



The Refurbishment and Upgrade of 20kL AMD Treatment Plant to the CSIR

RFQ Number: 6653/17/02/2026

Date of issue	Monday, 02/02/2026	
Compulsory Site Inspection	Date and Time	Tuesday, 10/02/2026 @ 11h00 -12h00
	Address	Behind building 29. Water Centre Innovation Hub
Last date for submission of enquiries/clarifications	Wednesday, 11/02/2026 @ 16h30	
Closing Date and Time	Tuesday, 17/02/2026 @ 16h30 (late submissions will not be accepted)	
RFQ Validity Period	90 calendar days (Commencing from the RFQ closing date)	
Enquiries and submission of proposals	For submission of quotations or any other enquiries: Email tender@csir.co.za (<i>Please use RFQ No and RFQ Description as subject reference</i>)	
CSIR Hours	08h00 – 16h30	

1 INTRODUCTION

The Council for Scientific and Industrial Research (CSIR) is one of the leading scientific research and technology development organisations in Africa. In partnership with national and international research and technology institutions, the CSIR undertakes directed and multidisciplinary research and technology innovation that contributes to the improvement of the quality of life of South Africans. The CSIR's main site is in Pretoria while it is represented in other provinces of South Africa through regional offices.

2 INVITATION FOR QUOTATION

Quotations are hereby invited for the provision of Refurbishment and Upgrade of 20kL/d AMD Treatment Plant to the CSIR

3 SCOPE OF WORK

The project aims to refurbish and upgrade an existing 20kL/d Acid Mine Drainage Treatment Pilot Plant. Acid Mine Drainage is highly acidic water from the mine, characterised by low pH levels and high metal composition. CSIR has designed and constructed a 20kL/d pilot plant to treat AMD using the CSIR patented technology, Magnesite-Softening-Reverse-Osmosis (MASRO), which is used for AMD treatment and uses coagulation, sedimentation, and optional reverse osmosis for water polishing. CSIR intends to refurbish and upgrade the existing pilot plant with the addition of new solvent extraction systems (not part of the RFQ) for recovered minerals and upgraded chemical make-up and dosing system capacity to commercially demonstrate the technology and to provide a sustainable AMD treatment solution to potential clients.

This document specifies the project-specific requirements for the required service for the refurbishment and upgrade, to include manufacturing, supply, delivery, installation, testing and commissioning of equipment to render a complete and fully functional upgrade to the pilot installation for the AMD Treatment Plant.

The detailed scope of work is outlined under **Annexure A**

4 PRICING REQUIREMENTS

- 4.1 Pricing must be provided in South African Rand (including all applicable taxes less all unconditional discounts).
- 4.2 Prices that are subject to escalation and exchange rate fluctuations are to be clearly indicated, with the currency and ROE used in the quotation must be clearly indicated.
- 4.3 Price should include additional cost elements such as freight, insurance until acceptance, duty where applicable, etc.

- 4.4 Payment will be according to the [CSIR Payment Terms and Conditions](#).
- 4.5 Please provide a detail pricing using a Pricing Schedule outlined under **Annexure B**.

Bidders are to price their quotations using the Pricing Schedule. Explanatory notes must be provided in the quotation when deviating from the Pricing Schedule

5 RETURNABLES

Returnables are required for evaluation purposes. Bidders' responses will be evaluated based on compliance with the listed administration and mandatory bid requirements. The bidder(s) proposal may be disqualified for non-submission of any of the documents.

5.1 Essential Returnable Documents

Without limiting the generality of the CSIR's other critical requirements for this Bid, bidder(s) must submit the documents listed in Table 1 below. All documents must be completed and signed by the duly authorized representative of the prospective bidder(s).

Please confirm submission of the Essential Returnable Documents detailed below by so indicating [Yes or No] in the table below:

Table 1

ESSENTIAL RETURNABLE DOCUMENTS	SUBMITTED [Yes/No]
Annexure C: Standard Bidding Document (SBD) 1 Form	
Annexure D: Standard Bidding Document (SBD) 4 Form	
Annexure E: Preference Points Award Form(Mandatory documents to claim preference points)	
Annexure F: Mutual Non-Disclosure Agreement	
Valid and active on CIDB registration with 1ME or higher	

5.2 Mandatory Returnable Documents

Failure to submit **all** Mandatory Returnable Documents by the closing date and time of this RFQ will result in a Respondent's disqualification. Bidders are therefore urged to ensure that all these documents are returned with their RFQ.

Please confirm submission of the Mandatory Returnable Documents detailed below by so indicating [Yes or No] in the table below:

Table 2

MANDATORY RETURNABLE DOCUMENTS	SUBMITTED [Yes/No]
<i>Annexure B: Pricing Schedule</i>	

3 reference letters for similar work	
Proof of A trade test	

6 EVALUATION PROCESS AND CRITERIA

The RFQ will be evaluated as per the following:

Phase 1 – Elimination Criteria

The bidders will be evaluated on the elimination criteria as stated in Point 6.1 below. Bidders that are eliminated during this phase will not be evaluated further on price and preference points.

Phase 2 – Price and Preference Points Evaluation

Bidders will be evaluated as per the preference points system stated in point 6.2 below.

6.1 Elimination Criteria

Bidders will be eliminated if they fail to provide the following information:

- a) Bidder that submit late bids will not be considered.
- b) Bidder that submit to the incorrect location or email address will not be considered.
- c) Bidder that is listed on the NT database of restricted suppliers will not be considered.
- d) Bidder that is registered on the NT Register of Tender Defaulters will not be considered.
- e) Bidder that did not submit mandatory returnable documents as listed on paragraph 5.2 (**Table 2**).
- f) Bidder that fail to meet the specification requirements will not be considered.
- g) Bidder that fail to submit a proof of a valid registration and not active on CIDB with 1ME or higher

6.2 Preferential Points System Evaluation Criteria

Selection of suppliers will be based on the 80/20 preference point system as stipulated in **Annexure E: Preference Points Award Form**.

7 OBJECTIVE CRITERIA

The CSIR reserves the right to award this tender to a bidder that did not score the highest total number of points in accordance with Section (2) (1) (f) of the PPPFA (Act 5 of 2000)", under the following conditions:

- The directors, shareholders or officers of the bidder must not be formally charged of fraudulent or illegal conduct which could harm the CSIR's reputation by associating with the bidder.

8 SUBMISSION REQUIREMENTS

- 8.1 All quotations must be submitted electronically to tender@csir.co.za
- 8.2 Respondents must use the RFQ number and RFQ Description as the subject reference number when submitting their bids.
- 8.3 The email and file sizes must not exceed a total of 25MB per email.
- 8.4 Documents submitted via cloud solutions such as: WeTransfer, Google Drive, Dropbox, etc. will not be considered.
- 8.5 The naming / labelling syntax of files or documents must be short and simple.

9 CONSTRUCTION INDUSTRY DEVELOPMENT BOARD (CIDB)

- 9.1 Only those tenderers who are registered with the CIDB or are capable of being so prior to the closing date and time of this RFQ submissions, with a grading of **1ME or higher** class of construction works, will be considered.
- 9.2 Joint ventures are eligible to **submit** proposals provided that:
 - Every member of the joint venture is registered with the CIDB;
 - The lead partner has a contractor grading designation in the **1ME or higher** class of construction work; or not lower than one level below the required grading designation in the class of works construction works under consideration and possess the required recognition status;
 - The combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to **1ME or higher** class of construction work.

10 MEDIUM OF COMMUNICATION

All documentation submitted in response to this RFQ must be in English.

11 CORRECTNESS OF RESPONSES

- 11.1 The bidder must confirm satisfaction regarding the correctness and validity of their proposal and that all prices and rates quoted cover all the work/items specified in the RFQ. The prices and rates quoted must cover all obligations under any resulting contract.
- 11.2 The bidder accepts that any mistakes regarding prices and calculations will be at their own risk.

12 VERIFICATION OF DOCUMENTS

- 12.1 Bidders should check the numbers of the pages to satisfy themselves that none are missing or duplicated. No liability will be accepted by the CSIR in regard to anything arising.
- 12.2 Pricing schedule and specific goals credentials should be submitted with the RFQ response.

13 PREPARATION COSTS

The Bidder will bear all its costs in preparing, submitting and presenting any response or Tender to this bid and all other costs incurred by it throughout the bid process. Furthermore, no statement in this bid will be construed as placing the CSIR, its employees or agents under any obligation whatsoever, including in respect of costs, expenses or losses incurred by the bidder(s) in the preparation of their response to this bid.

14 OTHER TERMS AND CONDITIONS

- 14.1 No bidder shall under any circumstances offer, promise or make any gift, payment, loan, reward, inducement, benefit or other advantage, which may be construed as being made to solicit any favour, to any CSIR employee or its representatives. Such an act shall constitute a material breach of the Agreement and the CSIR shall be entitled to terminate the Agreement forthwith, without prejudice to any of its rights.
- 14.2 Bidders shall not assume that information and/or documents supplied to CSIR, at any time prior to this request, are still available to CSIR, and shall consequently not make any reference to such information document in its response to this request.
- 14.3 Changes by a bidder to its submission will not be considered after the closing date and time.
- 14.4 Bidders confirm that by submitting a tender, they confirm that I am satisfied with regards to the correctness and validity of my quotation; that the price(s) and rate(s) quoted cover all the services specified in the quotation 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.

- 14.5 Bidders further confirm that by submitting a tender, they accept to take accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on them under this RFQ as the principal liable for the due fulfilment of this RFQ process.
- 14.6 No goods and/or services shall be delivered to the CSIR without an official CSIR Purchase order. CSIR purchase order number must be quoted on the invoice. Invoices without CSIR purchase order numbers will be returned to the supplier.

15 SPECIAL CONDITIONS

The CSIR reserves the right to

- 14.1. Extend the closing date of this RFQ;
- 14.2. Correct any mistakes at any stage of the tender that may have been in the Bid documents or occurred at any stage of the tender process;
- 14.3. Verify any information contained in the bidder's submission;
- 14.4. Request documentary proof regarding the bidder's submission;
- 14.5. Carry out site inspections, product evaluations or explanatory meetings in order to verify the nature and quality of the product/service offered by the bidder(s) or verify any information whether before or after the adjudication of this RFQ;
- 14.6. Award this tender to a bidder that did not score the highest total number of points, only in accordance with Section 2(1)(f) of the PPPFA (Act 5 of 2000);
- 14.7. Request audited financial statements or other documents for the purpose of a due diligence exercise to determine if the bidder will be able to execute the contract;
- 14.8. Award this RFQ as a whole or in part;
- 14.9. Award this RFQ to multiple bidders;
- 14.10. Cancel and/or terminate the tender process at any stage, including after the Closing Date and/or after presentations have been made, and/or after tenders have been evaluated and/or after the preferred bidder(s) have been notified of their status as such;
- 14.11. Post tender negotiate on any elements on the bid, including but not limited to technical, transformation, price, and contractual terms and conditions.;
- 14.12. Not to award a contract to a bidder who is associated with a security breach that materially adversely affects other entities or if any directors or officers of a bidder are formally charged of fraudulent or illegal conduct which, would harm the CSIR's reputation by its continued association with the bidder.

16 CONFIDENTIALITY

Some of the information contained in the Tender Documents may be of a confidential nature and must only be used for purposes of responding to this RFQ. This confidentiality clause extends to bidder partners whom you may decide to involve in preparing a response to this RFQ. Bidders must complete and sign **ANNEXURE F: Non-Disclosure Agreement**.

Except as may be required by operation of law, by a court or by a regulatory authority having appropriate jurisdiction, no information contained in or relating to this bid or a bidder's tender(s) will be disclosed by any bidder or other person not officially involved with the CSIR's examination and evaluation of a Tender.

No part of the bid may be distributed, reproduced, stored or transmitted, in any form or by any means, electronic, photocopying, recording or otherwise, in whole or in part except for the purpose of preparing a Tender. This bid and any other documents supplied by the CSIR remain proprietary to the CSIR and must be promptly returned to the CSIR upon request together with all copies, electronic versions, excerpts or summaries thereof or work derived there from.

Throughout this bid process and thereafter, bidder(s) must secure the CSIR's written approval prior to the release of any information that pertains to (i) the potential work or activities to which this bid relates; or (ii) the process which follows this bid. Failure to adhere to this requirement may result in disqualification from the bid process and civil action.

17 PROTECTION OF PERSONAL INFORMATION

- 17.1 Each Party consents to the other Party holding and processing "personal information" (as defined in the POPI Act) relating to it for legal, personnel, administrative and management purposes (including, if applicable, any "special personal information" relating to him/her, as defined in the POPI Act). Notwithstanding the generality of the aforesaid, each Party hereby undertakes to comply with all relevant provisions of the POPI Act and any other applicable data protection laws. The Client further agrees to comply with all CSIR's reasonable internal governance requirements pertaining to data protection.
- 17.2 Each Party consents to the other Party making such information available to those who provide products or services to such parties (such as advisers, regulatory authorities, governmental or quasi-governmental organisations and potential purchasers of such Party or any part of their business).
- 17.3 The Client consents to the transfer of such information to CSIR's business contacts outside South Africa in order to further its business interests.
- 17.4 While performing any activity where a Party is handling personal information as a "responsible party" (as defined in the POPI Act), each Party undertakes that it will process the personal information strictly in accordance with the terms of the POPI Act, this Contract, and the other Party's instructions from time to time, and take appropriate operational measures to safeguard the data against any unauthorised access.
- 17.5 Each Party acknowledges that in the course of conducting business with each other, each Party intends to maintain and process personal information about the other Party in an

internal database. By signing this Contract, each Party consents to the maintenance and processing of such personal information.

- 17.6 Where relevant, the Client shall procure that all of its personnel, agents, representatives, contractors, sub-contractors and mandataries shall comply with the provisions of this clause 16 (Personal Information). The CSIR shall be entitled on reasonable notice to conduct an inspection or audit Client's compliance with the requisite POPI Act safeguards.

18 INDEMNITY

If a bidder breaches the conditions of this bid and, as a result of that breach, the CSIR incurs costs or damages (including, without limitation, the cost of any investigations, procedural impairment, repetition of all or part of the bid process and/or enforcement of intellectual property rights or confidentiality obligations), then the bidder indemnifies and holds the CSIR harmless from any and all such costs which the CSIR may incur and for any damages or losses the CSIR may suffer.

19 TAX COMPLIANCE

No tender shall be awarded to a bidder who is not tax compliant. If a recommended bidder is not tax compliant, the bidder will be notified in writing of their non-compliant status and the bidder will be requested to submit written proof from SARS of their tax compliant status or proof that they have made an arrangement to meet their outstanding tax obligations within seven (7) working days. Should they fail to do so CSIR will reject their bid.

The CSIR reserves the right to withdraw an award made, or cancel a contract concluded with a successful bidder in the event that it is established that such bidder was in fact not tax compliant at the time of the award or has submitted a fraudulent Tax Clearance Certificate to the CSIR, or whose verification against the Central Supplier Database (CSD) proves non-compliant. The CSIR further reserves the right to cancel a contract with a successful bidder in the event that such bidder does not remain tax compliant for the full term of the contract.

20 LIMITATION OF LIABILITY

A bidder participates in this bid process entirely at its own risk and cost. The CSIR shall not be liable to compensate a bidder on any grounds whatsoever for any costs incurred or any damages suffered as a result of the Bidder's participation in this Bid process.

21 MISREPRESENTATIONS DURING THE LIFECYCLE OF THE CONTRACT

- 21.1 The bidder should note that the terms of its Tender will be incorporated in the proposed contract by reference and that the CSIR relies upon the bidder's Tender as a material representation in making an award to a successful bidder and in concluding an agreement with the bidder.
- 21.2 It follows therefore that misrepresentations in a Tender may give rise to service termination and a claim by the CSIR against the bidder notwithstanding the conclusion of the Service Level Agreement between the CSIR and the bidder for the provision of the Service in question. In the event of a conflict between the bidder's proposal and the Service Level Agreement concluded between the parties, the Service Level Agreement will prevail.

22 DISCLAIMER

This RFQ is a request for Quotations only and not an offer document. Answers to this RFQ must not be construed as acceptance of an offer or imply the existence of a contract between the parties. By submission of its proposal, bidders shall be deemed to have satisfied themselves with and to have accepted all Terms & Conditions of this RFQ. The CSIR makes no representation, warranty, assurance, guarantee or endorsements to bidder concerning the RFQ, whether with regard to its accuracy, completeness or otherwise and the CSIR shall have no liability towards the bidder or any other party in connection therewith.

23 NATIONAL TREASURY CENTRAL SUPPLIER DATABASE

- 23.1 Bidders are required to be registered on the Central Supplier Database and the National Treasury shall verify the bidder's tax compliance status through the Central Supplier Database. Registrations can be completed online at: www.csd.gov.za;
- 23.2 Where Consortia / Joint Ventures / Sub-contractors are involved, each party must be registered on the Central Supplier Database and their tax compliance status will be verified through the Central Supplier Database.

Annexure A

Scope of Work for the Refurbishment and Upgrade of 20kl AMD Treatment Plant

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1. PART C3: SCOPE OF WORK

In the event of any discrepancy between the Scope of Works and the Bill of Quantities or the Drawings, the Project Specifications shall take precedence and prevail in the Contract.

2. C3.1 DESCRIPTION OF THE WORK

3. C3.1.1 OBJECTIVES

The project aims to refurbish and upgrade an existing 20kl/d Acid Mine Drainage Treatment Pilot Plant. Acid Mine Drainage is highly acidic water from the mine, characterised by low pH levels and high metal composition. CSIR has designed and constructed a 20kL/d pilot plant to treat AMD using the CSIR patented technology, Magnesite-Softening-Reverse-Osmosis (MASRO), which is used for AMD treatment and uses coagulation, sedimentation, and optional reverse osmosis for water polishing. CSIR intends to refurbish and upgrade the existing pilot plant and upgrade chemical make-up and dosing system capacity to commercially demonstrate the technology and to provide a sustainable AMD treatment solution to potential clients.

This document specifies the project-specific requirements of the mechanical, electrical and civil services required for the refurbishment and upgrade, to include manufacturing, supply, delivery, installation, testing and commissioning of equipment to render a complete and fully functional upgrade to the pilot installation for the AMD Treatment Plant, which includes the installation of precious metal recovery using solvent extraction technology.

4. C3.1.2 OVERVIEW OF THE WORKS

The process scope of this project will include the supply or refurbishment of existing equipment, transport and delivery to the site, installation, testing, and commissioning of a complete 20 kL/d Acid Drainage Mine Package plant.

The complete package shall consist of:

1. 3 off Lamella Clarifiers (reaction vessels) and pumping/piping installations, existing, to be refurbished or upgraded
2. A chemical makeup and dosing system, to be upgraded
3. Ultrafiltration-Reverse Osmosis treatment modules, to be refurbished or replaced accordingly
4. As well as a sludge management System, including holding tanks, and to incorporate AMD minerals recovery using suitable solvent extraction technologies.
5. Civil works shall include, installation of the plant on the existing slab.

6. Electrical and instrumentation scope.

5. C3.1.3 EXTENT OF WORKS

The clause “C3.2 Engineering of the Works” specifies the Works and related requirements.

The process control philosophy requirements are specified in PART C5: APPENDICES A Engineering: Process Control Philosophy Specification.

6. C3.1.4 LOCATION OF WORKS

The pilot plant was constructed and installed and commissioned previously. The primary construction site and operational base is located at the CSIR Science Campus in Pretoria.

7. C3.1.5 TEMPORARY WORKS

The turnkey service provider (Contractor) shall be responsible for the selection and design of the temporary Works required, inclusive of concrete mixes, scaffolding, formwork systems and trench shoring, and their compatibility with the permanent Works.

The Contractor may be exposed to criminal actions, including theft and vandalism, and shall make the necessary security arrangements for the duration of the Contract.

The Contractor shall, as a minimum, enclose the whole camp with a security fence. The Contractor shall remove the fencing and shall rehabilitate the camp site areas on completion of the Contract.

The Contractor shall ensure that the equipment is safe and that all necessary inspections (pre, during, post and every day after) are carried out and records kept by the competent inspector. Design drawings must be available onsite for this supervisor.

8. C3.2 ENGINEERING: DESIGN OF THE WORKS

9. C3.2.1 DESIGN

- a) The Employer is responsible for the design of the permanent Works as reflected in the Contract Documents unless otherwise stated.
- b) The Contractor is responsible for the design of the temporary Works and their compatibility with the permanent Works.
- c) The Contractor Design Engineer shall supply all details and compilation of the as-built drawings.

10. C3.2.2 EMPLOYER'S DESIGN

The Employer's design covers all the components as described in C3.1.3. The detailed design Report, Bill of Quantities, and Specifications have been compiled in line with the extent of the Works.

11. C3.2.3 CONTRACTOR'S DESIGN

Where the Contractor is to supply the detailed design of designated parts of the permanent Works or temporary Works, he shall supply full working drawings supported by the Contractor's professional engineer's design certificate.

12. C3.2.4 DRAWINGS

13. C3.2.4.1 DRAWINGS PREPARED BY THE CONTRACTOR

The Contractor shall use the site dimensions stated, unless stated otherwise by the Employer Engineer. The Employer Engineer will, on the request of the Contractor in accordance with the provisions of the Conditions of Contract, provide assistance to dimensions where necessary.

The Contractor shall ensure that accurate as-built records are kept of all infrastructure installed or relocated during the Contract. A marked-up set of drawings shall be kept and updated by the Contractor. This information shall be supplied to the Employer's Engineer's Representative regularly.

All information in possession of the Contractor, required by the Employer Engineer and/or the Employer Engineer's Representative to complete the as built/record drawings, must be submitted to the Employer Engineer's Representative before a Certificate of Completion will be issued.

14. C3.2.8HAZOP STUDY

The undertaking of a final hazard and operability (HAZOP) study is considered critical to the success of the Contract and achievement of the Employer's Objectives. It is intended that participants shall include representatives of the Employer Engineer, the Contractor, and representatives of the Employer responsible for planning, maintenance, and operation.

The study shall be undertaken at the Employer's offices in Pretoria or a suitable venue offered by the Contractor, once the following design documents have been approved by the Engineer for this purpose:

- a) Contractor's Process or Piping and Instrumentation Diagram (P&ID),
- b) Detailed control philosophy, and
- c) Motor, equipment and instrumentation list.

This diagram shall be updated by the Contractor after completion of the study, to reflect the decisions reached.

15. C3.3 PROCUREMENT

16. C3.3.1 SUBCONTRACTING

17. C3.3.1.1 Scope of mandatory subcontract works

No mandatory subcontracting of works will apply for this contract.

18. C3.3.1.2 Preferred subcontractors/suppliers

No preferred subcontractor will apply for this contract.

19. C3.3.1.3 Subcontracting procedures

The Contractor shall submit the names of each proposed subcontractor to the Engineer/Employer for acceptance. The Contractor shall not appoint a subcontractor until the Employer has approved in writing such an appointment.

The Contractor shall not be required or be deemed to be under any obligation to employ any Nominated Subcontractor whose performance warranties are not acceptable to the Contractor or against whom the Contractor cannot guarantee performance.

All subcontractors shall be appointed in writing and on terms which are compatible with the Conditions of this Contract.

20. C3.3.1.4 Attendance on subcontractors

The Contractor shall be responsible for observance by all subcontractors of all provisions of the Conditions of Contract, the Specifications, Codes of Practice and relevant Standards.

21. C3.3.2 PROCUREMENT, MANUFACTURING, FACTORY TESTING AND DELIVERY

During this phase, the Contractor shall commence the execution of the Works, and shall:

- a) Procure all required materials.
- b) Procure and/or manufacture all equipment and materials.
- c) Undertake all factory acceptance tests.
- d) Prepare for and deliver all equipment and materials to Site. All equipment delivered to Site shall be safely stored by and shall be the responsibility of the Contractor.
- e) Submit to the Employer Engineer all Contractor's Documents required, including draft copies of the Operation and Maintenance Manuals and the Contractor's Health and Safety Plan in compliance with the Occupational Health and Safety Act (Act No 85 of 1993) and

Construction Regulations in terms of that Act and any requirements in terms of the Scope of Work.

- f) Submit to the Employer Engineer a Team Member's Document setting out the Contractor's Installation /construction team and foremen, and the Contractor's Commissioning Engineers, and detailing the respective:
- i. Team member's name.
 - ii. Team member's job description.
 - iii. Team member's qualifications, certifications and experience.
 - iv. Team members contact details.

22. C3.4 CONSTRUCTION

23. C3.4.1 SITE FACILITIES

a) Contractor's Camp Establishment

The Contractor shall be responsible for providing a suitable site for his camp and to provide accommodation for his personnel and labourers.

The Contractor shall be responsible for identifying suitable positions to locate all facilities, including, as necessary, construction camps, offices, stores, workshops etc. required for the due and proper performance of the Contract. The proposed site camp positions shall be submitted to the Engineer for approval.

The Contractor shall supply and maintain adequate and suitable sheds for the storage of materials that might deteriorate if exposed to the weather.

Allowance shall be made for an office for the Resident Engineer's representative for the duration of construction activity on site. The Contractor shall, provide, maintain and keep clean all facilities to be provided for the Engineer and all other facilities for all persons engaged in the works.

b) Power, Water and other Services

A single-phase and three-phase power supply is available at the Client's facilities for the use of small tools and lighting. The Contractor shall make arrangements for the use of this with the Employer's officials and shall pay all installation and consumption charges for the power supply required (supply shall be separately metered by Contractor). Any costs arising from this shall be covered under the rates priced for the General Requirements and Conditions (i.e. Preliminary and General) items in the Bill of Quantities.

The Contractor shall, at his own expense, be responsible for obtaining and distributing all electricity as he may require for the purposes of executing the Contract, including electricity for both construction purposes and domestic use, as well as for making all arrangements in connection therewith. The distribution of electricity shall be carried out by the Contractor strictly in accordance with the applicable laws and regulations. No separate payment will be made to the Contractor for the obtainment, distribution and consumption of electricity, the costs of which will be deemed to be in the Contractor's Contracted rates and prices.

Only non-potable water shall be used for construction purposes in line with the Client's water restrictions and relevant bylaws for construction. The Contractor shall pay all charges for the non-potable water supply required. Any costs arising from this shall be covered under the rates priced for the General Requirements and Conditions (i.e. Preliminary and General) items in the Bill of Quantities.

A potable water supply will be made available to the Contractor for the use of drinking and site office requirements. The Contractor shall be responsible for arranging these services and ensuring that these services are not wasted and are used with discretion by his staff. The Contractor shall pay all installation and consumption charges for the potable water supply required (supply shall be separately metered by Contractor). Any costs arising from this shall be covered under the rates Contracted for the General Requirements and Conditions (i.e. Preliminary and General) items in the Bill of Quantities

The Contractor shall, at his own expense, be responsible for obtaining and distributing all water as may be required for the purposes of executing the Contract, including water for both construction purposes and domestic use, as well as for making all arrangements in connection therewith. The Contractor shall further, at his own expense, be responsible for providing all necessaries for procuring, storing, transporting and applying water required for the execution of the Contract, including but not limited to all piping, valves, tanks, pumps, meters and other plant and equipment, as well as for all work and superintendence associated therewith. The sources of all water utilised for the purposes of the Contract shall be subject to the prior approval of the Engineer, which approval shall not be unreasonably withheld.

All water provided by the Contractor for construction purposes shall be clean, free from undesirable concentrations of deleterious salts and other materials and shall comply with any further relevant specifications of the Contract. The Contractor shall, whenever reasonably required by the Engineer, produce test results demonstrating such compliance. Water provided by the Contractor for human consumption shall be healthy and potable to the satisfaction of the health authorities in the area of the Site. No separate payment will be made to the Contractor for the obtainment, distribution and consumption of water, the costs of which will be deemed to be included in the Contractor's contracted rates.

The Contractor shall be responsible for the provision of temporary toilets for his staff's use. The Contractor shall, at his own expense, be responsible for safely and hygienically dealing with and disposing of all human excrement and similar matter generated on the Site during the course of the Contract, to the satisfaction of the Engineer and the responsible health authorities in the area of the Site. The Contractor shall further comply with any other requirements in this regard as may be stated in the Contract. No separate payment will be made to the Contractor in respect of discharging his obligations in terms of this subclause and the costs thereof shall be deemed to be included within the Contractor's contracted rates and prices.

c) Telephone and Internet Facilities

The Contractor shall be responsible for his own arrangements for internet, data and telephones for his use. Allowance shall be made for the Engineer's Representative for 3G/4G internet / Wi-Fi

connectivity on site. The Engineer's Representative connection shall be at least 10Mbit/s to allow for video conferencing and other high bandwidth activities.

d) Disposal Sites

Throughout the execution of the work and upon its completion, the Site must be maintained in a clean and orderly condition. The Contractor shall be responsible for removing any cleared vegetation, rubble, excavated surplus materials, or any other waste and unwanted materials from the Site. All materials and equipment under the Contractor's care must be stored in an organised manner, ensuring the Site remains free of debris and obstructions. Any associated costs shall be included in the rates provided for General Requirements (i.e., Preliminary and General) items in the Bill of Quantities.

e) Maintaining and Cleaning of the Site

The Contractor shall maintain the whole of the Site where his activities are taking place in a clean, tidy and orderly condition, to the satisfaction of the Engineer. The Contractor shall be liable for the cost of making good any damage to the infrastructure or facilities on the Site, or to any of the Employer's property

f) De-establishment of facilities on Site

Once the Taking-over Certificate has been issued, the Contractor shall remove all facilities established on Site and clear away all surface indications of their presence

g) Access to properties

The Contractor shall organise the work to minimise inconvenience to the public and the Employer affected by the project. Except as otherwise stated, the Contractor must always provide and maintain pedestrian and vehicular access to properties within, adjoining, or affected by the work area.

However, the Contractor may, with the prior approval of the Engineer (which shall not be unreasonably withheld), arrange with the Employer to temporarily close off a portion of a street, road, footpath, or entrance. The Contractor must notify the Employer of the intended closure and its expected duration and ensure that the route is reopened as promptly as possible. Where feasible, these streets, roads, footpaths, and entrances should be made safe and reopened to traffic overnight. Such closures do not exempt the Contractor from the obligation to maintain access at all times. The Contractor must provide appropriate barricades, traffic signs, drums, and other safety measures suitable to the specific conditions.

h) Notices, signs, barricades and advertisements

All notices, signs and barricades, as well as advertisements, may be used only if approved by the Engineer. The Contractor shall be responsible for their supply, erection, maintenance and ultimate removal and shall make provision for this in his priced rates. The Engineer shall have the right to instruct the Contractor to move any sign, notice or advertisement to another position, or to remove it from the Site of the Works if in his opinion it is unsatisfactory, inconvenient or dangerous.

i) Workmanship and quality control

The onus to produce work that conforms in quality and accuracy of detail to the requirements of the Specifications and Drawings rests with the Contractor, and the Contractor shall, at his own

expense, institute a quality control system and provide suitably qualified and experienced engineers, foremen, surveyors, materials technicians, other technicians and technical staff, together with all transport, instruments and equipment to ensure adequate supervision and positive control of the Works at all times.

The cost of supervision and process control, including testing carried out by the Contractor, will be deemed to be included in the rates priced for the related items of work.

On completion and submission of every part of the work to the Engineer for examination and measurement, the Contractor shall furnish the Engineer with the results of the relevant tests, measurements and levels to demonstrate the achievement of compliance with the Specifications.

j) Monthly statements and payment certificates

The statement to be submitted by the Contractor in terms of Clause 6.10 as amended of the Conditions of Contract shall be prepared by the Contractor at his own cost, strictly in accordance with the standard payment certificate prescribed by the Engineer, in digital electronic computer format. The Contractor shall, together with a copy of the digital electronic computer file of the statement, submit two (2) A4 size paper copies of the statement.

For the purposes of the Engineer's payment certificate, the Contractor shall subsequently be responsible, at his own cost, for making such adjustments to his statement as may be required by the Engineer for the purposes of accurately reflecting the actual quantities and amounts which the Engineer deems to be due and payable to the Contractor in the payment certificate.

The Contractor shall, at his own cost, make the said adjustments to the statement and return it to the Engineer within three (3) normal workings days from the date on which the Engineer communicated to the Contractor the adjustments required. The Contractor shall submit to the Engineer five (5) sets of A4 size paper copies of such adjusted statement, together with a copy of the electronic digital computer file thereof.

Any delay by the Contractor in making the said adjustments and submitting to the Engineer the requisite copies of the adjusted statement for the purposes of the Engineer's payment certificate will be added to the times allowed to the Engineer in terms of Clause 6.10.4 of the Conditions of Contract to submit the signed payment certificate to the Employer and the Contractor. Any such delay will also be added to the period in which the Employer is required to make payment to the Contractor.

24. C3.4.2 EXTENSION OF TIME DUE TO ABNORMAL RAINFALL

- a) A claim for extension of time in respect of delays suffered by the Contractor in consequence of wet climatic conditions will be considered by the Engineer in terms of Clause 5.12 of the Conditions of Contract and in accordance with provisions set out hereunder.
- b) For the purposes of extension of time, a delay caused by wet climatic conditions will be regarded as a delay only if, in the opinion of the Engineer, all progress on an item or items of work on the critical path of the Contractor's working programme as approved in terms of Clause 5.6 of the Conditions of Contract has been brought to a halt.

- c) Unless it is customary to carry out the work, in respect of which a delay was suffered, by rotary shifts or by day and by night, only delays to critical path items experienced as a result of wet climatic conditions during normal working hours (as defined in Clause 5.8 of the Conditions of Contract) will be taken into account for extension of time. This will apply notwithstanding the fact that a delay may have occurred on a portion of the Works on the critical path due to wet climatic conditions, which work was being executed outside the said normal hours with the permission of the Engineer, granted in terms of Clause 5.8.1.1 of the Conditions of Contract.

AVERAGE DELAY DUE TO INCLEMENT WEATHER

Month	Jan*	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec*
Average rain in days	5	2	2	2	2	4	4	4	2	2	2	5

- d) The Contractor shall make due allowance within his programme submitted in terms of Clause 5.6 of the Conditions of Contract, for a total anticipated delay to items on the critical path resulting from wet climatic conditions during the Contract.
- e) Extension of time, if granted by the Engineer, will be determined as the aggregate number of normal working hours for which all progress on the item or items on the critical path was brought to a halt as a result of wet climatic conditions, less the number of normal working days specified in subclause (d) above.
- f) In determining the revised Due Completion Date of the Contract, the Engineer shall add the equivalent number of normal working days delay determined in accordance with subclause (e)
- g) and all intervening normal non-working days to the prevailing Due Completion Date.

25. C3.4.3 PLANT AND MATERIALS

26. C3.4.2.1 Plant and materials supplied by the employer

No plant or materials will be supplied by the Employer.

27. C3.4.2.2 Materials, samples and shop drawings

- a) Samples

Materials or work which do not conform to the approved samples submitted in terms of Clause 7.4.1 of the Conditions of Contract, will be rejected. The Engineer reserves the right to submit samples to tests to ensure that the material represented by the sample meets the specification requirements.

The costs of any such tests conducted by or on behalf of the Engineer, the results of which indicate that the samples provided by the Contractor do not conform to the requirements of the Contract, shall, in accordance with the provisions of Clause 7.4.4 of the Conditions of Contract, be for the Contractor's account.

28. C3.4.4 CONSTRUCTION EQUIPMENT**29. C3.4.4.1 Requirements for equipment**

The Contractor shall provide construction equipment suitable for the execution of the Works, including testing and protective equipment. Equipment shall be maintained in good working condition for the duration of the contract. All equipment shall be in accordance with the relevant Specifications where applicable.

The Contractor shall maintain the validity of certification of Equipment that requires such certification in terms of the Specification and any applicable regulations. Operators of equipment shall be suitably trained and appointed in writing, where applicable. Where necessary, the Contractor shall provide proof of training for the operation of any item of equipment.

30. C3.4.4.2 Equipment provided by the employer

The Employer provides no equipment for this contract.

31. C3.4.5 EXISTING SERVICES**32. C3.4.5.1 Known services**

Before the commencement of any excavation work (Should it be required), the Contractor shall obtain record drawings from the Employer indicating the position of existing services on the Site. The Contractor shall liaise with the Employer to establish exact positions of existing services before excavation.

33. C3.4.5.2 Treatment of existing services

The Contractor shall take utmost care not to damage any existing services.

The Contractor shall execute works on or adjacent to buildings, structures, pipelines, roads, cables and the like in accordance with the requirements of the Employer for the operation and maintenance of these structures.

Machine excavation near existing services will only be performed to the extent permitted by the Engineer.

34. C3.4.5.3 Use of detection equipment for the location of underground services

Unless indicated otherwise elsewhere in this document, the Contractor does not need to allow for the use and availability of detection equipment for the location of underground services.

35. C3.4.5.4 Damage to services

The cost for the replacement of damaged services shall be borne by the Contractor.

36. C3.4.5.5 Reinstatement of services and structures damaged during construction

The Contractor shall report damage to services or structures to the Engineer as a matter of urgency. The cost for the repair of such damage shall be borne by the Contractor. Claims by the Contractor in this regard will not be considered.

37. C3.4.6 SPECIFICATIONS: MECHANICAL WORKS**38. C3.4.6.1 GENERAL PROJECT DESCRIPTION**

The process and mechanical scope of this work includes preliminary assessment of the current pilot plant at the CSIR Innovation Hub for refurbishment and upgrades as necessary.

The installation includes the following units

- a) Existing pilot plant equipment (including three lamella clarifiers with adjoining pipework, valves and ancillaries), to be refurbished and brought back to optimum working condition
- b) a chemical makeup unit or dosing systems, to be upgraded to have sufficient (and redundant) capacity for make-up of each additive chemical and have variable dosing capacity
- c) reverse osmosis for polishing of the effluent water, to be refurbished and/or upgraded to meet the required effluent flows and quality,
- d) a sludge management unit for the storage of the various unit process effluent sludge.

39. C3.4.6.2 COMPLIANCE

- a) All the equipment and systems supplied under this contract shall comply with the minimum standards as contained in this specification, the applicable South African National Standards (SANS), to mining environmental regulations and safety standards, the OSH Act, the DWA Specifications, as well as general municipal by-laws, environmental, general and safety regulations and to good engineering principles.

40. C3.4.6.3 SCOPE

- a) This part of the specification provides the detail of the mechanical equipment and services required for the project.
- b) The detail specification may also include the description of items, which form the basis of payment in the Schedule of Quantities.
- c) This Contract is for the assessment of the existing pilot plant to identify all items to be refurbished and the actual refurbishment of the same back to a proper working state,

design for construction upgrade to chemical make-up and dosing system supply of equipment/material for the refurbishments and upgrades, fabrication, factory acceptance testing for all sub-assemblies, transport for delivery to Client premises, installation, testing and commissioning, hand-over with a 12 month guarantee of all the mechanical equipment and installations.

41. C3.4.6.3.1 REFURBISHMENT OF EXISTING PILOT PLANT EQUIPMENT INSTALLATION

- a) Assess every component for the existing pilot plant installation, identify all equipment, components, containers and interconnecting pipework, valves and ancillaries to be refurbished, followed by the complete refurbishment of the same, trial running and testing and commissioning of the same to put equipment installations back to proper working order.

42. C3.4.6.3.2 UPGRADE TO CHEMICAL MAKE-UP AND DOSING SYSTEM INSTALLATION

- a) Upgrade design, fabrication, factory testing, transport, delivery and installation and commissioning of three replacement sets of chemical slurry make-up and dosing package plants for the separate make up and dosing of the three chemicals, namely, Magnesite, Lime and Soda Ash into each of the reacting vessels in turn, and each package set shall include a mixing tank equipped with mixer, a slurry holding tank, and a chemical slurry dosing pumps setup feed from the holding tank.

43. C3.4.6.3.3 REFURBISHMENT/UPGRADE TO REVERSE OSMOSIS PLANT INSTALLATION

- a) Assessment of installed RO system for functional status and adequacy. Re-design (optimized design & shop drawings), fabrication, factory acceptance testing, transport, delivery and installation of new upgraded Ultra-Filtration and Reverse Osmosis (UR_RO) Package Plant for further treatment of final effluent from the last lamellar clarifier into potable water for local usage.

44. C3.4.6.3.4 MANAGEMENT SYSTEM REFURBISHMENT

Refurbishment or replacement design, fabrication, transport, delivery and installation, testing and commissioning of sludge collection and storage and drying system for all the reactor settled sludge collection, as well as the sludge supernatant/underflow recycle where needed.

45. C3.4.6.4 TECHNICAL DETAILS

46. C3.4.6.4.1 CHEMICAL SLURRY MAKE-UP & DOSING SYSTEM

To upgrade to an optimal chemical slurry make-up and dosing system:

- a) The Mechanical Contractor shall design or verify/optimize provided design, fabricate and carry out factory acceptance testing, supply and deliver to site three (3) identical chemical

slurry preparation and dosing system package plants to be installed at the footprint of the existing systems to be replaced; each package unit located upstream to the mixing tank sub-division of the Lamellar clarifier to dose into. Each package slurry preparation and dosing plant shall consist of a slurry make-up tank equipped with a chemical powder feed screw setup, a flash mixer for mixing of added chemical powder with water, a mixed slurry holding tank feeding to a dosing pump system that pumps the slurry to the mixing tank of the adjacent lamellar clarifier. The slurry make-up tank mixed contents shall overflow to the slurry holding tank, which feeds a duty/standby dosing pump arrangement of the dosing pump station setup. This tank shall also be fitted with a connecting pipe with a quick coupling or similar unit for the connection of incoming potable water or raw AMD extract for chemical make-up at the inlet to this tank.

- b) The slurry make-up tank can be used as a slurry holding/dosing tank feeding slurry to the dosing pump system. The make-up tank shall have the following characteristics.
- Model :
 - Material of construction: stainless steel or corrosion-resistant mild steel painted
 - Features: equipped with a chemical powder screw feeder (VSD)
 - Mass of chemical dissolved /m³ : 25kg for Magnesite,
 - Make-up volume of slurry : 1 m³
 - Feed rate of powder into tank : ...kg/h
 - Consumption of chemical slurry : 6-20 L/h
 - Required mixture reaction time : 8.11minutes
 - Ancillaries needed : mounting/support for the flash mixer installation above tank, coupling/connection for incoming potable make-up water into the tank, and connection for offloading to dosing pumps or slurry holding tank, among others.
 - Other : able to handle chemical slurry
- c) The flash mixer for the make-up tank shall have the following specifications:
- Model : Should be a catalogued, locally supported brand product (e.g Afromix)
 - Type: vertical shaft mixer for tank mixing with curved back swept impeller blades
 - Make up water flow rate : m³/h (to be advised)
 - Height of tank : 0.5-1 m
 - Rotational speed : 1450 rpm(to be confirmed)

- Expected motor size : 0.2 kW
 - Starting method : VSD
 - Other : able to be used in handled chemical slurry environment
- d) The slurry holding tank, if used separately to receive mixed chemical slurry from the make-up tank, shall feed the dosing pumps instead. The dosing pumps in this case shall be used for both dosing into the reactor and for recirculating the slurry into the holding tank on a regular basis to keep reagent slurry solids from settling. The recirculation shall not affect the slurry dosing rate into the reactor. A careful arrangement and control of an actuated valve to maintain a set dosing rate into the reactor while recirculation is taking place will be needed. During the recirculation period, the recirculation pipe isolation valve will be fully open while the dosing line actuated valve is throttled accordingly to achieve a desired dosing flow rate determined by a control signal from the pH measuring device. In such an arrangement, one or both dosing pumps can be operated to aid the recirculation mixing operation as the need may arise. The Mechanical Contractor can propose an alternative way to achieve the conflicting pumping needs for precise dosing and recirculation mixing of the tank. The slurry holding tank shall have the following characteristics.
- Model :
 - Material of construction : stainless steel or corrosion-resistant mild steel painted (or suitable plastic alternative, Contractor to clarify)
 - Rated flow rate out of the tank : 6-20 L/h
 - Volume : 1 m³/ (minimum)
 - Expected reaction (retention) time : 8:11 minutes (minimum)
 - Ancillaries needed : mounting/support for the flash mixer installation above tank, coupling/connection for incoming pumped raw AMD effluent water into the tank, and connection for chemical slurry dosing, among others.
 - Other : able to be used in acidic water environment
- e) The chemical slurry dosing pump shall have the following characteristics
- Model : Should be a catalogued, locally supported brand product
 - Type : Centrifugal pumps
 - Duty flow : 6-20 L/h
 - Duty head : 10 meters

- Pump efficiency : 60 % (minimum)
- Expected motor size : 0.37 Kw
- Starting method :VSD
- Solids handling : 5 mm
- Other : able to be used for the pumped effluent water environment

47. C3.4.6.4.7 ULTRA FILTRATION AND REVERSE OSMOSIS (UR-RO) PACKAGE PLANT

In case the existing RO system is not adequate or not economic to refurbish, or not working satisfactorily, the following steps shall be taken by the Contractor.

- a) The Mechanical Contractor shall propose an optimal replacement design for the RO system, fabricate and carry out factory acceptance testing of all equipment, supply and deliver to the site one Ultra Filtration and Reverse Osmosis (UR-RO) package plant suited for the 20 kL/day final output capacity, which will be installed inside a suitable package container. The package UF-RO plant shall be complete with all required pumping equipment, pipework, valves, fittings, cartridge filters, UF package membranes, RO package membranes, all backwash pumping equipment and all CIP equipment and other ancillaries and consumables (CIP chemicals etc) sufficient for at least one month's treatment supply. The package is expected to have the following components:

Ultra Filtration System, complete with UF feed pumps, backwash (CIP) pumps, Ultra Filtration module trains and associated housing, pipework, valves, electricals and instrumentation as well as all other components and ancillaries for a 20kL/day output treatment module as itemised in the Bill of Quantities.

- i. One UF membrane selection option example is based on module used for a previous simulation, which is the IntegraPac IP-77XP which consists of 1 train with 1 module.
- ii. Reverse Osmosis System, complete with RO feed pumps, backwash (CIP) pumps, Reverse Osmosis module train (1 module, 2 stage pass), membranes and their housings, chemical mixing and dosing tanks, chemical dosing pumps, pipework, valves and ancillaries, RO pipework, valves, electricals and instrumentation as well as all other components and ancillaries for a 20kL/day treatment module as itemized in the Bill of Quantities.
- iii. Individual CIP (backwash) systems, one for the UF system and the other for the RO system, complete with CIP pumps, CIP make up tanks and ancillaries, chemical

dosing pumps, pipework, valves and ancillaries suitable for a 20kL/day treatment module as itemized in the Bill of Quantities.

- iv. UF feed pumping system for supplying clarified final effluent from UF feed water sump to the ultra filtration system, complete with all UF feed pumps, pipework, valves and mounting ancillaries for the complete UF feed pumping system.
- v. RO feed pumping system for supplying UF treated water from the treated water sump to the Reverse Osmosis trains, complete with all RO feed pumps, pipework, valves and mounting ancillaries for the complete RO feed pumping system.
- vi. Sludge pumping system for pumping backwash (CIP) sludge from the sludge sumps to the sludge containers (ponds?), complete with all sludge pumps, pipework, valves and mounting ancillaries for the sludge pumping system.
- vii. Service water pumping system for pumping service water from the treated water sumps to the various supply locations for the service water, complete with all clean water pumps, pipework, valves and mounting ancillaries for the service water pumping system.

Pumping Equipment For The Works:

While pumping equipment to supply or support the UF-RO package plant component sub-systems can be supplied together with the package plant equipment for a general installation, the selection of the pumps are generally dependant on the installation destination location and site conditions. It is therefore prudent that the selection of water pumps be handled separately having considered site conditions. The list of such pumps is those pumps that are not dosing pumps nor those pumps already integrated to the system, but include pumps installed to pump water or effluent from the mobile package storage tanks or sumps etc. These pumps include the pumps described below:

Ultra Filtration (UF) System Feed Pumps

The Mechanical Contractor shall design, procure, supply and deliver to site, test and commission two (2) ultra filtration (UF) train feed pumps to supply the UF Treatment UF train modules of 20MkL/d. There shall be a 1 duty and 1 standby feed pump installation configuration, each pump comes complete with motors and mounting ancillaries, and to be used to pump clarified final effluent water from the UF feed tank. The selected pumps shall have the following characteristics.

- Model : An established brand (product locally available and supported in the local market. This design is based on the FilmTec BW30HLRE-440 Element module used in the simulation.
- Pump duty flow rate : 20kL/day
- Pump duty head : 25 m
- Power (motor) : 0.75 kW (to be confirmed)

- Motor Voltage : 380V
- Starting method : VSD
- Arrangement : 1 duty, 1 standby, with duty rotation of the pumps.

The current pump selection is an estimated to be confirmed after detailed design of the system. The actual pump duty requirements and final pump selection shall be confirmed after the selection of the successful bidder for the package plant supply. Details of the final proposal of the UF feed pumps shall be submitted to the employer/engineer for review and approval prior to ordering the equipment.

Reverse Osmosis (RO) System Feed Pumps

The Mechanical Contractor shall design, procure, supply and deliver to site, test and commission two (2) reverse osmosis (RO) train feed pumps for the RO train module of 20kL/d. For this 20kL/d/day RO module, there shall be a 1 duty and 1 standby feed pump installation configuration, each pump comes complete with motors and mounting ancillaries, and to be used to pump treated water from a sump fed from the Ultra Filtration (UF) delivery pump line. The selected pumps shall have the following characteristics.

- Model : An established brand product locally available and supported in the local market. This design is based
- on the IntegraPac IP-77XP UF-RO module used in the simulation.
- Pump duty flow rate : 20kL/d
- Pump duty head : 132 m (13.2 bar) (to be confirmed)
- Power (motor) : 1.5 kW (to be confirmed)
- Motor Voltage : 380V
- Starting method : VSD
- Arrangement : 1 duty, 1 standby, with duty rotation of the pumps.

The current pump selection is based on a similar previous system design that was modelled to give some key parameters used in the design. The actual pump duty requirements and final pump selection shall be confirmed after the selection of the successful bidder for the package plant supply. Details of the final proposal of the UF feed pumps shall be submitted to the employer/engineer for review and approval prior to ordering the equipment.

UF-RO CIP (Backwash) System Pumps

The Mechanical Contractor shall design or verify/optimize provided design, supply and deliver to site, test and commission two (2) UF-RO CIP (backwash) system feed pumps, with 1 duty and 1 standby feed pump installation configuration, each pump comes complete with motors and mounting ancillaries, and to be used to pump a water solution dosed with cleaning chemicals (Sulfuric acid, SMBS, Sodium Hypochlorite and Sodium Hydroxide) from CIP tanks to the pipework supplying to the UF-RO CIP connection points. The simulation model results have Citric acid (100% concentration), HCl(32%), NaOCl (12%) and NaOH (50%) for the CIP chemicals. The selected pumps shall have the following characteristics.

- Model : An established brand product locally available and supported in the local market
- Pump duty flow rate : 6 m³/h (estimate, to be confirmed)
- Pump duty head : 25 m (to be confirmed)
- Power (motor) : 1.5 kW (to be confirmed)
- Motor Voltage : 380V
- Starting method : VSD
- Arrangement : 1 duty, 1 standby, with duty rotation of the pumps.

The current pump selection is based on a similar previous system design that was modelled to give some key parameters used in the design. The actual pump duty requirements and final pump selection shall be confirmed after the selection of the successful bidder for the package plant supply. Details of the final proposal of the UF-RO CIP backwash pumps shall be submitted to the employer/engineer for review and approval prior to ordering the equipment.

Service Water Pumps

The Mechanical Contractor shall design or verify current design, supply and deliver to site, test and commission two (2) potable water pumps, to be installed on a 1 duty and 1 standby pump installation configuration, each pump comes complete with motors and mounting ancillaries, and will be used to pump RO permeate water from the potable or final treated water holding tanks to the pipework reticulation supplying all the locations in need of service water around the mobile plant installation. The selected pumps shall have the following characteristics.

- Model : An established brand product locally available and supported in the local market
- Pump duty flow rate : 200 l/h
- Pump duty head : 30 m

- Power (motor) : 0.2 kW
- Motor Voltage : 380V
- Arrangement : 1 duty, 1 standby, with duty rotation of the pumps.

The current pump selection is based on an estimated of the potable water requirements for the Pilot Plant and does not include any needs beyond this pilot plant. The actual pump duty requirements and final pump selection shall be confirmed after the selection of the successful bidder for the package plant supply once all other potable water needs have been identified and quantified. Details of the final proposal of the service water pumps shall be submitted to the employer/engineer for review and approval before ordering the equipment.

48. C3.4.7 SPECIFICATIONS: ELECTRICAL WORKS

49. C3.4.7.1 GENERAL

The electrical portion of the Works shall comply with the relevant South African National Standards, but as varied by this Detailed Electrical Specification, the Technical Data Sheets and Drawings where available.

The electronic portion of the Works is covered under Sections C3.4.8

50. C3.4.7.2 SCOPE

The electrical portion of this Contract shall include the following (Assessment and refurbishment):

- b) Liaison with the Employer's Electrical Department to coordinate LV source supply.
- c) Motor Control Centers (MCCs)
- d) Generator connection box.
- e) Air Conditioning Units
- f) Small power and lighting
- g) LV power cables
- h) Cable support systems
- i) Labelling of equipment
- j) Trenching and backfilling where required
- k) Bonding and earthing
- l) Testing and commissioning
- m) Certificates of compliance
- n) As-built drawings
- o) Operation and maintenance manual
- p) Training

q) Spares

51. C3.4.7.3 COMPLIANCE

General

- a) All supplied equipment shall be new and undamaged.
- b) The Employer shall have the right to request samples of equipment for approval before procurement and installation by the Contractor.
- c) The Contractor shall request a list of required samples from the Employer at the start of the contract to avoid delays.
- d) All equipment shall have a minimum guarantee period of 12 months from the date of issue of the certificates of compliance.

Electrical Works Compliance

The electrical installation shall be in accordance to the relevant South African Nation Standards and

The electrical works shall also be provided in accordance with the following Technical Data Sheets:

- | | |
|---------------|--|
| a) DS-EE-0001 | LV Switchgear & Control gear assemblies – Motor Control Centre |
| b) DS-EE-0002 | LV Cables |
| c) DS-EE-0003 | Cable Support |
| d) DS-EE-0004 | Small Power and Lighting |
| e) DS-EE-0005 | Lighting |
| f) DS-EE-0006 | Luminaire Schedule |
| g) DS-EE-0007 | LV Electrical Motors < 50kW |

52. C3.4.7.4 LV SWITCHGEAR AND CONTROLGEAR ASSEMBLIES

General

- a) LV MCCs shall be installed in the new dedicated MCC containers. The following assemblies shall be installed. The panels and their locations are as follows:
 - i. Container 1 MCC-01
 - ii. Container 2 MCC-02
 - iii. Container 3 MCC-03
- b) The main MCC-01 shall be fed from Client's existing source. MCC-01 will in feed MCC-02 and MCC-03
- c) The new MCCs shall be earthed to the main earthing bar which shall be installed in their respective Containers.
 - i. The MCCs Assemblies shall consist of the following main components:
 - ii. Main incomer circuit breaker.
 - iii. Generator incomer section, including automatic changeover (applicable to MCC-01 only)

- iv. Power Meter.
 - v. Functional units for the required incomer, pump motor starters, and other equipment.
 - vi. Section for container distribution board (small power and lighting)
 - vii. Feeder to UPS in PLC section or Remote I/O section (instrument, control voltage, and PLC power)
 - viii. Feeder to container's A/C Unit.
 - ix. Feeders to other equipment as specified
 - x. Terminal strip per function unit for termination of all control wiring. All control inputs and outputs for motor controls shall be wired to the relevant PLC. The power supply (main circuit breakers open/close, control voltage, etc.) shall also be wired to the relevant PLC.
- d) Labels for the equipment on the new MCC shall have the following information:
- i. Tag number (To be finalised with Client before printing to match Clients tagging structure if any. If there is no existing tagging structure, the new tags shall be workshopped with Client and final tags approved by Client)
 - ii. Description e.g., Surface Aerator No.1
 - iii. kW rating
 - iv. Full load current rating

Testing and Commissioning

- a) Witnessed factory and site acceptance testing by 1 Engineer and 2 Employer Personnel shall be carried out by the Contractor.
- b) A factory acceptance test (FAT) document shall be provided to the Engineer prior to the witnessed FAT.

53. C3.4.7.5 LV CABLES

General

- a) The contractor shall develop a detailed design of the cable routes and lengths during construction and submit a cable route drawing, cable block diagram and cable schedule for the approval to the Engineer based on equipment loads.
- b) Should the ratings of new equipment offered differ from the Engineer's estimates, then the equipment's supply cables shall be sized to suit the equipment offered.
- c) LV multicore cables shall be copper conductor, PVC insulated cables with steel wire armouring
- d) Cables shall enter and exit the MCC from below or top to suit.
- e) Inside the containers, the LV cables shall be installed on surface mounted cable ladders, and the control and instrumentation cables shall be installed on wire mesh cable trays.
- f) Cables shall be tied in an orderly, planned system, where overlapping of cables are minimised as far as possible.
- g) Cables shall not be bundled together but installed flat on the cable ladder or tray adjacent to each other. Cable ladder/tray width shall be designed accordingly.

- h) Control and instrument cables may be run on the same cable tray/ladder as power cables, except where electromagnetic interference may affect the instrumentation signals. Control and Instrumentation cables shall be installed at least 300 mm away from power cables.
- i) All surface-mounted conduits used for the installation of LV cables shall be stainless steel.
- j) The Contractor shall be responsible to install the supply cable to the main MCC-01 panel from existing source supply.

54. C3.4.7.6 CABLE SUPPORTS

General

- a) Stainless steel cable trays shall be provided to support cables.
- b) All surface-mounted conduits used for the installation of LV cables shall be stainless steel.
- c) Medium duty stainless steel wire mesh cable trays shall be provided to support all instrumentation cables, control cables and LV power cables where these cannot be run on cable ladders provided for the large-section LV power cables.
- d) The Contractor shall design detailed cable routes in collaboration with the Engineer. Detailed cable routes and cable ladder layout drawings shall be submitted for the Engineer's approval prior to installation.
- e) The Contractor shall ensure that measures are taken to ensure water does not accumulate in the cable trenches and sleeves. If water ingress is inevitable a drainage system shall be put in place to easily extract the water.

55. C3.4.7.7 LV EARTHING AND BONDING

General

- a) Earthing conductors shall be PVC-insulated copper conductors or bare earth copper conductors.
- b) The Contractor shall make sure all electrical equipment fed from the MCC assemblies are properly earthed.
- c) Earth continuity conductors shall be provided with all LV power cables to electrical equipment.
- d) The Contractor shall make sure the new MCC panels are connected to their respective building main earth bars and that the containers are also properly earthed.
- e) All exposed conductive parts and accessible extraneous conductive parts shall be bonded in accordance with SANS 10142-1.

56. C3.4.7.8 PUMP MOTOR PROTECTION

General

- a) Each Pump/motor set shall be supplied with the protection as shown on the process and instrumentation diagrams (P&IDs or MFDs).

57. C3.4.7.9 ACTUATORS

General

- a) Where actuated valves are required, actuated valves shall be provided with control circuitry.
- b) Control and feedback communication between the PLC or remote I/O and the actuator shall be by means of hardwired digital signals to the PLC section or Remote I/O section of the MCC panels.
- c) The offered actuator supplier shall have local support and maintenance team available within 2 hours drive of the site.

58. C3.4.7.10 SMALL POWER AND LIGHTING

Lighting

- a) LED-based light fittings shall be installed.
- b) Exterior lighting shall be controlled by means of a contactor (located in the MCC DB section) and photocell unless otherwise specified.
- c) Light switches for indoor lights shall be surface-mounted close to the container doors
- d) Details of luminaires to be installed are supplied in the technical datasheets.
- e) Samples of all light fittings shall be delivered to the Engineer for approval before orders are placed

Power Outlets

- a) At least one single-phase switched socket outlets shall be installed surface mounted in the Containers.
- b) At least one industrial three phase switched socket outlets shall be installed surface-mounted in the Containers.
- c) Switch disconnectors or isolators shall be surface mounted and installed within arm's reach of the equipment it isolates.
- d) Corrosion-resistant outlets and switch disconnectors shall be installed.
- e) All power outlets and light switches shall be installed surface mounted at least 1200mm AFFL.
- f) All socket outlets, light switches and switch disconnectors shall be supplied complete with boxes, cover plates, switches, etc. and shall be similar or equivalent to Crabtree Classic Range.
- g)

59. C3.4.8 SPECIFICATIONS: ELECTRONIC WORKS

60. C3.4.8.1 GENERAL

The electronic portion of the Works shall comply with the relevant South African National Standards, but as varied by this Detailed Electronic Specification, the Technical Data Sheets and Drawings, where available.

61. C3.4.8.2 SCOPE

The electrical portion of this Contract shall include the following:

- a) Programmable Logic Controller
- b) Remote Input Output units (Remote I/Os)
- c) Human Machine Interface (HMI)
- d) Programming
- e) Uninterrupted Power Supply Units (UPS)
- f) Instrumentation
- g) Control, instrumentation and data cables
- h) Cable Supports
- i) Earthing and surge protection of electronic equipment
- j) Functional Design Specification (FDS)
- k) Testing and commissioning of the electronic installation.
- l) Instrumentation Calibration Certificates
- m) Certificates of compliance
- n) As-built drawings
- o) Operation and maintenance manuals
- p) Training
- q) Spares

62. C3.4.8.3 COMPLAINE**General**

- a) All supplied equipment shall be new and undamaged.
- b) The Employer shall have the right to request samples of equipment for approval prior to procurement and installation by the Contractor.
- c) The Contractor shall request a list of required samples from the Employer at the start of the contract to avoid delays.
- d) All equipment shall have a minimum guarantee period of 12 months from the date of issue of the certificates of compliance.

Electrical Works Compliance

The electronic installation shall be in accordance to the relevant South African Nation Standards and

The electronic works shall also be provided in accordance with the following Technical Data Sheets:

- | | |
|---------------|---|
| a) DS-II-0001 | Control Panels |
| b) DS-II-0002 | Instrumentation |
| c) DS-II-0003 | Control, Instrumentation, and Data Cables |

63. C3.4.8.4 GENERAL

- a) The control system architecture shows how the control and monitoring system of the mobile packaged plant is connected.
- b) The plant shall be automatically controlled by the main MCC-01 centralised PLC, with the option of manual control.
- c) A fibre optic ring shall connect the main MCC PLC and the other MCCs remote I/Os.
- d) The Contractor shall develop a detailed control system architecture for the works and his offered equipment and submit a diagrammatic representation thereof to the Engineer for approval prior to detail design and purchase of equipment, manufacture and programming of the control and instrumentation system.

64. C3.4.8.5 SYSTEM VOLTAGE

- a) 230VAC for MCC contactor coils and MCC controls
- b) 24VDC for PLC
- c) 230VAC UPS supply
- d) 230VAC/24VDC for UPS supply to instrumentation power as required
- e) 24VDC for solenoid blocks
- f) 24VDC for digital inputs and outputs
- g) 4 – 20mA current for analogue instruments

65. C3.4.8.6 CONTROL CABLES

- a) The Contractor shall develop a cable schedule and cable block diagram to suit his equipment offered and the Contractor shall be deemed to have allowed in his price all control cabling required to complete the installation.
- b) Control cables shall be 600/1000V multicore standard copper conductors. PVC-insulated cables with galvanised steel wire armouring and PVC serving.
- c) All cable glands shall be resistant to corrosion and shall be of the Enviro-gland or approved equivalent type.
- d) Multicore cables shall be used to group the control signals of each pump set and field instrumentation where applicable and relay them to the applicable remote IO.

66. C3.4.8.7 INSTRUMENTATION CABLES

- a) The Contractor shall develop a cable schedule and cable block diagram to suit his equipment offered under the contract and the Contractor shall be deemed to have allowed in his contract all instrumentation cabling required to complete the installation.
- b) Instrumentation cables shall either be twisted pair or triad standard copper conductors, individually and overall screened, PVC-insulated with galvanised steel wire armouring and PVC serving.
- c) All cable glands shall be resistant to corrosion and shall be of the Enviro-gland or approved equivalent type.

67. C3.4.8.8 DATA CABLES

- a) Data cables shall be provided as detailed in the control system architecture drawing. The Contractor shall develop a final cable schedule and cable block diagram to suit his equipment offered under the contract and the Contractor shall be deemed to have allowed in his/her PRICE all data cabling required to complete the installation.

68. C3.4.8.9 CABLES SUPPORTS AND CABLE WAYS

- a) Control and instrument cables may be run on the same cable tray/ladder as power cables, except where electromagnetic interference may affect the instrumentation signals.
- b) Control and Instrumentation cables shall be installed at least 300 mm away from power cables. Where this is not possible, control, instrumentation and data cables shall be installed in dedicated cable trays.
- c) Stainless Steel 316 cable trays shall be provided to support cables.

69. C3.4.8.10 CONTROL PANELS**PLC Section**

- a) The PLC section shall be part of the corresponding MCC panel.
- b) The panel shall house the PLC, HMI, direct current (DC) power supplies, instrumentation distribution and UPS.
- c) The new PLC shall control and monitor the packaged plant equipments.
- d) All UPSs, power meters, remote IOs and instrumentation associated with each container process area shall be interfaced and/or connected to the relevant PLC or remote I/O for full automatic control and monitoring purposes.
- e) The price for the PLC section shall be deemed to include for all mounting plates, DIN mounting rails, wire trunking, wiring, labelling, glands and internal peripherals. The price of the steelwork shall be included under the MCC.
- f) The enclosure shall be properly ventilated by extractor fans with dust filters. Cooling shall include adequate cooling for the UPS.
- g) The panel shall be large enough to allow for all required equipment plus 20% spare physical space.
- h) A separate protective earth bar (front) and an insulated earth bar (marshalling rear) shall be supplied at the bottom of the PLC section.
- i) The installation, termination, earthing and lightning/ surge protection of the enclosures (and all associated components) shall conform to the requirements of the PLC Engineering Specification.

Programmable Logic Controller Functionality

- a) The PLCs shall be programmed to execute automatic operations of the works according to the Engineer's specified control philosophy.
- b) The PLC software developed under this contract shall remain open source (i.e. unlocked) and become the property of the Employer and shall be included on a USB flash disk as part of the final Operational and Maintenance (O&M) manuals.

Inputs and Outputs

- a) The Contractor shall be responsible for determining and providing all the required I/O including spares to provide the specified control and monitoring functions of his offered equipment.
- b) Digital input / output cards shall be 24 VDC and analogue input / output cards 4- 20mA current loops where signals from conventional process instrumentation are required.
- c) The input / output modules shall be provided with their own power supply independent from the CPU power supplies.
- d) Prior to commissioning of the PLC and remote IOs and witnessing by the Engineer, the Contractor shall complete cable loop testing for all IOs and peripheral connections to the PLC and remote IOs by means of an IO list check. The completion of the IO list checking shall be provided to the Engineer in writing and only thereafter shall the installation be witnessed by the Engineer.

Uninterruptible Power Supply (UPS)

- a) The PLC and Remote I/Os shall be equipped with a UPS which shall provide power to it's designated PLC, HMI, remote I/Os and instrumentation during mains failure for the minimum period specified in technical data sheets.
- b) An isolation transformer on the input side shall be included to ensure voltages remain constant when the neutral supply is cut during generator changeover.
- c) Adequate provision shall be made for ventilation of a UPS when it is installed in a PLC panel.
- d) The UPS system shall be tested on site and the Contractor shall ensure that the PLC and HMI shutdown and restart automatically without losing any information or requiring operator intervention should the UPS standby period expire before standby generator power is available.

Human Machine Interface (HMI)

- a) A colour touch screen graphical HMI shall be provided at the PLC panel. The HMI shall be configured to provide the operator with equipment control and status information, alarm lists, graphical trends and limited data logging.
- b) The HMI shall also allow control parameter changes to the PLC, which shall be password protected and logged. Operator actions, selections or setting updates described in the control philosophy shall be possible via the HMI interface.
- c) The HMI shall be configured with a simple default graphic display (mimic) showing all relevant equipment of the works, its status (running, tripped or stopped) and instantaneous and totalised instrument readings.
- d) Mode selection on related electrical equipment (e.g. motor starters, control system mode, etc.) shall be clearly indicated on the HMI.
- e) Status shall be indicated by different state colours (such as white for ready, green for running, amber for tripped and red for 'E-stop' or other fault states).

- f) A trending page shall be provided showing all measured value readings over time. The trend page shall show live and historical data (which shall be logged to the HMI memory in a first in first out rolling log file). Trends shall be configured to show an hourly interval of readings.
- g) An alarm page shall be provided showing all outgoing and incoming alarms. Alarms shall also be stored in a first in first out file stored in the HMI memory. It shall be possible to scroll backward and forward in the alarm list.

70. C3.4.8.11 INSTRUMENTATION

- a) The Contractor shall provide instrumentation that is not an integral part of mechanical equipment as indicated on the P&IDs.
- b) If the Contractor deems additional instruments necessary that are not listed/shown as part of the P&IDs to ensure the safety and protection of equipment, he/she shall include each instrument as a line item in the additional section of the Bill.
- c) All instruments shall be supplied from UPS power unless they are potential free contacts or loop-powered by the remote IO units.
- d) Instrumentation shall be connected to the PLC/remote IO as indicated on the control and instrumentation cable schedule attached to the specification.
- e) The Contractor shall be responsible for pricing any changes to the instrumentation and control design that are caused by his/her selection of revised processes and mechanical equipment.
- f) All instrumentation equipment shall be supplied complete with mounting material and ancillary equipment required for a complete installation.
- g) It shall be the Contractor's responsibility to supply the correct instrumentation for the applications and size the inline flow meters nominal diameters.
- h) Instrument transmitters shall be mounted separately from sensors and shall allow local indication as and where specified in the Instrumentation List.
- i) All sensor mounting material and brackets shall be stainless steel 316.
- j) Instrument transmitters shall be surface mounted. Mounting material and brackets shall be galvanized steel.
- k) All instrumentation that is not an integral part of mechanical equipment or part of a vendor package unit shall be supplied and installed by the Contractor together with all brackets, adaptors and connectors that may be necessary. The Contractor shall produce instrument hook-up drawings for approval by the Engineer prior to installation.
- l) The prices quoted for instrumentation shall include all process connections, adapters, brackets, utility junction boxes, glands, wires and labels as well as set-up and calibration of the instrumentation.
- m) The instruments shall be calibrated and calibration certificates shall be supplied and submitted to the Engineer for review as well as filed in the O&M Manuals.

71. C3.4.8.11 PUMP/MOTOR PROTECTION INSTRUMENTATION

- a) Pump and motor protection shall be provided as shown on the P&IDs. The Contractor shall ensure all pumps and motors offered and supplied are adequately protected.

- b) Instruments for critical pump protection (safety interlocks) shall also be wired to the MCCs (by means of relays logic using certified safety relays) to ensure tripping by hardwiring, even in the absence of PLC control.
- c) Pump protection signals transmitted via the field remote IOs shall be equipped with certified safety relays.

72. C3.4.9 INSTALLATION AND PRE-COMMISSIONING TESTS

During this phase, the Contractor shall undertake the following:

- a) Check the structures constructed for accuracy and report any deviations to the Engineer before proceeding with the other duties under this phase.
- b) Undertake all construction work falling within this Scope Works and install all equipment.
- c) Undertake the pre-commissioning tests for all equipment, including all stand-alone equipment tests and inspections specified or ordered by the Engineer, or otherwise required to demonstrate compliance with the Scope of Work. Any further tests recommended by the Contractor shall also be submitted to the Engineer for approval and shall be performed at this time.
- d) Calibrate all equipment as applicable.
- e) Correct any calibration or other errors/defects that will result in a defective installation.
- f) Submit to the Engineer all Contractor's Documents required for this Phase of the Work Breakdown Structure, which shall include:
 - i. A commissioning plan
 - ii. The As-built Documents
 - iii. The Operation and Maintenance Manuals
 - iv. A comprehensive report containing detailed schedules and documentation to record all pre-commissioning tests undertaken and the results of these, demonstrating that the Works have passed the pre-commissioning tests.

73. C3.4.10 INSTALLATION AND PRE-COMMISSIONING TESTS

Once the Engineer certifies that the Works have passed the commissioning tests and that the whole of the Works have successfully been put into operation, the Contractor shall undertake the trial operation of the Works and shall train the Employer's staff in the operation and maintenance of the Works. During this phase, the Contractor shall:

- a) During the first half of the Trial Operation Period, operate the entire Works in accordance with the production requirements of the Employer (i.e. the Works is to be operated by the Contractor's Commissioning Engineers). During this time, the Contractor's personnel shall train the Employer's staff in all aspects of the operation and maintenance of the Works.
- b) During the second half of the Trial Operation Period, oversee and supervise the operation of the Works by the Employer; the Contractor's Commissioning Engineers shall be on Site for at least 8 hours a day for this purpose. During this time the Contractor's personnel shall provide on-the-job training to the Employer's operation and maintenance staff, so as to ensure that they are well-trained for the operating and maintaining of the Works.

- c) Monitor and maintain the Works and correct any defects.
- d) Provide formal, structured and comprehensive training for the Employer's staff on all aspects of the operation and maintenance of the Works, at dates and times that suit the Employer's shifts so that all appropriate staff are trained. The training shall include formal lectures, with the provision of lecture notes to the staff, and practical demonstration to the staff of all operation and routine maintenance actions.
- e) Submit to the Engineer all Contractor's Documents required for this Phase of the Work Breakdown Structure, which shall include:
 - i. Fortnightly reports detailing the equipment failures, plant performance and problems, training logs, and shall provide an evaluation of the performance of the Employer's operators, and
 - ii. Report on the completion of the trial operation.

The Works will not be considered complete for the purposes of Practical Completion in terms of C1.2: Contract Data, until the trial operation period and any extension thereof has been successfully completed to the satisfaction of the Engineer.

74. C3.4.11 OPERATION AND MAINTENANCE

Prior to the commencement of the Test on Completion, the Contractor shall supply to the Employer's Agent provisional operation and maintenance manuals in sufficient detail for the Employer to operate, maintain, dismantle, reassemble, adjust and repair the mobile plant.

The works shall not be considered to be completed for the purposes of Practical Completion until the Engineer and Employer have received final operation and maintenance manuals in such detail, and any other manual specified in the Scope of Works for these purposes.

Annexure C
Standard Bidding Document (SBD) 1

PART A: INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE CSIR					
BID NUMBER:	RFQ 6653/17/02/2026	CLOSING DATE:	17/02/2026	CLOSING TIME:	16H30
DESCRIPTION	Provision of Refurbishment and Upgrade of 20kl AMD Treatment Plant to the CSIR				
BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT (STREET ADDRESS)					
The CSIR requires that all tender submissions be submitted electronically to tender@csir.co.za . Should tender file size exceed 25MB, bidders submit tender in multiple emails. Use the tender number RFQ 6653/17/02/2026 and description of the tender as the subject on your email.					
BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO			TECHNICAL ENQUIRIES MAY BE DIRECTED TO:		
CONTACT PERSON	SCM		CONTACT PERSON	SCM	
TELEPHONE NUMBER	N/A		TELEPHONE NUMBER	N/A	
FACSIMILE NUMBER	N/A		FACSIMILE NUMBER	N/A	
E-MAIL ADDRESS	tender@csir.co.za		E-MAIL ADDRESS	tender@csir.co.za	
SUPPLIER INFORMATION					
NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
SUPPLIER COMPLIANCE STATUS	TAX COMPLIANCE SYSTEM PIN:		OR	CENTRAL SUPPLIER DATABASE No:	MAAA
1 ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	<input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES ENCLOSE PROOF]		2 ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES /WORKS OFFERED?	<input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES, ANSWER THE QUESTIONNAIRE BELOW]	
QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS					
IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?					<input type="checkbox"/> YES
<input type="checkbox"/> NO					

DOES THE ENTITY HAVE A BRANCH IN THE RSA?	<input type="checkbox"/> YES <input type="checkbox"/> NO
DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA?	<input type="checkbox"/> YES <input type="checkbox"/> NO
DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA?	<input type="checkbox"/> YES <input type="checkbox"/> NO
IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION?	<input type="checkbox"/> YES <input type="checkbox"/> 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 BELOW.	

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) OR IN THE MANNER PRESCRIBED IN THE BID DOCUMENT.
1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT, 2000 AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2022, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.
1.4. THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (SBD7).
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 VERIFY THE TAXPAYER’S PROFILE AND TAX STATUS.
2.3 APPLICATION FOR TAX COMPLIANCE STATUS (TCS) PIN MAY BE MADE VIA E-FILING THROUGH THE SARS WEBSITE WWW.SARS.GOV.ZA.
2.4 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.
2.5 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.
2.6 WHERE NO TCS PIN IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.
2.7 NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE, COMPANIES WITH DIRECTORS WHO ARE PERSONS IN THE SERVICE OF THE STATE, OR CLOSE CORPORATIONS WITH MEMBERS PERSONS IN THE SERVICE OF THE STATE.”

NB: FAILURE TO PROVIDE / OR COMPLY WITH ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.

SIGNATURE OF BIDDER:

CAPACITY UNDER WHICH THIS BID IS SIGNED:

 (Proof of authority must be submitted e.g. company resolution)

DATE:

Annexure D
Standard Bidding Document (SBD) 4

BIDDER'S DISCLOSURE

1. PURPOSE OF THE FORM

Any person (natural or juristic) may make an offer or offers in terms of this invitation to bid. In line with the principles of transparency, accountability, impartiality, and ethics as enshrined in the Constitution of the Republic of South Africa and further expressed in various pieces of legislation, it is required for the bidder to make this declaration in respect of the details required hereunder.

Where a person/s are listed in the Register for Tender Defaulters and / or the List of Restricted Suppliers, that person will automatically be disqualified from the bid process.

2. Bidder's declaration

2.1 Is the bidder, or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest¹ in the enterprise, employed by the state? YES / NO

2.1.1 If so, furnish particulars of the names, individual identity numbers, and, if applicable, state employee numbers of sole proprietor/ directors / trustees / shareholders / members/ partners or any person having a controlling interest in the enterprise, in table below.

Full Name	Identity Number	Name of State institution

2.2 Do you, or any person connected with the bidder, have a relationship with any person who is employed by the procuring institution? YES / NO

¹ the power, by one person or a group of persons holding the majority of the equity of an enterprise, alternatively, the person/s having the deciding vote or power to influence or to direct the course and decisions of the enterprise.

2.2.1 If so, furnish particulars:

.....

2.3 Does the bidder or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest in the enterprise have any interest in any other related enterprise whether or not they are bidding for this contract? YES /NO

2.3.1 If so, furnish particulars:

.....

3 DECLARATION

I, the undersigned, (name).....in submitting the accompanying bid, do hereby make the following statements that I certify to be true and complete in every respect:

- 3.1 I have read and I understand the contents of this disclosure;
- 3.2 I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;
- 3.3 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 consortium² will not be construed as collusive bidding.
- 3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.
- 3.4 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.
- 3.5 There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.
- 3.6 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

² Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

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.

I CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 1, 2 and 3 ABOVE IS CORRECT.

I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF PARAGRAPH 6 OF PFMA SCM INSTRUCTION 03 OF 2021/22 ON PREVENTING AND COMBATING ABUSE IN THE SUPPLY CHAIN MANAGEMENT SYSTEM SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....
Signature	Date
.....
Position	Name of bidder

Annexure E

Preference Points Award Form in Terms of the Preferential Procurement Regulations 2022

This preference form must form part of all bids invited. It contains general information and serves as a claim form for the preference points allocated on the basis of specific goals outlined in point 3 below.

NB: BEFORE COMPLETING THIS FORM, BIDDERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF SPECIFIC GOALS, AS PRESCRIBED IN THE PREFERENTIAL PROCUREMENT REGULATIONS, 2022

1. GENERAL CONDITIONS

- 1.1 The following preference point systems are applicable to this bid:
- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included).
- 1.2 Points for this bid shall be awarded for:
- (a) Price; and
 - (b) Preference Points based on specific goals.
- 1.3 The maximum points for this bid are allocated as follows:

	POINTS
PRICE	80
Preference Points	20
Total points for Price and Preference Points must not exceed	100

- 1.4 Failure on the part of a bidder to submit proof of preference points together with the bid, will be interpreted to mean that preference points are not claimed.
- 1.5 The CSIR reserves the right to require of a bidder, either before a bid is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the CSIR.

2. POINTS AWARDED FOR PRICE

2.1 THE 80/20 PREFERENCE POINT SYSTEMS

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

80/20

$$P_s = 80 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$$

Where

- Ps = Points scored for price of bid under consideration
 Pt = Price of bid under consideration
 Pmin = Price of lowest acceptable bid

3. PREFERENCE POINTS AWARDED

- 3.1 In terms of Regulation 4 (2) and 4 (2) of the Preferential Procurement Regulations, preference points may be awarded to a bidder for the specific goal specified for the tender in accordance with the table below:
- 3.2 Specific goals must be determined per tender.

Specific Goals	Preference Points
Black Ownership	20
Total	20

- 3.3 Total preference points per specific goal to be determined per tender.
- 1.3.1. Total preference points per specific goal to be awarded as follows:
- 1.3.1.1. Preferential points for black ownership will be awarded as follows:

Black Ownership	% of Preferential points
Bidder with 100% black ownership	100%
Bidder with 51% to 99% black ownership	50%
Bidder with less than 51% black ownership	0%

1.4. Joint Ventures, Consortiums and Trusts

A trust, consortium or joint venture³ will qualify for preference points as a legal entity (Incorporated), provided that the entity submits its valid B-BBEE certificate. Only valid BBBEE certificates issued by SANAS accredited verification agency will be considered for allocation of points.

A trust, consortium or joint venture will qualify for preference points as an unincorporated entity, provided that the entity submits their consolidated B-BBEE scorecard as if they were a group structure and that such a consolidated B-BBEE scorecard is prepared for every separate bid. Only valid consolidated BBBEE certificates issued by SANAS accredited verification agency will be considered for allocation of points.

Bidders must submit concrete proof of the existence of joint ventures and/or consortium arrangements. The CSIR will accept signed agreements as acceptable proof of the existence of a joint venture and/or consortium arrangement. Furthermore, in bids where unincorporated joint venture and/or

³ Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

consortium/sub-contractors are involved, each party must submit a separate TCS PIN and CSD number.

The joint venture and/or consortium agreements must clearly set out the roles and responsibilities of the Lead Partner and the joint venture and/or consortium party. The agreement must also clearly identify the Lead Partner, who shall be given the power of attorney to bind the other party/parties in respect of matters pertaining to the joint venture and/or consortium arrangement.

1.5. Sub-contracting

A bidder must not be awarded preference points if it is indicated in the tender documents that such a bidder intends sub- contracting more than 25% of the value of the contract to any other enterprise that does not qualify for at least the points that such a bidder qualifies for, unless the intended sub-contractor is an EME that has the capability and ability to execute the sub-contract.

A bidder awarded a contract may not sub-contract more than 25% of the value of the contract to any other enterprise that does not have an equal or higher B-BBEE status level than the bidder concerned, unless the contract is sub-contracted to an EME that has the capability and ability to execute the sub-contract.

2. BID DECLARATION

Bidders who claim points in respect of specific goals **must** submit the following documents:

Mandatory documents to claim preference points	Submitted	
	Yes √	No √
Valid copy of BBBEE certificate/ sworn affidavit to claim Black Ownership, Black Woman Ownership, Black Youth Ownership, Disability Ownership and RDP (EMEs and QSEs) preference points ⁴		

DECLARATION WITH REGARD TO COMPANY/FIRM

Name _____ of _____
 company/firm:.....

 VAT _____ registration
 number:.....
 Company _____ registration
 number:.....

⁴ In case of unincorporated trust, consortium or joint venture, they must submit their consolidated B-BBEE scorecard with submitting their **individual B-BBEE Certificate or Sworn Affidavit**, and each party must submit a separate TCS PIN and CSD number.

In case of sub-contracting both parties must submit copies of their valid BBBEE certificates

I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the documents submitted to claim preference points based on the specific goals are valid, and I / we acknowledge that:

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 3 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 3, the contractor may be required to furnish further documentary proof to the satisfaction of the CSIR that the awarded are correct;
- iv) If any document is obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the CSIR may, in addition to any other remedy it may have –
 - (a) disqualify the person from the bidding process;
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person’s conduct;
 - (c) 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;
- (d) recommend that the bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted by the National Treasury 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
- (e) forward the matter for criminal prosecution.
- v) If the CSIR is of the view that a bidder submitted false information regarding a specific goal, it must—
 - (a) inform the bidder accordingly; and
 - (b) give the bidder an opportunity to make representations within 14 days as to why the tender may not be disqualified or, if the tender has already been awarded to the bidder, the contract should not be terminated in whole or in part.
- vi) After considering the representations referred to in subregulation (v)(b), the CSIR may, if it concludes that such information is false—
 - (a) disqualify the bidder or terminate the contract in whole or in part; and
 - (b) if applicable, claim damages from the bidder.

WITNESSES 1. 2.

..... SIGNATURE(S) OF BIDDERS(S)
DATE:
ADDRESS.....

Annexure F Mutual Non-Disclosure Agreement

MUTUAL NON-DISCLOSURE AGREEMENT

1 Preamble

The Parties as identified herein are engaged in discussions relating to their potential collaboration in the Field as likewise described therein; are by virtue thereof are required to disclose Confidential Information to one another, and have agreed to do so subject to the terms and conditions as set out in this agreement.

2 Definitions

2.1 The following words and/or phrases, when used in this agreement, shall have the following meanings:

2.1.1 "Confidential Information" shall mean all scientific, technical, business, financial, past, present or future research, development, business activities, products, services and technical knowledge or marketing information, whether inside or outside the Field, which one party (the "Disclosing Party") discloses to the other party (the "Receiving Party") in connection with the discussions, and either has been identified in writing as confidential or is of such a nature (or has been disclosed in such a way) that it should be obvious to the Receiving Party that it constitutes Confidential Information. (Without limiting the generality of the foregoing, "Confidential Information" shall include any information that falls within the definition of 'Personal Information')

2.1.2 "Disclosing Party" shall mean the Party disclosing Confidential Information under this agreement;

2.1.3 "Disclosing Purpose" shall mean, as pertains to any particular joint opportunity(ies) in the Field, the discussions held or to be held between the Parties regarding their possible collaboration and future working relationship with regards to any such opportunity(ies);

2.1.4 "Effective Date" shall mean the date of the commencement of this agreement herein";

2.1.5 "Notice" shall mean a written document addressed by one Party to the other and either delivered by hand; sent per registered post or telefaxed to the addresses as indicated herein";

2.1.6 "Personal Information" means any information that falls within the definition of 'Personal Information' as defined in the Protection of Personal Information Act, No 4 of 2013 ("POPI");

2.1.7 "Receiving Party" shall mean the Party receiving Confidential Information under this agreement;

"Responsible Party" means a public or private body or any other person which, alone or in conjunction with others, determines the purpose of and means for processing personal information, as defined in POPI.

3 Obligation of Confidentiality

3.1 The Receiving Party undertakes and agrees:

3.1.1 to use the Disclosing Party's Confidential Information only to give effect to the Disclosing Purpose;

3.1.2 to hold in strict confidence and not to publish or disclose to any unauthorised third parties any of the Confidential Information of the Disclosing Party without the prior written consent of the Disclosing Party;

3.1.3 to use the same degree of care (and in any event not less than reasonable care) to safeguard the confidentiality of the Disclosing Party's Confidential Information that it uses to protect its own information of like kind;

3.1.4 to limit any disclosure of such Confidential Information only to those of its employees and professional advisors who have a specific need – to- know to access such Confidential Information and either entered into a written agreement which impose, or are otherwise bound by the same restrictions as those imposed upon it by virtue of this agreement;

3.1.5 not to disclose or reveal to any third party, whomsoever, either the fact that discussions or negotiations are taking, or have taken, place between the Parties; the content of any such discussions, or other facts relating to the Disclosing Purpose;

3.1.6 on termination of this agreement, to act with the Disclosing Party's Confidential Information in accordance with a Notice delivered to it by the Disclosing Party, and if no such Notice is delivered to the Recipient, to destroy the Disclosing Party's Confidential Information in a similar manner to which it would destroy its own Confidential Information.

4 Protection of Personal Information

4.1 The Party(ies) undertake(s) to:-

4.1.1 comply with the provisions of POPI as well as all applicable legislation as amended or substituted from time to time;

4.1.2 treat all Personal Information strictly as defined within the parameters of POPI;

4.1.3 process Personal Information only in accordance with the consent it was obtained for, for the purpose agreed, any lawful and reasonable written instructions received from the applicable Responsible Party and as permitted by law;

4.1.4 process Personal Information in compliance with the requirements of all applicable laws;

4.1.5 secure the integrity and confidentiality of any Personal Information in its possession or under its control by taking appropriate, reasonable technical and organisational measures to prevent loss, damage, unauthorised destruction, access, use, disclosure or any other unlawful processing of Personal Information;

- 4.1.6 not transfer any Personal Information to any third party in a foreign country unless such transfer complies with the relevant provisions of POPI regarding transborder information flows; and
- 4.1.7 not retain any Personal Information for longer than is necessary for achieving the purpose in terms of this Agreement or in fulfilment of any other lawful requirement.
- 4.2 The Party(ies) undertake(s) to ensure that all reasonable measures are taken to:
 - 4.2.1 identify reasonably foreseeable internal and external risks to the Personal Information in its possession or under its control;
 - 4.2.2 establish and maintain appropriate security safeguards against the identified risks;
 - 4.2.3 regularly verify that the security safeguards are effectively implemented;
 - 4.2.4 ensure that the security safeguards are continually updated in response to new risks or deficiencies in previously implemented safeguards;
 - 4.2.5 provide immediate notification to the Responsible Party if a breach in information security or any other applicable security safeguard occurs; provide immediate notification to the Responsible Party where there are reasonable grounds to believe that the Personal Information has been accessed or acquired by any unauthorised person;
 - 4.2.6 remedy any breach of a security safeguard in the shortest reasonable time and provide the Responsible Party with the details of the breach and, if applicable, the reasonable measures implemented to address the security safeguard breach;
 - 4.2.7 provide immediate notification to the Responsible Party where either party has, or reasonably suspects that, Personal Information has been processed outside of the purpose agreed to or consented to;
 - 4.2.8 provide the Responsible Party, upon request, with all information of any nature whatsoever relating to the processing of the Personal Information for the purpose in terms of this Agreement and any applicable law; and
 - 4.2.9 notify the CSIR, if lawful, of receipt of any request for access to Personal Information, in its possession and relating to the CSIR.
- 4.3 The CSIR reserves the right to inspect the Personal Information processing operations, as well as the technical and organisational information security measures employed by the contracting Party to ensure compliance with the provisions of clause 4.
- 4.4 The provisions of clause 4 shall survive the termination of this Agreement, regardless of cause, in perpetuity.

5 Exclusions

- 5.1 The Receiving Party recognises that this agreement is not intended to restrict use or disclosure of any portion of the Disclosing Party's Confidential Information which:
 - 5.1.1 is as at the Effective Date, or later, made known to the public or otherwise enters the public domain through no default by the Receiving Party of its obligations under this Agreement;
 - 5.1.2 it can show was in its possession prior to the earliest disclosure by the Disclosing Party, as evidenced by written documents in its files;
 - 5.1.3 is rightfully received by it from a third party having no obligation of confidentiality to the Disclosing Party;
 - 5.1.4 is independently developed by the Receiving Party by a person(s) who did not have access to the Confidential Information of the Disclosing Party;
 - 5.1.5 is disclosed by the Receiving Party after receipt of written permission from the Disclosing Party; or
 - 5.1.6 it is requested or required by subpoena, court order, or similar process to disclose, provided that, in such an event, it will provide the Disclosing Party with prompt written notice of such request(s) so that the latter may seek an appropriate protective order and/or waive the Receiving Party's compliance with the provisions of this agreement.

6 Ownership and Provision of Information

- 6.1 The Disclosing Party shall retain ownership of all its Confidential Information as disclosed hereunder.
- 6.2 Nothing contained in this agreement or in any disclosures made hereunder shall create or imply, or be construed as to grant to the Receiving Party any license or other rights in or to the Confidential Information and/or any intellectual property rights attached thereto, or act as a waiver of any rights that the Disclosing Party may have to prevent infringement or misappropriation of any patents, patent applications, trademarks, copyright, trade secrets, know-how or other intellectual property rights owned or controlled by the Disclosing Party as at the Effective Date.
- 6.3 The Disclosing Party provides the Confidential Information "as is" and accordingly no disclosure thereof by it hereunder shall constitute any representation, warranty, assurance, guarantee or inducement by such Disclosing Party with respect to infringement of patents or other rights of third parties, nor is any warranty or representation as to the accuracy, completeness, or technical or scientific quality of any of the Disclosing Party's Confidential Information provided hereunder. (For the avoidance of doubt it is stated expressly that the Disclosing Party neither makes, nor have made, any representation or warranty as to the merchantability or fitness for a particular purpose

of any Confidential Information disclosed hereunder).

arising therefrom which the Parties are unable to settle amicably.

7 Term of Obligation

7.1 The Parties' obligations concerning non-disclosure of Confidential Information contained in the above clauses shall commence on the Effective Date and shall continue for five (5) years from the date of each disclosure, unless otherwise agreed between the parties in writing, where after such obligations shall forthwith terminate.

8 No Violation

8.1 Each party represents that its compliance with the provisions of this agreement will not violate any duty which such party may have towards any third party, including obligations concerning the provision of services to others, confidentiality of information and assignment of inventions, ideas, patents or copyright.

9 Breach

9.1 It is acknowledged that the breach of this agreement by the Receiving Party would cause the Disclosing Party irreparable injury not compensable in monetary damages alone. Accordingly, in the event of a breach, or a threat of a breach, the Disclosing Party, in addition to its other remedies, is entitled to a restraining order, preliminary injunction or similar relief so as to specifically enforce the terms of this agreement or prevent, cure or reduce the adverse effects of the breach.

10 DOMICILIUM CITANDI ET EXECUTANDI

10.1 The Parties hereto respectively choose as their *domicilium citandi et executandi* for all purposes of, and in connection with this agreement, the physical addresses and contact details stated herein.

11 Notices

11.1 Any Notice to be given hereunder shall be given in writing and may be given either personally or may be sent by post or facsimile and addressed to the relevant party at its *domicilium citandi et executandi* address as chosen herein. Any notice given by post shall be deemed to have been served on the expiry of 7 (seven) working days after same is posted by recorded delivery post or air mail. Any notice delivered personally or sent by facsimile shall be deemed to have been served at the time of delivery or sending.

12 Governing Law and Jurisdiction

12.1 This agreement will be governed and construed by the laws of the Republic of South Africa and the Parties hereby submit to the exclusive jurisdiction of the South African courts to hear any dispute

13 General

13.1 This agreement comprises the entire agreement between the parties concerning the subject matter and supersedes all prior oral and written agreements between them.

13.2 No waiver, alteration or cancellation of any of the provisions of the Agreement shall be binding unless made in writing and signed by the party to be bound.

13.3 The parties hereby warrant that the officials signing this agreement have the power to do so on behalf of the parties.

13.4 No public announcement, such as a media release, or disclosure beyond those disclosures authorised for Confidential Information hereunder may be made by either party concerning this agreement without the prior written approval of the other party.

13.5 Neither party is, by virtue of this agreement, authorised to use the name, logo(s) or trademarks of the other in connection with any advertising, publicity, marketing or promotional materials or activities, or for any other purpose whatsoever, without the prior written consent of the other party. For purposes of this clause, it is also recognised that, under the provisions of section 15 (1) of the Merchandise Marks Act, Act No 17 of 1941 of the Republic of South Africa, the use of the abbreviation of the name of the Council for Scientific and Industrial Research, "WNNR" and CSIR, is prohibited in connection with any trade, business, profession or occupation or in connection with a trade mark, mark or trade description applied to goods, other than with the consent of the CSIR.

13.6 Both Parties shall remain free to use, in the normal course of its business, its general knowledge, skills and experience incurred before, during or after the discussions envisaged hereunder. (To this end, it is also recorded that nothing in this Agreement shall be construed as constituting an exclusive arrangement between the parties and both Parties shall remain free to explore market opportunities in the Field, unless otherwise agreed to in writing in a subsequent agreement.)

**Annexure F
Mutual Non-Disclosure Agreement**

ANNEXURE F: MUTUAL NDA

14 Parties to the NDA

THE CSIR, a statutory council, duly established under Act 46 of 1988,

and

The Bidder (Name).....

Company registration number:....., with

limited liability duly incorporated under the applicable laws of the Republic of South

Africa herein represented by

in his/her capacity as

and he/she being duly authorised thereto.

15 Contact Details for Purposes of Clause 10:

15.1 The CSIR

Physical Address:

Meiring Naude Road

Brummeria

Pretoria

0002

Postal Address:

PO BOX 395

Pretoria

0001

Email: Tender@csir.co.za

The Bidder (Name).....

Physical Address:

Postal Address:

Email:

16 Signature (Bidder):

SIGNED ON THIS THE.....DAY OF.....AT..... IN

THE PRESENCE OF THE FOLLOWING WITNESSES:

1.

2.

.....