RW 10403013/23

TENDER FOR THE CONSTRUCTION OF THE 15ML/D WASTEWATER TREATMENT WORKS AND REFURBISHMENT OF THE EXISTING WORKS AT LEEUKUIL WASTEWATER TREATMENT PLANT

AUTHOR AND DATE

Rand Water Team

- Commercial Team
- Technical Team

Procedure to be observed

- Tender documents and supporting documents are available at the National Treasury Website, www.etenders.gov.za
- Issue Date: 11 October 2023
- Closing date: 13 November 2023
- Submissions must be deposited before 12:00 noon at No:522 Impala Road Glenvista at the Rand water tender box.
- All submissions after closing date will be rejected.
- Contacts: Ntikane Radebe (nradebe@randwater.co.za) and Bonolo Ramohlala (bramohla@randwater.co.za).

RAND WATER

Validity Period

- The tender shall remain valid for a period of 180 days from the date of closing of the tender. Rand Water reserves the right to extend the validity period if required

TEST FOR RESPONSIVENESS

1. Completed and signed Form of Offer.
2. Letter of Good Standing from the Department of Labour or an Accredited Institution.
3. The use of correction fluid or any other similar substance to make corrections is not permitted.
4. Bidders must be registered with the CIDB or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the CIDB grading of this bid; in accordance with the CIDB prescripts.
5. Submission of Socio-Economic Development (SED) proposal in accordance with Rand Water's requirements and targets in T2.2.9 and the signing of the SED schedule in its entirety.
6. Sub-Contracting the following evidence must be submitted:

- A signed Subcontracting agreement stipulating the percentage to be subcontracted (a minimum of 30% would be deemed acceptable)
- A signed subcontracting stipulating specialized categories
- CSD report/s for Subcontractor/s.
- CIDB Registration for Subcontractor/s, where CIDB related works are subcontracted, each Subcontractor must also be registered with the appropriate CIDB grading in accordance with the value of the work to be undertaken by that Subcontractor, or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the CIDB grading of this bid; in accordance with the CIDB prescripts.
- Where the CIDB requirement for subcontracted work is not met, this test for responsiveness has not been met.
- Proof of B-BBEE status for Subcontractor/s

Commercial- Returnable

Commercial Section

Page 16-18 of 82– Detailed list of returnable for Bid Evaluation:

- Tax compliance Certificate with a valid PIN issued by the South African Revenue Services.
- Letter of good standing (from Department of Labour or any accredited agent).
- Resolution Letter for the Main Contractor (a letter authorizing the person completing the tender to sign on behalf of the company).
- Original B-BBEE Certificate or the original certified B-BBEE certificate.

Evaluation Process

Rand Water conducts a two-stage evaluation process for all bids, intending to provide services or goods to the organization as follows:

- First part of the evaluation process is the functionality evaluation **(Technical part of the tender document)** and the second part of the evaluation process will be the commercial part of the tender document
- All bids evaluated at this stage must achieve a minimum of 70% scoring.
- Below 70% will not be considered to second stage of the evaluation.
- Rand Water shall then apply the objective criteria in accordance with the PPPFA that will determine the evaluation outcome
- Part of the functionality evaluation Rand Water also uses a Financial Tolerance Range
- Award is then based on the preferential point system.
- **NB:** award based on quality of submission not reputation

SCOPE OF WORK

TECHNICAL PART

SCOPE OF WORK

ALSO REFER TO THE SCOPE OF WORK IN THE TENDER DOCUMENT

Overview of the Works

The Leeuwkuil Wastewater Treatment Works currently comprises a 20 Mℓ/day biological nutrient removal activated sludge (BNRAS) Plant and a 16 Mℓ/day Bio-Filter Plant. Future planning for the catchment has allowed for the decommissioning of the 16 Mℓ/day Bio-Filter Plant due to the stringent wastewater treated effluent requirements and the treatment limitations of Bio-Filter plants. The 20 Mℓ/day BNRAS plant at Leeuwkuil WWTW is to be upgraded to a regional works with an additional 15 Mℓ/day capacity to cater for the shortfall in treatment capacity required by future development.

The Works comprises of the construction of a 15 Mℓ/d upgrade to the existing Leeuwkuil Wastewater Treatment Works and includes:

1) the construction and installation of new civil, mechanical and electrical infrastructure;

2) alterations to some of the existing civil, mechanical and electrical infrastructure; and

3) all appurtenant infrastructure and site works for (1) and (2) above

As well as the refurbishment of the exiting Leeuwkuil WwTW

SCOPE OF WORK

Extent of the Works

The Works consists of Civil Works which includes the construction of various site infrastructure and appurtenant site works, Building Works and Mechanical and Electrical (M&E) Works which consists of the design, manufacture, supply, delivery, installation, testing and commissioning and upholding during the Trial Operational Period and Defects Notification Period.

This Detailed Mechanical Performance Specification is supplemented by the requirements of the Standard Specification for Mechanical Works in Section 6.4. Where these specifications may conflict with other specifications, conditions and requirements that are of a general nature, this specification shall have precedence. Should the Contractor note an inconsistency between the specifications and the drawings, he is required to immediately notify the Engineer and obtain clarification or instructions prior to tendering and prior to ordering or installing equipment.

SCOPE OF WORK

A: 15 Mℓ/day BIOLOGICAL NUTRIENT REACTOR PLANT UPGRADE

The Civil Scope of Works includes, but is not limited to, the following complying with the specifications:

a) Bulk excavation for the construction of raised platforms (where required for specific structures), internal roads and installation of stormwater, potable and wash water systems, excavation of foundations for structures mentioned in (b) below including pipe trenches and backfill around structures.

b) Construction of reinforced concrete water retaining structures and water tightness testing, as directed, of the following:

- New Inlet works
- One (1) Biological Reactor
- Four (4) Secondary Settling Tanks
- One (1) Chlorine Contact Tank
- One (1) UV Disinfection Inlet and Outlet Sumps
- One (1) Drainage Pump Station
- One (1) Waste Activated Sludge (WAS) Screening Station
- One (1) WAS Sump at Dewatering Building
- Leachate Pump Station and Overflow Dam
- One (1) Return Activated Sludge (RAS) Screw Pump Station
- Balancing Dam and Balancing Dam Pump Station

SCOPE OF WORK

- Sludge Drying Platform
- Scum Drying Bed
- Division Box 1 & 2
- Collection Box 1 & 2
- Modifications to Existing Chlorine Contact Tank and Existing Outlet Structure
- Main incoming pipeline on pedestals from Pump Station 34 (upgrade) to the new Inlet Works
- Upgrade the existing treated effluent pipeline to 1200NB
- Dewatering Building wash water pumps and pipework anciliaries
- Flow meter chambers and concrete manholes

c) Supply and installation of:

- Interconnecting pipework and specials for all structures
- Potable water supply network
- Wash water network
- Fire water network
- Access roads
- Paving
- Stormwater infrastructure
- Security Fencing and Gates (As instructed by the Engineer)
- Grassing
- Grouting in of pipes, specials and equipment supplied and installed by others.

SCOPE OF WORK

d) Building (including electrical wiring and lighting) of:

- New Inlet Works Building
- RAS Screw Pump Station Building
- Drainage Pump Station Building
- UV Disinfection Building
- Sludge Dewatering Building, including garage
- Balancing Dam Pump Station Building
- Chemical Dosing Building A (Disinfection)
- Chemical Dosing Building B (Phosphorus Removal)
- Electrical Building
- Existing Pump Station 34 Building

e) Grouting in of pipes, specials and equipment supplied and installed by others.

SCOPE OF WORK

The Mechanical and Electrical Scope of Works includes, but is not limited to, the following complying with the specifications:

a) <u>New Inlet Works</u>

One (1) New Inlet Works with the following:

- Screenings removal equipment for the four (4) screenings channels as follows:
  - Four (4) 25mm mechanically front raked coarse screens
  - Four (4) 6mm fine filter band screens
  - Two (2) screenings hydro-conveyor systems (one (1) for coarse screens and one (1) for fines screens)
  - Screenings washer/compactors sufficient to handle the load plus 50% redundancy from the coarse and fine screens. *It is anticipated that at least three (3) screenings washer/compactors (two (2) duty and one (1) standby) will be required.*
  - Waste skip bins complete with guiderails and moving equipment sufficient to handle the load plus 50% redundancy from the screenings washer/compactors. *It is anticipated that at least six (6) 6m^3 waste skip bins will be required.*

- Manual screenings removal equipment for the emergency overflow screenings channel as follows:
  - Two (2) hand-raked 50mm bar screens for various channel widths.
  - Hand-raked screenings collection system and discharge
  - Hand-rakes
  - Two (2) 6m^3 waste skips complete with guiderails and moving equipment (one (1) duty and one (1) standby)

SCOPE OF WORK

- Combined grit and fats, oils and grease (FOG) removal equipment for the two (2) aerated grit and grease removal chambers as follows:
  - Two (2) travelling bridges fitted with the following equipment on each:
    - Grit pumps complete with suction and delivery pipework
    - FOG scraper arm
  - Two (2) FOG collection screw conveyors
  - FOG waste bins sufficient to handle the FOG load plus 50% redundancy from the grit and grease chambers
  - Grit collection pipework
  - Grit washers sufficient to handle the load plus 50% redundancy from the grit pumps. *It is anticipated that at least two (2) grit washers (one (1) duty and one (1) standby) will be required.*
  - Waste skip bins complete with guiderails and moving equipment sufficient to handle the load plus 50% redundancy from the grit washers. *It is anticipated that at least six (6) 6m^3 waste skip bins will be required.*
  - Compressors and blowers complete with air diffusers and all appurtenant pipework
- Wash water system complete with storage tanks and booster pumps
- Parshall flume and ultrasonic level sensor for flow measurement in the New Inlet Works channel
- Wall mounted and channel mounted sluice gates
- Odour control equipment including activated carbon filters and GRP channel covers and all appurtenant ducting and pipework
- Lifting equipment for the screenings channels area and for the aerated grit and grease removal chambers area

SCOPE OF WORK

b) Biological Nutrient Removal (BNR) Reactors

One (1) BNR reactors with the following in each reactor:

- Twelve (12) top-mounted vertical shaft type mixing units
- Ten (10) vertical shaft mechanical surface aerators
- Three (3) high volume/low head vertical shaft axial flow a-recycle pumps (two (2) duty and one (1) standby) with variable speed drives and complete with Doppler flow control
- Two (2) high volume/low head vertical shaft axial flow r-recycle pumps at the end of the 1st anoxic zone (one (1) duty and one (1) standby) with variable speed drives and complete with Doppler flow control
- Two (2) high volume/low head vertical shaft axial flow r-recycle pumps at the end of the 2nd anoxic zone (one (1) duty and one (1) standby) with variable speed drives and complete with Doppler flow control
- Tilting weir gates
- Sluice gates

c) Return Activated Sludge (RAS) Screw Pump Station

One (1) RAS Screw Pump Station with the following in each:

- Two (2) Archimedes screw pump sets (one (1) duty and one (1) standby) complete
- Ultrasonic level sensor
- Sluice gates
- Lifting equipment

SCOPE OF WORK

d) Secondary Settling Tanks (SSTs)

Four (4) SSTs with the following in each SST:

- Rotating half bridge complete with sludge and scum scrapers and peripheral drive electric motor
- V-notch weir plate
- Scum baffle and scum withdrawal box and drainpipe

e) WAS Flowmeter Chambers

Two (2) flowmeter chambers for the withdrawal of WAS from various locations in the process, as follows:

- Telescopic valve and associated pipework
- Electromagnetic flow meter

f) Drainage Pump Station

One (1) Drainage Pump Stations with the following in each:

- Four (4) end-suction solids handling centrifugal pumps with variable speed drives
- One (1) submersible drainage pump
- Four (4) telescopic valvescopic mentnd dosing systemslt presses creenings washer/compactors. sludge
- All pipework, valves and fittings and any other ancillaries required to make the pump sets complete and operational
- Lifting equipment
- Sluice gates

SCOPE OF WORK

g) Ultra-Violet (UV) Disinfection Building

One (1) UV disinfection building to be fitted with the following:

- Closed conduit UV disinfection equipment complete
- Pipework
- Sluice gates
- Valves and flowmeters

h) Chlorine Contact Tank (CCT)

One (1) CCT with the following in each CCT:

- One (1) Vee weir plate
- One (1) ultrasonic level sensor

i) Chemical Dosing Buildings

Two (2) Chemical Dosing Building with the following:

- Chemical Dosing Building A:
  - Chlorine Gas disinfection dosing system including:
    - Bulk tanks
    - Day tanks
    - Dosing pump sets complete with all piping, valves, fittings and vacuum regulators
  - Health and safety equipment
  - Lifting equipment

SCOPE OF WORK

- Chemical Dosing Building B:
  - Ferric Chloride dosing system including:
    - Bulk tanks
    - Day tanks
    - Dosing pump sets with complete with all piping, valves, fittings and vacuum regulators
  - Health and safety equipment
  - Lifting equipment

j) <u>Waste Activated Sludge (WAS) Screening Station</u>

One (1) WAS screening station with the following:

- Two (2) 6mm fine filter band screens (one (1) duty and one (1) standby)
- One (1) screenings hydro-conveyor system
- Screenings washer/compactors sufficient to handle the load plus 50% redundancy from the fine screens. It is anticipated that at least two (2) screenings washer/compactors (one (1) duty and one (1) standby) will be required.
- Waste skip bins complete with guiderails and moving equipment sufficient to handle the load plus 50% redundancy from the screenings washer/compactors. It is anticipated that at least two (2) 6m^3 waste skip bins will be required.
- Sluice gates
- Wash water system complete with storage tanks and booster pumps
- Lifting equipment

SCOPE OF WORK

k) Sludge Dewatering Building

One (1) Sludge Dewatering Building with the following:

- Combined thickening and dewatering belt presses / monobelt or similar approved
- De-watered sludge conveyor belts
- Inclined discharge conveyor
- Sludge skips with auger levelling screws
- Polymer storage, make-up and dosing system
- Turner for sludge
- Lifting equipment

l) Leachate Pump Station

One (1) Leachate Pump Station with the following:

- Two (2) submersible centrifugal pumps complete with guide rails, duck foot bends and all pipework, valves and other fittings to make the pump sets complete and operational
- Sluice gates
- Lifting equipment

m) Balancing Dam Pump Station

One (1) Balancing Dam Pump Station with the following:

- One (1) self-priming solids handling centrifugal pump complete with all pipework, valves and other fittings to make the pump sets complete and operational
- Lifting equipment

SCOPE OF WORK

n) Dewatering Building Wash Water Pumps and Pipework Anciliaries

- Three (3) Multi-stage pumps complete with all pipework, valves and other fittings to make the pump sets complete and operational
- Three (3) In-line self-cleaning filters

o) Electrical Building

The electrical building will require the following:

- Lifting equipment

Operation of Existing Works during Construction, Completion, Commissioning and Correction of Defects of the 15 Mℓ/day upgrade will be as follows:

The existing Leeuwkuil WwTW will remain in operation throughout the construction, completion, commissioning and correction of defects of the upgrade.

This description of the Works is not necessarily complete and shall not limit the work to be carried out by the Contractor under this Contract.

SCOPE OF WORK

B: REFURBISHMENT OF THE EXISTING LEEUWKUIL WwTW

Note: *The refurbishment of the existing inlet works and existing Pump Station 34 (main pump station at the head of the works) are not included in this contract, as it forms part of the Combined Contract currently in force.*

The refurbishment work of the remaining unit processes and existing structures will be executed under this, one (1) contract. The main contractor will take responsibility of specialist suppliers and contractors, as well as nominated local sub-contractors who will be identified and nominated as part of the project, to ensure that a minimum of 30% of the contract is carried out by small, medium and micro enterprises.

The Works to be carried out by the Contractor under this Contract comprise the following:

- Refurbish the existing, and supply and install new fencing, to establish a double-barrier security fence around the existing pump station facility perimeter.

- Balancing Dam
- Drain, clean, dredge and repair the existing balancing dam structures.
- Refurbish, repair or replace the pump set.
- Refurbish, repair or replace the pump set pipe work and valves.

RAND WATER 120 YEARS OF FINDING NEW WAYS

SCOPE OF WORK

- Primary Settling Tanks (two off)

- Drain, clean, dredge and repair the existing primary settling tanks.
- Refurbish, repair or replace the bridge scraping mechanisms.

- Primary Sludge Pump Station

- Drain, clean, dredge and repair the existing pump station structure.
- Refurbish, repair or replace the pump sets.
- Refurbish, repair or replace the pump set’s pipe work and valves.

- BNR Reactor

- Drain, clean, dredge and repair the existing inlet and internal channels, anaerobic, anoxic and aerobic basins.
- Refurbish, repair or replace the vertical shaft mixers (six off).
- Refurbish, repair or replace the surface aerators (six off).
- Refurbish, repair or replace the axial flow recycling pumps (two off).
- Refurbish, repair or replace the sluice gates, penstock, hand stops and flow control equipment.

SCOPE OF WORK

- Secondary Settling Tanks (three off)

- Drain, clean, dredge and repair the existing secondary settling tanks.
- Refurbish, repair or replace the bridge scraping mechanisms.

- RAS Pump Station

- Drain, clean, dredge and repair the existing pump station structure.
- Refurbish, repair or replace the pump sets (two off).
- Refurbish, repair or replace the pump set's pipe work and valves.
- Refurbish, repair or replace the sluice gates, penstock, hand stops and flow control equipment.

- Chlorination Dosing & Contact Tank

- Drain, clean, dredge and repair the existing chlorine contact tank structures.
- Refurbish, repair or replace the chlorine gas dosing equipment.

- Maintain, repair and restore all the buildings forming part of the BNR Plant.
- All electrical work and standby power are included under the electrical scope of works.
- Refurbish the existing fence and gates, as well as supply and install new security fence and gates, as per instruction of Employer's Agent.

Any and all subcontracting work must be aligned with the CIDB grading as advertised, thus **9ME**

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Technical - Returnable

For the list of all relevant returnable (Part T2)

Technical Evaluation to be based on:

- Record of Previous Experience
- Overall Performance of Previous work done
- Quality Management Systems
- Human Resource Capacity
- Equipment Resource Capacity
- Risk Introduced by Tender Qualifications
- Project Risk Management
- Detailed Project Programme
- Previous Experience, SHERQ, Quality of Workmanship and Safety

Socio-economic Development (SED)

KEY PERFORMANCE AREAS	DELIVERABLES
Participation of Local Enterprises	The Bidder must ensure that in the project implementation plan, work allocation to local enterprises is prioritized and is clearly outlined in the declaration of intent
Job Creation	The Bidder's workforce in the project must consist of locals (historically disadvantaged) as follows: • Unskilled Labourers: 100% (50% women, 50% youth) • Semi-skilled: a minimum of 30% (50% women, 50% youth) • Skilled: a minimum of 25% (50% women, 50% youth)
Skills Development	The Bidder must submit a proposed skills development programme targeting the following levels: • Unskilled to Semi-skilled (50% Youth, 50% Women) • Undergraduate (50% Youth, 50% Women) • Graduate (50% Youth, 50% Women) The programmes must be: • accredited, giving credit value to the beneficiaries • incorporate workplace learning and/or on-the-job training with the theoretical knowledge provided
Social Responsibility	A programme must be structured to ensure effective delivery to address identified community needs in a significant and sustainable manner, as well as have impact beyond the project implementation
Social Facilitation	Provision must be made for a locally sourced Community Liaison Officer (CLO) for the duration of the project

Section 63 SED compact

Section Title

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Thank you!

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