measures must be taken to minimise the flow of surface water to trench excavations.

On-site storm water management over the construction site shall be to the satisfaction of the Engineer.

C3.6.7.4 Air

All reasonable measures should be taken to minimise air emissions in the form of smoke, dust, and gases.
All machinery and vehicles used for the Works shall be in good working order. Any vehicle or piece of machinery that visibly emits excess pollutant shall be removed from site.

Waste must not be allowed to stand on site to decay, resulting in malodours. No fires shall be allowed if smoke from such fires will cause a nuisance to neighbouring residents.

C3.6.7.5 Sewage

Any spillage of sewage caused by the Contractor or any of his employees or subcontractors during the construction activities shall be cleaned up at the expense of the Contractor.

C3.6.8 MANAGEMENT OF WASTE

In practice all wastes arising from construction activities are to be handled, transported and disposed of in accordance with the relevant regulations. All efforts should be made to minimise, reclaim or recycle waste, and failing that, dispose of it in a manner licensed by the government for that purpose.

C3.6.8.1 Sanitation

The Contractor shall provide adequate sanitation facilities in accordance with Clause PSA 1.2 hereof. The use of the surrounding veld for toilet purposes shall not be permitted under any circumstance.

C3.6.8.2 Wastewater

Definition: Wastewater is water that is contaminated by humans through their actions.

All run-off from fuel depots, workshops, truck washing areas, and washwater from concreting vehicles and other equipment shall be collected and directed through pollution traps to the operational sewers. If connection to the sewers is not possible, the wastewater shall be collected in settlement ponds, which shall be suitably lined at the Contractor's expense.

Wastewater may not be disposed of directly or indirectly into the Klip River or the Rietspruit. The Contractor shall provide suitable retention and filtration structures (which shall be properly maintained) for the collection of wastewater.
The Contractor shall provide washing and changing facilities. All run-offs from these washing and/or changing facilities shall be contained in the retention structures to the satisfaction of the Engineer.

C3.6.8.3 Solid waste

Definition: "Solid Waste" refers to all construction waste (such as rubble, cement bags, waste cement, timber, cans, other containers, wires and nails), household and office waste.

Solid waste shall be collected and stored in demarcated, fenced areas in skips and/or bins. The fenced areas or containers should be designed to prevent solid waste from being blown out by wind and should be strategically and conspicuously placed throughout the site.

Wherever possible solid waste that can be recovered shall be recycled.

Solid waste shall be disposed of at a registered solid waste disposal site. The prices submitted by the Contractor shall include all transportation and disposal costs of waste. Solid waste shall not be buried nor burned on site.

The entire works area and all construction sites must be swept of all pieces of wire, metal, wood or other material foreign to the natural environment.

C3.6.8.4 Hazardous wastes

Definition: Hazardous wastes are those which are proven to be toxic, corrosive, explosive, flammable, carcinogenic, radioactive, poisonous or as determined by the Hazardous Substance Act as amended.

Discharges of hazardous chemicals (such as paint, turpentine, oil and cement), as declared under the Hazardous Substances Act as amended, on the site or to the storm water system are prohibited.

Potentially hazardous raw and waste materials shall be handled and stored on-site in containers with tight lids that must be sealed and must be disposed of at an appropriately permitted hazardous waste disposal site. Such containers must not be used for purposes other than those originally designed for.

The following hazardous waste products shall be disposed of at a registered hazardous waste disposal site:

a) cement;
b) diesel, petroleum, oil and lubricants;
c) explosives;
d) drilling fluids;
e) pesticides;
f) paints and turpentine;
g) concrete additives; and
h) any other material which is listed in terms of the Hazardous Substances Act.

The Contractor must maintain a hazardous materials register.

C3.6.9 MANAGEMENT OF STORMWATER AND SOIL EROSION

The aim is to minimise soil loss from the site due both to wind and water.

C3.6.9.1 Storm water

At all stages of the contract, storm water control measures shall be applied to keep soil on-site by minimising

a) Erosion or leaching of water from temporary stockpiles of topsoil and permanent spoil dumps
b) Erosion from construction roads, excavations and borrow pits, where applicable
c) Silt-laden run-off from all areas stripped of vegetation, including excavation surfaces and stockpiles of spoil and topsoil (the correct placement of rocks together with straw bales can be used to prevent silt-laden run-off); and
d) Contaminated run-off from storage areas;

Thereby preventing it from entering waterways or the storm water drainage system.

Natural storm water run-off that is not polluted by site operations shall be diverted around spoil dumps and topsoil stockpiles. Effective measures shall be taken to minimise the flow of storm water to excavations.

Where uncontaminated storm water has accumulated in excavations and needs to be pumped out, it must be disposed of in such a way that erosion does not occur along the course of its passage. Contaminated storm water shall not be disposed of into the waterways, unless it has been treated to the satisfaction of the Engineer, after consultation with the ECO.

C3.6.9.2 Control of erosion

At all stages of the contract, erosion of bare soil, other excavation surfaces and stockpiles of topsoil and spoil shall be prevented by the application of erosion control measures.

Should erosion occur due to negligence on the part of the Contractor to apply adequate measures, the Contractor will be responsible for reinstatement of the eroded area to its former state at his own expense. Any surface water pollution occurring, as a result of this negligence, shall be cleaned up by the Contractor or a nominated clean-up organization at the expense of the Contractor.

Cross and side storm water drainage measures shall be constructed on access and haul roads to the site and on roads within the site.

The Contractor shall ensure that run-off from access and haul roads, and that diverted into cross and side drains, does not cause erosion

C3.6.10 CONTROL OF DISTURBANCE TO NEIGHBOURS AND/OR AFFECTED RESIDENTS

All issues and items agreed to in the negotiations and discussions between the Owner and affected residents must be implemented.

C3.6.10.1 Scenic quality

The Contractor shall position all temporary structures as well as temporary plant on site in locations and at elevations which limit visual intrusion on neighbours. The type and colour of roofing and cladding materials shall be selected to reduce reflection.

The Contractor shall not establish or undertake any activities which, in the opinion of the Engineer, are likely to adversely affect the scenic quality of the area. The Engineer may direct the Contractor to refrain from such activities or to take ameliorative actions to reduce the adverse effect of such activities on the scenic quality of the environment.

No painting or marking of natural features shall be done. Marking for surveying and other purposes shall only be done with pegs and beacons.

All cut and fill forms shall be rounded at the edges to blend them with the surrounding landforms.

All packed rock and exposed rock cuttings shall be treated in order to blend their colour with the colours of the natural weathered rocks of the adjacent environment.

The colours of all permanent structures shall be chosen so as to blend in with the dominant colours of the surrounding landscape. Painted surfaces shall be painted with non-reflective (matt) colours.

C3.6.10.2 Noise

All noise levels must be controlled at the source. All employees must be given the necessary ear protection gear. Neighbouring residents must be informed of excessive noise factors.

Noise emanating from construction activities must not be "disturbing noise", that is, the sound level from the site measured at the nearest dwelling must not exceed the ambient noise level by 7dBA or more.

Appropriate directional and intensity settings should be maintained on hooters and sirens, if applicable.

Silencer units on plant and vehicles shall be maintained in good working order. Any vehicle/machine emitting excess noise shall immediately be removed from site or effectively repaired.

Where required by the ECO after consultation with the Engineer, the Contractor shall provide noise reduction measures in the form of cladding and earth berm between sources of on-site noise and neighbours and/or affected property owners.

A speed restriction of 40 km/h shall be imposed on all construction vehicles in order to limit additional noise generated by these vehicles. This restriction shall apply to the site and any road within 2 kilometres of the site.

No loud music shall be allowed on site and in construction camps.

C3.6.10.3 Dust

The Contractor shall ensure that a minimum of dust is generated by construction and related activities. Roads and working areas should be maintained regularly and this may include the sprinkling of water. Water for this purpose shall be used sparingly to not generate run-off and resulting soil erosion.

The Contractor shall control dust from spoil dumps as specified above.

Soil and aggregate loads in transit must be kept covered, to prevent wind borne pollution (dust).

Stockpiles of soil must be kept covered or have a suitable dust palliative applied, such as water or commercial dust suppressants, to prevent windborne pollution.

C3.6.10.4 Social interaction and disruption

The Contractor shall maintain normal working hours (i.e. from 07:00 until 17:00) from Mondays to Fridays for the duration of the construction period. The Contractor must inform all adjacent landowners of any after-hour construction activities and any other activity that could cause a nuisance e.g. the application of chemicals to the work surface.

The Contractor's activities and movement of staff shall be restricted to designated construction areas only. The Contractor and site staff may not interact directly with adjacent landowners but only through the Engineer, who will contact property owners to obtain permission.

The Contractor's staff shall wear special identity cards (with the employees photograph

displayed on the card), which shall make identification possible, at all times. Any temporary staff employed by the Contractor or any sub- contractor appointed by the Contractor shall also comply with this clause.

Rapid migration of job seekers could lead to squatting and social conflict with resident communities and increase in social pathologies if not properly addressed. The Contractor must ensure that signs indicating the availability of jobs are installed.

Criteria for selection and appointment, by the Contractor, of construction labour must be established to allow for preferential employment of local communities.

C3.6.10.5 Disruption of services and access

Care must be taken by the Contractor to avoid damaging major and minor pipelines and other services. The relevant authorities must be notified of any interruptions of services, especially the Mid Vaal Local Municipality, the National Roads Agency, Spoornet, TELKOM and ESKOM.

Disruption of access for local residents during construction, and haulage or any other construction activity shall only take place with the prior consent of the Engineer.

The Contractor shall liaise with the Engineer on a regular basis with regard to specific activities that could cause inconvenience to property owners, especially increased vehicular traffic through residential areas adjacent to the site. The Contractor shall prior to commencement inform property owners of his planned activities within a reasonable period of time.

The movement of construction vehicles through the affected areas shall be restricted to off-peak hours to minimise adverse impacts on private vehicular traffic. Temporary access roads must not be opened until required and must be restored to its former state as soon as the road is no longer needed.

C3.6.10.6 Traffic control

The Contractor shall ensure that all construction traffic including that of subcontractors, vendors, suppliers of materials and services are notified that a special speed limit of 40 kph shall apply along any road within the adjacent Klipwater Township; and special attention shall be given to road signs. Vehicles not complying with this ruling shall on the instruction of the Engineer, be denied access to the Site.

C3.6.11 Archaeology and cultural sites

All finds of human remains must be reported to the nearest police station.

Human remains from the graves of victims of conflict, or any burial ground or part thereof which contains such graves and any other graves that are deemed to be of cultural significance may not be destroyed, damaged, altered, exhumed or removed from their original positions without a permit from the South African Heritage and Resource Agency (SAHRA).

Work in areas where artefacts are found must cease immediately.

Under no circumstances must the Contractor, his/her employees, his/her sub- contractors or his/her sub-contractors' employees remove, destroy or interfere with archaeological artefacts. Any person who causes intentional damage to archaeological or historical sites and/or artefacts could be penalised or legally prosecuted in terms of the National Heritage Resources Act, 25 of 1999.

A fence at least 2m outside the extremities of the site must be erected to protect archaeological sites.

All known and identified archaeological and historical sites must be left untouched.

Work in the area can only be resumed once the site has been completely investigated. The Engineer will inform the Contractor when work can resume.

C3.6.12 REHABILITATION

It is important that rehabilitation will commence as soon as feasible and to run in parallel with the construction and not to be left until completion of the works. This will increase the chances of successful rehabilitation as it can be monitored throughout the construction period.

The construction site shall be cleaned and rehabilitated as close as is reasonably possible to its original state.

All drainage deficiencies must be corrected.

Cut and fill areas must be restored and re-shaped.

Areas compacted by vehicles during construction must be scarified to allow penetration of plant roots and the re-growth of natural vegetation.

Rehabilitation of all the disturbed and compacted areas shall mean that these areas are ripped and covered with topsoil.

- Ripped shall mean - ploughed with a ripper to a depth of not less than 300mm in two directions at right angles.
- Top soiled shall mean - the spreading of a minimum of 150mm of stockpiled topsoil either before or after ripping over the surface to be rehabilitated.

The areas immediately adjacent to the Works which are not designated for paving shall be grassed in accordance with the relevant engineering specification.

All alien vegetation removed during construction shall not be replaced.

The rehabilitated areas will be weeded by the nominated rehabilitation contractor for a period of 1 year.

C3.6.13 RESPONSE TO PUBLIC COMPLAINTS

The Contractor shall assist the Engineer with responding to queries and complaints from the public regarding construction activities by:

a.) Documenting the details of such communications and submitting the information to the Engineer for inclusion in the complaints register;

b.) bringing any such matters to the attention of the Engineer immediately as they arise;

c.) taking any remedial action as per the Engineer; and

d.) discuss such matters at the site meetings.

The Contractor shall assist the Engineer and consult with affected parties for the purpose of explaining the construction process and answering questions raised by affected parties at reasonable times.

Should the owner of any property, contact the Contractor during the construction period regarding specific requests, the Contractor shall include all pertinent details in his report (Section 2.3 hereof).

C3.6.14 CLEARANCE OF SITE ON COMPLETION

On completion of the Works, the Contractor shall clear away and remove from the site all construction plant, surplus materials, foundations, plumbing and other fixtures, rubbish and temporary works of every kind. Areas thus cleared shall be graded and scarified to restore the ground to its original profile as near as practicable before topsoil placement.

C3.6.15 COMPLIANCE WITH ENVIRONMENTAL MANAGEMENT SPECIFICATIONS

a.) All persons employed by the Contractor or his subcontractors shall abide by the requirements of these Environmental Management Specifications.

b.) Any employees of the Contractor or his subcontractors found to be in breach of any of the Environmental Management Specifications may be ordered by the Engineer to leave the site forthwith. The order may be given orally or in writing. Confirmation of an oral order will be given as soon as practicable but lack of confirmation in writing shall not be a cause for the offender to remain on site. No extension of time will be granted for any delay or impediment to the Contractor brought about by a person ordered to leave the site.

c.) Supervisory staff of the Contractor or his subcontractors shall not direct any person to undertake any activities which would place such person in contravention of the Environmental Management Specifications.

d.) Via these specifications the Contractor has been made aware of what actions are required of him and/or his subcontractors. Certain do's and don'ts have been given and onus for compliance rests with the Contractor as he is the only person capable of controlling these aspects. A fine/reward system will be implemented to encourage compliance. For every week that the Contractor successfully complies with the Environmental Management Plan and Specifications a bonus sum of R500 will be generated. However, for each and every time that the Environmental Management Plan and Specification is not met, a fine of R500 will be imposed.

C3.6.16 MEASUREMENT AND PAYMENT

Unit:

Under Schedule No. 1 in Bill: Environmental Management ..... Sum.

The lump sum tendered shall include full compensation for initiating and maintaining the environmental awareness campaign as required in the Environmental Management Plan and Specifications.