



cooperative governance

Department:
Cooperative Governance
REPUBLIC OF SOUTH AFRICA



Municipal Infrastructure Support Agent (MISA)

Cooperative Governance & Traditional Affairs (CoGTA)

REPUBLIC OF SOUTH AFRICA

TENDER NO. MISA/URA/KZN/019/2024/25

APPOINTMENT OF A CONTRACTOR FOR THE REPAIRS AND REFURBISHMENTS OF UMTHAVUNA RAW WATER ABSTRACTION, WATER TREATMENT AND BULK NETWORK UNDER UGU DISTRICT MUNICIPALITY IN THE KWAZULU NATAL PROVINCE

PROCUREMENT DOCUMENT

(Based on NEC3 Engineering and Construction Contract –Option F: Priced Contract with
Bill of Quantities)

NOVEMBER 2024

Issued by:

Chief Executive Officer
Municipal Infrastructure Support Agent
1303 Heuwel Avenue
Riverside Office Park, Letaba House
Centurion, PRETORIA 0046
TEL: 012 848 5300

Name of Bidder:

**APPOINTMENT OF A CONTRACTOR FOR THE REPAIRS AND
REFURBISHMENTS OF UMTHAVUNA RAW WATER ABSTRACTION, WATER
TREATMENT AND BULK NETWORK UNDER UGU DISTRICT MUNICIPALITY
IN THE KWAZULU NATAL PROVINCE.**

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THE TENDER

TENDER NO. MISA/URA/KZN/019/2024/25

**APPOINTMENT OF A CONTRACTOR FOR THE REPAIRS
AND REFURBISHMENTS OF UMTHAVUNA RAW WATER
ABSTRACTION, WATER TREATMENT AND BULK
NETWORK UNDER UGU DISTRICT MUNICIPALITY IN THE
KWAZULU NATAL PROVINCE.**

Tender Procedure: Open Tender

Based on

- **MISA Supply Chain Management Policy dated 11 May 2023**
- **SANS 10845-1**, Construction procurement Part 1: Processes, methods and procedures
- **SANS 10845-2**, Construction procurement Part 2: Formatting and compilation of procurement documentation
- **SANS 10845-3**, Construction procurement Part 3: Standard conditions of tender
- **Standard for Uniformity in Construction Procurement (Board Notice 423 of 2009 Government Gazette No 42622 of August 2019), as termed as SFU.**
- **Preferential Procurement Regulations 2022 (Ref: government gazette no. 47452, dated: 04 November 2022 issued according to the preferential procurement policy framework act (PPPFA), act no. 5 of 2000)**

Contract Documents

1. Form of offer and acceptance
2. Contract data
3. Part 1: Data Provided by the Employer
4. Part 2: Data Provided by the Contractor
5. Conditions of Contract: NEC 3
6. Pricing Data
7. Works Information
8. Site Information

**APPOINTMENT OF A CONTRACTOR FOR THE REPAIRS
AND REFURBISHMENTS OF UMTHAVUNA RAW WATER
ABSTRACTION, WATER TREATMENT AND BULK
NETWORK UNDER UGU DISTRICT MUNICIPALITY IN THE
KWAZULU NATAL PROVINCE.**

T1 Tendering Procedure

T1.1 TENDERING NOTICE AND INVITATION TO TENDER

Municipal Infrastructure Support Agent (MISA) hereby, invites tenders the for the provision of Rehabilitation of Wodehouse Street.

It is estimated that Bidders must have a CIDB contractor grading of **4ME or higher**.

Contracts will be based on the NEC3 Engineering and Construction Contract (**Option F: Priced Contract with Bill of Quantities**).

The project details are hereunder,

TENDER NO.	PROJECT NAME	COMPULSORY BRIEFING SESSION AND SITE VISIT: PLACE, DATE & TIME	TENDER CLOSING DATE & TIME
MISA/URA/KZN/019/2024/25	APPOINTMENT OF A CONTRACTOR FOR THE REPAIRS AND REFURBISHMENTS OF UMTHAVUNA RAW WATER ABSTRACTION, WATER TREATMENT AND BULK NETWORK UNDER UGU DISTRICT MUNICIPALITY IN THE KWAZULU NATAL PROVINCE	MTHAMVUNA WATER TREATMENT WORKS Longitude & Latitude: 30.51 22 S, 30. 22 24 E Compulsory Site Visit on 04 December 2024 at 14:00pm	12 December 2024 11.00 AM All Bid Proposals to be submitted to: 1303 Heuwel Avenue, Riverside Office Park, Letaba House, Centurion, PRETORIA 0046 TEL: 012 484 5300

Compulsory briefing session and site visit will take place at the place and on the date and time shown above unless otherwise amended later. Representative(s) from MISA will meet prospective Bidders to provide details of the Contract.

The requirement of submissions is detailed in the Tender Data (Ref: T1.2 Tender Data). The Bidders who satisfy the eligibility criteria as set in the tender documents (Ref: T 1.2 Tender Data) are to submit their tenders.

Telegraphic, telephonic, telex, facsimile, e-mail and late tenders will not be accepted. Bidders must submit their tenders using only the tender documentation issued.

Tenders will be evaluated based on preferential procurement framework Act 5 of 2000 and on functionality as prescribed in the Preferential Procurement Regulation 2022.

Requirements for sealing, addressing, delivery, opening and assessment of tenders are stated in the Tender Data.

Issued by:

Municipal Infrastructure Support Agent

1303 Heuwel Avenue

Riverside Office Park, Letaba House

Centurion, PRETORIA 0046

TEL: 012 484 5300

**APPOINTMENT OF A CONTRACTOR FOR THE REPAIRS AND
REFURBISHMENTS OF UMTHAVUNA RAW WATER ABSTRACTION,
WATER TREATMENT AND BULK NETWORK UNDER UGU DISTRICT
MUNICIPALITY IN THE KWAZULU NATAL PROVINCE.**

T1.2 TENDER DATA

The conditions of tender are as contained in the latest edition of SANS 10845-3, Standard conditions of tender.

SANS 10845-3 makes several references to the Tender Data for details that apply specifically to this tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the provisions of SANS 10845-3 and as contained in the Standard for Uniformity in Construction Procurement (Board Notice 423 of 2009 Government Gazette No 42622 of August 2019), as termed as SFU.

Each item of data given below is cross-referenced to the clause in SANS 10845-3 to which it mainly applies.

Clause number	Tender Data
3.1	The employer is the Municipal Infrastructure Support Agent (MISA) , an entity within the South African Ministry for Cooperative Governance and Traditional Affairs (CoGTA), established in terms of Presidential Proclamation No. 29 of 2012.
3.3	The Tender documents issued by the employer comprise the documents listed on the contents page.
3.4	The Employer's Representative is: Name: Ms Mapatane Kgomo Physical Address: 1303 Heuwel Avenue, Riverside Office Park, Letaba House, Centurion, Pretoria 0046 Private Bag X 105, Centurion 0046 Telephone: 012 848 5300 Email: tenders@misa.gov.za
3.5	The language of communications is English

Clause number	Tender Data
4.1	ONLY those Bidders who satisfy the following ELIGIBILITY CRITERIA and who provide the required evidence in their tender submission, are eligible to submit tenders and have their tenders evaluated: The Bidder: - Only those Bidders who are registered with the CIDB, or are capable of being so registered prior to the evaluation of submissions and have a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) of 25(7A) of the Construction Industry Development Regulations, for a CIDB Grade 4ME or Higher class of construction work are eligible to have their tenders evaluated, provide the proof of valid registration with CIDB. Joint ventures are eligible to submit tenders provided that, - every member of the joint venture is registered with CIDB, - the lead partner has a contractor grading designation of 4ME or higher class of construction work, or not lower than one level below the required grading designation in the class of 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 or higher than a contractor grading designation determined in accordance with the sum tendered for a 4ME or Higher class of construction work or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations. - Bidders must submit a valid CIDB Grading Certificate (4ME) or confirmation from CIDB that the bidder has applied for CIDB Grading level 4ME - In case of a Joint Venture/ Consortium submission, shall submit a Joint Venture Agreement signed by all parties and a valid combined CIDB Grading Certificate. - The tender documents issued by MISA must not be tampered with and must remain intact. - Bidders must attend the compulsory briefing meeting and site visit and sign the attendance register. - The tender documents must be completed in all respects, signed off by the authorised signatory, as authorised in section 7 "Resolution for Signatory". Wherever spaces are provided, the bidder must complete the section in permanent ink. If the information is not applicable bidders must indicate as such. - Should a bidder fail to complete any section or line item of the Bill of Quantities (C2.2), the provisions of Section G of the Additional Conditions of Tender. - The Bill of quantities or Pricing schedule and or Form of offer/Total tender amount shall not contain correction fluid on them. Any wrong entry, in case of correction, must be cancelled by a single stroke and initialled by the Authorised signatory
4.7	The arrangements for a compulsory clarification meeting and a site visit are as stated in the Tender Notice and Invitation to Tender (ref: T1.1). No Tender will be considered unless the Bidder attends the compulsory briefing session and site visit.

Clause number	Tender Data
	Bidders/their authorised representatives must sign the attendance register and detailed contacts in favour of the tendering entity therein. Addenda, if any, will be issued to the tenders only who attended the compulsory briefing sessions.
4.12	No alternative tender offer will be considered.
4.13	The employer's details and address for delivery of tender offers and identification details that are to be shown on each tender offer package are: Location of tender box: Reception area of MISA Offices
4.15	Municipal Infrastructure Support Agent's Office Physical Address: 1303 Heuwel Avenue, Riverside Office Park, Letaba House, 1 st Floor, Centurion, Pretoria 0046 Private Bag X 105, Centurion 0046 Telephone: 012 848 5300 Identification details on the Tender package(s): 1. Name and Reference number of the tender, 2. Address of the employer, 3. Names of the tendering entity and the contact person, 4. Physical address and contacting details of the Bidder, 5. Date of submission
4.13.4	The Bidder is required to meet the following conditions in addition to the requirement for eligibility criteria as mentioned in Clause 4.1.
4.13.5	Tender offer shall be submitted as original, one copy of the original and one scanned copy of the original completed and signed tender documents in a Flash Drive.
4.13.6	Telephonic, telegraphic, telex, facsimile or e-mailed tender offers will not be accepted.
4.15	The closing time for submission of tender is as stated in the Tender Notice and invitation to Tender (ref: T1.1)
4.16	The tender offer validity period is 90 days, exclusive of closing date but inclusive of the 90 th day.
5.1	The employer will respond to requests for clarification received up to 7 working days before the tender closing time.
5.2	The employer shall issue addenda until 10 working days before tender closing time.
5.4	The time and location for opening of the Tender offers are as detailed in the Tender notice and invitation to tender (ref: T1.1) or in any addendum thereafter if applicable.

Clause number	Tender Data
SFU (clause 4.3.1)	The procedure for the evaluation of responsive tenders is Functionality, Financial offer & Preference as explained in the CIDB'S Standard for Uniformity in Construction Procurement August 2019 (clause 4.3.1). Breakdown points for Functionality points are outlined in 5.11.9 below. The procedure for the evaluation of responsive tenders is detailed as follows: Phase 1: Administrative requirements and Mandatory requirements Phase 2: Bidders must meet the minimum requirements outlined in the functionality criteria and score the at least the minimum functionality points to be considered for further evaluation in Stage 3. Bidders which do not meet minimum functionality of 70 points will then be rejected. Phase 3: Price and preference (80/20 system) PHASE ONE: RESPONSIVENESS TO THE ELIGIBILITY CRITERIA, BID AND MANDATORY REQUIREMENTS AND RULES: Bidders' proposals must meet the following minimum requirements and supporting documents must be submitted with the completed bid document in a sealed envelope in the bid box at the closing date and time. Failure to comply will automatically eliminate the bid for further consideration: 1. Only those Bidders who are registered with the CIDB, or are capable of being so registered prior to the evaluation of submissions and have a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) of 25(7A) of the Construction Industry Development Regulations, for a CIDB Grade 4ME or Higher class of construction work are eligible to have their tenders evaluated, provide the proof of valid registration with CIDB. Joint ventures are eligible to submit tenders provided that, a) every member of the joint venture is registered with CIDB, b) the lead partner has a contractor grading designation of 4ME or higher class of construction work, or not lower than one level below the required grading designation in the class of works under consideration and possess the required recognition status. c) the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a 4ME or Higher class of construction work or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations. 2. Bidders must submit a valid CIDB Grading Certificate (4ME) or confirmation from CIDB that the bidder has applied for CIDB Grading level 4ME 3. In case of a Joint Venture/ Consortium submission, shall submit a Joint Venture Agreement signed by all parties and a valid combined CIDB Grading Certificate. 4. The tender documents issued by MISA must not be tampered with and must remain intact. 5. Bidders must attend the compulsory briefing meeting and site visit and sign the attendance register. 6. The tender documents must be completed in all respects, signed off by the authorised

Clause number	Tender Data
	signatory, as authorised in section 7 "Resolution for Signatory". Wherever spaces are provided, the bidder must complete the section in permanent ink. If the information is not applicable bidders must indicate as such. a. Should a bidder fail to complete any section or line item of the Bill of Quantities (C2.2), the provisions of Section G of the Additional Conditions of Tender. 7. The Bill of quantities or Pricing schedule and or Form of offer/Total tender amount shall not contain correction fluid on them. Any wrong entry, in case of correction, must be cancelled by a single stroke and initialled by the Authorised signatory Other Conditions of bid (Non eliminating, unless expressly mentioned in the document): 1. The bidder must be registered on the Central Supplier Database (CSD) prior the award 2. All Bidder's tax matters must be in order prior award. Bidders' tax matters will be verified through CSD. 3. Should the bidder intend to sub-contract more than 25%, it is compulsory to submit valid B-BBEE certificates or a valid original or certified copy of a CSC000 sector code Sworn Affidavit attested by a Commissioner of Oaths (for EMEs/QSEs) for all proposed sub-contractors. Failure will automatically result in no points awarded for B-BBEE, irrespective of the main bidder having submitted an original or certified copy of his/her own B-BBEE certificate. 4. A valid original or certified copy of amended Construction Sector Codes (CSC000) B-BBEE Certificate issued by SANAS accredited Agency must be submitted with the tender OR a valid copy of a sworn affidavit attested by a commissioner of Oaths in terms of justices the peace and commissioners of oaths act 16 of 1963 as amended, prepared and issued in terms of the amended B-BBEE Construction Sector Codes (CSC000) must be submitted with the tender in order to qualify for preference points for B-BBEE. In case of a joint venture or consortium a valid copy of a consolidated amended Construction Sector Codes (CSC000) B-BBEE Certificate issued by SANAS accredited Agency must be submitted. Failure to comply, will automatically results in the non-awarding of points for B-BBEE. 5. Bidders that are EMEs or QSEs should make use of the attached Construction Sector Codes (CSC000) compliant Sworn affidavits, to claim B-BBEE points. Generic sector codes or any other sector code sworn affidavits (which are not Construction Sector Codes) will not be accepted for purposes of claiming B-BBEE points. 6. In cases where key personnel have qualification that were obtained outside South Africa, the bidder must submit a SAQA Verification Certificate indicating the relevant equivalent South African Qualification. PHASE TWO: TENDER WHO PASS STAGE 1 WILL THEN BE EVALUATED ON FUNCTIONALITY CRITERIA, AS OUTLINED BELOW: 7. The tender will be expected to submit substantial information (valid copies and detailed information as ordered) in order to claim points for each of the criteria or sub criteria set. 8. The Bidder must demonstrate to the satisfaction of the Employer that it has sufficient skill and capacity to execute the works. 9. The form or the evaluation criteria and maximum score in respect of each of the criteria listed in 5.11.9. 10. A Tender scoring an average score below 70 points in Functionality will be DISQUALIFIED and will not proceed to the next stage of evaluation. 11. Non-submission or poorly completed schedule or incomplete information will result in a Bidder losing points on Functionality. CVs which do not substantially detail relevant experience will also lead to a bidder losing points on Functionality, It is the responsibility of the Bidder to ensure that all copies are clear and certified when the conditions require them to be so.

Clause number	Tender Data								
	PHASE THREE: EVALUATION POINTS ON PRICE AND B-BBEE REGULATIONS OF 2022 During this phase, bid proposals that passed phase 2 will be further evaluated based on the Preferential Procurement Regulations 2022, will be used to evaluate this proposal as per the applicable threshold value. Bid proposals will be evaluated based on the 80/20 preference points system in accordance with the PPPFA Act (Act no.5 of 2000), where a maximum of 80 points will be awarded in respect of price and a maximum of 20 points will be awarded for specific goals Allocation of points The following table shows allocation of points: <table border="1"> <thead> <tr> <th>Criteria</th><th>Points</th></tr> </thead> <tbody> <tr> <td>POINTS ON PRICE</td><td>80</td></tr> <tr> <td>SPECIFIC GOALS</td><td>20</td></tr> <tr> <td>TOTAL</td><td>100</td></tr> </tbody> </table> a) A maximum of 80 points is allocated for price on the following basis: 80/20 $Ps = 80 \left(1 - \frac{Pt - Pmin}{Pmin} \right)$ Where: Ps = Points scored for price of tender under consideration Pt = Price of tender under consideration Pmin = Price of lowest acceptable tender b) A maximum of 20 points may be awarded to a Bidder for the specific goal specified for the tender. c) The points scored for the specific goal must be added to the points scored for price and the total must be rounded off to the nearest two decimal places. d) Subject to section 2(1)(f) of the Act, the contract must be awarded to the Bidder scoring the highest points. e) Allocation of Points SPECIFIC GOALS The Employer reserves the right to apply other specific goals in accordance with PPR Regulations 2022 as contemplated in section 2(1)(d)&(e) of the PPPFA Act No 5 of 2000 which may include contracting with persons, or categories of persons, historically disadvantaged by unfair	Criteria	Points	POINTS ON PRICE	80	SPECIFIC GOALS	20	TOTAL	100
Criteria	Points								
POINTS ON PRICE	80								
SPECIFIC GOALS	20								
TOTAL	100								

Clause number	Tender Data																										
	discrimination on the basis of race, gender and disability including the implementation of programmes of the Reconstruction and Development Programme as published in Government Gazette No. 16085 dated 23 November 1994. The Specific goals will be allocated as per the table below: <table data-bbox="386 331 1344 739"> <tr> <th>The specific goals allocated points in terms of this tender</th><th>Number of points allocated (80/20 system)</th></tr> <tr> <td>Who are women (51% or more)</td><td>5</td></tr> <tr> <td>Who has disability (51% or more owned)</td><td>5</td></tr> <tr> <td>Who is a youth (18 to 35 years) (51% or more owned)</td><td>5</td></tr> <tr> <td>Location of enterprise (local equals province)</td><td>2</td></tr> <tr> <td>B-BBEE status level contributors from level 1 to 2 which are QSE or EME</td><td>3</td></tr> <tr> <td>Total scored points</td><td>20</td></tr> </table> The specific goals may include— - contracting with persons, or categories of persons, historically disadvantaged by unfair discrimination on the basis of race, gender or disability. - Implementing the programmes of the Reconstruction and Development Programme as published in Government Gazette No. 16085 dated 23 November 1994. Definitions “Ownership” means the percentage ownership and control, exercised by individuals within and enterprise. “Disability” means, in respect of a person, a permanent impairment of a physical, intellectual, or sensory function, which results in restricted, or lack of, ability to perform and activity in the manner, or within the range, considered normal for a human being. - A blind person (in terms of the Blind Persons Act, 1968(Act no 26 of 1968) - A deaf person, whose hearing is impaired to such and extent that he/she cannot use it as a primary means of communication. - A person who, as a result of permanent disability, requires a wheelchair, caliper or crutch to assist him/her to move from one place or another. - A person who requires an artificial limb, or - A person who suffers from a mental illness (in terms of the Mental Health Act, 1973 (Act NO. 18 of 1973) Means of Verification (Specific Goals) <table data-bbox="328 1516 1399 1755"> <tr> <th>Procurement Requirement</th><th>Required Proof Documents</th></tr> <tr> <td>Women</td><td>Full CSD Report</td></tr> <tr> <td>Disability</td><td>Full CSD Report</td></tr> <tr> <td>Youth</td><td>Full CSD Report</td></tr> <tr> <td>Location</td><td>Full CSD Report</td></tr> <tr> <td>B-BBEE status level contributors from level 1 to 2 which are QSE or EME</td><td>Valid certificate/ sworn affidavit Consolidated BEE certificate in cases of Joint Venture Full CSD Report</td></tr> </table> Failure on the part of a Bidder to submit proof of documentation required in terms of this tender to claim for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.	The specific goals allocated points in terms of this tender	Number of points allocated (80/20 system)	Who are women (51% or more)	5	Who has disability (51% or more owned)	5	Who is a youth (18 to 35 years) (51% or more owned)	5	Location of enterprise (local equals province)	2	B-BBEE status level contributors from level 1 to 2 which are QSE or EME	3	Total scored points	20	Procurement Requirement	Required Proof Documents	Women	Full CSD Report	Disability	Full CSD Report	Youth	Full CSD Report	Location	Full CSD Report	B-BBEE status level contributors from level 1 to 2 which are QSE or EME	Valid certificate/ sworn affidavit Consolidated BEE certificate in cases of Joint Venture Full CSD Report
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Clause number	Tender Data															
5.11.9	A Tender scoring below <u>70 points</u> in Quality shall be considered as DISQUALIFIED for further evaluation and shall be discarded from evaluation. <table><tr><th>Quality criteria</th><th>Evaluation schedule</th><th>Maximum number of points (A)</th></tr><tr><td>Experience of the Bidder in road construction and/or rehabilitation</td><td>Schedule 1</td><td>40</td></tr><tr><td>Experience of Key Personnel</td><td>Schedule 2</td><td>50</td></tr><tr><td>Plant and Equipment</td><td>Schedule 3</td><td>10</td></tr><tr><td>Maximum possible score for quality (Ms)</td><td></td><td>100</td></tr></table>	Quality criteria	Evaluation schedule	Maximum number of points (A)	Experience of the Bidder in road construction and/or rehabilitation	Schedule 1	40	Experience of Key Personnel	Schedule 2	50	Plant and Equipment	Schedule 3	10	Maximum possible score for quality (Ms)		100
Quality criteria	Evaluation schedule	Maximum number of points (A)														
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Experience of Key Personnel	Schedule 2	50														
Plant and Equipment	Schedule 3	10														
Maximum possible score for quality (Ms)		100														
5.13	Tender offers will only be accepted if: - the Bidder or any of its directors/ shareholders is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector. - the Bidder has not: - abused the Employer's Supply Chain Management System, or - failed to perform on any previous contract and has been given a written notice to this effect, - The Bidder demonstrated that they have capacity and capability to complete the works. - The Bidder does not pose a risk to the employer such as not having capacity in the tendered project region. - The Bidder does not pose commercial risk in relation to financial offers and market related rates. - the Bidder has duly completed and signed the SBD 4, Incomplete or unsigned or poorly completed forms will lead to a bidder being declared nonresponsive. - the Bidder is registered with the Construction Industry Development Board in an appropriate contractor grading designation. - the Bidder/s is registered on CSD prior submitting bids (open tenders). Any prospective bidder found to have Tax matters not in order with SARS (verified through CSD) during the evaluation process (after being given an opportunity to rectify tax matters) will be eliminated and not be considered further in the process. Preferred bidder/s will be afforded an opportunity to rectify their tax affairs within 7 days. A bidder that fails to rectify its tax matters with SARS will be eliminated. - A Resolution of signatory form has been completed and signed by director/s or a letter bearing a letterhead of the Bidder has been attached (specific to this bid) to the bid submission, it must be duly signed by all directors and submitted the bid. Only a duly authorised official can sign the bid.															
5.17	The number of paper copies of the signed contract to be provided by the employer is one to the successful Bidder.															

Clause number	Tender Data
5.17	The additional conditions of tender are: Wherever a brand name is specified in this document (i.e. specifications, pricing schedule, bill of quantities or anywhere), the department requires an item similar/equivalent or better.
5.17	Cancellation and re-invitation of tenders MISA may, prior to the award of the tender, cancel the tender if- (a) due to changed circumstances, there is no longer a need for the services, works or goods requested, or (b) funds are no longer available to cover the total envisaged expenditure, or (c) no acceptable tenders are received, or (d) Tender validity period has expired, or (e) Gross irregularities in the tender processes and/or tender documents, or (f) No market related offer received (after attempts of negotiation processes) Where applicable, the decision to cancel the tender will be published in the CIDB website and in the Tender Bulletin or the media in which the original tender invitation as advertised.
	TENDER AWARD A. The tender obtaining the highest number of total points may be awarded the contract, unless the Employer decided otherwise (ref: T1.1 Tender notice and invitation to tender). B. Preference point shall be calculated after prices have been brought to a comparative basis taking into account all factors of non-firm prices and all unconditional discounts. C. Point scored must be rounded off to the nearest 2 decimal places. <i>(If the value of the 3rd decimal place is 1 up-to 4, the points up to 2nd decimal place will be considered and if it is 5 up to 9, 1 will be added to the number at 2nd decimal place and the resulting point will be considered.)</i> D. In the event that two or more Tenders have scored equal total point, the successful Bid must be the one scoring the highest number of preference points for Specific Goals. E. However, in the event that two or more Tenders have scored equal point including equal preference points for Specific Goals the successful tender must be the one scoring the highest points for Functionality. F. Should two or more Tenders be equal in all respects, the award shall be decided by drawing of lottery by the Employer. ADDITIONAL CONDITIONS OF TENDER The additional conditions of Tender are: A. Joint Venture Tenders may form a joint venture acceptable to the Employer as detailed in the tender documents. B. Costs incurred by Bidder

Clause number	Tender Data
	The Employer will neither be responsible for nor pay any expenses incurred or losses suffered by any Bidder in the preparation of the tender or in attending the compulsory briefing session in connection therewith. C. Acceptance of Bid The Employer does not bind itself to accept the lowest or any Tender or to furnish any reason for the acceptance or rejection of a tender. The employer reserves the right to accept the whole works or part of the works. D. Withdrawal of Tender during validity or Failure in signing Contract Agreement at Award Should a Bidder a) Withdraw his Tender during the period of its validity, <u>or</u> b) Give notice of his inability to execute the Contract or fail to execute the Contract, <u>or</u> c) Fail to sign the Contract Agreement or furnish the required security/ insurance(s) within the period fixed in the Contract Data (ref: C1.2) in the Tender documents or any extended time agreed to by the Employer, then the Bidder shall be liable for and pay to the Employer – i. All expenses incurred in calling for fresh Tender, if it should be deemed necessary by the Employer to do so, ii. The difference between Tender's tender and any less favourable tender accepted either by fresh tender being called or by another tender being accepted from those already received, iii. Any escalation of the Final Contract Price resulting from any delay caused in calling for fresh tender or accepting another tender from those already received, as the case may be. And the Employer shall have the right to recover such sums by set-off against any money which may be due or become due to the Bidder, under this or any other tender or Contract between the Employer and the Bidder, or against any guarantee or deposit which may have been furnished by or on behalf of the Bidder for the due fulfilment of this or any other tender or Contract between the Employer and the Bidder. Pending the ascertainment of the amount of the Bidder's liability to the Employer in terms of this Condition of Tender, the Employer may retain such monies, guarantee or deposit as security for any loss, which the Employer may sustain by reason of the Bidder's default. Provided always that the Employer may exempt a Bidder from the provisions hereof, if it is of the opinion that the circumstances justify such exemption. E. Repudiation of Tender or Invalidation of Contract If the Employer is satisfied that the Bidder or any person is being an employee, partner, director, member or shareholder of the Bidder or a person acting on behalf of or with the knowledge of the

Clause number	Tender Data
	Bidder has offered, promised or given a bribe or other gift or remuneration to any person in connection with obtaining or execution of a Contract, a) has acted in a fraudulent or corrupt manner in obtaining or executing a Contract, b) has approached an officer or employee of the Employer with the object of influencing the award of a Contract in the Bidder's favour, c) has entered into any agreement or arrangement, whether legally binding or not, with any other person, firm or company: d) to refrain from Tendering for this Contract, e) as to the amount of the Tender to be submitted by either party, f) has disclosed to any other person, firm or company other than the Employer, the exact or approximate amount of his proposed Tender except where the disclosure, in confidence, was necessary in order to obtain insurance premium and surety quotations required for the preparation of the Bid. The Employer may, in addition to using any other legal remedies, repudiate the Bid or declare the Contract invalid should it have been concluded already. F. South African Jurisdiction The laws of the Republic of South Africa shall be applicable to each Contract created by the acceptance of a Tender and each Bidder shall indicate a place in the Republic and specify it in his Tender as his domicilium citandi et executandi where any legal process may be served on him. Each Bidder shall bind her/ himself to accept the jurisdiction of the Courts of Law of South Africa. G. Amendments to Tender by Employer a) Arithmetical Errors The Employer shall check and correct arithmetical errors for responsive Tenders in the following manner as per CIDB guideline (Ref: Practice # 2, version 1 – August 2006): i. Where there is a discrepancy between the amounts in figures and in words, the amount in words shall govern. ii. If the pricing (or bills of quantities or schedule of quantities or schedule of rates) apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total shall govern, and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted shall govern, and the unit rate shall be corrected. iii. Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the bidder's addition of prices, the total of the prices shall govern and the Bidder will be asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the Prices.

Clause number	Tender Data
	b) Imbalance in Tender Rates In the event of there being Tendered rates or lump sums being declared by the Employer to be unacceptable to him because they are either excessively low or high or not in proper balance with other rates or lump sums, the Bidder may be required to produce evidence and advance arguments in support of the tendered rates or lump sums objected to. If, after submission of such evidence and any further evidence requested, the Employer is still not satisfied with the tendered rates or prices objected to, s/he may request the Bidder to amend these rates and prices along the lines indicated by him. The Bidder will then have the option to alter and/ or amend the rates and lump sums objected to and such other related amounts as are agreed on by the Employer, but this shall be done without altering the total tendered sum.

**APPOINTMENT OF A CONTRACTOR FOR THE REPAIRS
AND REFURBISHMENTS OF UMTHAVUNA RAW WATER
ABSTRACTION, WATER TREATMENT AND BULK
NETWORK UNDER UGU DISTRICT MUNICIPALITY IN
THE KWAZULU NATAL PROVINCE.**

T2 Returnable Documents

T2.1 LIST OF RETURNABLE DOCUMENTS

A. T2 Returnable Documents Documentation to demonstrate eligibility to have tenders evaluated.

The required documentation as listed in **Clause 4.1 of T1.2 Tender Data**, must be submitted along with the tender for determining the eligibility of the tender.

B. Returnable schedules required for tender evaluation purposes

The Bidder must complete the following returnable schedules as relevant, which are attached here with the tender documents.

- 1.SBD 1 - Invitation to Bid
- 2.SBD 4 - Declaration on Interest
- 3.SBD 6.1 – Preference Points claim form
4. Samples of CSC000 sector coders Sworn Affidavits- A. EMEs and B. QSES (For Bidders with no B-BBEE Certificates)
- 5.CSD report Annexure
- 6.Tender's certificates Annexure
- 7.Resolution for Signatory
- 8.Certificate of Joint Ventures
- 9.Schedule 1: Experience of the Bidder
10. Schedule 2: Experience of key person
11. Schedule 3: Plant and Equipment

C. Other documents contained herein in the tender documents required for tender evaluation purposes as listed below.

1. Record of Addenda to Tender Documents
2. Proposed Amendments and Qualifications

D. Documentation that will be used for evaluation and to incorporate into the contract, if the tender offer resulted in an award

1. The offer portion of C1.1 Form of offer and acceptance
2. Part 2 of C1.2 Contract data relevant to Bidder
3. C2.2 Price List

T2.2 RETURNABLE SCHEDULES

1. SBD 1: PART A – INVITATION OF BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE (NAME OF DEPARTMENT/ PUBLIC ENTITY)					
BID NUMBER:	MISA/URA/KZN/019/2024/25	CLOSING DATE:	12 December 2024	CLOSING TIME:	11:00am
DESCRIPTION:	APPOINTMENT OF A CONTRACTOR FOR THE REPAIRS AND REFURBISHMENTS OF UMTHAVUNA RAW WATER ABSTRACTION, WATER TREATMENT AND BULK NETWORK UNDER UGU DISTRICT MUNICIPALITY IN THE KWAZULU NATAL PROVINCE.				
BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT (STREET ADDRESS)					
1303 Heuwel Avenue, Riverside Office Park, Letaba House					
1 st Floor, Centurion, Pretoria 0046					
BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO			TECHNICAL ENQUIRIES MAY BE DIRECTED TO:		
CONTACT PERSON	Isaac Ntutang	CONTACT PERSON			
TELEPHONE NUMBER	012 848 5300	TELEPHONE NUMBER			
FACSIMILE NUMBER	N/A	FACSIMILE NUMBER			
E-MAIL ADDRESS	tenders@misa.gov.za	E-MAIL ADDRESS			
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
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE	TICK APPLICABLE BOX] ☐ Yes ☐ No		B-BBEE STATUS LEVEL SWORN AFFIDAVIT	[TICK APPLICABLE BOX] ☐ Yes ☐ No	
[A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE ISSUED BY AGENCY ACCREDITED BY SANAS / SWORN AFFIDAVIT (FOR EMES & QSEs) MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE]					
1 ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	☐ Yes ☐ No [IF YES ENCLOSE PROOF]		2 ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES /WORKS OFFERED?	☐ Yes ☐ No [IF YES, COMPLETE QUESTIONNAIRE BELOW]	
QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS					
IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?				☐ YES ☐ NO	
DOES THE ENTITY HAVE A BRANCH IN THE RSA?				☐ YES ☐ NO	
DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA?				☐ YES ☐ NO	
DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA?				☐ YES ☐ NO	
IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION?				☐ YES ☐ NO	
IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 BELOW.					

PART B – TERMS AND CONDITIONS

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.**

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 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."

2. 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

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

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.
- 3.5 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.
- 3.5 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.
- 3.6 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.
- 3.7 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

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.

reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

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

3. SBD 6.1: PREFERENCE POINTS CLAIM 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 preference points for specific goals.

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

1. GENERAL CONDITIONS

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

- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included),
-

1.2 To be completed by the organ of state

- a) The applicable preference point system for this bid is the 80/20 preference point system.
- b) The 80/20 preference point system will be applicable in this bid. The lowest/ highest acceptable bid will be used to determine the accurate system once bids are received.

1.3 Points for this bid (even in the case of a bid for income-generating contracts) shall be awarded for:

- (a) Price, and
- (b) Specific Goals.

1.4 To be completed by the organ of state:

The maximum points for this bid are allocated as follows:

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

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

1.6 The organ of state 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 organ of state.

2. DEFINITIONS

- (a) “**Ownership**” means the percentage ownership and control, exercised by individuals within and enterprise
- (b) “**bid**” means a written offer in the form determined by an organ of state in response to an

invitation to provide goods or services through price quotations, competitive bidding process or any other method envisaged in legislation,

- (c) **“price”** means an amount of money bided for goods or services, and includes all applicable taxes less all unconditional discounts,
- (d) **“rand value”** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes,
- (e) **“bid for income-generating contracts”** means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions, and
- (f) **“the Act”** means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).
- (g) **“Disability”** means, in respect of a person, a permanent impairment of a physical, intellectual, or sensory function, which results in restricted, or lack of, ability to perform and activity in the manner, or within the range, considered normal for a human being.
 - a. A blind person (in terms of the Blind Persons Act, 1968(Act no 26 of 1968)
 - b. A deaf person, whose hearing is impaired to such and extent that he/she cannot use it as a primary means of communication.
 - c. A person who, as a result of permanent disability, requires a wheelchair, caliper or crutch to assist him/her to move from one place or another.
 - d. A person who requires an artificial limb, or
 - e. A person who suffers from a mental illness (in terms of the Mental Health Act, 1973 (Act NO. 18 of 1973)

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. POINTS AWARDED FOR PRICE

3.1.1 THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS

A maximum of 80 or 90 points is allocated for price on the following basis:

80/20

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

Where

Ps = Points scored for price of bid under consideration

Pt = Price of bid under consideration

Pmin = Price of lowest acceptable bid

3.2. FORMULAE FOR DISPOSAL OR LEASING OF STATE ASSETS AND INCOME GENERATING PROCUREMENT

3.2.1. POINTS AWARDED FOR PRICE

A maximum of 80 or 90 points is allocated for price on the following basis:

80/20

$$Ps = 80 \left(1 + \frac{Pt - P_{max}}{P_{max}} \right)$$

Where

Ps = Points scored for price of bid under consideration

Pt = Price of bid under consideration

Pmax = Price of highest acceptable bid

4. POINTS AWARDED FOR SPECIFIC GOALS

- 4.1. In terms of Regulation 4(2), 5(2), 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the bid. For the purposes of this bid the bidder will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this bid:
- 4.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the bid documents, stipulate in the case of—
- (a) an invitation for bid for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable bid will be used to determine the applicable preference point system, or
 - (b) any other invitation for bid, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable bid will be used to determine the applicable preference point system, then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

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

Note to bidders: The bidder must indicate how they claim points for each preference point system.)

The specific goals allocated points in terms of this bid	Number of points allocated (80/20 system)	Number of points claimed (80/20 system) (To be completed by the bidder)
Who are women (51% or more)	5	
Who has disability (51% or more owned)	5	
Who is a youth (18 to 35 years) (51% or more owned)	5	
Location of enterprise (local equals province)	2	
B-BBBEE status level contributors from level 1 to 2 which are QSE or EME	3	
Total scored points	20	

DECLARATION WITH REGARD TO COMPANY/FIRM

- 4.3. Name of company/firm.....
- 4.4. Company registration number:
- 4.5. TYPE OF COMPANY/ FIRM
- ☐ Partnership/Joint Venture / Consortium

- ☐ One-person business/sole propriety
- ☐ Close corporation
- ☐ Public Company
- ☐ Personal Liability Company
- ☐ (Pty) Limited
- ☐ Non-Profit Company
- ☐ State Owned Company

[TICK APPLICABLE BOX]

- 4.6. I, the undersigned, who is duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the specific goals as advised in the bid, qualifies the company/ firm for the preference(s) shown and I 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 1 of this form.
 - iii) In the event of a contract being awarded because of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct.
 - iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –
 - (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 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, if deemed necessary.

.....
SIGNATURE(S) OF BIDDER(S)

SURNAME AND NAME:

DATE:

ADDRESS:

.....

4. SAMPLES OF GENERIC SECTOR CODERS SWORN AFFIDAVITS- A. EMES AND B. QSES (FOR BIDDERS WITH NO B-BBEE CERTIFICATES SWORN AFFIDAVIT - TEMPLATES

(IF APPLICABLE, CHOOSE THE CORRECT FORM AND COMPLETE)

NB:CHOOSE ONE i.e EME or QSE!!!!)

B-BBEE EXEMPTED AFFIDAVIT FOR EXEMPTED MICRO ENTERPRISES (EME)

I, the undersigned,

Full name & Surname	
Identity number	

Hereby declare under oath as follows:

1. The contents of this statement are to the best of my knowledge a true reflection of the facts.
2. I am a Member / Director / Owner of the following enterprise and am duly authorized to act on its behalf:

Enterprise Name:			
Trading Name (If Applicable):			
Registration Number:			
Enterprise Physical Address:			
Type of Entity (CC, (Pty) Ltd, Sole Prop etc.):			
Nature of Construction Business:	BEPs (Built Environment Professional)	Contractor	Supplier
Definition of "Black People"	As per the Broad-Based Black Economic Empowerment Act 53 of 2003 as Amended by Act No 46 of 2013 "Black People" is a generic term which means Africans, Coloureds and Indians – (a) Who are citizens of the Republic of South Africa by birth or descent, or (b) Who became citizens of the Republic of South Africa by naturalization- i. Before 27 April 1994, or ii. On or after 27 April 1994 and who would have been entitled to acquire citizenship by naturalization prior to that date		

3. I hereby declare under Oath that as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,

- The Enterprise is _____ % Black Owned
- The Enterprise is _____ % Black woman Owned
- The Enterprise is _____ % Owned by Black Designated Group (provide Black Designated Group Breakdown below as per the definition in the table above)
 - o Black Youth % _____ %
 - o Black Disabled % _____ %
 - o Black Unemployed % _____ %
 - o Black People living in Rural areas % _____ %

o Black Military Veterans % _____%

Based on the Financial Statements/Management Accounts and other information available on the latest financial year-end of _____ (DD/MM/YY), the annual Total Revenue was equal to/or less than the applicable amount confirmed **by ticking the applicable box below**.

Contractor / Consultancy	R10 million	
Supplier	R10 million	

If the turnover exceeds the applicable amount in the table above then this affidavit is no longer applicable and an EME certificate must be obtained from a rating agency accredited by SANAS or when applicable a B-BBEE Verification Professional Regulator appointed by the Minister of Trade and Industry.

☐ Please confirm on the table below the B-BBEE level contributor, **by ticking the applicable box**.

100% Black Owned	Level One (135% B-BBEE procurement recognition level)	
At least 51% Black Owned but less than 100% black owned	Level Two (125% B-BBEE procurement recognition level)	
Less than 51% black owned	Level Four (100% B-BBEE procurement recognition level)	

4. I know and understand the contents of this affidavit and I have no objection to take the prescribed oath and consider the oath binding on my conscience and on the owners of the enterprise which I represent in this matter.
5. The sworn affidavit will be valid for a period of 12 months from the date signed by commissioner.

Deponent Signature: _____

Date: _____

Commissioner of Oaths

Signature & stamp

Date: _____

B-BBEE EXEMPTED AFFIDAVIT FOR QUALIFYING SMALL ENTERPRISES (QSE)

I, the undersigned,

Full name & Surname	
Identity number	

Hereby declare under oath as follows:

1. The contents of this statement are to the best of my knowledge a true reflection of the facts.
2. I am a Member / Director / Owner of the following enterprise and am duly authorized to act on its behalf:

Enterprise Name:		
Trading Name (If Applicable):		
Registration Number:		
Enterprise Physical Address:		
Type of Entity (CC, (Pty) Ltd, Sole Prop etc.):		
Nature of Construction Business:	Supplier / Service provider	Consultancy services Supplier
Definition of "Black People"	As per the Broad-Based Black Economic Empowerment Act 53 of 2003 as Amended by Act No 46 of 2013 "Black People" is a generic term which means Africans, Coloureds and Indians – (a) Who are citizens of the Republic of South Africa by birth or descent, or (b) Who became citizens of the Republic of South Africa by naturalization- i. Before 27 April 1994, or ii. On or after 27 April 1994 and who would have been entitled to acquire citizenship by naturalization prior to that date	

3. I hereby declare under Oath that as per Amended Code Series 100 of the Amended Codes of Good Practice issued under section 9 (1) of B-BBEE Act No 53 of 2003 as Amended by Act No 46 of 2013,

- The Enterprise is _____ % Black Owned
- The Enterprise is _____ % Black Female Owned
- The Enterprise is _____ % Owned by Black Designated Group (provide Black Designated Group Breakdown below as per the definition in the table above)
 - o Black Youth % _____ %
 - o Black Disabled % _____ %
 - o Black Unemployed % _____ %
 - o Black People living in Rural areas % _____ %
 - o Black Military Veterans % _____ %

Based on the Financial Statements/Management Accounts and other information available on the latest financial

year-end of _____ (DD/MM/YY), the annual Total Revenue was equal to/or less than the applicable amount confirmed **by ticking the applicable box below.**

Contractor / Consultancy services	R50 million	
Supplier	R50 million	

If the turnover exceeds the applicable amount in the table above then this affidavit is no longer applicable and an EME certificate must be obtained from a rating agency accredited by SANAS or when applicable a B-BBEE Verification Professional Regulator appointed by the Minister of Trade and Industry.

☐ Please confirm on the table below the B-BBEE level contributor, **by ticking the applicable box.**

100% Black Owned	Level One (135% B-BBEE procurement recognition level)	
At least 51% Black Owned but less than 100% black owned	Level Two (125% B-BBEE procurement recognition level)	

4. I know and understand the contents of this affidavit and I have no objection to take the prescribed oath and consider the oath binding on my conscience and on the owners of the enterprise which I represent in this matter.
5. The sworn affidavit will be valid for a period of 12 months from the date signed by commissioner.

Deponent Signature: _____

Date: _____

Commissioner of Oaths
Signature & stamp

Date: _____

6. SCHEDULE 1: EXPERIENCE OF THE BIDDER (40 POINTS)

a) Requirements

The experience of the Bidder as a company (as opposed to key staff members) in the construction or refurbishment of municipal borehole water infrastructure, installation of borehole pumps and associated package water treatment plants, construction of water pump stations, pipelines and reservoirs as a main contractor for municipalities and other organs of state.

The projects shall be within the previous **10 years** and must only include completed projects prior to closing date for submissions.

b) Points Scoring

Points will be allocated per project as per the table below,

Table : Project points allocation

No	Project Value	Points per Project
a)	R500 000 - R1 000 000	4 points
b)	R1 000 001 - R3 000 000	6 points
c)	R3 000 001 and above	8 points

c) Means of Verification: Bidders are requested to submit completion certificates and corresponding appointment letters

- Appointment letters and Completion certificates must be from the relevant municipality or organ of state and must indicate details of the contact person from the municipality or organ of state
- In cases where the municipality or organ of state made use of a consulting engineer (consultant), the appointment letter and completion certificate must clearly stipulate:
 - a. General Conditions of Contract used at that time such as GCC, NEC, FIDIC etc
 - b. The details of the project including description, tender number, contract amount, contractual dates and contract period.
 - c. The name of the municipality or organ of state that is the client or employer.
 - d. The details of the contact person from the municipality or organ of state
 - e. The completion certificate must be signed by the Engineer, the Employer and the Contractor depending on the General Conditions of contract used

d) Listing of Completed Projects

Bidders are requested to list a maximum of **five (5) highest value projects** including contactable references by completing **SCHEDULE OF COMPLETED PROJECTS** appended to this schedule on the next page.

SCHEDULE OF COMPLETED PROJECTS

No	Name and Brief Description of the Project	Value in Rands R'000	Date		Name of employer	Employer		
			Started	Completed		Contact Person		Tel. No
						Name and Surname		
1.								
2.								
3.								
4.								

No	Name and Brief Description of the Project	Value in Rands R'000	Date		Employer		
			Started	Completed	Name of employer	Name and Surname	Contact Person Tel. No
5.							

MISA reserves the right to verify all information presented by the Bidder.

BIDDERS ARE REQUESTED TO COMPLETE THE ABOVE TABLE AND REFRAIN FROM REFERRING THE COMPLETION THEREOF TO AN ATTACHMENTS. PLEASE ATACH ONLY INFROMATION REQUESTED BY THE EMPLOYER.

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Signed

Date

Name

Position

Enterprise name

md

7. SCHEDULE 2: EXPERIENCE OF KEY PERSONNEL (50 POINTS)

a) Summary

Total Points 50 points for key personnel is allocated as follows

No	Key Personnel Description	Total Points
1	Contracts Manager – Team Leader	15
2	Civil Engineer	10
3	Geohydrologist	10
4	Site Agent	5
5	Foreman	5
6	Health and Safety Officer (CHSO)	5
	Total	50

b) Requirements

The experience of the key personnel who will be responsible for the management of the physical construction processes and the coordination, administration and management of resources on the Site will be evaluated in relation to the **Part C3: Scope of work** from three different points of view:

- 1) General experience (total duration of work activity), level of education and training and positions held.
- 2) The education, training, skills, experience and knowledge of issues which are pertinent to the **Part C3: Scope of Work**.
- 3) The experience of the key personnel must be post-qualification

For Noting: All personnel submitted by the tenderer cannot be changed without prior written approval from the employer. As per clause 24.1 of the NEC3 ECC

c) Means of Verification:

Attach proof of qualifications, brief CV's and where applicable proof of professional registration for key personnel listed.

d) Listing of Key Personnel

Bidders are requested to list key personnel by completing **SCHEDULE OF KEY PERSONNEL** appended to this schedule on the next page.

e) Scoring

The scoring of the experience of key person staff will be as per the table below:

Key Personnel	=	50 Total Points
1. Contracts Manager	=	(15 points)
1.1. Experience	=	05 points
a) Below 5 years	=	00 points
b) 5 to below 7 years	=	03 points
c) 7 to below 10 years	=	04 points
d) 10 years and above	=	05 points
1.2. Qualifications	=	10 points
a) Qualification below Degree or B Tech in Civil Eng/Construction Management or Non-relevant Qualification	=	00 points
b) Degree or B Tech in Civil Eng/Construction Management	=	07 points
c) Honours Degree or above in Civil Eng/Construction Management	=	10 points
2. Civil Engineer	=	(15 points)
2.1. Experience	=	05 points
a) Below 3 years	=	00 points
b) 3 to below 6 years	=	03 points
c) 6 to below 10 years	=	04 points
d) 10 years and above	=	05 points
2.2. Qualifications		10 points
a) Qualification below Degree or B Tech in Civil Eng/Construction Management or Non-relevant Qualification	=	00 points
b) Degree or B Tech in Civil Eng/Construction Management	=	03 points
c) Honours Degree or above in Civil Eng/Construction Management	=	05 points
3. Geohydrologist	=	(10 points)
3.1 Experience	=	05 points
a) Below 5 years	=	00 points
b) 5 to below 7 years	=	03 points
c) 7 to below 10 years	=	04 points
d) 10 years and above	=	05 points
Qualifications	=	05 points
a) Qualification below a bachelor's degree in Hydrogeology, Geohydrology, Hydrology, Geophysics, or non-relevant qualification	=	00 points
b) Bachelor's degree in Hydrogeology, Geohydrology, Hydrology, Geophysics	=	04 points
c) Honours degree or above in Hydrogeology, Geohydrology, Hydrology, Geophysics	=	05 points
4. Site Agent	=	05 points
4.1. Experience	=	02 points
a) Below 5 years	=	00 points
b) 5 to below 8 years	=	01 point
c) 8 years and above	=	02 points
4.2. Qualification	=	03 points
a) Qualification below Diploma in Civil Engineering/ not relevant qualification	=	00 points
b) Diploma in Civil Engineering		02 points

Key Personnel	=	50 Total Points
c) Degree or B Tech or above in Civil Engineering	=	03 points
5. Foreman/Supervisor	=	(05 points)
5.1. Experience	=	02 points
a) Below 5 years	=	00 points
b) 5 to below 8 years	=	01 point
c) 8 years and above	=	02 points
5.2. Qualification	=	03 points
a) Qualification below N6 certificate in civil engineering/ not relevant qualification	=	00 points
b) N6 certificate in civil engineering	=	02 points
c) Diploma in or above Civil Engineering	=	03 points
6. Construction Health and Safety Officer	=	(05 points)
6.1. Experience	=	02 points
a) 5 to below 7 years	=	00 points
b) 7 to below 10 years	=	01 point
c) 10 years and above	=	02 points
6.2. Qualification + Registration with SACPCMP as Construction Health and Safety officer (CHSO)	=	03 points
a) Qualification below National Diploma in Safety Management (NQF 6)	=	00 points
b) National Diploma in Safety Management (NQF 6)	=	01 point
c) B-Tech in Safety Management or above	=	03 points

SCHEDULE OF KEY PERSONELL

No	Key Personnel	Name and Surname	Qualifications and Proof of Registration with Professional body	Total Number of years of experience after Qualification
1	Contracts Manager			
2	Civil Engineer			
3	Geohydrologist			
4	Site Agent			
5	Foreman			
6	Construction Health and Safety Officer		Qualification:	
			Name of Professional Body:	
			Date Registered:	

Means of Verification: Bidders are requested to attach brief CV's, Proof of Qualification for all the staff referred to above table and Proof of Professional Registration applicable.

MISA reserves the right to verify all information presented by the Bidder.

BIDDERS ARE REQUESTED TO COMPLETE THE ABOVE TABLE AND REFRAIN FROM REFERRING THE COMPLETION OF THE ABOVE TABLE TO AN ATTACHMENTS. PLEASE ATTACH ONLY INFORMATION REQUESTED BY THE EMPLOYER.

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Name of Bidder:Date:

Signature:Position:

Full name of signatory:

8. Schedule 3: Plant and Equipment (10 points)

a) Requirements

Points will be allocated as indicated below for plant and equipment **owned and / or hired** by the Bidder, and which will be available for the project, should the Bidder be successful. Bidders must complete the table below for availability of plant and equipment.

Type of Equipment	Total Points
Light Bakkie (1 ton) min (1 required)	4
Tipper (6m ³ minimum). (1 required)	3
Pedestrian roller. (1 required)	3
Total scored	10

b) Means of verification

1. **In cases where plant is owned by the Bidder**, Proof of ownership must be in the form of a license disc or certificate of ownership as per e-natis requirements in the name of the company must be attached.
2. **In cases where the plant is to be hired by the Bidder**, a letter from a Plant Hire Company addressed to the Bidder with reference to this project clearly indicating the list of plant to be hired must be attached. In addition, Proof of ownership from hiring company must be in the form of a license disc or certificate of ownership as per e-natis requirements in the name of the hiring company must be attached.
3. Plant owned by the directors must also be accompanied by a letter of intent.
4. **In cases where the Bidder own part of the required plant and part will be hired**, the Bidder must attach proof of ownership as per 1 above and plant hire letter as per 2 above accordingly.
5. **In cases where proof of ownership cannot be provided in the form of E-Natis** registration documents due to the **nature** of the plant and equipment, a supplier invoice in the name of the Bidder or there hiring company will be acceptable as proof of ownership.

Note: No other proof of ownership will be considered

d) Listing of required plant and equipment

Bidders are requested to list required plant and equipment by completing **SCHEDULE OF PLANT AND EQUIPMENT** appended to this schedule on the next page.

SCHEDULE OF PLANT AND EQUIPMENT

No	Description	Number Required	Points	Please indicate with X on which one is owned or hired	
				Owned	To be Hired
1	TLB (1 required)	1	4		
2.	Light Bakkie (1 ton) min (1 required)	1	3		
4.	Pedestrian roller. (1 required)	1	3		
	Total		10		

BIDDERS ARE REQUESTED TO COMPLETE THE ABOVE TABLE AND REFRAIN FROM REFERRING THE COMPLETION OF THE ABOVE TABLE TO AN ATTACHMENTS. PLEASE ATTACH ONLY INFORMATION REQUESTED BY THE EMPLOYER.

MISA reserves the right to verify all information presented by the Bidder.

The undersigned, who warrants that he/she is duly authorised to do so on behalf of the enterprise, confirms that the contents of the Schedule 3 presented by the Bidder are within his/her personal knowledge and are to the best of his/her knowledge both true and correct

Signed _____

Date _____

Name _____

Position _____

Enterprise name _____



MUNICIPAL INFRASTRUCTURE SUPPORT AGENT

Cooperative Governance & Traditional Affairs

Reference no.: **MISA/URA/KZN/019/2024/25**

PROJECT: APPOINTMENT OF A CONTRACTOR FOR THE REPAIRS AND REFURBISHMENTS OF UMTHAVUNA RAW WATER ABSTRACTION, WATER TREATMENT AND BULK NETWORK UNDER UGU DISTRICT MUNICIPALITY IN THE KWAZULU NATAL PROVINCE.

The Contract

Based on

Based on NEC3 Engineering and Construction Contract –
Option F: Priced Contract with Bill of Quantities)



MUNICIPAL INFRASTRUCTURE SUPPORT AGENT

Cooperative Governance & Traditional Affairs

Reference no.: **MISA/URA/KZN/019/2024/25**

**APPOINTMENT OF A CONTRACTOR FOR THE REPAIRS AND REFURBISHMENTS OF
UMTHAVUNA RAW WATER ABSTRACTION, WATER TREATMENT AND BULK NETWORK
UNDER UGU DISTRICT MUNICIPALITY IN THE KWAZULU NATAL PROVINCE.**

C1 Agreements and Contract Data

C1.1 FORM OF OFFER AND ACCEPTANCE

OFFER

The *Employer*, identified in the Acceptance signature block, has solicited offers to enter into a contract for the provision of services as described in Part 1 of the Contract Data.

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

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

Total Amount: (in figure),

.....

.....

.....(in words).

This Offer may be accepted by the *Employer* by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document including the Schedule of Deviations (if any) to the Bidder before the end of the period of validity stated in the Tender Data, or other period as agreed, whereupon the Bidder becomes the party named as the *Contractor* in the conditions of contract identified in the Contract Data.

Signature(s)

Name(s)

Capacity

**For the
Bidder:**

.....
(Insert name and address of organisation)

Name &
signature of
witness

Date

ACCEPTANCE

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

The terms of the contract, are contained in:

Part C1 Agreements and Contract Data, (which includes this Form of Offer and Acceptance)

Part C2 Pricing Data

Part C3 Scope of Work

Part C4 Site Information

and drawings and documents (or parts thereof), which may be incorporated by reference into the above listed Parts.

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Returnable Schedules as well as any changes to the terms of the Offer agreed by the Bidder and the *Employer* during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Form of Offer and Acceptance. No amendments to or deviations from said documents are valid unless contained in this Schedule.

The Bidder shall within two weeks of receiving a completed copy of this agreement, including the Schedule of Deviations (if any), contact the *Employer's* agent (whose details are given in the Contract Data) to arrange the delivery of any securities, bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the *conditions of contract* identified in the Contract Data. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this agreement.

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

Signature(s)

Name(s) Ms. Mapatane Kgomo

Capacity Acting Chief Executive Officer

**for the
Employer** 1303 Heuwel Avenue
Riverside Office Park, Letaba House
Centurion, PRETORIA 0046

Name &
signature of
witness

..... Date:

Schedule of Deviations

1 Subject

Details

.....

.....

.....

2 Subject

Details

.....

.....

.....

3 Subject

Details

.....

.....

.....

4 Subject

Details

.....

.....

.....

5 Subject

Details

.....

.....

.....

By the duly authorised representatives signing this agreement, the *Employer* and the Bidder agree to and accept the foregoing schedule of deviations as the only deviations from and amendments to the documents listed in the Tender Data and addenda thereto as listed in the returnable schedules, as well as any confirmation, clarification or changes to the terms of the offer agreed by the Bidder and the *Employer* during this process of offer and acceptance.

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

**APPOINTMENT OF A CONTRACTOR FOR THE REPAIRS AND
REFURBISHMENTS OF UMTHAVUNA RAW WATER ABSTRACTION,
WATER TREATMENT AND BULK NETWORK UNDER UGU DISTRICT
MUNICIPALITY IN THE KWAZULU NATAL PROVINCE.**

C1.2 CONTRACT DATA

The *Conditions of Contract* are the core clauses and the clauses for main Option F, dispute resolution option W1 and Secondary options X7, X13, X16, Z Of the NEC3 Engineering and Construction Contract (April 2013 edition) published by the Institution of Civil Engineers (ICE), copies of which may be obtained from Engineering Contract Strategies (+27) 011 803 3008

Each item of data given below is cross-referenced to the clause in the NEC3 Engineering and Construction Contract to which it mainly applies.

C1.2.1 PART ONE - DATA PROVIDED BY THE *EMPLOYER*

Clause	Data
1 General	
10.1	<i>The Employer is</i> Municipal Infrastructure Services Agent Physical Address: Letaba House, Riverside Office Park 1303 Heuwel Avenue, Centurion, Pretoria 0046 Postal Address: Private Bag X105, Centurion 0046 Telephone: 012 848 5300
10.1	<i>The Project Manager is: Chief Engineer</i>
10.1	<i>The Supervisor is : (Khubone Mabonga)</i>
11.2 (1)	The Accepted Programme is the programme identified in the Contract Data or the latest accepted by the Project Manager. The latest accepted programme supersedes previously accepted programmes.

Clause	Data
11.2 (13)	The <i>works</i> are the APPOINTMENT OF A CONTRACTOR FOR THE REPAIRS AND REFURBISHMENTS OF UMTHAVUNA RAW WATER ABSTRACTION, WATER TREATMENT AND BULK NETWORK UNDER UGU DISTRICT MUNICIPALITY IN THE KWAZULU NATAL PROVINCE
11.2 (14)	The following matters will be included in the Risk Register None
11.2 (15)	The <i>boundaries</i> of the sites are as per the proposed site layout and locality plan as per C3: Scope of Works.
11.2 (16)	The Site Information is in section Part C4: Site information of this tender document
11.2 (19)	The Works Information is in section Part C3: Scope of works of this tender document
12.2	The <i>law of the contract</i> is the law of the Republic of South Africa
13.1	The <i>language of this contract</i> is English
13.3	The <i>period of reply</i> is 2 weeks
2	The Parties' main responsibility
26.1	If the <i>Contractor</i> subcontracts work, he is required to submit a signed agreement with proposed Sub contractor / consultant detailing the proposed scope and exclusivity of the relationship and intention to get into a subcontracting agreement based on the NEC3 Engineering and Construction Subcontract should he be successful.
26.2	The Contractor must submit proposed Sub-contractor / consultant with an ECSA registration as Professional Mechanical/Electrical or Professional Mechanical/Electrical Technologist (appropriate certificates to be submitted).
26.3	The conditions of contract for the Subcontractor shall be the NEC3 Engineering and Construction Subcontract Edition: 3 Reprinted with Amendments 2013, which is to be signed by both parties should the Contractor be successful.

Clause	Data
3	Time
30.1	The <i>starting date</i> is 14 days after the date of issuance (exclusive) of the award letter.
33.1	The <i>access date</i> is 14 days after the issuance of the appointment letter
11.2(2)	The <i>completion date</i> for the whole of the <i>services</i> is Six (6) Calendar Months after the start date.
31	The <i>Contractor</i> submits programme with the tender according to the <i>Scope</i> , considering the <i>starting date</i> and <i>completion date</i> , which will be adjusted, if need be, based on proposed duration in the programme through consultation.
32	The <i>Contractor</i> submits revised programme at intervals no longer 4 weeks
4	Testing and Defects
42	The <i>defects date</i> is 12 months after Completion of the whole of the works.
43	The <i>defect correction period</i> is two weeks after completion of the whole o f the works.
5	Payment
50.1	The <i>assessment interval</i> is monthly on or before the 20 th day of each successive month.
51.1	The <i>currency of this contract</i> is the South African Rand.
51.2	Each certified payment is made within 30 days of the assessment.
51.4	The <i>interest rate</i> is the Prime lending rate of the <i>Employer's</i> Bank.
6	Compensation events
60.1 (13)	The place where the weather is to be recorded is Ray Nkonyani LM in Ugu District Municipality.
60.1 (13)	The weather measurements to be recorded for each calendar month are • The cumulative rainfall (mm) • The number of days with rainfall more than 5mm

Clause	Data												
7	Title No data required for this section of the <i>conditions of contract</i> .												
70.2	80% of the value of materials on site could be claimed by the contractor												
8	Indemnity, Insurance and Liabilities												
84.1	The Contractor is to provide the insurances stated in the Insurance Table in Section 84.2												
84.2	<i>The minimum amount of cover for insurance against the Contractor's liability for loss of or damage to property (except the works, Plant and Materials and Equipment) and liability for bodily injury to employees of the Contractor to or death of a person (not an employee of the Contractor) caused by activity in connection with this contract as prescribed in section 84.2 of the NEC 3 ECC</i> <table><tr><th>Insurance against</th><th>Minimum amount of cover or minimum limit of indemnity</th><th>Period following Completion of the whole of the services or earlier termination</th></tr><tr><td>Loss of or damage of the works, Plant and Materials</td><td>The replacement cost, including the amount stated in the Contract Data for the replacement of any Plant and Materials provided by the Employer</td><td>Till the end of the <i>defects date</i>.</td></tr><tr><td>Loss of or damage to Equipment</td><td>The replacement cost</td><td>Till the end of the <i>completion date</i>.</td></tr><tr><td>Liability for loss of or damage to property (except the works, Plant and Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the Contractor) caused by activity in connection with this contract.</td><td>R5 million without limit to the number of claims</td><td>Till the end of the <i>completion date</i>.</td></tr></table>	Insurance against	Minimum amount of cover or minimum limit of indemnity	Period following Completion of the whole of the services or earlier termination	Loss of or damage of the works, Plant and Materials	The replacement cost, including the amount stated in the Contract Data for the replacement of any Plant and Materials provided by the Employer	Till the end of the <i>defects date</i> .	Loss of or damage to Equipment	The replacement cost	Till the end of the <i>completion date</i> .	Liability for loss of or damage to property (except the works, Plant and Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the Contractor) caused by activity in connection with this contract.	R5 million without limit to the number of claims	Till the end of the <i>completion date</i> .
Insurance against	Minimum amount of cover or minimum limit of indemnity	Period following Completion of the whole of the services or earlier termination											
Loss of or damage of the works, Plant and Materials	The replacement cost, including the amount stated in the Contract Data for the replacement of any Plant and Materials provided by the Employer	Till the end of the <i>defects date</i> .											
Loss of or damage to Equipment	The replacement cost	Till the end of the <i>completion date</i> .											
Liability for loss of or damage to property (except the works, Plant and Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the Contractor) caused by activity in connection with this contract.	R5 million without limit to the number of claims	Till the end of the <i>completion date</i> .											

Clause	Data		
	Liability for death of or bodily injury to employees of the <i>Consultant</i> arising out of and in the course of their employment in connection with this contract	That which is prescribed by the Compensation injuries and Diseases Act No. 130 of 1993 as amended and whatever the <i>Consultant</i> deems desirable in addition	Till the end of the <i>completion date</i> .
	Professional Indemnity Insurance (Professional Civil Engineering Services)	R5 million without limit to the number of claims	Till the end of the <i>completion date</i> .
85.1	Before the starting date and on each renewal the Contract shall provide applicable insurance policies to the Project Manager for acceptance. The certificates are signed by the Contractor's insurer or insurance broker		
86.1	The <i>Employer</i> provides no insurance cover.		
Option W1	DISPUTE RESOLUTION		
W1.2	The <i>Adjudicator</i> is the person selected by the Parties in terms of the relevant Z Clause from the Panel of NEC Adjudicators set up by ICE-SA, a Joint Division of the Institution of Civil Engineers and the South African Institution of Civil Engineering (see www.ice-sa.org.za).		
W1.2	The <i>adjudicator nominating body</i> is the Chairman of ICE-SA, a Joint Division of the Institution of Civil Engineers and the South African Institution of Civil Engineering (see www.ice-sa.org.za).		
W1.4	The <i>tribunal</i> is arbitration		
W1.4	The <i>arbitration procedure</i> is as set out in the latest edition of Rules for the Conduct of Arbitrations published by the Association of Arbitrators (Southern Africa) or its successor body The place where arbitration is to be held is To be Advised The person or organisation who will choose an arbitrator • if the Parties cannot agree a choice or • if the <i>arbitration procedure</i> does not state who selects an arbitrator, is		

Clause	Data
	the Chairman of the Association of Arbitrators (Southern Africa) or its successor body
Option X7	Delay Damages
X7	The <i>delay damages</i> for completion of the wholes of the works are R2,000.00 per day
Option X13	Performance Bond
X13	The amount of the performance bond is 10% of value of Contract
Option X16	Retention
X16	The retention percentage is 10%
Z	<i>Additional Conditions of Contract</i>
	The <i>additional conditions of contract</i> are
Z1	Selection and appointment of the <i>Adjudicator</i>
	A Party may at any time notify the other Party of the names of two persons he has chosen from the Panel of NEC Adjudicators set up by ICE-SA, a Joint Division of the Institution of Civil Engineers and the South African Institution of Civil Engineering (see www.ice-sa.org.za) whose availability to act as the <i>Adjudicator</i> the notifying Party has confirmed. The other Party selects one of the two persons chosen to be the <i>Adjudicator</i> within four days of receiving the notice, failing which the person chosen by the notifying Party will be the <i>Adjudicator</i> . The Parties appoint the selected <i>Adjudicator</i> under the NEC3 Adjudicator's Contract, April 2013.
Z2	Tax invoices
	The <i>Contractor's</i> invoice.
	Delete the first sentence of core clause 51.1 and replace by: The Employer makes each payment within thirty days from the date of receipt (exclusive) of the <i>Consultant's</i> invoice showing the details, which this contract requires or, if a different period is stated in the Contract Data, within the period stated.
Z3	Acts or omissions by mandatories

Clause	Data
	In terms of Section 37(2) of the Occupational health and Safety Act of 1993 (Act 85 of 1993), the <i>Contractor</i> hereby agrees that the <i>Employer</i> is relieved of any and all of its liabilities in terms of Section 37(1) of this Act in respect of any acts or omissions of the <i>Contractor</i> and his employees to the extent permitted by this Act, and that this contract comprises the written agreement between the <i>Employer</i> and the <i>Contractor</i> contemplated in section 37(2).
Z4	Subcontractors The <i>Contractor</i> submits the name of each proposed subcontractor to the <i>Employer's</i> representative for acceptance. A reason for not accepting the subcontractor is that his appointment will not allow the Contractor to Provide the Works. The Contractor does not appoint a proposed subcontractor until the Project Manager has accepted him.
	Transfer of rights The <i>Employer</i> owns the <i>Contractor's</i> rights over material prepared for this contract by the <i>Contractor</i> except as stated otherwise in the Works Information. The <i>Contractor</i> obtains other rights for the <i>Employer</i> as stated in the Works Information and obtains from a subcontractor equivalent rights for the <i>Employer</i> over the material prepared by the subcontractor. The <i>Contractor</i> provides to the <i>Employer</i> the documents which transfer these rights to the <i>Employer</i>

C1.2.2 PART TWO - DATA PROVIDED BY THE CONTRACTOR

The *Contractor* is advised to read the NEC3 Engineering and Construction (Third edition of June 2005) and the relevant Guidance Notes and Flow Charts, published by the Institution of Civil Engineers, in order to understand the implications of this Data, which is required. Copies of these documents may be obtained from Engineering Contract Strategies (telephone (27) 011 803 3008).

Each item of data given below is cross-referenced to the clause in the NEC3 Engineering and Construction Short Contract to which it mainly applies.

Clause	Data
10.1	<i>The Contractor is</i> Name: _____ Physical Address: _____ _____ Post Code: _____ Postal Address: _____ Post Code: _____ Telephone: _____ Fax: _____ Mobile: _____ Email: _____
11.2 (8)	The Direct fee percentage is _____
11.2 (8)	The subcontracted fee percentage is _____
11.2 (18)	The working areas are the site and _____
24.1	The <i>Contractor's</i> key persons are: 1 Name: _____ Position in the Project Team: _____ Responsibilities: _____

Qualifications:

Experience:

Physical Address:

Post Code: _____

Postal Address:

Post Code: _____

Telephone: _____ Fax: _____

Mobile: _____ Email: _____

(Please use separate pages referring to this clause for detailing this information
for all *Contractor's* key persons)

11.2(14) The following matters will be included in the Risk Register

11.2 (21) The *bill of quantities* is

11.2 (31) The tendered total of the Prices is

52.1 The percentage for overheads and profit added to the Defined Cost for people is %

52.1 The percentage for overheads and profit added to other Defined Cost is %



MUNICIPAL INFRASTRUCTURE SUPPORT AGENT

Cooperative Governance & Traditional Affairs

Reference no.: MISA/URA/KZN/019/2024/25

**APPOINTMENT OF A CONTRACTOR FOR THE REPAIRS AND REFURBISHMENTS OF
UMTHAVUNA RAW WATER ABSTRACTION, WATER TREATMENT AND BULK NETWORK
UNDER UGU DISTRICT MUNICIPALITY IN THE KWAZULU NATAL PROVINCE.**

C1.3 SECURITIES: PERFORMANCE BOND

(to be reproduced exactly as shown below on the letterhead of the Surety)

{Insert name and registered address of the Contractor}

Date:

Dear Sirs,

PERFORMANCE BOND FOR CONTRACT NO.

With reference to the above numbered contract made or to be made between

(the *Employer*) and

{Insert registered name and address of the *Contractor*}

(the *Contractor*), for

{Insert details of the *works* from the Contract Data}

(the *works*).

I/We the undersigned

on behalf of the Surety

of physical address

and duly authorised thereto do hereby bind ourselves as Surety and co-principal debtors in solidum for the due and faithful performance of all the terms and conditions of the Contract by the *Contractor* and for all losses, damages and expenses that may be suffered or incurred by the *Employer* as a result of non-performance of the Contract by the *Contractor*, subject to the following conditions:

1. The terms *Employer*, *Contractor*, *works* and Defects Certificate have the meaning as assigned to them by the *conditions of contract* stated in the Contract Data for the aforesaid Contract.
2. We renounce all benefits from the legal exceptions "Benefit of Excussion and Division", "No value received" and all other exceptions which might or could be pleaded against the validity of this bond, with the meaning and effect of which exceptions we declare ourselves to be fully acquainted.
3. The *Employer* has the absolute right to arrange his affairs with the *Contractor* in any manner which the *Employer* deems fit and without being advised thereof the Surety shall not have the right to claim his release on account of any conduct alleged to be prejudicial to the Surety. Without derogating from the foregoing compromise, extension of the construction period, indulgence, release or variation of the *Contractor's* obligation shall not affect the validity of this performance bond.

4. This bond will lapse on the earlier of
- the date that the Surety receives a notice from the *Employer* stating that the last Defects Certificate has been issued, that all amounts due from the *Contractor* as certified in terms of the contract have been received by the *Employer* and that the *Contractor* has fulfilled all his obligations under the Contract, or
 - the date that the Surety issues a replacement Performance Bond for such lesser or higher amount as may be required by the *Employer*.
5. Always provided that this bond will not lapse in the event the Surety is notified by the *Employer*, (before the dates above), of the *Employer's* intention to institute claims and the particulars thereof, in which event this bond shall remain in force until all such claims are paid and settled.
6. The amount of the bond shall be payable to the *Employer* upon the *Employer's* demand and no later than 7 days following the submission to the Surety of a certificate signed by the *Employer* stating the amount of the *Employer's* losses, damages and expenses incurred as a result of the non-performance aforesaid. The signed certificate shall be deemed to be conclusive proof of the extent of the *Employer's* loss, damage and expense.
7. Our total liability hereunder shall not exceed the sum of:
- _____
- R _____
8. This Performance Bond is neither negotiable nor transferable and is governed by the laws of the Republic of South Africa, subject to the jurisdiction of the courts of the Republic of South Africa.

Signed at _____ on this _____ day of _____ 200_

Signature(s)

Name(s) (printed)

Position in Surety company

Signature of Witness(s)

Name(s) (printed)

C1.3 SECURITIES: REDUCING VALUE GUARANTEE

(to be reproduced exactly as shown below on the letterhead of the Surety)

{Insert name and registered address of the Employer}

Date:

Dear Sirs,

REDUCING VALUE GUARANTEE FOR CONTRACT NO.

With reference to the above numbered contract made or to be made between

{Insert registered name of the *Employer*}

(the *Employer*) and

{Insert registered name and address of the *Contractor*}

(the *Contractor*), for

{Insert details of the *works* from the Contract Data}

(the *works*).

I/We the undersigned

on behalf of the
Guarantor

of physical address

and duly authorised thereto, do hereby undertake to pay the *Employer* forthwith on receipt of written demand from the *Employer* up to the maximum guaranteed sum of

(say)

R _____

in respect of amounts due by the *Contractor* to the *Employer* for whatever reason in terms of the contract between the *Employer* and the *Contractor* in respect of the *works*. The following further terms shall apply:

- 1 The Guarantor's liability shall be limited to the diminishing amounts of the guaranteed sum as set out below:

	Guarantor's Liability	Period of Liability
1.1	Maximum guaranteed sum: R _____	From the date this demand bond comes into effect and until the date by when the Price for Work Done to Date has reached or exceeds R _____

1.2	Reducing to the guaranteed sum of: R _____	From the date by when the Price for Work Done to Date has reached or exceeds the amount stated in 1.1 above and until the date of Completion of the whole of the <i>works</i>
1.3	Reducing to the guaranteed sum of R _____	From the day after the date of Completion of the whole of the <i>works</i> and until the date of issue of the last Defects Certificate.
1.4	Reducing to the guaranteed sum of: R _____	From the day after the date of issue of the last Defects Certificate and up to and including the day on which there are no amounts due by either Party to the other.

1.5 Thereafter this demand guarantee shall lapse.

2 The terms *Employer*, *Contractor*, *works*, Price for Work Done to Date, Completion, Defects Certificate and Party have the meaning given to them by the *conditions of contract* stated in the Contract Data for the aforesaid Contract.

3 The *Employer* shall have the absolute right to arrange his affairs with the *Contractor* in any manner which the *Employer* deems fit and the Guarantor shall not have the right to claim his release on account of any conduct alleged to be prejudicial to the Guarantor. Without derogating from the foregoing, any compromise, extension of the Completion Date, indulgence, release or variation of the *Contractor's* obligation shall not affect the validity of this demand guarantee.

4 The Guarantor chooses domicilium citandi et executandi for all purposes in connection herewith at the address appearing above.

5 This Reducing Value Guarantee is neither negotiable nor transferable and is governed by the laws of the Republic of South Africa, subject to the jurisdiction of the courts of the Republic of South Africa.

6 The *Employer* returns this Guarantee to the Guarantor when it has lapsed in terms of clause 1 above or on payment in full thereof whichever is the earlier.

Signed _____ on this _____ day of _____ 20____
at _____

Guarantor:

Representative

Representative

Name (printed)

Name (printed)

Capacity

Capacity

As Witness

As Witness

Guarantor's
stamp or seal



MUNICIPAL INFRASTRUCTURE SUPPORT AGENT

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PART C2: PRICING DATA

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PART C2: Pricing Data

C2.1 PRICING INSTRUCTIONS

- 1 The Conditions of Contract, the Contract Data, the Specifications (including the Project Specifications) and the Drawings shall be read in conjunction with the Bill of Quantities.
- 2 The Bill comprises items covering the Contractor's profit and costs of general liabilities and of the construction of Temporary and Permanent Works.

Although the Bidder is at liberty to insert a rate of his own choosing for each item in the Bill, he should note the fact that the Contractor is entitled, under various circumstances, to payment for additional work carried out and that the Project Manager is obliged to base his assessment of the rates to be paid for such additional work on the rates the Contractor inserted in the Bill. Clause 8 of each Standardized Specification, and the measurement and payment clause of each Particular Specification, read together with the relevant clauses of the Project Specifications, all set out which ancillary or associated activities are included in the rates for the specified operations

- 3 Descriptions in the Bill of Quantities are abbreviated and may differ from those in the Standardized and Project Specifications. No consideration will be given to any claim by the Contractor submitted on such a basis. The Bill has been drawn up generally in accordance with the latest issue of Civil Engineering Quantities. Should any requirement of the measurement and payment clause of the appropriate Standardized or Project Specification(s) be contrary to the terms of the Bill or, when relevant, to the Civil Engineering Quantities, the requirement of the appropriate Standardized, Project, or Particular Specification as the case may be, shall prevail
- 4 Unless stated to the contrary, items are measured net in accordance with the Drawings without any allowance having been made for waste. The final design drawings and accompanying construction bill of quantities provided by the contractor and design engineer, will be approved by the assigned MISA project manager and will be required to facilitate implementation of the C.2.2 Schedule of quantities.

- 5 The amounts and rates to be inserted in the Bill of Quantities shall be the full inclusive amounts to the Employer for the work described under the project specifications. Such amounts shall cover all the costs and expenses that may be required in and for the construction of the work described, and shall cover the costs of all general risks, profits, taxes (but excluding value-added tax), liabilities and obligations set forth or implied in the documents on which the Tender is based.
- 6 An amount or rate shall be entered against each item in the Bill of Quantities, whether or not quantities are stated. An item against which no amount or rate is entered will be considered to be covered by the other amounts or rates in the Bill.

The Bidder shall also fill in a rate against the items where the words "rate only" appear in the amount column. Although no work is foreseen under these items and no quantities are consequently given in the quantity column, the tendered rates shall apply should work under these items actually be required.

Should the Bidder group a number of items together and tender one sum for such group of items, the single tendered sum shall apply to that group of items and not to each individual item, or should he indicate against any item that full compensation for such item has been included in another item, the rate for the item included in another item shall be deemed to be nil.

The tendered rates, prices and sums shall, subject only to the provisions of the Conditions of Contract, remain valid irrespective of any change in the quantities during the execution of the Contract.

- 7 The quantities of work as measured and accepted and certified for payment in accordance with the Conditions of Contract, and not the quantities stated in the Bill of Quantities, will be used to determine payments to the Contractor. The validity of the Contract shall in no way be affected by differences between the quantities in the Bill of Quantities and the quantities certified for payment.

Ordering of materials are not to be based on the Bill of Quantities, but only on information issued for construction purposes.

- 8 Contingencies allowed for in this schedule of quantities shall be utilised at the discretion of the Employer represented by the Acting Chief Director: Infrastructure Delivery, Maintenance & Stakeholder Coordination
- 9 Provisional Sums in the schedule of quantities shall be utilised at the discretion of the Project Manager. In addition, provisional sums may be omitted entirely by the Project Manager if so required.
- 10 Those parts of the works to be constructed using labour-intensive methods **have been marked in the schedule of quantities with the letters LI in a separate column** filled in against every item so designated. The works, or parts of the works so designated are to be constructed using labour-intensive methods only. The use of plant to provide such works, other than plant specifically provided for in the scope of work, is a variation to the contract. The items marked with the letters LI are not necessarily an exhaustive list of all the activities which must be done by hand, and this clause does not over-ride any of the requirements in the generic labour intensive specification in the Scope of Works.
- 11 Where minimum labour intensity is specified by the design the contractor is expected to use his/her initiative to identify additional activities that can be done labour intensively in order to comply with the set minimum labour intensity target.
- 12 . Payment for items which are designated to be constructed labour-intensively (either in this schedule or in the Scope of Works) will not be made unless they are constructed using labour-intensive methods. Any unauthorised use of plant to carry out work which was to be done labour-intensively will not be condoned and any works so constructed will not be certified for payment.
- 13 For the purposes of this Bill of Quantities, the following words shall have the meanings hereby assigned to them:

Unit : The unit of measurement for each item of work as defined in the Standardized, Project or Particular Specifications

Quantity : The number of units of work for each item

Rate : The payment per unit of work at which the Bidder tenders to do the work

Amount : The quantity of an item multiplied by the tendered rate of the (same) item

Sum : An amount tendered for an item, the extent of which is described in the Bill of Quantities, the Specifications or elsewhere, but of which the quantity of work is not measured in units

- 14 The units of measurement indicated in the Bill of Quantities are metric units. The following abbreviations may appear in the Bill of Quantities:

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

C2.2 SCHEDULE OF QUANTITIES

The Bill of Quantities is structured as outline below. Where there is gaps and omissions in specifications and/or BOQ the applicable Standard shall apply.

Where the Scope of Work requires detailed drawings and designs or other information to be provided, all costs associated therewith are deemed to have been provided for and included in the unit rates and sum amounts tendered under such items.

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C2.2 Schedule of Quantities

SCHEDULE 1: PRELIMINARY AND GENERAL ITEMS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	Allow for all costs and expenses in connection with the following:				
1	GENERAL OBLIGATIONS				
	The sum shall cover the Contractor's initial costs of providing sureties, insurance of the Works and plant, third party or public liability insurance and unemployment insurance to cover his compliance with the requirements of the Workmen's Compensation Act, 1941 (Act NO. 30 of 1941) and any other initial financing obligations of a operating site office, such as contributions to the CEITB	Sum	1		
1.1	Site Establishment - Mthamvuna Pump Station	sum	1		
1.2	Tools and equipment	sum	1		
1.3	Water, Electricity and Communication services for the contractor	sum	1		
1.4	Removal of Contrator's site establishment, at the end of the contract.	sum	1		
1.5	Compliance with the requirements of the Occupational Health and Safety Act 1993 and Construction Regulations 2003, including appointment of Construction Supervisor and Competent Person including Provision of and adherence to a Health and Safety Plan	Sum	1		
1.6	Provision of Professional Engineering Services included Civil, Electrical and Mechanical Engineering through the Appointment of ECSA-registered: Professional Electrical Engineer (Pr Eng) or Professional Electrical Engineering Technologist (Pr Tech Eng) with proven, relevant project experience, to provide including: a) Professional Electrical Engineer (Pr Eng) or Professional Electrical Engineering Technologist (Pr Tech Eng) with proven, relevant project experience. b) Professional Civil Engineer (Pr Eng) or Professional Civil Engineering Technologist (Pr Tech Eng) with proven, relevant project experience.	Sum	1		

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	c) Professional Mechanical Engineer (Pr Eng) or Professional Mechanical Engineering Technologist (Pr Tech Eng) with proven, relevant project experience, to provide: a. Required Equipment Designs and Specification b. To Update as-built drawing for preparation of construction. c. To ensure that final as-built are approved. d. To sign off the works				
2	TIME RELATED ITEMS				
2.1	Operate and Maintain Site Office	Month	6		
2.2	Supervision for the duration of the Contract	Month	6		
2.3	Employment of one qualified plant operator to review the Pump Station operation, Level 5 qualified and specified by Department of Water and Sanitation	Month	1		
2.4	Tools and equipment	Month	6		
2.5	Maintain Access Road to Mthamvuna Pump Station	Month	6		
2.6	Provision of and adherence to a Health and Safety Plan	Months	6		
2.7	Liaison, co-ordination and chairing of meetings in respect of Health and Safety requirements.	Month	6		
3	EXPANDED PUBLIC WORKS PROGRAMME				
3.1	Allow for secondment of one graduate Electrical Engineering Technologist/Engineer from MISA	P/Sum	6	R 750,00	R 4 500,00
3.3	Allow for payment of CLO @R5000/month for the duration of the contract and six (6) PSC members at R300 per PSC member per month.	P/Sum	1	R 50 000,00	R 50 000,00
3.3	Allow for secondment of one Electrical Engineering students for mentoring from Municipality	P/Sum	6	R 750,00	R 4 500,00
3.4	Training of 2 EPWP Local Labourers on plant operation	Item	2	R 2 500,00	R 5 000,00
3.5	Profit and attendance on items 3.1 to 3.4 above	%			
	TOTAL TO BE CARRIED FORWARD				

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	TOTAL BROUGHT FORWARD				
4	ENGINEERING SERVICES				
4.1	Construction Monitoring Level 4: Fulltime Supervision for period of 6 months.				
4.1.1	Civil Engineering	Month	6		
4.1.2	Electrical Engineering	Month	6		
4.1.3	Mechanical Engineering	Month	6		
5	ENVIRONMENTAL SERVICES				
5.1	Compliance with the Environmental Management Specification in the Scope of Work				
TOTAL FOR SCHEDULE 1:PRELIMINARY AND GENERAL ITEMS CARRIED FORWARD TO SUMMARY PAGE					

SCHEDULE 2: REFURBISHMENT WORKS UMTHAVUNA ABSTRACTION - 630 kW

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1	PUMP AND PIPEWORK REFURBISHMENT				
1.1	BUILDING & CONCRETE WORK AND OTHER WORK TO BE CARRIED OUT BEFORE & AFTER PIPEWORK REFURBISHMENT ON SITE <i>Allow for all costs and expenses in connection with the following:</i>				
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1.1.1	Investigation and taking of actual site measurements before proceeding to design, selection and manufacture of equipment in accordance with Detailed Specification and conditions of contract. (See clause A3)	Item	1		
1.1.2	Removal of existing pump(s), systems and structure in the suction and discharge lines: Removal and Transportation of High lift pump and Motor to OEM or Approved Agent.	Item	1		
1.1.3	Removal of scrap piping and associated equipment to the nearest scrap-yard. This shall include all the removal of rubble	Item	2		
1.1.4	Repairing/replacing of the existing building works to suit the replacement of the complete works. The complete works shall be provided with galvanised and coated mild steel with brackets, supports, vibration eliminators	Item	2		
	TOTAL TO BE CARRIED FORWARD				

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	TOTAL BROUGHT FORWARD				
1.2	PIPEWORK, PUMPS, FITTINGS, COUPLINGS ETC, INCLUDING CORROSION PROTECTION <u>Allow for all costs and expenses in connection with the design, manufacture, painting, testing, supply, delivery, offloading and storage of the following materials and equipment:-</u>				
1.2.1	Overhaul low lift pump Non-Return valve according to OEM specifications (Vosa Double Flange single door swing check valve 400 mm PN 16)	No	2		
1.2.2	Supply, deliver, Install and Commission Auma or Similar Multi Turn electric valve actuator for 800 mm Gatevalve (IP67 totally enclosed squirrel cage induction motor). Service the valve head, stem and repaint.	No	4		
1.2.3	Refurbish Raw Water Control valves at Treatment works including new electric actuator (450 mm)	No	1		
1.2.4	Maintain Coupling guard complete set, pump and motor manufacturers to communicate to establish suitable connection	No	1		
1.2.5	Repairs of the Magnetic flow meter to measure the flow rate in the discharge line of the Raw Water Pump station (800 mm). The meter should be AMI compliance	No	1		
1.2.6	Replacement of the Magnetic flow meter to measure the inflow into Umthavuna Water Treatment Works (450 mm). The meter should be AMI compliance	No	1		
	TOTAL TO BE CARRIED FORWARD				

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	TOTAL BROUGHT FORWARD				
1.2.7	Overhaul Vosa 400 NB Wedge Gate Valve PN40 with Auma Multi Turn Electric Actuator for High lift No.1.	P/Sums	1	90 000,00	90 000,00
1.2.8	KSB High Lift pump No.1 overhaul, testing, installation and commissioning according OEM (KSB WL 200/5 (08) high pressure centrifugal pump)	No	1		
1.2.9	Overhaul Ainsworth Double flanged non-return reflux valve PN40 400 NB	Item			
1.2.10	Supply of the refurbishment piping system from the receiving water reservoir to pump station	P/Sums	1	120 000,00	120 000,00
	<u>Allow for all costs and expenses in connection with the Site installation, painting and fixing in position of the following:-</u>				
	Break Pressure No.1				
1.2.13	REPLACEMENT BODY BERMAD CONTROL VALVE SPARE 250 x 800 x T/40	No	2		
	TOTAL TO BE CARRIED FORWARD				

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	TOTAL BROUGHT FORWARD				
1.2.14	DIAPHRAM BERMAD CONTROL VALVE SPARE 250 x 700 x NBR	No	2		
1.2.15	SEAL DISC SEAL BERMAD CONTROL VALVE SPARE 250 x 700 x NBR	No	2		
1.2.16	PILOT VALVE SPARE BERMAD CONTROL VALVE SPARE #2 x SPARES x KIT NBR	No	1		
1.2.17	O-RING SET BERMAD CONTROL VALVE SPARE 250 x 700 x NBR	No	1		
1.2.18	Cleaning and painting Control valve in the discharge line of Reservoir to control water supply downstream of BP1 discharge	No	1		
1.2.19	Lifting machinery services and building repairs	No	1		
1.2.20	The control valves connecting to the reservoirs, (isolation and pressure regulator valve)	No	1		
1.3	GENERAL AND SUNDRY ITEMS PLANT SERVICING & MAINTENANCE				
	<u>Allow for all costs and expenses in connection with the following:-</u>				
1.3.1	Providing "as built" drawings in AutoCAD version on CD	Item	1		
	TOTAL TO BE CARRIED FORWARD				

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	TOTAL BROUGHT FORWARD				
1.3.2	Providing 2 draft copies of the Installation, Operation and Maintenance Manual prior to commissioning of the Works	Item	1		
1.3.3	Providing 5 final copies of the Installation, Operation and Maintenance Manual prior to the issue of the Taking-Over Certificate	Item	1		
1.3.3	Operating Instructions and Signage, as specified	Item	1		
1.3.4	Inspections, tests, etc. of equipment, and quality control and assurance throughout the complete Works by the contractor. Material samples, etc. Arrangements shall be made for Engineer to inspect equipment before they are dispatched to site. The contractor shall make arrangements that these inspections are carried out within the boundaries of South Africa	Item	1		
1.3.5	Provision of Pump Test Certificates	Item	1		
1.3.6	Checking, starting up, testing and commissioning of the complete Works	Item	1		
	TOTAL TO BE CARRIED FORWARD				

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	TOTAL BROUGHT FORWARD				
1.2.29	Operational Acceptance Testing of the valves works	Item	1		
1.3	GENERAL AND SUNDRY ITEMS PLANT SERVICING & MAINTENANCE				
1.3.1	Allow for all costs and expenses in connection with the following:-				
1.3.1.1	Operational Acceptance Testing of the pipes works	Item	1		
1.3.1.2	Operational and Maintenance Training as per Clauses in the Particular Specifications in Part C3 Scope of Work	Item	1		
1.3.1.3	Trial Operation Period	Item	1		
1.3.1.4	Maintaining the Works during the Defects Liability Period and Maintenance inspection in accordance	Item	1		
TOTAL FOR SCHEDULE 2 CARRIED FORWARD TO SUMMARY PAGE					R

SCHEDULE NO 3: ELECTRICAL WORKS: UPGRADE WORK

Item	Description	UNIT	QTY	RATE	AMOUNT
1	<u>ELECTRICAL EQUIPMENT</u>				
	<u>Allow for all costs and expenses in connection with the design, manufacture, painting, testing, supply, delivery, offloading and storage of the following materials and equipment:-</u>				
1.1	Earthing system, complete.	Item	1		
1.2	All cables, (excluding cable between the Transformer and RMU) including terminations, labels/ferrules and joints (where approved), complete.	m	30		
1.3	3 x 35 mm ² Cu PILC cable between new Transformer and existing RMU including ditto - (PROVISIONAL)	m	1		
1.4	Service 90 kW MCC/Switchgear, including Soft Starters and all other equipment required, complete.	Item	4		
1.5	Maintenance Motor bases, etc., complete.	Item			
1.6	Overhaul of ABB ZSM 1086 - 630kW Three Phase Electric Motor (Type C00GH 355/4 - 112), complete.	No.	2		
1.7	Maintenance Motor/pump coupling, complete.	No.	2		
1.8	Supply new 630 kW WEG Three Phase squirrel cage motor (3.3 kV/3ph/50 Hz) HGF 400L/A/B Frame IP55, Complete	No.	2		
1.9	Maintenance 250 kVA 11kV/400V Transformer, complete.	Item	1		
1.10	High lift Vibration and PT 100 sensors and displays, complete.	Item	1		
1.11	32A/400 V5 Pin CEE welding socket with male plug, complete.	No.	1		
1.12	Cable trays, cable gridspan and ladders including scaffolding, complete.	m	20		
1.13	Chequer plates for cable trench.	Item	1		
1.14	Locks whilst completing the Works.	Item	1		
	TOTAL TO BE CARRIED FORWARD				

Item	Description	UNIT	QTY	RATE	AMOUNT
	Total Brought Forward				
1.16	3 x 35 mm ² Cu PILC cable between new Transformer and existing RMU including ditto. (PROVISIONAL)	Item	1		
1.17	Switchboard/Motor Control Centre, including Soft Starters and all other equipment required, complete.	Item			
1.18	Motor bases, etc., complete.	Item			
1.19	250kW 400V Motor, complete.	No.	2		
1.20	Motor/pump coupling, complete.	No	2		
1.21	Alignment of motor/coupling/pump including presentation of certificate, complete.	No.	2		
1.22	1.6MVA 11kV/400V Transformer, complete.	No.	2		
1.23	Vibration and PT 100 sensors and displays, complete.	Item			
1.24	32A/400 V5 Pin CEE welding socket with male plug, complete.	No.	1		
1.25	Cable trays, cable grid span and ladders including scaffolding, complete.	Item			
1.26	Chequer plates for cable trench.	Item			
1.27	Locks whilst completing the Works.	Item			
	<u>Allow for all costs and expenses in connection with the following general items</u>				
1.28	Modify existing concrete pump plinth to prepare for new pump, including formwork, etc., complete (PROVISIONAL) .	Item	1		
1.29	Modify existing concrete Transformer base slab to size approximately 1600 x 800 x150 mm high above ground to accommodate new Transformer including formwork, etc. complete. (PROVISIONAL)	Item	1		
1.30	Design by registered Civil Engineer, vibrated reinforced concrete base for new Transformer including ducts, excavation, carting away surplus excavated material, test cubes, blinding, formwork, steel reinforcement, etc., complete.	Item	1		
	TOTAL TO BE CARRIED FORWARD				

Item	Description	UNIT	QTY	RATE	AMOUNT
	TOTAL BROUGHT FORWARD				
1.31	Ditto valve and pump plinths to match existing ditto.	Item	1		
1.32	Excavate for trench to expose existing cables or for new cables including backfilling and carting away surplus excavated material.	m ³	4		
1.33	Extra over last for breaking through premix and later making good after.	m ³	3		
TOTAL FOR SCHEDULE 3 CARRIED FORWARD TO SUMMARY PAGE					

<u>SUMMARY OF SCHEDULE OF QUANTITIES:</u>					
TOTAL SCHEDULE NO 1	:	GENERAL REQUIREMENTS		R	
TOTAL SCHEDULE NO 2	:	MTHAMUNA PUMP STATION		R	
TOTAL SCHEDULE NO 3	:	ELECTRICAL WORKS		R	
SUB TOTAL 1				R	
ADD VAT 15%				R	
TOTAL TO BE CARRIED TO FORM OF OFFER AND ACCEPTANCE				R	

INFRASTRUCTURE SECTION

CONTRACT NO. MISA/URA/KZN/019/2024/25

APPOINTMENT OF A CONTRACTOR FOR THE REPAIRS AND REFURBISHMENTS OF UMTHAVUNA RAW WATER ABSTRACTION, WATER TREATMENT AND BULK NETWORK UNDER UGU DISTRICT MUNICIPALITY IN THE KWAZULU NATAL PROVINCE

Offers must be accompanied by copied documentation from the supplier / distributor confirming how established the company is in the South African market and the availability and stock keeping of spare parts for the units.

SCHEDULE 3 : TECHNICAL DATA SHEETS**19 MECHANICAL EQUIPMENT FOR RAW WATER PUMP STATION****TECHNICAL DATA SHEET 1: PIPEWORK**

Section	Type, Size and location	SANS reference	Class	Flange drilling
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
CORROSION PROTECTION				
Proposed corrosion protection to be applied in the factory to internal surface of Pipework				
Proposed corrosion protection to be applied in the factory to external surface of Pipework				
Detail of further corrosion protection to be applied after installation:				

SCHEDULE 3 : TECHNICAL DATA SHEETS (CONTD)**3.2 MECHANICAL INSTALLATION**

PUMP

Make: _____

Model: _____

Type and design: _____

Maximum pressure (kPa): _____

Pressure at duty point (kPa): _____

Flow at duty point (ℓ/s): _____

Power demand at duty point (kW): _____

Pump efficiency at duty point: _____

Maximum power demand for specified application (kW): _____

Rated motor power (kW): _____

NPSH required at duty point (absolute pressure in metres): _____

Operating speed (rpm): _____

Impeller diameter (mm): _____

Inlet diameter (mm): _____

Outlet diameter (mm): _____

Pump outlet diameter (mm): _____

Material of impeller: _____

Material of shaft: _____

Material of pump casing: _____

Material of wear ring (or equivalent): _____

Material of suction sleeve (or equivalent): _____

Mechanical seal face materials: _____

Mechanical seal, type and model: _____

Mass (kg): _____

Country of manufacture: _____

Spares: supplier and address: _____

SIGNED ON BEHALF OF BIDDER:

SCHEDULE 3: TECHNICAL DATA SHEETS (CONTD)

3.2 MECHANICAL INSTALLATION (CONTD)

CONTROL VALVES:

Make and model: _____

Type and description: _____

Maximum working pressure: _____

Size (DN): _____

Face to face dimension (mm): _____

Max. Required operating torque for valve's rated pressure (Nm): _____

Max. Required operating torque for this application (Nm): _____

Material of body: _____

Material of seat: _____

Material of blade: _____

Material of spindle: _____

Hand wheel diameter (mm): _____

Material of handwheel: _____

Corrosion protection of valve body: _____

Description of gland sealing arrangement and materials: _____

Description of blade scraper device and materials: _____

Maximum permissible velocity through valve (m/s): _____

Headloss through valve at 275 l/s (kPa): _____

Gearbox ratio (if applicable): _____

Does valve incorporate carbone ("mild") steel items? (If Yes, describe items): _____

Mass (kg): _____

Country of manufacture: _____

Spares: supplier and address: _____

SIGNED ON BEHALF OF BIDDER:

SCHEDULE 3: TECHNICAL DATA SHEETS (CONTD)

3.2 MECHANICAL INSTALLATION (CONTD)

ISOLATING GATE VALVE:

Make and model: _____

Type and description: _____

Maximum working pressure: _____

Size (DN): _____

Face to face dimension (mm): _____

Max. Required operating torque for valve's rated pressure (Nm): _____

Max. Required operating torque for this application (Nm): _____

Material of body: _____

Material of seat: _____

Material of blade: _____

Material of spindle: _____

Handwheel diameter (mm): _____

Material of handwheel: _____

Corrosion protection of valve body: _____

Description of gland sealing arrangement and materials: _____

Description of blade scraper device and materials: _____

Maximum permissible velocity through valve (m/s): _____

Headloss through valve at 275 l/s (kPa): _____

Gearbox ratio (if applicable): _____

Does valve incorporate carbone ("mild") steel items? (If Yes, describe items): _____

Mass (kg): _____

Country of manufacture: _____

Spares: supplier and address: _____

SIGNED ON BEHALF OF BIDDER:

SCHEDULE 3: TECHNICAL DATA SHEETS (CONTD)

3.2 MECHANICAL INSTALLATION (CONTD)

MAGNETIC FLOW METER:

Make, model and type: _____

Country of manufacture: _____

Size (DN): _____

Internal diameter of metallic surface (mm): _____

Internal diameter of lining (mm): _____

Length (flange to flange): _____

Flange drilling: _____

Pressure rating: _____

Flow range (m³/s): _____

Performance and accuracy (factory): _____

Performance and accuracy (as installed on site): _____

Standard for manufacture of flange: _____

Protection against electronic noise: _____

Installation required: _____

Spares: supplier and address: _____

SIGNED ON BEHALF OF BIDDER:

SCHEDULE 3: TECHNICAL DATA SHEETS (CONTD)

3.3 ELECTRICAL INSTALLATION

The following Electrical Installation Data sheets are attached.

NO.	TITLE
1	Equipment / Vendor Agent Details
2	Electrical Equipment
3	630 kW WEG Three Phase squirrel cage motor (3.3 kV/3ph/50 Hz) HGF 400L/A/B Frame IP55
4	Distribution Board /Motor Control Centre
5	Cable Trays, Cable Gridspan and Ladders
6	Distribution Transformer

NOTE: Supporting information in the form of manufacturer's original, high quality (only Photostats of a high quality will be accepted) pamphlets, brochures, etc., shall be submitted with the Tender in support of the Technical Data Sheets. Bidders are permitted to supply additional pamphlets, brochures, etc. which are not covered by the Technical Data Sheets. Failure by Bidders to conform to this requirement may be regarded by the Municipal Infrastructure Support Agent as non-responsiveness, and may, at the MISA's discretion, result in tenders being rejected on the grounds that they cannot be technically adjudicated for compliance with the Specification.

SIGNED ON BEHALF OF BIDDER: **DATE:**

SCHEDULE 3 : TECHNICAL DATA SHEETS (CONTD)**3.3 ELECTRICAL INSTALLATION (CONTD)**

TECHNICAL DATA SHEET NO 1		
EQUIPMENT / VENDOR AGENT DETAILS		
TYPES OF EQUIPMENT OFFERED	NAMES OF EQUIPMENT VENDORS OR SERVICE AGENT	EQUIPMENT VENDOR / SERVICE AGENT CONTACT DETAILS
Switchboard/Motor Control Centre		
Soft Starters		
Surge arrestors		
Control / Instrument Cables (630/110Vac)		
1000/600V cables		
11000/13000V cables		
630kW Motors		
Coupling		
Motor Base - Construction		
Ducting		
Circuit breakers		
Timers / Contactors/Relays etc		
Specialist Electrical Protection Consultant		
400kVA 11kV/400V Transformer		
Transformer slab		
Flow Sensors		
Socket Outlets		
Pumps		
Other (Specify)		

SCHEDULE 3 : TECHNICAL DATA SHEETS (CONTD)

3.3 ELECTRICAL INSTALLATION (CONTD)

TECHNICAL DATA SHEET NO 2			
ELECTRICAL EQUIPMENT			
No	Item	Specified	Offered
1.	<u>Soft Starters:</u>		
1.1	Manufacturer.....	Unspecified	
1.2	Type.....		
1.3	In accordance with specification.....	Yes/No	
2.	<u>MV Cables:</u>		
2.1	Manufacturer.....	Unspecified	
2.2	Type.....	Cu core - PVC/SWA	
2.3	Rating	11 000 V	
2.4	SANS Approved	Yes/No	
2.5	In accordance with specification.....	Yes/No	
3.	<u>LV Cables:</u>		
3.1	Manufacturer.....	Unspecified	
3.2	Type.....	Cu core - PVC/SWA	
3.3	Manufacturer.....	Unspecified	
3.4	Type.....	H07RN-F	
3.5	Rating	600 / 1000 V	
3.6	SANS Approved	Yes/No	
3.7	In accordance with specification.....	Yes/No	
4.	<u>Control Cables:</u>		
4.1	Manufacturer	Unspecified	
4.2	Type	As per Spec	
4.3	Rating	600 / 1000 V	
4.4	SANS Approved	Yes/No	
4.5	In accordance with specification	Yes/No	
5.	<u>Motor Coupling:</u>		
5.1	Manufacturer.....	Unspecified	
5.2	Type	as per Spec	
5.3	In accordance with specification.....	Yes/No	
6.	<u>Surge Arrestors:</u>		
6.1	Manufacturer.....	Unspecified	
6.2	Type.....	As per Spec	
6.3	In accordance with specification.....	Yes/No	
7	<u>Other Specify:</u>		

SIGNED ON BEHALF OF BIDDER:



MUNICIPAL INFRASTRUCTURE SUPPORT AGENT

Cooperative Governance & Traditional Affairs

Reference no.: **MISA/URA/KZN/019/2024/25**

**APPOINTMENT OF A CONTRACTOR FOR THE REPAIRS AND REFURBISHMENTS OF
UMTHAVUNA RAW WATER ABSTRACTION, WATER TREATMENT AND BULK NETWORK
UNDER UGU DISTRICT MUNICIPALITY IN THE KWAZULU NATAL PROVINCE**

PART C3: SCOPE OF WORK

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PART C3: SCOPE OF WORK

C3.1 DESCRIPTION OF THE WORKS AND SERVICES

A. EMPLOYERS' OBJECTIVES

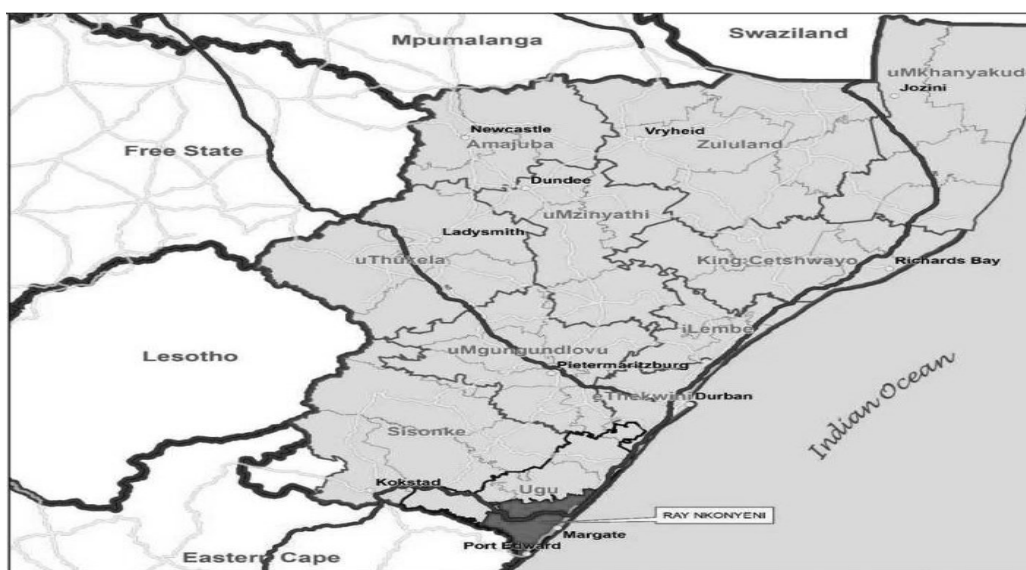
MISA's objective is to appoint a contractor, for the services of construction or installation of repairs, replacement and refurbishment of electrical panels, motors, pumps, valves and building modification situated in Ray Nkonyeni LM under Ugu District Municipality, KwaZulu-Natal.

This project is expected to make a significant impact on the improved equipment reliability and stable provision of water services to the Southern part of Ray Nkonyeni Local Municipality community together with two bulk infrastructure projects under implementation i.e.: Eastern Cape Eskom power supply and KwaXolo Bulk Water Supply Scheme.

B. BACKGROUND

Ray Nkonyeni Local Municipality (RNM) is a category B Municipality within Ugu District (DC21), located on the south coast of KwaZulu-Natal and is ranked number five (5) in the Province in terms of size and population. Its administrative seat is in Port Shepstone. The municipality was established after the August 2016 local elections by the merging of Ezinqoleni and Hibiscus Coast local municipalities. In total, there are thirty six wards, consisting of both urban and rural of which nine (9) are Traditional Authoritative areas.

The municipal area covers approximately 1594km² in geographic area. Privately owned land constitutes approximately 26 500 hectares. The municipality borders the Indian Ocean on its eastern part while the far southern part of the municipality runs Umtamvuna River which is the boundary between Kwa-Zulu Natal (KZN) and the Eastern Cape. The north-western part is bordered by Umuziwabantu Municipality while Umzumbe municipality borders the northern part. Its boundary extends further to the hinterland which is basically rural and these areas are administered under traditional authority. The coastal belt stretches from Hibberden to Port Edward and covers approximately 72 km. The Map below shows that location of the Municipality.



Umthavuna Mechanical, Electrical and Civil equipment Breakdown has had a major impact on water provisions and ultimately to the ability of municipal to collect revenue effectively which will have the

capacity to distribute 30 million litres per day of potable water to approximately 18 108 rural households and 1 117 urban households immediately after Eskom Power supply upgrade.

C. OVERVIEW OF THE WORKS

The overview of the works includes construction or installation of repairs, replacement and refurbishment of electrical panels, motors, pumps, valves and building modification and replacement of an existing pump with a Drive Motor, and the Motor Starter, together with the supply, installation and commissioning of a new replacement panel for pump station at the Mthamvuna WTW.

D. EXTENT OF WORKS

The extend of the scope entails:

- 1) Appointment of Registered Professional Engineer or Technologist with experience in Bulk Water Supply and Reticulation.
- 2) Works Design Report, works specifications, Construction BOQ, Design Drawings
- 3) **Aging High voltage panel switch gear units (1 to 6) overhaul:** Procurement of switchgear spares and servicing of switch gear hardware.
- 4) **High lift new motor to provide standby and overhaul No.1 and No.2 Motor:** Procurement of new motor as standby and overhaul No. 1 and No.2 for reliability.
- 5) **Overhaul and replacement of high lift pump No.1 rotating components as OEM and supply desilting equipment:** Overhaul High lift No.1 pump rotating element as per OEM and supply desilting launder cleaning equipment (high pressure jetting equipment).
- 6) **Raw water pump station Lifting equipment servicing/replacement (winches, overhead cranes):** Overhaul of lifting equipment inline OHS regulations.
- 7) **Valve/Actuator overhaul:** Raw water Rising main from pump station to the dam, inflow Flow control valve to the Water works and Break-Pressure Chamber No.1 (BP1): One Raw water rising main valve refurbishment and supply electric actuator, Treatment works flow control valve, Refurbishment of BP1 pressure chamber.
- 8) **Refurbishment of existing Non-Return Valve and Isolation valve for low lift pump:** Refurbishment of existing Non-Return Valve and Isolation valve through local valve agent.
- 9) Refer to the Detail Mechanical Specification
- 10) Training of Municipal Employees on operational and maintenance.
- 11) Training Manuals, Operation and Maintenance Manuals
- 12) As Built Drawings
- 13) Refer to the Detail Mechanical Specification.

E. PROJECT BENEFICIARIES

The following table shows the beneficiaries of this project:

Area	Households	Population
	19 225	

F. PROJECT DELIVERABLES

Works deliverable includes:

Works Deliverables:

- 1) Appointed of Registered Professional Engineer or Technologist with experience in Bulk Water Supply and Reticulation.
- 2) Works Design Report, works specifications, Construction BOQ, Design and working Drawings.
- 3) **Aging High voltage panel switch gear units (1 to 6) overhaul:** Procurement of switchgear spares and servicing of switch gear hardware.
- 4) **High lift new motor to provide standby and overhaul No.1 and No.2 Motor:** Procurement of new motor as standby and overhaul No. 1 and No.2 for reliability.
- 5) **Overhaul and replacement of high lift pump No.1 rotating components as OEM and supply desilting equipment:** Overhaul High lift No.1 pump rotating element as per OEM and supply desilting launder cleaning equipment (high pressure jetting equipment).
- 6) **Raw water pump station Lifting equipment servicing/replacement (winches, overhead cranes):** Overhaul of lifting equipment inline OHS regulations.
- 7) **Valve/Actuator overhaul:** Raw water Rising main from pump station to the dam, inflow Flow control valve to the Water works and Break-Pressure Chamber No.1 (BP1): One Raw water rising main valve refurbishment and supply electric actuator, Treatment works flow control valve, Refurbishment of BP1 pressure chamber.
- 8) **Refurbishment of existing Non-Return Valve and Isolation valve for low lift pump:** Refurbishment of existing Non-Return Valve and Isolation valve through local valve agent.
- 9) Refer to the Detail Mechanical Specification
- 10) Training of Municipal Employees on operational and maintenance.
- 11) Training Manuals, Operation and Maintenance Manuals
- 12) As Built Drawings
- 13) Refer to the Detail Mechanical Specification.

Administrative Deliverables

- Site Assessment Report and Condition Assessment Reports for the project
- Project Implementation Plan,
- Detailed Design Report and Summary of General Legislative Authorisations
- Monthly Implementation Progress Reports
- Monthly Site Meetings Agenda, Minutes and Arrange Site Visits for Relevant Stakeholders
- Close-Out Report including pictures before and after the Works and a file of all Contractual Documentation.
- Test results for water samples, bedding compaction and or pipe replacement (where necessary),

G. LOCATION OF THE WORKS

- Location of Works: Mthamvuna Water Treatment Works, Ray Nkonyeni LM, Ugu District Municipality
- Coordinates 30.51 22 S, 30. 22 24 E

The map below shows the location of works



H. LEGISLATIVE REQUIREMENTS

The contractor must conduct due diligence and will be responsible to obtain all the required authorizations from the relevant authorities, including, but not limited to when the need arise,

- a) General Authorization (DWS)
- b) Environmental Impact Assessment (if required)
- c) Any 'wayleaves' required (Local Municipality, SANRAL, etc.)
- d) Compliance with the OHS Act regulations

I. PROJECT MANAGEMENT STRUCTURES

- a) The PSP will work strictly under the management of a Project Management Team (PMT) led by the MISA Provincial Manager for Kwazulu Natal Province.

- b) All other project administrative related issues will be managed by MISA and payment certificates will be submitted to the MISA National Office in Pretoria through the MISA Provincial Manager for Kwazulu Natal, after approval of completed works.
- c) Progress reporting will be required per payment certificate and should reflect progress on site.
- d) The **Role of the Municipality** is defined as follows:
 - i. Nominate a project technical official to be part of the project team
 - ii. Assist in the identification of relevant officials to be trained for Operation and maintenance of the asset produced by this project.
 - iii. Acceptance of the asset to be produced by this project at handover stage and include in the asset register.
 - iv. Budget for the operation and maintenance of the asset
 - v. Operate and maintain the asset
 - vi. Mobilise the beneficiary communities for participation in the project implementation process
 - vii. Assist in the appointment of social facilitation structure such as Project Steering Committee and Project Liaison Officer

J. TIME FRAMES

The estimated timeframe for completion of all the activities as described herein the C3: Scope of work is **6 months** from the date of start of work.

K. FACILITIES AND EQUIPMENT TO BE PROVIDED BY THE EMPLOYER

The Employer shall provide no facility or equipment.

L. FACILITIES AND EQUIPMENT TO BE PROVIDED BY THE SERVICE PROVIDER

The Service Provider shall provide all equipment and facilities required to provide the services relating to successful completion of the project.

M. PRELIMINARY AND GENERAL

The P&Gs are to cover scheduled time-related items, scheduled fixed-charge and value related items, all compliance with the legislated OHS Act Requirements for the duration of the contract commencing from the date the Contractor establishes site in line with the contract and terminating on the date of the final inspection of the Works. Furthermore, the Contractor will maintain all relevant information of workers and visitors to facilitate effective contact tracing, if and when required.

The P&Gs are also to include full compensation at the Service Provider's costs to provide a monthly stipend to the Community Liaison Officer (CLO) of R5000 monthly and monthly airtime of R500 to complete all responsibilities required for the successful completion of the project. Additionally, this pay item will include full compensation for all PSC members to attend meetings for the duration of the contract at R300 per sitting per month.

C3.2 GENERAL REQUIREMENTS

3.2.1 Management requirements

The Contractor shall in providing the Works observe all statutes, by-laws and associated regulations and industry norms established in relevant South African national standards published in terms of the Standards Act of 2008 or standards recommended by professional associations.

3.2.2 Construction requirements

The Contractor shall only incorporate in the works materials (substances that can be incorporated into the works), products (item manufactured or processed for incorporation into the works), components (products manufactured as distinct units to serve a specific function or functions) and assemblies (set of related components attached to each other) which are:

- a) Fit for their intended purpose, and
- b) Capable of fulfilling required functions under intended use conditions or when in use, with planned maintenance, under the influence of the environmental actions or a result of a self-ageing process for a period of time within industry accepted norms.

C3.3 MANAGEMENT

3.3.1 General

The Contractor shall:

- a) Provide a fortnightly progress report covering the Scope or Works.
- b) Be required to participate in regular progress meetings with the client and other stakeholders.

3.3.2 Completion strategy

- a) The Contractor shall develop a completion strategy to minimise the correction of defects after Completion and to achieve Completion on or before the Completion Date. Such a strategy shall include a systematic approach to ensuring that employees and subcontractors search for defects as the work progresses, programme their work in such a manner that defects are corrected ahead of Completion and sufficient time is allowed for commissioning.
- b) The completion strategy should be framed around the systematic acceptance and / or testing of materials, plant, workmanship and subsystems as the works proceed in order to address issues ahead of completion and the allocation of tasks to ensure satisfactory completion.

3.3.3 Communications

All communications with the Employer which are made in terms of the contract should be made using the standard templates provided by MISA.

3.3.4 Invoices

Invoices submitted shall be a Tax invoices. The invoice shall comply with requirements, if any, established by the Employer.

Detailed payment certificates, clearly indicating progress on payment items shall be submitted for approval before any invoice shall be issued. Separate payment certificates shall be submitted for the engineering and construction deliverables. Payment will be according to actual verified progress.

STANDARD AND VARIED SPECIFICATIONS

STANDARD SPECIFICATIONS

The Specifications on which this contract is based are the SANS 1200 Standardised Specifications (hereafter referred to as the Standard Engineering Specifications). This document is obtainable separately, and Tenderers shall obtain their own copies of the applicable Sections.

The following SANS specifications shall apply for the construction of the Works:

SANS 1200 A :	General
SANS 1200 AB :	Engineers Office
SANS 1200 C :	Site Clearance
SANS 1200 D :	Earthworks
SANS 1200 DB :	Earthworks (Pipe Trenches)
SANS 1200 G :	Concrete
SANS 1200 HA :	Structural Steelwork (small works)
SANS 1200 L :	Medium pressure pipelines
SANS 1200 LB :	Bedding (Pipes)
SANS 1200 MM :	Ancillary Road works

Wherever any reference is made to the South African Bureau of Standards (SABS) in either the Bill of Quantities or the document, this reference shall be deemed to read "SANS standard"

The following SANS specifications are also applicable to this contract:

SANS 1921 (2004):	Construction and Management Requirements for Works Contracts
Part 1:	General Engineering and Construction Works
Part 2:	Accommodation of Traffic on Public Roads Occupied by the Contractor
Part 3:	Structural Steelwork
Part 6:	HIV/AIDS Awareness
SANS 1921-1 (2004):	Construction and Management Requirements for Works Contracts
Part 1:	General Engineering and Construction Works and where accommodation of traffic is involved

The Tenderer is expected to be in possession of a copy of the Standard Specifications. The successful Tenderer will be required to provide a full set of the applicable standard specifications at the commencement of the Contract which is to be kept available on site at all times.

Copies of the "Standardised Specification for Civil Engineering Construction" SANS 1200 are available from the:

South African Bureau of Standards
Private Bag X191
Pretoria, 0001

SECTION A

DETAILED MECHANICAL SPECIFICATION

A1 GENERAL

The Contractor is referred to the Detailed Mechanical Specification for the General Clauses related to the work such as Scope, Site and Access to Site, Definition, Brief Description of Work, etc.

A2 PIPEWORK

A2.1 Pipes and Fittings

A2.1.1 Steel Pipe – General Duties

Steel pipes for general non-corrosive, non-abrasive duties for liquid, air and gas shall be as follows:

Up to DN 150 - SANS 62 medium class.
Over DN 150 - SANS 719.

Unless otherwise specified, steel pipework and fittings shall be hot-dip galvanised and painted.

A2.1.2 Steel Pipework – Design

Pipework up to DN 600 shall be in accordance with SANS 1476. Pipework for the conveyance of water shall, in addition, comply with the fittings and specials.

A2.1.3 Stainless Steel Pipework

Stainless steel pipework shall be to ASTM 312. Schedule 10 pipes and fittings shall be used except where otherwise specified.

A2.1.4 Hydraulic and Oil Pipework

Hydraulic pipework shall be to BS 778 or equal. All hydraulic and oil pipes and fittings shall be thoroughly degreased, descaled and cleaned internally and externally after fabrication by abrasive blasting or pickling, thoroughly cleaned and rinsed, dipped in a hot iron phosphate solution and coated internally with a corrosion inhibiting, oil soluble preservative. After treatment and drying all openings shall be sealed until the pipes are installed.

A2.1.5 Butt Weld Fittings

Steel butt welding pipe fittings shall be to ANSI B 16.9, BS 1965 or BS 1640 of the same schedule as the pipework or heavier. Butt weld fittings in stainless steel shall be to ASA B 36.19 for schedule 5S and 10S and ASA B 16.9 for schedule 40S and 80S. Alternatively, fittings may be to BS 1640.

A2.1.6 Malleable Cast Iron

Malleable cast iron fittings shall be to SANS 14.

A2.1.7 Cast Iron

Cast iron pipes and fittings shall comply with BS 2035 (Class D) and shall be pressure tested in accordance with Clause 12 of that Standard. The requirements of the Standard's Clause 6 regarding freedom from defects and casting appearance and Clauses 8, 9 and 10 regarding casting accuracy will be strictly applied. The requirements of the Standard with regard to protection and flanges shall be modified to comply with this Specification. Also refer to Clause "Castings" of this Specification.

A2.1.8 Copper

Copper pipes shall be to BS 2871 or approved equal.

A2.2 Pipework Design

A2.2.1 Pipe Type and Material

The type and material of pipe to be used are given in this Detailed Mechanical Specification.

A2.2.2 Pipe Diameters

Unless otherwise specified in this Detailed Mechanical Specification, pipe diameters shall be based on the following velocities. The velocities shall be based on the compressed volume at the operating pressure in the case of steam, air and other gases. Valves and other ancillaries shall generally be of the same nominal diameter as the pipe. Non-standard sizes shall not be used.

FLUID	FLUID FLOW [ℓ/s]			
	0-2,5	2,5-15	15-100	100-500
	ALLOWABLE FLOW VELOCITY [m/s]			
<u>LIQUID</u>				
GRIT FREE:	0.75 max	1,25 max	1,5 max	2 max
HIGH SOLIDS OR GRIT:		0,8 min	1 min	1 min

Grit free liquids include potable water, final effluent, centrate, supernatant, etc. Liquids considered to have high solids content will include raw water, sewage, sludge and grit slurry.

If anomalies occur within the same system using the above table, the larger pipe diameter shall generally be used.

A2.2.3 Coupling Arrangement

Screwed fittings may be used on DN 50 and smaller provided that sufficient unions or flanges are provided for disassembly and removal of equipment. Reducing sockets and reducing bushes shall be used where required.

All steel pipes larger than DN 50 shall be flanged or fitted with mechanical pipe couplings as applicable.

Suitable pipe couplings shall be incorporated wherever necessary to facilitate maintenance or isolate vibration. A coupling shall be provided on each pump suction. Couplings shall be adequately restrained by harnesses as specified in the Clause "Pipe Couplings".

A2.2.4 Draining, Venting and Purging

On liquid lines provision shall be made for draining and venting where necessary. Vents shall be provided at all vertical down bends on gravity lines. On gas lines provision shall be made for purging.

A2.2.5 Condensate Drains for Air Lines

Automatic condensate traps with isolating valves and valve by-passes shall be provided at all necessary points including ahead of any globe type valve, orifice plate or concentric reducer in a horizontal line, at each change of level and immediately ahead of the user equipment.

A suitable well of a diameter equal to the pipe diameter with a bottom drain shall be provided at each condensate removal point. Condensate traps and valves shall be accessible and condensate shall be piped to the nearest drain. Pipework shall be sloped in the direction of flow towards a drain point with a slope of 1 in 150 and care shall be taken to avoid sagging at any point.

A2.2.6 By-Passes

Isolating valves and valved by-passes shall be provided around condensate traps, pressure reducing valves and valves with solenoid or other actuation which do not have provision for manual operation.

A2.2.7 Encased Pipes

Pipework to be permanently encased in concrete, cement or similar shall be of cast iron or 316 SS, or better, for steel and stainless steel pipework respectively. The encased portion shall be a short, straight length of pipe, flanged both ends with adequate clearance between the wall surface and the flanges for inserting flange bolts. Victaulic type couplings may in some instances be permitted instead of flanges.

Pipe sections through walls below ground or water level shall be provided with a puddle flange the same diameter as a standard flange. The encased area shall in such cases be uncoated up to 30 mm inside the wall surface and coated to Specification from there on.

A2.2.8 Isolation

The layout design shall make provision for isolation and easy removal of mechanical equipment.

A2.2.9 Nozzles for Fittings, Gauges, etc.

Nozzles on pipework (for installation of gauges, transmitters, drain pipes, cooling water take-offs, air release valves, etc.) shall be designed so that the pipework corrosion prevention system is not affected.

Nozzles shall consist of a flanged, welded tee-off of at least 100 mm diameter, painted or cement-lined internally and provided with a non-corrosive blank flange, e.g. grade 316 stainless steel. The blank flange shall be provided with tapped holes suitable for the equipment installation.

Internally painted, small diameter carbon steel nozzles and screwed carbon steel tee-offs are not acceptable. Carbon steel pipework may be provided with small diameter, grade 316 stainless steel nozzles which are welded into the pipework if the Engineer considers this acceptable in the application.

A2.2.10 Flow Straighteners

If a flow straightener is proposed the Contractor's design, it shall be provided in accordance with drawing number ME-A4/1520: Pump Suction Flow Straightener – Plain Ended Pipe attached (Refer to ClauseA16). This design is for plain ended pipes on the suction side of pumps but the blade configuration shall apply where applicable to other applications.

A2.3 Pipework Installation

A2.3.1 Appearance

Pipes and fittings shall be conservatively selected to suit the application, neatly installed, straight to line and level, adequately supported and shall operate without vibration.

A2.3.2 Valve Orientation

On sludge or raw sewage pipelines, check valves shall, wherever possible, be mounted horizontally and isolating valves with spindles vertical. Valve handwheels shall be arranged so that they are accessible to the operators.

A2.3.3 Supports

Proposed designs of pipe supports shall be submitted to the Engineer for acceptance prior to manufacture. Specific requirements are:

- (a) Steel supports shall be fabricated from heavy duty hot-rolled steel sections. The complete assembly shall be hot-dip galvanised after all fabrication is completed.
- (b) Welds shall be "all-round".
- (c) Each foot shall feature at least four anchor fasteners.
- (d) For cantilevered pipe supports, the spacing between anchor fasteners shall be not less than one third of the cantilevered length

The spacing between pipe supports shall be as follows:

APPROXIMATE DISTANCE BETWEEN SUPPORTS FOR STEEL PIPE	
Pipe Diameter (DN)	Distance Between Supports (mm)
0 – 15	800
20 – 50	1 500
65 – 100	2 500
125 – 200	3 500
250 – 500	5 000
> 500	6 000
Distance between supports must be halved for pipe materials other than carbon steels and stainless steels.	

Pipe supports shall be so located that when an item of mechanical equipment is removed, the associated valves and pipework are still adequately supported. Supports shall be provided close to heavy items such as valves. No external loads shall be placed on items of mechanical equipment such as pumps, compressors, etc. Adequate provision shall be made for expansion and contraction due to variations in temperature or pressure.

3 mm thick neoprene strips shall be placed between pipes and supports or clamps to protect the paintwork and limit corrosion. Where roller or sliding supports are used to accommodate movement, suitable wear blocks shall be fixed to the pipe to prevent damage.

Floor pipe supports shall be aligned using a nut above and below the foot. A space of at least 20 mm shall be left between the foot and the floor and this space shall be filled using non-shrink grout in accordance with the manufacturer's recommendations once alignment has been completed. Alternative designs and installations may be submitted by the Contractor. Wall pipe supports shall be similar.

Where the Engineer approves the use of concrete pipe supports, these will be constructed after installation of the pipework and temporary supports shall be provided by the Contractor in positions which will not interfere with the construction of the concrete supports.

Pressure Testing

All pipelines shall be pressure tested to 1,5 times maximum working pressure. This shall be done before covering up the pipeline in any way where applicable and shall be witnessed by the Engineer.

A3 PIPEWORK FOR PUMP SUCTION

A3.1 General

Pump suction pipework shall be designed in accordance with good engineering practice. The following, in particular, shall be complied with:

- (a) Suction pipework shall be sized, where practical, to ensure that the flow speed is no higher than 1,0 m/s.
- (b) High points shall be avoided and it is preferred that the pipework slopes up toward the pump.
- (c) Air leaks shall be avoided/prevented.
- (d) Reducers shall be of the unequal type.
- (e) Reducers shall have a diametral reduction of no more than 50 mm per 300 mm length and shall have a parallel-sided length between the tapered portion and each flange.
- (f) "Lobster-back bends" shall have a minimum of five segments. The segments welded to the pipe flanges shall be perpendicular those flanges.
- (g) Flow straighteners shall be provided where convenient and specified.
Strainers shall be provided where convenient and specified.

A4 FLUID STRAINERS FOR PIPEWORK

A4.1 General

This Clause deals with strainers required for removing substantial solid particles from fluid flow and does not deal with automatically-operated, fine screen strainers.

Fluid strainers shall be selected to be suitable for the application.

A strainer is required on the suction side of all centrifugal and positive displacement pumps which draw from fluid bodies such as tanks, channels, sumps, reservoirs, etc., which have open surfaces. This detailed Mechanical Specification gives specific requirements for strainers.

A4.2 Type, Design and Arrangement

Strainers shall preferably be of a proprietary type, A.R.I Semi Globe Filter, Krombach y-type, Bermad 70 F or equivalent. They shall be of the double-flanged configuration. Circular strainer elements are preferred.

The strainer element's hole diameter shall be decided in conjunction with the Engineer.

Differential pressure reading across the strainer shall be provided. Gauges shall be provided with isolation valves as well as protection from solids contamination.

Strainers whose baskets exceed 20 litres in volume shall incorporate:

- (a) top pull-out configuration,
- (b) a lifting device, such as a crawl beam with hoist or a davit arrangement, and the strainer basket shall be provided with a suitable lifting eye.
- (c) a hot-dip galvanized steel support or a concrete support plinth.

The ratio of open area in the strainer element to inlet pipe area for non-proprietary units shall exceed 7 and shall be designed to suit the application. Strainer elements shall be made of stainless steel perforated plate with an opening size to be decided in conjunction with the Engineer. If the Engineer approves the use of wire grid for strainer elements, the wire shall be of at least 2 mm diameter and shall be of stainless steel. Strainer elements shall be robustly constructed, shall be provided with adequate flow passages between the strainer element and body and shall withstand the differential pressure developed when a strainer element is partially blocked. Flat surfaces shall be adequately braced to prevent buckling collapse. Lids shall incorporate an O-ring type seal and shall be secured with grade 316 SS, or better. Handles shall be provided on baskets of 20 litres or smaller.

All sharp edges on the strainer's internal surfaces and on the basket shall be removed.

A4.3 Corrosion Protection

Strainer housings and lids shall be either:

- (a) coated cast iron,
- (b) 316 SS, or better,
- (c) glass reinforced plastic,
- (d) plastic, or,
- (e) hot-dip galvanized carbon steel.

Coated carbon steel will only be acceptable if the design is such that internal scraping of the surface is unlikely to occur. In such cases, the System for Large Immersed Steel Fabrications or System "Fusion Bonded Epoxy" or System "Hot-Applied Thermoplastic" or the System for Large Immersed Steel Fabrications (not requiring a decorative finish) will be acceptable.

A5 TESTING

Strainer bodies shall be pressure tested to a minimum of 500 kPa and vacuum tested to 70 kPa before delivery to Site.

A6 FLANGES

A6.1 Standards

All standard flanges shall comply with SANS 1123. For flange sizes not included in the SANS, BS 4504 shall be used. Cast iron flanges and their mating flanges shall have flat faces. The flange table shall be as specified or, if not specified, selected to suit the maximum possible operating pressure but not less than Table 1000. Drilling and installation of flanges shall be "off-centre".

A6.2 Flange Fixing

Flanges DN 50 and smaller may be of the screwed on type. Metal flanges above DN 50 shall be welded on in accordance with BS 806 Type 6 unless otherwise agreed or specified.

A6.3 Machining of Flanges

All flanges shall be machined on the sealing face. Flanges cut from plate shall also be machined on the bore and outside diameter. Cast iron flanges shall also be machined or spot faced on the back of the flange to ensure a flat bearing surface for the fastener's head or nut and washer. All edges, including bolt-holes, shall be chamfered or rounded to a 2 mm radius.

A6.4 **Butt Flanges**

If the use of a loose hot-dip galvanized butt flange arrangement with stainless steel pipework is specified or approved by the Engineer, such arrangement and design shall comply with BS 4504 Table 6/6 or 10/6 as appropriate. The butt welded shouldered end for the pipe may be rolled from hot rolled stainless steel angle section. The hot-dip galvanized butt flange must be electrically insulated from the stainless steel pipework.

A7 **GASKETS**

The jointing material used on flange joints shall be of rubber or compressed asbestos fibre at least 3 mm thick complying respectively with BS 2494 or BS 1832, as applicable. Full face gaskets shall be used for full face flanges. Inner bolt circle gaskets shall be used on raised face flanges and when clamping items such as wafer type valves between flanges inside the bolt circle. Properly designed O-ring seals are also acceptable.

A8 **PIPE COUPLINGS**

A8.1 **General**

Where pipework movement, misalignment or dismantling must be allowed for, or if necessary for any other reason, pipe couplings may be used if approved by the Engineer. Pipe couplings shall be of the mechanical type, stainless steel bellows type or rubber bellows type.

A8.2 **Supports and Anchors**

Pipework using couplings shall be supported and anchored strictly in accordance with the coupling manufacturer's recommendations.

If the pipework configuration does not provide axial restraint, harnesses against separating forces shall be provided. Systems incorporating additional flanges or lugs and connected by tie bars or positively fixed to anchors will be acceptable. Systems relying purely on friction will not be acceptable. Tie bar harnesses shall incorporate three tie bars or more.

A8.3 **Mechanical Pipe Couplings**

Mechanical pipe couplings shall:

- (a) be of rolled steel, forgings or of high grade castings,
- (b) be coated,
- (c) have rubber seals of a suitable grade,
- (d) shall have stainless steel fasteners, and,
- (e) be supplied without centre register unless otherwise specified.

Pipe ends shall be in accordance with the coupling manufacturer's recommendations. Where machining is required, as in the case of cast iron pipes, the length of machining on each pipe shall be approximately equal to the total length of the coupling to ensure that the coupling can be separated for pipe removal.

Couplings for air applications below 60 °C shall be hot-dip galvanized for air applications above 60 °C shall be of stainless steel. Couplings for liquid applications shall be coated in accordance with System – "Hot-Applied Thermoplastic" or System – "Fusion Bonded Epoxy". Couplings for stainless steel pipework shall be stainless steel.

Fasteners, including coupling studs, **stub studs** (i.e. studs welded to the flanges of flange adaptors), washers and nuts shall be of grade 316 SS, or better.

When couplings are part of a buried pipeline, the metallic surfaces shall be coated as specified above and then covered and wrapped. Couplings shall be covered with mastic to a smooth finish, wrapped with tape and then wrapped with a polythene sheet which is strapped in place. "Denso mastic" and "Denso tape", or equivalent products, are suitable. If the operating temperature is likely to exceed 70°C, the mastic and tape shall be replaced with a suitable grease or a suitable sealer.

A8.4 Stainless Steel Bellows Pipe Couplings

Stainless steel bellows shall incorporate stainless steel flanges and fasteners.

A8.5 Rubber Bellows Pipe Couplings

Rubber bellows couplings are acceptable for machinery which is flexibly mounted and also in applications which require isolation of driven machinery from the surrounding pipework and/or structures.

The flexible material used for rubber expansion joints shall be chosen specifically for maximum resistance to bursting.

Metal backing flanges for rubber expansion joints shall be of stainless steel or hot-dip galvanized steel.

A9 PUMPS

Details of pump duties are given in this Detailed Mechanical Specification and the type of pump and materials of construction shall at all times be selected to suit the fluid to be pumped and the performance requirements.

Pumps handling sewage and sludge's shall be capable of running without choking, clogging, any liquid which may contain long fibrous material, vortex or open impellers are therefore preferred.

A9.1 Pump Type

Pumps shall, wherever possible, be of the single-stage, end-suction, back pull-out type, direct-coupled to the motor using spacer type couplings and complete with common baseplate and guard.

A9.2 Pump Speed

Preference shall be given to pumps which operate at 1 500 rpm or lower. Pump speed and casing test pressures must be given in the Technical Data Sheets.

A9.3 Performance Parameters

Performance characteristics shall be suitable for parallel operation with pump head increasing continuously to shut off. The pump shall be selected to operate as close as possible to best efficiency at duty point and shall be adequately sized to safely permit an increase in capacity of at least 25 % should the head be lower than estimated.

A9.4 Life

Pumps and motors shall be designed for long life under continuous operation of more than 100 000 hours.

A9.5 Impeller

Preference shall be given to pumps whose impeller diameter does not exceed 95 % of the maximum impeller diameter for the volute/diffuser provided and with bronze material. The pump internals surface finish shall be of N-grade 7. The peripheral speed of impellers should be

designed not exceeding 10.5 m/sec.

A9.6 Lubrication

Unless otherwise specified, bearings shall be grease lubricated and adequately sealed against the ingress of moisture or dirt.

A9.7 Vibration

Rotating elements shall be balanced.

The vibration severity of the unit during operation shall not exceed $V_{rms} = 1 \text{ mm/s}$ at the pump and motor bearings.

A9.8 General Conditions

Pumps must be provided with both suction and discharge pressure gauges.

The motor shall be close-coupled to the pump and separated from the pump casing by an oil chamber. A mechanical seal shall isolate the motor from the chamber and a mechanical seal with tungsten or silicon carbide faces shall provide a shaft seal between the oil and the liquid to be pumped.

The motor shall be shut down automatically in the event of leakage into the oil chamber and as a result of overheating of stator windings.

Preference shall be given to pumps whose speed does not exceed 1 500 rpm. The rated output of the motor shall be 15 % in excess of the maximum power which can be absorbed by the impeller fitted to the pump at any pumping duty, i.e. the unit shall be non-overloading.

Pumps required for abrasive duties shall be designed for low wear. Low operating speeds are preferred. The suction cover shall incorporate a replaceable liner of a suitable abrasion resistant material such as high chrome iron. The design shall permit easy adjustment of the clearance between the impeller and suction cover.

Bearings shall be designed for an L_{10} life in excess of 100 000 hours.

The shaft, all fasteners and all external steel components in contact with the pumped liquid shall be of grade 316 SS, or better. The pump and motor casing shall be of high-quality, close-grained cast iron. A suitable, heavy duty epoxy or polyurethane coating system with a minimum thickness of 400 μm shall be provided on the pump and motor casings.

A9.9 Equipment and Spares

Each pump is to be provided with highest quality 100mm dial pressure gauges calibrated in kPa to register the suction and delivery pressure. Instrumentation and associated displays and transmitters which are either located inside or located outside and above ground level shall have IP 55, or higher, rating. The delivery gauge shall cover a range from zero to at least 20 percent in excess of the maximum head that can be developed by the pump. Calibration certificates for all gauges must be supplied by the Contractor.

Bidders must submit in the appropriate Technical Data Sheets a list of all spare parts to the pumps, motors and other parts which are not regularly kept in the stock, which he considers to be necessary for the replacement of the wearing parts.

A9.10 Maintenance Tools

All plant supplied under this Contract shall be provided with special tools, spanners, keys, grease guns, etc, necessary to undertake maintenance work as well as the dismantling, overhauling and adjustment of the plant. Tools are to be mounted in a hardwood or steel cabinet which, in turn, shall be hung on the wall in the vicinity of the plant concerned. The cabinet doors are to be provided with a good quality bolt and cupboard lock with duplicate keys.

A9.11 Detailed Pump Duty

The contractor should provide a detailed drawing showing all the above layout and procedures in place for installation of the pumps. The layout should be approved by the engineer.

A9.12 Performance Test

The pump units including the pump coupled to the motor shall be tested at the manufacture's works in the presence of the engineer or his representative. The test of carrying the out the work performance tests shall be deemed to be included in the overall cost of the plant.

Works tests include:

- a) Balancing of the complete impeller and shaft at the manufacturer's premises.
- b) Flow head curves shall be generated at the manufacturer's premises and checked against the manufacturer's listed pump curves for any major discrepancies.

A9.13 Testing On Site

The pump testing shall be carried out firmly in accordance with BS 599: 1939 or to the Conditions of Contract as specified in the contract.

A9.14 Before Commissioning

- a) Test for rotation of the motor.
- b) Test for correct operation of the control gear.
- c) Test for correct alignment of the shaft and couplings.
- d) Submit all certification, motor test certificate, pump test records, material certificates.

A9.15 At Commissioning

Generally, the equipment will be considered acceptable at commissioning when all of the following conditions are satisfied:

- a) The equipment meets the duty requirements as defined in section A9.11 of this Detailed Mechanical Specification.
- b) Any other performance tests defined in this section prove acceptable operation of the equipment.
- c) The power absorbed by each motor at duty point does not exceed the stated in the Technical Data Sheets by more than 5%.
- d) The vibration measured at each point does not exceed the values stated in the Technical Data Sheets.

A9.16 After Commissioning

Check the equipment for proper functioning, measurement of speed of rotation and power consumption during the Test Period and the Trial Operation Period. The performance of the equipment will be considered acceptable when the requirements as specified have been achieved consistently during the Test Period. The equipment performance shall be checked at 3, 6, 9 and 12 months intervals during the Defects Notification Period.

A9.17 Pipework

The Contractor shall ensure all suction and delivery pipework is suitable for housing structure together with all suction pipework installed in the wet sumps, and all delivery pipework taken to a point not less than 1 metre beyond the outer face of the pump station wall or as indicated on the drawings.

The general arrangement of pipework is shown on the drawings, and the Bidder must submit drawings with his tender showing conceptual arrangement of the proposed pipework layout. The Bidder is at liberty to submit alternative layouts, but such layouts shall be subjected to the Engineer's approval. In any case, the completed installation shall be suitably arranged so that no unnecessary obstruction is caused within the pump room. Notwithstanding the implied approval of pipework layout on acceptance of the Contractor's tender, the Engineer shall have the right to reject any workmanship which in his opinion appears to be untidy or poor.

The pipework basic requirements for suction and delivery pipework shall be strictly observed by the contractor:

- All pipework and valves in the pump stations are to be sized to give suction velocities of 0.8 to 1.2m/sec. These design velocities may be relaxed in certain circumstances where the Contractor can demonstrate to the Engineer's satisfaction that the specified velocities are impractical or unnecessary.
- All pipes, valves and fittings shall be adequately supported by brackets, beams, piers, etc, to the satisfaction of the Engineer. Anchors shall also be provided to resist all stresses created by static and dynamic forces, including recoil shock.

A9.18 Gland Sealing

The method of gland sealing of the pumps to be by means of mechanical seal type, details of which are to be clearly stated at the time of tendering.

A9.19 Guarantee

The Contractor shall submit the following characteristic curves of performance of the pumping plant:

- i. Pump
 1. Head- quality curve
 2. Efficiency
 3. Power curve
 4. NPSH curve
- ii. Motor
 1. Efficiency curve
 2. Power curve

The Employer shall have right to refuse acceptance of a pumping set which, under test in terms of the specification, fails to deliver the specified duty discharge at the specified duty head, less the tolerance stated by the Bidder, or alternatively, to negotiate with the Contractor, a reduction in price of the pump, whichever the Employer shall elect.

In the event of such refusal of acceptance, the Contractor will be afforded an opportunity to effect refinements or adjustments in order to overcome the deficiencies of the pump, failing the success

of which he shall replace the pump with a new one, which will subject to the same conditions in regard to tests and guarantees as herein specified.

Pending such replacement or agreement as to a reduction in price, the Employer shall have the right to demand the delivery and use of the pump, in which case the Contractor shall deliver the pump and the Employer shall have the right to use and continue using it until it is replaced by a satisfactory new pump.

Any costs involved in any refinements, adjustment or replacement shall be at the Contractor's expense.

A9.20 Prices for Mechanical Equipment

The price shall allow for pumps, motors, couplings, coupling guards, baseplates and suction and delivery pipework, (including delivery isolating and check valves, air release device, etc), for complete installation.

A10 CONTRACTOR'S DRAWINGS

The Contractor's drawings shall comply with the following:

- (a) Drawings shall be provided in electronic data of AutoCAD format or compactable version indicating the true reflection of as built design.
- (b) Drawings shall be prepared in accordance with the latest issue of SANS 10111. The equivalent BS code of engineering drawing practice will also be acceptable.
- (c) Drawings shall be to A1 or A0 size.
- (d) Drawings shall be to scale, with both the scale and the drawing being large enough to clearly show all relevant components of the plant and equipment.
- (e) In addition to the usual plan and two side elevations, sufficient additional sections shall be included to clearly show the arrangement of all plant and equipment.
- (f) Item lists shall be provided on the drawing or on a separate parts list.
- (g) Item descriptions shall include the material of construction, quantity and full identification information, including, as applicable, brand name, manufacturer's reference number, model number, size, rating, source, duty, quantity, etc.

A11 CONTRACTOR'S RESPONSIBILITY WITH REGARD TO CIVIL WORKS

The Contractor shall construct new and/or modify existing plinths, foundation blocks, rebates, pockets, holes, thrust blocks and so forth to accommodate the installation of the plant as must be detailed on the drawings and other information to be submitted by the Contractor in terms of the Contract.

The Contractor shall, prior to taking possession of the Site and before delivering any equipment to site, inspect and check the related building and civil works for accuracy and suitability of construction and for conformance with the Contractor's drawings. No payments shall be allowed for additional costs to the Contractor resulting from a failure to check such works timeously.

Making good holes through walls and floors and the supply and installation of all foundation bolts and the grouting in of such foundation bolts and of bases, supports or any other mechanical equipment shall be the responsibility of the Contractor.

A12 TUITION

A12.1 General

During the Trial Operation Period, the MUNICIPAL INFRASTRUCTURE SUPPORT AGENT's site staff will assist the Contractor in operating the plant and the Contractor shall train these staff in the

starting, operating and stopping of the plant and shall train the MUNICIPAL INFRASTRUCTURE SUPPORT AGENT's maintenance staff on the maintenance requirements and procedures. Unless otherwise called for in this Detailed Mechanical Specification, the Bidder shall price for the on-Site personal tuition of 10 operational staff members and 5 engineering staff members depending on the nature of the project.

The Contractor shall also provide the trainees with printed copies of the Operating and Training Manual which forms part of the Installation, Operation and Maintenance Manual.

A12.2 Operational Staff Tuition

The Contractor shall provide the following tuition as applicable to the Contract:

- (a) Start-up, shut-down and operating instruction for all operational modes for the Works shall be provided. This shall be comprehensive and shall include actions to be taken in the case of all alarm conditions and basic fault finding.
- (b) A layout drawing of the installation, a process flow diagram, and a P&ID shall be provided for each Operator. The instructions described in (a) above shall also be provided in printed form for each Operator.
- (c) If the specified control system is SCADA based, the tuition shall include instruction on the SCADA system.

A13 SPARES

Spares which are specified by Bidders shall be packed individually in wooden boxes with the lids unattached. Each box shall be labelled with the contract number, manufacturer, contents, relevant part/model numbers and the supplier's address. The boxes shall be brought to Hillstar Workshop and the lids shall be secured to the boxes immediately after the Engineer has approved the spares and the packaging.

A14 OPERATING INSTRUCTIONS AND SIGNAGE

Operating instructions and signage shall comply with the requirements below.

A14.1 Operating Instructions

Wall mounted operating instructions shall comply with the following:

- (a) Start-up, Shut-down and Operating instructions shall be provided. These shall be comprehensive and shall indicate actions to be taken in the case of all alarm conditions. These shall be written from the point of view of the plant operator.
- (b) A layout drawing of the equipment installation, a process flow diagram, and a P&ID shall be provided.
- (c) Instructions shall be framed (wooden frame, glass front, hardboard backing) and shall be attached to the wall in the control room using brass screws.

A14.2 Signage

Signs, suitably framed or encapsulated, which shall be provided by the Contractor in appropriate places on the walls of the plant room shall include the following:

- (a) All statutory and special safety warning instructions.
- (b) Course of action during/after electrical shock.
- (c) Any operating restrictions for equipment.
- (d) Operating instructions in cases of plant trip and electrical supply failure.
- (e) Spares list.

Symbolic signs shall comply with SANS 1186.

The wording of the signs shall be approved by the Engineer prior to final printing. All signs shall cross refer, where applicable, to the relevant portion of the Manual.

All signs shall be installed prior to commissioning.

A15 INSTALLATION, OPERATION AND MAINTENANCE MANUAL

A15.1 Submission of Manual

Two draft copies of the Manual shall be submitted to the Engineer prior to commissioning the Works. One copy will be returned to the Contractor with comments. The second copy will be used by the operational staff on Site.

Six copies of the final version of the Manual, as accepted by the Engineer, shall be provided prior to the start of the Defects Notification Period.

A15.2 General Requirements

The Manual shall comply with the following:

- (a) The Manual shall be for the complete Works and shall be of a standard acceptable to the Engineer. It shall be in English and shall be practically and neatly presented.
- (b) One Manual shall contain original documents and this set shall be marked "Original". The other 5 Manuals shall contain all the information in the original and shall be marked "Copy 2" to "Copy 6".
- (c) Binders shall have hard, plastic protected covers utilising four-ring, spring-clip holders. Binders shall not be overloaded. One spare, empty binder shall be provided for every three used. A title label shall be affixed to the spine of all binders. This shall indicate Contract number, title, Contractor's name, Site/Plant name, volume number and contents.
- (d) Sections and sub-sections shall be titled, uniquely numbered and provided with separator sheets.
- (e) Printed matter which is inserted in the Manual shall be arrowed (indelibly) to indicate the equipment installed.
- (f) Drawings shall be to a scale which makes details clear. Large drawings shall be held in plastic envelopes in the Manual. A4 and A3 drawings may be bound as normal pages. Drawings shall also be provided on electronic data storage in Autocad, or equivalent, format.
- (g) Cross-referencing within the Manual is acceptable where duplication occurs.

A16. MECHANICAL DRAWINGS

The following drawings as referred to in various Clauses in this Detailed Mechanical Specification are attached hereto.

DRAWING NO TSD/A4/0101/2
DRAWING NO ME-A4/1520

MUNICIPAL INFRASTRUCTURE SUPPORT AGENT

WATER AND SANITATION

CONTRACT NO. MISA/URA/KZN/019/2024/25

**APPOINTMENT OF A CONTRACTOR FOR THE REPAIRS AND REFURBISHMENTS OF UMTHAVUNA
RAW WATER ABSTRACTION, WATER TREATMENT AND BULK NETWORK UNDER UGU DISTRICT
MUNICIPALITY IN THE KWAZULU NATAL PROVINCE**

SECTION B

DETAILED ELECTRICAL SPECIFICATION
(INCLUDING GENERAL WORKS)

B1 SCOPE

This specification arises from the need to replace an existing pump with a Drive Motor, and the Motor Starter, together with the supply, installation and commissioning of a new replacement electrical components for pump station at the Mthamvuna Pumping Station.

The supply, delivery to site, off-loading, installation, testing and commissioning of all equipment required, forms part of this Contract. All equipment shall be new and unused.

It is required that the quality of workmanship be of the highest order and that only qualified and experienced personnel be employed on the project.

The Mthamvuna Pumping Station is operational 24/7 hours and is running at full capacity. The Contractor shall ensure that plant is fully operational during the Contract period.

NO CONSTRUCTION SHALL COMMENCE UNTIL SUITABLE GENERAL ARRANGEMENT DRAWINGS AND CIRCUIT DIAGRAMS HAVE BEEN SUBMITTED TO THE ENGINEER FOR APPROVAL.

B2 SITE AND ACCESS TO SITE

The Mthamvuna Pump Station, which is the site for this Project, is located at Mthamvuna River area. The route is from the N2 into the off-ramp, and then turns right into abstraction works. The site is on the right hand side lining to the Mthamvuna river, Mthamvuna, Port Edward. Access shall be via the entrance gate to the site, which is on Mthamvuna side.

Queries pertaining to this Tender should be directed to Mr Njabulo Dube of the Electrical Engineering Section, KZN MISA, Directorate: Technical Service Support on Tel: 012 848 5300 Cell: 072 035 4671

B3 DEFINITION

The Engineer for this Project shall be Mr Njabulo Dube of the Electrical Engineering Section, Technical Service Support Branch, MISA, or his duly appointed representative.

B4 STANDARD SPECIFICATION

Except where otherwise specified or implied the contract works shall comply with this specification and the latest revisions of the following standard specifications:

- SANS 97 Electric cables — Impregnated paper-insulated metal-sheathed cables for rated voltages 3,3/3,3 kV to 19/33 kV (excluding pressure assisted cables)
- SANS 555 Unused and reclaimed mineral insulating oils for transformers and switchgear.
- SANS 780 Distribution Transformers
- SANS 156 & VC8036- Moulded-case circuit-breakers.
- SANS 165 Lampholders.
- SANS 172 Cartridge type fuse-links for low voltage electric fuses.
- SANS 173 Fuse-link holders for cartridge type fuse-links
- SANS 950 Unplasticised polyvinyl chloride rigid conduit and fittings for use in electrical installations
- SANS 1091 National colour standards for paint
- SANS 1299 Direct-acting indicating electrical measuring instruments and their accessories
- SANS/IEC 60439-1 & 2 Low voltage switchgear and control assemblies
- SANS 1973-1 & 3 Low voltage switchgear and control assemblies, Type tested, partially type tested and specially tested assemblies.
- SANS 1765 Low –Voltage switchgear and control gear assemblies below 10kA.
- BS 4070 Performance of A.C. control gear equipment rated up to 660 V for use on high prospective fault-current systems.
- SANS 10111 Part 1-1990 Clause 4.2 - Engineering Drawings General Principles.
- BS 587 Motor starters and controllers.
- SANS 1195 Busbars.
- SANS IEC 60947/4/1 Performance of A.C. control gear equipment rated up to 660V and 60947/4/2 for use on high prospective fault-current systems.
- SANS 1479 Glow starters for tubular fluorescent lamps.
- SANS 780 Distribution Transformers.

- SANS 1804-1/2 Induction Motors.
- SANS 1507 Electrical cables with extruded solid di-electric insulation for fixed installations.
- Local Fire Regulations
- The Regulations of the Local Supply Authority
- The Regulations of the Department of Posts and Telecommunications

Where an SANS Standard does not exist or if not applicable, the relevant IEC or BS Standard shall be applicable.

All work shall comply with the requirements of the regulations made under the Occupational Health and Safety Act (Act 85 of 1993 and the Contract Regulations issued in terms of Section 43 of the Act, Standards South Africa, (a division of the South African Bureau of Standards) SANS10142-1 Code of Practice and all other statutory regulations and laws insofar as they may apply to an installation of the type contemplated.

In the event of discrepancy between any of the specifications, regulations and codes of practice, the SANS 10142-1 Code of Practice for Wiring of Premises shall take precedence.

B5 TECHNICAL DATA SHEETS AND SCHEDULES

The following Technical data sheets and schedules form part of this specification and shall be completed as indicated. Failure to complete these documents shall invalidate the tender.

Data Sheet 1	Equipment / Vendor Agent Details
Data Sheet 2	Electrical Equipment
Data Sheet 3	Motors
Data Sheet 4	Distribution Board /Motor Control Centre
Data Sheet 5	Cable Tray, Cable Gridspan and Ladders
Data Sheet 6	Mini Substation Transformer
Schedule of Rates for Electrical Variations	

B6 DRAWINGS

The Contractor is required to submit drawings for approval prior to any work being undertaken on the site. The drawings shall show the arrangement of the equipment in the proposed Main distribution board and motor control centre, the arrangement and layout of the cables, for both the power system and the control system wiring, together with a detailed drawing showing the mechanical arrangement of the new pumps, new drive motors and the support system for the motors.

B7 BRIEF DESCRIPTION OF THE PROJECT

In terms of this Contract the successful Bidder is required to supply and install electrical panel for the pumps, 2 x new 250kW/400V Electric Motors with the necessary switchboard/motor control centre equipment required to replace an existing broken flooded panel with associated control equipment in Station at the Mthamvuna Pump Station, which will provide more operation reliability and flexibility of the pump station. The 4-pole motors for pumps are capable of running at a speed, 1500RPM at 50Hz, at full load.

A new free floor standing switchboard/motor control centre shall be provided, which shall accommodate the soft starters for the control of the proposed electric motors. The switchboard/motor control centre shall be arranged for cable bottom entry and positioned as indicated on the Drawings, provided by the contractor.

Any Item marked **PROVISIONAL** has been allowed for in the Schedule of Quantities for modifying the existing transformer base. If this work is not carried out it will be omitted from the contract.

Only new unused cables and cable supports shall be used for this project unless specified otherwise.

The new equipment shall be set to work and properly commissioned by the Contractor to the satisfaction of the Engineer. Any tests or alignment checks that may be required by the Engineer shall be provided by the Contractor and covered by the Tender price.

The Contractor shall also install the necessary equipment required to monitor excessive motor temperature and vibration which may occur within the proposed new 250kW motors.

The Contractor shall supply and install one 32A/400V 5 Pin CEE welding socket complete with male plug within the pumping station.

The proposed new switchboard/motor control centre shall replace the existing local switchboard and the Contractor shall remove this switchboard and reconnect the existing feeder circuits, within the new switchboard/motor control centre.

The following existing obsoleting and condemning equipment is to be decommissioned, dismantled, taken up – including disconnect, unbolt, cables, etc. from the walls and floors - and later after the internal equipment condemnation process has been completed, upon instruction by the Engineer, carted off the site and taken to the Ugu Municipality's Auction Yard in Marine Drive and handed over to the Ugu DM. The Contractor must obtain a receipt for all equipment handed over. The Contractor shall also make good the walls and floors after, which shall include any necessary painting as necessary.

Obsolete Equipment:

- Pump with associated equipment,
- Motor,
- Motor Start Panel,
- Reactor,
- Capacitor, and
- Transformer and associated old equipment.

B8 ELECTRICITY SUPPLY

B8.1 General

In terms of this Contract the successful Bidder is required to supply and install electrical panel for the pumps, 2 x new 250kW/400V Electric Motors with the necessary switchboard/motor control centre equipment required to replace an existing broken flooded panel with associated control equipment in Station No. 3A at the Mthamvuna Pump Station, which will provide more operation reliability and flexibility of the pump station. The 4-pole motors for pumps are capable of running at a speed, 1500RPM at 50Hz, at full load

An item marked **PROVISIONAL** has been allowed for in the Schedule of Quantities for new cables between the new panel building and the existing panel. If this works is not carried out, it will be omitted from the Contract.

It is envisaged that the low voltage symmetrical three-phase fault level will not exceed 20kA and the equipment shall be rated accordingly (3 second rating).

B8.2 Lockout Procedure/Permit to Work Form

The Water and Sanitation Department of the Council has implemented a system whereby any party entering and/or proposing to undertake any electrical works on any of its premises or sites, is to be issued with a permit to undertake work, which is available from the respective Plant Manager, etc.

Work MAY NOT be undertaken in any form or context if this permit is not issued and validated by the Authorized personnel on site.

B8.3 Locks

The Contractor shall supply locks whilst completing the work at hand. The Council shall supply locks for all the equipment on completion of commissioning.

B8.4 Way-Leave

The Contractor shall obtain a Way Leave application from the relevant authorities for electricity information and shall not undertake any excavation work onsite until he has received the required "Way-Leave" and Work Permit.

B9 POSITIONS

The Engineer shall approve final positions of all equipment forming part of this Contract.

B10 MATERIALS (GENERAL)

All materials used in the installation shall be of the best quality of their respective kinds and of the type most suited to the designated purpose. They shall comply fully with the quality requirements of this Specification and shall be new and unused, unless specifically detailed for re-use.

B11 MEDIUM VOLTAGE METERING (PUMP STATION METERING)

Mthamvuna Pump Station receives raw water via the high lift feed pump reticulation network and raw water is discharged to the sump before it is pump out through the discharged pumps.

The Contractor shall liaise with the Electricity Department of the Ray Nkonyeni LM, regarding the necessity of supplying and installing an additional medium voltage metering components within the Mthamvuna Pump Station to feed Station proposed new switchboard/motor control centre.

A Provisional Sum has been allowed for in the Schedule of Quantities for all the costs for the supplying and installing of the proposed new medium voltage metering panel by the Ugu DM's Department together with the cable terminations that may be required by them.

B12 SWITCHBOARD/MOTOR CONTROL CENTRE

B12.1 Cubicle assembly

The switchboard/motor control centre required to accommodate the motor starters (Soft Starter) and the sub-circuit breakers (MCCB's) serving the Mthamvuna Pumping Station, shall be free standing, designed for floor mounting and shall be supported on a one piece, welded, hot dipped galvanised, 50mm x 100mm x 50mm channel iron base. The parallel flanged channel iron shall be mitred and welded at the corners and the lower flange shall be provided with four 150mm x 150mm gussets welded into position. The gussets shall be provided with 20mm diameter holes for the 'holding down' anchor bolts. The channel iron and gussets shall be at least 6mm thick. Eight 8mm diameter holes shall be provided in the upper flange for the bolts required to secure the cubicle to the base.

The switchboard/motor control centre shall measure approximately 1 800mm long x 2 200mm high x 600mm deep.

The sheet steel shall be suitably bent, stiffened, and braced for rigidity. Where joints occur in the sheet metal, the joints shall be welded full length and ground smooth to provide a blemish free surface for painting. All screws employed in the manufacture of the cubicle shall be stainless steel and where required shall be entered into an appropriately threaded "RIVNUT".

The doors shall be arranged to fit flush with the framework of the cubicle, which shall present a 50mm wide architrave around the pair of closed doors. The doors, shall be stiffened, twice returned at the periphery, adequately braced, fully gasketed, mounted on pin type hinges and secured by means of vertically arranged rods which are driven by a single handle, attached to the right hand door. The two doors shall be arranged such that the left hand door is closed first and the left edge of the right hand door closes onto a 'U' shaped channel which forms the right hand edge of the left hand door, from top to bottom. Full gasketing shall be provided at the periphery of each door to ensure that the gasses present in the pumping station do not enter the cubicle, to any great extent, except when the doors are open.

The doors enclosing the Soft Starters shall be provided with a 6mm thick toughened glass window measuring approximately 400mm x 400mm and placed in front of the Starter to allow the operating and technical personnel to easily see the LCD displays thereon. The glass shall be mounted to the door in a rubber gasket similar to that employed to secure a windscreen in an automobile. The locking strip for the gasket shall be inside the cubicle when the door is closed. The glass shall be provided with rounded corners with a radius not less than 50mm.

Approximately 150mm behind the narrow door a second level architrave shall be provided, surrounding a de-mountable, flush fitting (with the second level architrave) door that shall enclose the circuit breaker compartment. The sidewall of this compartment shall form a solid dividing panel between the left and right hand sections of the cubicle and shall occur co-incident with the door overlap.

Covers shall be fabricated as for the doors, i.e. flush fitting and twice returned at the periphery. The covers shall be secured by means of square key driven tapered tongue catches at the top edges whilst the lower edges shall be fitted with 6mm diameter steel pegs welded to the cover to enter into holes drilled in the architrave. The holes shall be positioned and sized such that the cover does not rattle when in position.

To provide side access to the switch cubicle it shall be possible to remove the dividing panel in three separate pieces. Each piece shall be secured with hexagon headed machine screws, at 110mm centres. The circuit breaker shall be mounted on a separate, well-braced and supported, cradle. The toggle of the breaker shall be fitted with a mechanical arrangement that will engage with a door interlocking mechanism, which shall prevent the door from opening whilst the circuit breaker is in the "ON" position. The lever employed to operate the circuit breaker shall be provided with a padlocking facility that will permit the breaker to be locked in the "OFF" position. With a padlock fitted to the operating mechanism, it shall not be possible to close the circuit breaker. The breaker shall be positioned such that the toggle is on the horizontal centre of the panel and is easily accessed with the necessary tools for attaching the cables to the circuit breaker terminals.

At the edges of the doors and cover plates a 1mm clearance shall be provided between the architrave and the respective door or cover plate. Doors shall open through 180° and shall be fitted with earthing braid.

PVC wiring troughs shall be provided for the inter-compartment small wiring and where the wiring for the power circuit is required to pass through sheet steel the necessary holes shall be fitted with brass bushes. Where it may be necessary to provide a slot, in the sheet metal, for the wiring, the edges shall be made safe and in addition, a rubber 'U' channel shall be provided, glued into position, at the perimeter of the slot.

Equipment mounted on the doors shall be arranged symmetrically to provide an aesthetically pleasing appearance.

A suitably drilled and rated copper earthing bar shall be provided within the full length of switchboard/motor control centre. The copper bar shall be not less than 50mm x 6mm in cross section and shall be drilled prior to being tinned. The bar shall be provided with at least four 6mm and two 8mm spare holes, within each cubicle, for the attachment of earthing lugs at some future time. The earthing bar shall be provided with sufficient holes to meet the Contractors requirements.

B12.2 Paint Finishes

The paint coat shall be a high quality polyurethane based powder coat designed for interior and exterior conditions applied by electrostatic spray equipment. The sprayed powder coat shall be baked in an oven at a temperature of approximately 200°C for a period of 10 minutes or as specified by the paint manufacturers.

The dry film coat shall be as uniform as possible but shall not be less than 50 microns nor more than 100 microns. The finish shall be high gloss with a minimum of surface defects.

The cubicle, shall be colour white internally, whilst externally it shall be colour Electric Orange (SANS 1091) or nearest as approved by the Engineer.

B13 EQUIPMENT GENERAL

B13.1 Classification

The proposed new switchboard/motor control centre shall be designed to withstand a fault current of 20kA for 3 seconds. All equipment shall be rated accordingly.

B13.2 Busbars and other conductors

Busbars, droppers, and other conductors shall be manufactured from high quality 99% electrolytic copper. Busbars and droppers, where required, shall be tinned and fitted with heat shrink sleeving throughout their lengths. Conductors shall be stamped or marked SANS 1057. Composite conductors shall be avoided and the copper supplied shall be rated for a current density of less than 1.5A per mm². The maximum temperature for any copper installed shall not exceed 70°C in an ambient of 30°C.

B13.3 Fuses

All fuses shall be adequately rated to cater for the load currents. All fuses shall be positioned so as to be accessible from the front of the switchboard and shall conform to SANS 172 whilst the holders shall conform to SANS 173.

B13.4 Marking and Labelling

Labels provided inside the switchboard for relays, switches, fuses, contactors, circuit breakers, etc, shall be arranged and positioned for the benefit of the Maintenance Technician, whilst those labels mounted on the outside of the cubicle shall be for the benefit of the operator.

Labels shall be fabricated from a tri-laminate material with a single layer of black material sandwiched between two white layers. The letters shall be engraved through the outer layer to expose the black layer. Engraving tools shall be sharp and labels with poor quality engraving will be rejected.

Labels of tri-laminate material shall be glued and screw fixed to the sheet steel.

The switchboard manufacturer shall provide and install a label (Nameplate) on the switchboard as required in terms of SANS/IEC 60439-1 or SANS 1765 as applicable. The label shall be permanently fixed to the framework of the switchboard, shall be made of stainless steel, and shall not be painted to match the switchboard. The location of the label (Nameplate) shall be conspicuous but not incongruous. The required label shall provide all the information, including the maximum withstand fault current, required by the relevant SANS or IEC specification. The label may not include any advertising, motif, or other information, except that which may be required by the Council. A sample of the label, or a full drawing of the proposed label, shall be submitted for approval prior to the approved version being fixed to the switchboard.

In addition all fuses, contactors, timers, relays, etc. mounted within the switchboards shall be adequately labelled in accordance with the wiring diagram. All labels provided shall match the labels existing on the switchboard.

N B: Self-setting rivets, glue, or nuts with set-screws are not considered permanent fixings.

B13.5 Wiring

All power and control circuits shall be wired in 600/1000V single or multicore cables consisting of stranded annealed copper conductor covered by an extruded coat of general purpose grade PVC.

The control wiring shall be terminated in corrosion - proof terminals.

All control wiring shall be marked in accordance with the Contractor's wiring diagram with black lettering on white PVC ferrule type cable markers placed on the cable adjacent to each connection.

All inter-panel wiring shall be accommodated in a separate trunking extending the full length of the cubicle. Separate terminals shall be provided at the base of each major component to accommodate the outgoing control circuits, and/or small power circuits.

All internal wiring shall be number ferruled in accordance with the wiring diagrams supplied by the Contractor.

B13.6 Ammeters and Voltmeters

The meters shall be of two sizes, 96mm x 96mm on the large panels and 72mm x 72mm on the smaller panels. The meters shall be of the moving-iron type and the movements shall be mounted on shock-proof suspensions. The accuracy shall meet class 1,5 i.e. 1,5% of full-scale value at each reading. The meters shall have circular 240° scales with platform step dials and bar pointers. The Ammeters provided shall be calibrated for the application. The scale of the Voltmeter shall be provided with a red line at the standard voltage, whilst the full load current shall be shown in similar fashion on the Ammeters.

B13.7 Stop:Start Facilities for Motor

Besides the stop:start facility provided on the motor drive cubicle door, the motor shall be provided with a remote stop:start station located adjacent to the motor. The remote stop:start station enclosure shall be manufactured from polycarbonate material and shall have an IP 65 rating. Where no convenient mounting is provided for the remote enclosure (eg at a central floor mounted motor/pump

base), a robust, 50mm x 100mm x 50 mm x 6mm hot dipped galvanised channel iron support shall be provided, approximately 1100mm high. The support shall be welded to a 6mm thick steel plate measuring 250mm x 250mm which shall be bolted to the floor with four 10mm diameter stainless steel anchor bolts. The top of the channel iron shall be fitted with a stainless steel hood to protect the polycarbonate enclosure from mechanical damage.

Each 40mm diameter stop button shall be provided with a stay put feature, which requires rotation through at least 35° before it releases. In order to restart the motor after the stop button has interrupted the control system, the start button shall be depressed. The start button shall be flush mounted in a cylinder to prevent accidental operation.

The start:stop facilities shall, in every case, be hard wired to the terminals called for in the clause covering motor starters.

B13.8 Selector Switches

Selector switches shall be of the rotary pattern and shall be mounted on the cubicle doors or on the door to the panel above the circuit breaker. The selector switches shall have a minimum rating of 15A.

B13.9 Indicating Lamps

Indicating lamps shall comprise a cluster of four light emitting diodes arranged in a common housing. The indicators shall be suitable for use on a 230V ac supply. Each lens shall be coloured as required for stop, start, alarm, trip, etc. shall be at least 20mm diameter and shall be clearly visible through an angle of 180° in a brightly lit room (500 - 600 Lux).

B14 MOTOR STARTER

B14.1 General

The motor starters required for this project shall be supplied from the standard range of the vendors' equipment. The Contractor shall supply and install 2 x "Varispeed/Weg" Soft Starters (or equivalent) capable of driving the new 250 kW motors (supplied under this contract) to its full, rated, nameplate output, at 50Hz frequency, complete with built in by-pass contactor, in the proposed new switchboard/MCC within Station No.2 building at Mthamvuna Pump Station.

B14.2 Motor Starter Cubicles

The motor starter cubicle shall be supplied and installed within, as a minimum, the following equipment:-

- i Moulded case circuit-breaker [for motor applications] (backplate mounted and arranged vertically behind the door).
- ii mechanical operating handle for circuit-breaker, including door interlock, self aligning spindle and padlocking facility (door mounted).
- iii Fuses (HRC – High Rupturing Capacity).
- iv Ammeter with ON/OFF selector switch (door mounted, approx. 750mm above MCB).
- v Hour meter (door mounted, approx, 750mm above MCB).
- vi Electronic reset push button for thermal overload (door mounted).
- vii Selector switch MAN, OFF, AUTO (door mounted).
- viii Door mounted pilot lights for:-
 - - motor stopped but power available (red)
 - - motor running (green)
 - - motor tripped (amber).
- ix Stop push button (door mounted).
- x Start push button (door mounted).
- xi Din rail mounted terminals.

B14.3 Soft Starters

The starting device shall be a Soft Starter, which meets the following outline technical specification.

B15 SOFT STARTER TECHNICAL SPECIFICATION

B15.1 Electrical Ratings

Input: 400V 50Hz +/- 2,5%

Output: 24 to 1000Amps
200 to 600Volts
50 to 60Hz

The controller shall provide the following starting modes as standard.

- Soft start with Selectable Kick-start
- Current Limit Start
- Full Voltage Start
- Dual Ramp Start
- By-Pass Contactor

The controller shall offer the following optional features:

- Soft stop
- Pump Control
- Preset Slow Speed
- Smart Motor Braking
- Slow Speed with Braking

The Contractor shall supply and install heaters (moisture dissipation), together with the necessary fans (ventilation), as the "Supplier" recommends for optimum performance of the "Soft Starter" equipment offered, within the "Soft Starter" cubicles.

B15.2 Construction

The open-type device shall be modular, consisting of a logic component and a power structure.

The logic component shall be a self-contained control module, compatible with the full range of power structure. The control module shall mount directly to the power structure without the use of wiring.

Code and Standards

The controller shall be designed to meet the applicable requirements of:

- EN
- IEC
- UL
- CSA
- NEMA
- IEEE
- VDE

These standards shall include:

- 1) Creep distances and clearances 600V (UL/CSA) and 500V (IEC)
- 2) Power terminal markings per EN 5005 and EN 60947
- 3) Dielectric withstand per UL508 and IEC947
- 4) Noise and radio frequency (RF) immunity per NEMA ICS 1-109
- 5) Surge withstand per IEEE587 and IEC 801-5.

B15.3 Control module design features

Mechanical:

- 1) The control module shall consist of a power supply, logic control circuitry, silicon controlled rectifier (SCR) firing circuitry, I/O circuitry, a digital programming keypad, a backlit LCD display, and a serial communication port.
- 2) The control module shall be designed for integral mounting on the power structure, without the need to disassemble associated printed circuit board assemblies.
- 3) Control terminals shall be easily accessible, and located on the front top of the device. The terminals shall be UL rated for 300V, 10A maximum and accept a maximum of two wires, 0.75-2.5mm 2(#18-#14 AWG).
- 4) Digital parameter adjustment shall be provided through a built-in keypad. Analog potentiometer adjustments are not acceptable.
- 5) A built-in alphanumeric, backlit LCD display shall be provided for controller set-up, diagnostics, status, and monitoring. The display shall be two-line, 16-characters minimum.

Electrical:

The control module shall provide digital microprocessor control and supervision of all control operation, including SCR pulse firing control.

The control module's power supply shall be self-tuning to accept control power input from 100 to 240 VAC, 50/60Hz.

The SCR firing circuitry shall incorporate an RC snubber network to prevent false SCR firing. The logic circuitry shall incorporate a latch circuit for three-wire control.

B15.4 User adjustments

The acceleration ramp time shall be adjustable from 0 to 30 seconds.

The initial torque setting shall be adjustable from 0 to 90% of locked rotor torque.

Current limit starting shall be adjustable from 50 to 600% of the motor's full load current.

A selectable kick-start feature shall be available to provide a current pulse at 550% of the motor's full load current rating.

The time period shall be adjustable from 0.0 to 2.0 seconds.

B15.5 Monitoring

The controller shall provide the following monitoring functions indicated through the built-in LCD display:

Phase-to-phase supply voltage

Three-phase line current

Watts in kW

KWH

Elapsed time

Power factor

Motor thermal capacity usage.

B15.6 Protection and Diagnostics:

The following protection shall be provided as standard with the controller:

Power loss (with phase indication, pre-start)

Line fault (with phase indication, pre-start) advising:

- Shorted SCR
- Missing load connection

Line fault (running protection) advising:

- Power loss
- Shorted SCR
- Missing load connection

Voltage unbalance

Phase reversal

Under voltage

Over voltage

Stall

Jam

Over load

Under load

Excessive starts/hour

Open gate (with phase indication)

Controller over temperature.

These protective features shall be defeatable:

Overload protection shall be as follows:

Meets applicable standards as a motor thermal protective device.

Three-phase current sensing shall be utilised, the use of two current transformers shall be unacceptable.

Overload trip classes of 10, 15, 20 and 30 shall be provided and user-programmable.

Electronic thermal memory shall be available through the controller, even in a bypass configuration.

When fault conditions are detected, the controller shall inhibit starting or shut down SCR pulse firing.

Fault diagnostics shall be indicated in descriptive text on the built-in LCD display. The exclusive use of fault codes shall be unacceptable.

An auxiliary contact that is programmable for fault indication shall be provided for customer use.

B15.7 Energy saver

- 1.) The Energy saver feature shall operate to automatically cause the output voltage from the controller to be reduced when a motor is unloaded or lightly loaded.
- 2.) Customer adjustments shall not be required.
- 3.) The Energy saver feature shall be defeatable.
- 4.) Additional mounting space or wiring shall be required.

B15.8 Phase Rebalance

- 1.) When the Phase Rebalance feature is enabled, the controller shall regulate the individual phase output voltages from the controller to maintain equal three-phase currents to the motor.
- 2.) Customer adjustments shall not be required.
- 3.) The Phase Rebalance feature shall be defeatable.
- 4.) Additional mounting space or wiring shall not be required.

B15.9 Environmental Ratings

Temperature ratings:

- 1.) The open-type device shall deliver its rated current in ambient temperatures ranging from 0°C to +50°C.
- 2.) The ambient storage temperature shall range from -20°C to +70°C.

B15.10 Humidity Range

The controller shall be operated in relative humidity of 5 to 95%, non-condensing.

B15.11 Shock and Vibration

- 1.) The controller shall withstand a 30G shock for 11 ms in any plane without malfunction.
- 2.) The controller shall withstand 2.5G vibration for one hour in any plane without malfunction.

B15.12 Altitude

The controller shall be suitable for operation up to altitudes of 2 000m without derating.

B15.13 Noise and RF Immunity

- 1.) The controller shall perform without malfunction from showing arc tests of 500V to 1500V (NEMA ICS 2-230)
- 2.) The controller shall perform without malfunction when subjected to 3000V surges at a rate of 100 bursts per second for 10 seconds (IEEE STD 472).

B15.14 Dielectric Withstand

- 1.) The controller shall be tested to withstand 1000V + 2x (voltage rating) at a rate of 200V per second (held for 60 seconds, then gradually reduced) between live parts and ground.
- 2.) The controller shall be subjected to an additional test at the previous voltage level plus 20% for one second (UL 508) (CSA Std.C22.2).

B15.15 Control Functions and Facilities

The selection of functions and the setting of parameters shall be accomplished through the use of menu driven software and a control pad. The control pad shall be a membrane covered keypad with LED display unit and shall be mounted on the backing plate, behind the door of the enclosure and shall not be available to the operator for normal operations. The display shall however, be visible through the door via a glass window. The controller shall be capable of providing the following minimum control functions:

Auto restarts:	A programmable number of restarts with a programmable delay.
Ramp functions:	Individually programmable start up and slow down ramp functions.
Running hour meter:	The "Soft Starter" shall give the total running time for the connected motor.
Digital control inputs:	External trip, Local start/stop, Remote start/stop, Auto,Off,Manual switch, Reset.
Control outputs:	Fault relay Run relay Motor current
Protection:	Thermal Current limit Instantaneous over current trip Individual drive protection Earth fault

The motor starters required for this project shall be supplied from the standard range of the vendors' equipment. The Soft Starters shall be capable of driving the new 250kW motors (supplied

under this Contract) to its full, rated, nameplate output, at any frequency in the range 50 to 60Hz, for an indefinite period. Short time ratings may not be considered.

B16 CIRCUIT BREAKERS

B16.1 Moulded Case Circuit – Breakers (MCCB's)

MCCB's shall be suitable for use in power distribution systems up to 660V – 50Hz and for panel mounting. They shall comply with SANS 156.

MCCB's of the same frame size and the same fault level shall be of the same manufacturer.

An adjustable release shall be provided where deemed necessary.

MCCB's employed for motor starting circuits shall be rated in such a way that the expected transient currents will not cause any "nuisance tripping".

Feeder breakers to motor control centres shall be equipped with a thermal release and a time and value adjustable magnetic release. These MCCB's shall be selective towards the upstream and downstream circuit breakers.

MCCB's of the same frame size, where in one application an instantaneous magnetic release is used, and in another application a time lagged release is used, shall have plug-in type trip units.

The operating handles of MCCB's shall give a positive indication of the ON/TRIP/OFF status.

MCCB's shall be installed vertically. Horizontally mounting is not acceptable.

Minimum distances from enclosure to arc chutes as required by the manufacturer shall be strictly observed.

B16.2 Isolators

Isolators shall not be provided on the project. Circuit breakers shall be employed in their stead.

B17 VIBRATION AND PT100 SENSORS AND DISPLAYS

The required vibration Sensor Unit shall be of a robust construction. Vibration Sensors shall be a true 2 wire loop wired instrument, suitable for easy installation and commissioning. Vibration Sensors shall consist of an internally mounted accelerometer with the output amplified and integrated to obtain an output proportional to velocity.

Sensors shall conform to the following:-

Power Supply	10~32V DC
Output signal	4-20mA
Range options RMS	0~5mm/sec 0~10mm/sec 0~20mm/sec 0~50mm/sec 0~100mm/sec
Frequency range	10~1000Hz
Accuracy	± 5% Typical
Ambient Temperature	-5 ~ +60°C
Mass	510g
Mounting	M12 x 1,75 M16 x 2.0
Housing	Weather proof cast aluminum powder coated

B17.1 Digital Indicators

Indicators shall conform to the following:-

- Digital with relay outputs
- Microprocessor based
- LED display
- Measurements 96mm x 48mm
- Unit must be pluggable
- Inputs:
 - ACV
 - DCV
 - Pt100
 - Process signals
- At least 2 relays
- Isolated retransmit
- Current limiting for power and retransmit signals
- Programmable from front panel

Basic specifications:-

Power Supply	115V 50/60Hz 230V 50/60Hz 24V 50/60Hz 24VDC Isolated
Power consumption	3~6VA
Display reading	User programmable from -999 to +999
Input	Thermocouple J,K,N,R,S,T, Pt100 0/4~20mA, 0/1~5V 0/2~10V, 0~1mA AC Volts true RMS AC Amps true RMS
Accuracy	±0,25% of span ± 1 digit
Repeatability	±0,2% of span ± 1 digit
Operating temperature	-5 to +65°C
Operating Humidity	0 to 95% RH Non Condensing
Relays-SPDT	AC 5A 250V 1250VA DC 5A 30VDC

B17.2 Thermistor Sensors for pockets or tubes

Standard sensor	
Measuring range	-50~205°C
Ambient temperature	-50~205°C
Marking label	-30~105°C
Pressure range	≤25bar(water flow 3m/sec)
Humidity	≤98%RH condensing
Protection class	IP 65
Cable type	High-flexible silicon
Wires	4(2 red, 2 white)
Length	Up to 99.99 metres
Sheath material	Acid-proof stainless steel AISI 316 Ti (W 1.4571)
Sheath dimensions	Ø 5.8mm x 60mm
Vibrations	Lloyds Register test 2
Mechanical tolerances	ISO 2768-m

The alarm and protection equipment shall be mounted in the motor starter compartment of the MCC.

B18 CABLES - 1000/600V CABLES

B18.1 General

All power, indication and control cables for this project shall be supplied, installed and pressure tested by the Contractor after installation.

All power, indication and control cables shall be of the multicore, stranded, soft drawn copper wire, PVC insulated, PVC bedded, steelwire armoured type with an overall PVC sheath. All cables shall be suitably rated. Notwithstanding the voltage drop permitted in terms of Clause 6.26 of SANS 10142-1, the voltage drop at full load on any circuit shall not exceed one volt plus 2% of the voltage measured at the terminals of the main switch.

In the case of the alternator load cables the voltage drop shall be calculated for the alternator at full short time output (115%) and the output voltage at the terminals of the alternator at 5% below the standard voltage.

The Contractor shall examine the existing 11kV cable run between the new proposed transformer's MV termination box position and the RMU positioned within the site, which is connected from the Electricity Department of the MUNICIPAL INFRASTRUCTURE SUPPORT AGENT's bulk metered supply point from the switch yard next to the Mthamvuna Pumping Station behind Station No.2 building (Ref. Drawing No. EAM-EE-2011-009 Sh.1).

If in the opinion of the Engineer, these cables can be re-used, the new Transformer can be connected to these cables. If however, the Engineer together with Electricity Department of the MUNICIPAL INFRASTRUCTURE SUPPORT AGENT and the Contractor decide that these cables cannot be re-used, the Contractor shall remove the existing cables and supply and install new size 3 x 35mm² Cu PILC cables as necessary in its place.

An item marked **PROVISIONAL** has been allowed for new cables in the Schedule of Quantities. If these new cables are not used, this item will be omitted from the Contract

The Contractor shall supply and install 4 x 240mm² Cu H07RN-F cables, together with a 120mm² PVC Cu earth cable, run between the Transformer LV termination box position and the main switch within the proposed new switchboard/motor control centre.

The Contractor shall also supply and install 3 x 240mm² Cu H07RN-F cables run between cubicle D and 3 x 240mm² Cu H07RN-F cables run between cubicle F of the proposed new switchboard/motor control centre and the motor terminal box. All other cables required to complete the installation in its entirety shall be supplied and installed by the Contractor.

B18.2 Cable Identification

A suitable tag, onto which the appropriate cable identification number in accordance with the Contractor's detailed cable schedule shall be stamped, shall be adequately secured just below the gland at the ends of each cable.

B18.3 Cable Schedules

The Contractor shall provide the Engineer with a detailed schedule of all cables together with drawings showing cable routes, for approval, prior to the commencement of laying such cables.

B18.4 Note to Bidders on Cables

No joints will be permitted in any cable run and the Contractor at his own cost shall replace any damaged cable. Tenders, which include provisional cable lengths, will not be eligible for

acceptance.

B18.5 Instrumentation Cables

Instrumentation cable shall be constructed of multiple twisted pairs of insulated stranded copper wire, PVC insulated with an overall aluminium shield, extruded PVC inner jacket, served with steel wire armour with an extruded PVC outer jacket.

The nominal conductor resistance shall not exceed 3,5ohms per 100 m at 20°C.

The complete cable shall withstand a dielectric test conductor to conductor and conductor to shield of 1 000V dc for one minute. The minimum core size shall be 1,5 mm².

B19 ELECTRIC MOTORS

B19.1 General

The motors required for this Project shall comprise one replacement motor for an existing 250kW/3,3kV, horizontally mounted machine and one additional motor. The motors offered for this project shall be designed to run on a supply from motor starters (Soft Starters) where the output will be a constant 50Hz, and the rotors shall be balanced accordingly.

The new motors for this project shall be energy efficient motors.

NB Any dimensions or arrangements given are approximate and the successful Bidder will be deemed to have visited the site and checked the dimensions before proceeding with any work. Bidders are required to price for new, fabricated motors, baseplates and couplings.

Motors offered by Bidders shall be accepted provided the units have a minimum of servicing requirements including greasing intervals.

Contractors shall be responsible for the alignment of the motors and pump units.

B19.2 Rating

The electric motors shall be rated for operation on a 3-phase, 4-wire, 400/230 volt, 50Hz-60 Hz, AC supply, at sea level, in an ambient temperature up to 40°C. Neglecting slip, the standard speed of the four pole motor at 50Hz shall be 1500RPM. The respective speed may be reduced by approximately 3% at full load due to slip. The rated power of the motors shall be in the range 7 to 10 per cent in excess of the maximum power requirement of the associated plant. In addition, the new motors shall be rated so that, with the method of starting and drive arrangement used, the maximum period for the motors to reach full operating speed shall not exceed 10 seconds.

B19.3 Specifications

Except as otherwise specified, the motors shall be a standard induction (squirrel cage) machine complying with SANS 1804 as amended, with IP55 enclosure and IC 411 cooling, and suitable for a damp environment. The motors shall be suitable for both "continuous running duty", Duty Class S1, and "intermittent periodic duty", Duty Class S3. Windings shall be copper conductors insulated with Class F material with Class B temperature rise. The motors shall be suitable for six starts per hour, two of which shall be consecutive.

The motors shall also be suitable for bi-directional operation.

B19.4 Type

The type of motors and starters to be supplied is determined by the requirements of the application specified in this Detailed Electrical Specification and by the starting limitations specified in this Detailed Electrical Specification. In the absence of such specifications, a standard squirrel cage motor, arranged for horizontal operation, and complying with this Clause shall be offered.

B19.5 Construction

Motor frames shall be of the totally enclosed fan cooled type with cast iron yoke frames and cast iron end covers. The end covers and yoke shall be properly machined and each cover shall locate on a spigoted register to ensure concentricity and parallelism.

The bearing housings shall be provided with grease nipples and where the grease nipples would be difficult or dangerous to reach with the motor running, extension tubes shall be provided.

B19.6 Terminal Boxes

Terminal boxes shall be mounted mid-height of the yoke, wherever possible, and arranged for cable entry from the lower side of the box. The two ends of each stator winding shall be "brought out" to the terminal box. The terminal box and terminals shall be provided with more than adequate space for terminating the single three core cable, to SANS 97, at the motors.

B19.7 Thermistors and Heaters

The motors shall be provided with thermistors embedded in the windings of each phase. The thermistor tails shall be "brought out" to separate terminals mounted near the motors winding terminal block. In addition, the motors shall be fitted with "pocket" heaters. The heaters shall be mounted at the bottom of the motor frame and shall be easily replaced without dismantling the motors.

B19.8 Special Motors

Should the Bidder wish to offer different type of motors to that specified so as to obtain special starting characteristics and/or variable speed, a full technical specification of the motors shall be supplied and such specification shall be for the equipment to a standard at least equal to that of the motor specified above. In particular, no item of electrical protection shall be omitted.

B19.9 Environment Warning

Motor manufacturers are warned that the motors are to be installed in a corrosive and often damp environment. The motors shall therefore be adequately protected.

B20 EARTHING

The earthing of the mechanical and electrical plant, which includes all steel structures, bases, motors, pumps, switchboards, etc. shall be carried out in accordance with the requirements of SANS 10142-1. The minimum size of the earth continuity conductor is given as 95mm².

The Contractor shall check the existing building earthing system and if found that it does not comply with SANS 10142-1, it shall be rectified.

B21 BASE PLATES FOR MOTOR MOUNTING

B21.1 Base Plate Configuration

Both direct-coupled and belt-driven machines shall be mounted with their drivers on common cast iron or fabricated steel base plates of rigid construction.

In applications where base plates are not practical, machined soleplates, suitably fixed and grouted to the concrete plinths, shall be provided. No machine may be mounted directly onto a concrete base without the use of either a base plate or soleplate.

B21.2 Corrosion Protection

Steel base plates shall be hot-dip galvanized.

B21.3 Machined Mounting Pads

The base plate shall incorporate machined mounting pads at the support and fixing positions of each item of plant and equipment to be mounted on the base plate. On fabricated base plates this machining shall be done after fabrication, stress relieving (if applicable) and hot-dip galvanizing are complete. The thickness of the mounting pads shall be not less than 1,25 times the diameter of the holding down bolts. The pads shall not be provided with threaded holes for machine screws but shall be drilled for inserting through-bolts and adequate provision shall be made for reaching the nut with a suitable spanner. In the period between machining and installation of the equipment, the machined surface shall be protected against corrosion by a removable coating. After installation, a non-hardening compound, Tectyl or equivalent, shall be applied to exposed machined surfaces and to the crevice formed at the foot of the equipment.

The above design may be suitably modified if the Contractor uses a pour able resin based chocking system. Such chocks shall be at least 15mm thick.

B21.4 Shimming

Not more than three shims may be used at any point and these must be made of a corrosion resistant material.

B21.5 Jacking Arrangement

At least two diagonally opposed jacking screws shall be provided for belt tensioning in the case of belt-driven units. Direct-coupled motors above 10 kW shall be provided with jacking screws for horizontal alignment and direct-coupled motors above 150kW shall be provided with jacking screws for vertical alignment as well. Jacking screws shall be of grade 316 stainless steel.

Drilled and tapped flat plate is not acceptable for jacking points. A jacking point shall consist of a suitable hot-rolled steel section welded to the base plate and with a captured machine nut to accept the jacking screw.

B21.6 Grouting

Base plates shall be designed and grouted to eliminate collection points for water or dirt. Except where otherwise approved in writing by the Engineer, all base plates on concrete plinths shall be fully grouted in. Grouting holes must be provided on base plates having a continuous top plate. Tapped holes and fixing setscrew protrusions shall be suitably protected.

The material used for grouting shall be a non-shrink, cementitious grout (ABE Duragrout 1000, or equivalent). ABE Epidermix 324, or equivalent, is acceptable if the Contractor's design requires an epoxy grout to be used.

The initial grouting shall be overseen by the grout supplier's technical representative.

B21.7 Fasteners

Anchor fasteners shall be of grade 316 stainless steel with threads coated with a nickel-based, anti-seize compound before assembly.

B21.8 Alignment

Preliminary alignment of equipment mounted on base plates shall be done at the factory to ensure that the base plate has been correctly manufactured, but final alignment shall always be done on Site after installation and grouting has been completed. Alignment shall be accurate and to the approval of the Engineer and a final alignment check witnessed by the Engineer must be carried out by the Contractor prior to start up.

B21.9 Drawings

A workshop drawing of the proposed motor mounting base plates shall be prepared and submitted for approval before manufacture commences. The drawing shall be supported by calculations for the material thickness selected and the forces being countered.

A separate 16mm diameter earthing stud shall be provided on one of the webs. This web shall be located under the motor terminal box during installation.

B22 COUPLINGS/POWER TRANSMISSION

B22.1 Shaft Couplings

Shaft couplings shall be selected to reduce transmission of misalignment forces and of torsional oscillations between the driving and driven machine. Couplings shall, wherever practical, be of the rubber-tyre or rubber compression type, keyed to the shafts.

Electrometric elements shall be urethane based. Flexible metallic elements shall be of stainless steel. Couplings shall not require lubrication.

Spacer couplings shall be used in all cases where this will assist maintenance.

Coupling guards shall comply with the requirements of the OHS Act and shall be to the approval of the Engineer.

After installation, the alignment of all couplings shall be checked by the Contractor in the presence of the Engineer or a person delegated by him. Alignment shall be accurate and to the approval of the Engineer.

B22.2 Motor Driven Gearboxes

Gearboxes shall, unless otherwise specified, be supplied with environmental protection to IP 55.

Gearboxes shall be selected using a service factor of 1,75 based on the drive rating and shall have an efficiency of not less than 96% on two stage reduction and 95% on three stage reduction.

Gears shall be case hardened, profile ground and lapped, helical and spiral bevel gears.

Roller bearings shall be used throughout. Bearings shall be designed for an L₁₀ life in excess of 100 000 hours.

The gearbox housing shall be of rigid cast iron construction preferably split in the horizontal plane.

A breather designed to prevent moisture from entering shall be fitted.

Oil-bath gearboxes shall have suitable oil level indicators or dipsticks. Unless otherwise decided by the Engineer, the drain from the gearbox shall be extended beyond the base so that the oil can be easily collected. The drain line shall be of grade 316 stainless steel and shall be fitted with a ball valve and square-head plug.

Each gearbox shall be mounted on machined sole plates fitted with jacking screws to assist with alignment.

B22.3 Alignment of Motor/Pump

The Contractor shall align the motor / pump utilizing a laser alignment device. Should the Contractor not be in possession of this device, he shall make use of the services of a specialist sub-contractor. Nonetheless, this Council requires a certificate confirming that the alignment has been undertaken.

B23 DISTRIBUTION TRANSFORMER (NOT USED)

The Contractor shall supply and install a new 800kVA 11kV/400V Transformer within the allocated area as depicted on the Layout Drawings. The Contractor shall allow for the design, supply and installation of a new Transformer slab/plinth or a modification of the existing slab (Ref. Drawing No. EAM-EE-2011-009 Sh1)

The equipment will be connected on the primary side to a 50 Hz, three-phase system having a fault level of 350 MVA and a nominal voltage of 11 kV (operating at 11,5 kV), as specified.

The system highest voltage will be 12,5 kV.

The secondary (LV) side of the equipment will be connected to a three-phase 4-wire system having a nominal voltage of 231/400 V.

A test certificate shall accompany the Transformer in line with those spelt out under SANS 780.

The impulse and short circuit voltage tests shall be undertaken by a recognized test authority.

RMU exists on site adjacent to the transformer supplying Station no.1 and shall be connected via an MV cable connecting to the miniature substation offered.

All insulating oil shall be tested to SANS 555.

The Transformer shall have the Manufacturer's quality control inspection sheet detailing the exact materials and equipment fitted available for inspection by the Engineer.

In addition the Engineer reserves the right to request any additional documentation as may be required to confirm the validity of the equipment offered.

The Transformer shall be to the following Specification and shall conform fully to the requirements of the MUNICIPAL INFRASTRUCTURE SUPPORT AGENT Electricity Department's Specifications.

"800kVA Distribution Transformer"	
Construction Details	
Corrosive conditions	Coastal Corrosive
Construction	Modular
Sheet Metal	3CR12 metal
Base	Steel
Colour	Avocado C12
Transformer	
kVA Rating	500kVA
Nominal primary voltage	11500 volts
No load secondary voltage	420 volts
Number of phases	Three phase
Frequency	50 Hz
Vector Group	Dyn 11
Off Load Voltage Tap positions	+5%, +2.5%, 0%, -2.5%, -5%
Low Voltage Transformer Neutral Earthing	Solid Connection to insulated LV neutral / earth bar
Transformer MV Bushings	BS 7215 – Type C with M16x2 thread
Oil Level Indicator	NOT Required

Transformer Winding Material	Copper
Overload Shunt Trip - Over Temperature	Required
Sealed Transformer Unit	Hermetically sealed
Cooling	ONAN
LV Equipment	
Bus Bar	Tinned, Rating as Shown on the Drawings
LV Maximum demand Meters	Ammeters required for all three phases
LV Voltmeter	Required with 3 position selector switch
Main Circuit Breaker	800A Three Phase
LV Panel Designed for Vertical fuse bases or MCCB	MCCB's
LV Breaker Ratings	One off NS800N fitted with 252-800A STR53UE F trip unit
220V, 16A Switch Socket Outlet	Including for instantaneous trip earth leakage unit and 20A HRC fuse with neutral fuse link
Terminations	Unistrut for K-Clamp terminations for 300mm ² single core (Cu) conductors

B24 TRANSFORMER SLAB

The Contractor shall employ a registered Civil Engineer to check if the existing slab can be modified or for the design of the new slab to suit the transformer offered. All design data shall be handed over to the Engineer for his approval before any work is to be undertaken.

If the existing transformer slab cannot be modified, it shall be demolished and be replaced in the same position with the new transformer slab for the new proposed transformer as indicated on the drawing (Ref. Drawing No. EAM-EE-2011-009 Sh.1)

B25 CABLE TRAYS/GRIDSPAN AND LADDERS

All cable trays and cable gridspan shall be manufactured from stainless steel unless otherwise specified. Stainless steel with an index, minimum 304L for gridspan and 316L for cable trays shall be used.

Each length of cable tray or cable gridspan shall be fixed to a continuous hot-dip galvanised ladder system, anchored or fixed to structures that are capable of bearing the expected mass of cables and other items of electrical equipment. The ladder system shall be fabricated in de-mountable sections from uniform angle and rectangular (flat) sections of equal thickness.

The Contractor shall submit detailed drawings and information and indicate brand specifications for all items intended to be used for this particular installation.

Only stainless steel anchor bolts are to be used. Anchor bolts shall be suitably sized to bear all intended masses that are secured to masonry and concrete structures.

Ladder systems for the cable tray and gridspan, shall be installed plumb and true to line.

Holes drilled into galvanised items shall be painted with cold galvanising rust inhibitor.

B26 TESTS AND INSPECTIONS TO BE CARRIED OUT

The Contractor shall carry out any tests, which, in the opinion of the Engineer, are necessary to determine that the electrical work complies with the Drawings, the Specification, SANS 780 and SANS 10142-1.

Wherever possible before dispatch from the factory, all plant and equipment shall be tested for performance and materials quality and such tests shall include those necessary to satisfy the

Engineer that the specified and guaranteed results will be obtained after erection of the plant on site.

The fact that the plant and equipment has satisfactorily passed any test made at the Contractor's works shall in no way lessen the responsibility of the Contractor to obtain the same results after it has been delivered and erected permanently on site.

B27 ABLUTION FACILITIES ONSITE

The Contractor shall supply at least two portable chemical toilets onsite for all Contracting staff as specified in the Clauses of the Environmental Management Specification.

B28 EQUIPMENT APPROVAL

Bidders are required to provide full details of the electrical and mechanical equipment proposed for installation in the project.

Bidders shall also state the names of suppliers and manufacturers of the switchboard, instrumentation equipment, etc.

The Engineer reserves the right to accept or reject any equipment offer made and, if equipment is rejected, to call upon the Bidder to submit further details of similar or more suitable equipment, without affecting the tender price.

Furthermore, as the work proceeds the Contractor shall submit samples or technical literature, of all equipment, for approval, prior to purchase and installation.

The Contractor shall submit detailed working drawings of all cubicles, boxes, boards, panels, brackets, trays, etc. to the Engineer for approval prior to manufacture. The drawings shall be not less than A2 in format and shall clearly indicate the principal dimensions. At least two cross sections shall be provided on the drawings. Door and cover plate details shall be given, together with hinges and catches.

The work may not proceed until the drawings have been properly scrutinised and approved.

The lead-time for approval of drawings shall be not less than six (6) days and not more than twelve (12) days from the date of receipt. The Contractor shall make the necessary allowance for this in his work program.

B29 SCHEDULE OF EQUIPMENT

A complete list of fittings and other equipment intended for use on this Contract is to be submitted with the tender. This list shall contain manufacturers' names, catalogue numbers, etc. Where any item offered is not to specification it may invalidate the Tender.

Should any item supplied after acceptance of this Tender, not comply with the specification, an alternative which meets the specification is to be approved by the Engineer and provided at no additional cost to the Council.

B30 SAMPLES OF EQUIPMENT TO BE SUPPLIED AND INSTALLED

The Engineer reserves the right to call for samples of the equipment offered, to inspect the workmanship as the work proceeds and to either accept or reject the equipment, or workmanship. The Engineer's approval of the design, materials and workmanship shall in no way reduce the Contractor's liability to provide a complete and proper working plant which is abreast with modern technology.

All such samples may be retained until issue of the Taking-over Certificate. All such samples shall have securely attached thereto labels designating the Contract by name and number (if any), the name of the Contractor and any further relevant information.

Unless where specified and agreed to IN WRITING, all equipment supplied by all parties shall be new and unused.

B31 EVERYTHING NECESSARY

The Contractor will be deemed to have visited the site and to have satisfied himself as to the nature of the work, to have acquainted himself with any limitations which may be imposed upon him and to have provided for any additional costs which he may consider necessary for the proper completion of the work. No claim will be recognised or considered after submission of price on the grounds of lack of knowledge of site conditions or limitations.

The installation shall include everything necessary whether specified in detail or not and shall be carried out in the best possible way to ensure a complete and first class installation to the approval of the Engineer.

B32 UNIFORMITY

All items of the same type of equipment shall where at all possible, be of the same make and type for each item throughout the installation, to ensure interchange ability and ease of maintenance.

B33 DELIVERY

The Contractor must co-ordinate the delivery dates for all items of equipment supplied by him to allow adequate time for installation, commissioning and testing prior to contract completion.

To this end, the Contractor must ensure that shop drawings are presented to the Engineer for approval timeously, and a programme of submission of such drawings must be approved by the Engineer as specified in the Scope of Work.

Documentary proof is to be supplied of the placing of all orders for equipment having a protracted delivery period. No substitution of specified items will be allowed due to the late placing of orders, and no delay claims in this regard will be entertained.

B34 CONTRACTOR'S STAFF

The work shall be done by, or at all times be under the personal supervision of an installation electrician appointed in writing by the Contractor as the Responsible Person, in terms of the requirements of the Machinery and Occupational Safety Act. This person shall be available during working hours, and shall be experienced in projects of the type specified.

The Engineer may, if he deems fit, require that the Contractor removes or causes to be removed an employee of his from the specified premises by virtue of that person's incapability, appearance or any such reason which in the opinion of the Engineer, is valid.

At all times while on the specified premises, all artisan and labourer members of the Contractor's staff shall wear clothing adequately marked with the Contractor's name or acceptable identification.

B35 INSPECTIONS, TESTS, MEETINGS AND COMMISSIONING

General

Should any tests or inspections be required outside of the Cape Metropolitan Area, the Bidder shall allow in his Tender price for all costs (travel, accommodation, subsistence, etc) for two persons to attend such tests or inspections.

In the event of the MUNICIPAL INFRASTRUCTURE SUPPORT AGENT's staff requiring accommodation and prior to any bookings that may be required by the Contractor, the Contractor shall forward details of proposed accommodation to the Engineer for his approval.

The Engineer shall approve any vehicles that are to be hired for MUNICIPAL INFRASTRUCTURE SUPPORT AGENT staff prior to any bookings that the Contractor may be required to arrange.

The Contractor shall price for the hire of a 1600cc, four door vehicle with GPS equipment.

The fact that the plant and equipment has satisfactorily passed any test made at the Contractor's works shall in no way lessen the responsibility of the Contractor to obtain the same results after it has been delivered and erected permanently on site.

Tests

The Contractor shall notify the Engineer at least 2 weeks in advance, should his presence be required for inspections or witnessing of tests.

Continuity, phase rotation and pressure testing shall be undertaken by the Contractor, to the Engineer's specifications, prior to energising any equipment.

Inspections

Works acceptance (function) tests shall be performed, which shall be witnessed by the Engineer and the Client or the Engineer's representative.

In the event that tests fail, the Contractor shall be required to perform such tests again. Should these tests require the Engineer to be present again, the Engineer's cost for time and travel shall be recovered from the Contractor at rates as set out by Consulting Engineers South Africa.

All test certificates required in terms of the current SANS regulations shall be furnished before the project can be completed. These shall also be bound into the operating and maintenance manuals.

Meetings

It is expected that the Contractor will be represented at every Project Meeting during the contract.

The Contractor shall make provision in his pricing for site / technical meetings.

B36 INSTALLATION, OPERATION AND MAINTENANCE MANUAL

Miscellaneous

The Manual shall comply with the following:

- (a) A Manual for the complete Works (covered by this specification) is required.
- (b) Two copies of the Manual shall be provided prior to commissioning of the Works. One copy shall be submitted for acceptance by the Engineer and will be returned to the Contractor. The second copy will be used by the operational staff on Site during commissioning. Unless otherwise specified, six copies of the final version of the Manual shall be provided prior to the end of the Operational Acceptance Period.

- (c) The Manual shall be of a standard acceptable to the Engineer. At least one set shall contain original copies and this set shall be marked "Original". The other sets shall be marked "Copies 2 to 6".
- (d) Binders shall have hard, plastic protected covers utilising four-ring, spring-clip holders. Sufficient binders shall be used to make each volume easy to use. One spare, empty binder shall be provided for every three used. A title label shall be affixed to the spine of all binders. This shall indicate contract number, title and location, Contractor's name and, where required, plant description, volume number and contents.
- (e) Labelled separator sheets shall be provided between each section and sub-section and also wherever volume or complexity make this advisable.
- (f) The Manual shall be in English, shall be easy to use, practically and neatly presented, clearly sectionalised and titled, provided with a Contents List and shall be specifically applicable to the system as installed.
- (g) Where standard equipment manuals are used in any sections, these shall be marked up to be unambiguously applicable to the equipment installed and marking up shall be done in a manner which will be transmitted to photocopies.
- (h) All sections and sub-sections shall be numbered. Numbering of the Contents List shall be sequenced so that no two sections have the same number.
- (i) Drawings shall be to a scale, which makes all details clear. Drawings shall be held in plastic envelopes in the Manual. Drawings shall also be provided on CD disk in AutoCAD format.
- (j) Where practical, each section shall form a separate volume.

The Manual shall be divided into sections and shall include the information described below.

Section 1 - General

The following shall be provided:

- (a) Contents List for the complete Manual. This shall consist of:
 - an overall contents list.
 - detailed contents list in front of each section and/or sub-section.
 - a comprehensive list of all drawings.
 - The Contents Lists shall be structured so as not to be affected if volumes are added or subtracted from the Manual.
- (b) Equipment List for all individual items of mechanical, electrical, instrumentation and control equipment. The Equipment list shall include the description, make, model, serial number, batch number, size, range, performance data, motor and drive details, supplier's name, address and phone numbers, all as applicable. The design duty, the position of the unit's installation and its design purpose in the system shall be given. A schedule of corrosion protection systems used shall be provided for fabrications such as tanks, supporting structures, clarifier bridges, etc.
- (c) Drawing list of all Contractor's and Tender drawings.
- (d) Cable schedule for power and instrumentation cables. This shall include the cable type, start and finish points, route length, duty, load, size, voltage drop, number of cores, number of cores used and gland size. For cable voltages above 400 Volts, the schedule shall also include the purchase details, specification and date of manufacture.
- (e) Drawings:
 - ⌘ cable routes.

Section 2 – Process, Operation and Control

The following shall be provided:

- (a) Description of plant and process design and including all design parameters.
- (b) A description of each system supported by drawings, process flow or circuit diagrams and explanatory sketches to assist operating staff.
- (c) Description of control system, including control panels, as applicable and including controls, instruments, settings, indications, alarms, trips, etc. Functional Specification. List of protections, including description, sensor, operating limits, settings, etc.
- (d) Straight forward, step by step, initial start up instructions for commissioning. These shall include operating steps, precautions, settings, adjustments, observations, etc.
- (e) Normal start up, adjustment, operating and shut down procedures for the system as installed and including settings, adjustments, observations, etc. The procedures shall highlight any safety precautions to be observed.
- (f) An Instrument List giving a description of the duty as well as the serial number, normal operating reading, maximum or minimum permissible readings, set-points (activation, warning and trip), etc.
- (g) Trouble-shooting guide, including symptoms, causes and solutions.
- (h) Drawings:
 - ✦ as-built system, layout and GA drawings.
 - ✦ plant circuit or flow diagrams and P&IDs.
 - ✦ control panel layouts.
 - ✦ system control diagram and logic sequence chart, as applicable.

Section 3 - Maintenance Schedules

The following shall be provided for all mechanical, electrical, instrumentation and control equipment:

- (a) A comprehensive lubrication schedule of recommended and initial lubricants, capacity, lubrication periods, etc., for all items.
- (b) A comprehensive maintenance schedule of routine maintenance by time period for the new installation and including information for individual items.

These schedules may cross-refer to supplier's standard manuals.

Section 4 - Mechanical Equipment

The following shall be provided for each item of mechanical equipment:

- (a) A copy of the information applicable to the item and appearing in the Equipment List.
- (b) A separate table containing the unit's nameplate information, or, a photograph of the nameplate.
- (c) Technical and descriptive literature, including principle of operation and construction.
- (d) Installation instructions.
- (e) Detailed operating instructions.
- (f) Control and electrical details, including logic sequence, circuit diagrams and software, as applicable.

- (g) Full technical and maintenance information including instructions for assembly, disassembly, lubrication, adjustment, calibration, reconditioning, repair, etc.
- (h) A spares list giving the item number, part number, description, quantity and materials. A list of recommended spares.
- (i) Factory and Site test results.
- (j) Corrosion protection systems used, coating supplier's data sheets and coating repair procedures.
- (k) Drawings:
 - ✦ performance curves.
 - ✦ layout drawings.
 - ✦ large scale, dimensioned, cross sectional and arrangement drawings of the item for assembly and spares recognition purposes, cross-referenced to the spares list.
 - ✦ dimensioned drawings of fabricated equipment.
 - ✦ circuit layout of any auxiliary systems.

Section 5 - Electrical Equipment

The following shall be provided for each item of electrical equipment:

- (a) A copy of the information applicable to the item and appearing in the Equipment List.
- (b) A separate table containing the unit's nameplate information, or, a photograph of the nameplate.
- (c) Technical and descriptive literature, including principle of operation and construction.
- (d) Control and electrical details, including logic sequence, circuit diagrams and software, as applicable.
- (e) Installation instructions.
- (f) Detailed operating instructions.
- (g) Full technical and maintenance information including instructions for assembly, disassembly, lubrication, adjustment, calibration, reconditioning, repair, etc.
- (h) A spares list giving the item number, part number, description, quantity and materials. A list of recommended spares.
- (i) Factory and Site test results.
- (j) Drawings:
 - ✦ equipment overall dimensions.
 - ✦ circuit diagrams.
 - ✦ switchboard layout drawings and SLDs.
 - ✦ electrical panel construction drawings.

Section 6 - Instrumentation Equipment

The following information shall be provided for each item of instrumentation equipment:

- (a) A copy of the information applicable to the item and appearing in the Equipment List.
- (b) A copy of the relevant information in the table of instrumentation in the sub-clause "Operation Section" and including all settings.
- (c) Installation instructions.

- (d) Descriptive and technical literature giving full details of performance, operation, calibration, setting, service, maintenance and spares including suitable assembly drawings.
- (e) Technical and descriptive literature, including principle of operation and construction.
- (f) Control and electrical details, including logic sequence, circuit diagrams and software, as applicable.
- (g) Factory test results.
- (h) Full technical and maintenance information including instructions for assembly, disassembly, lubrication, adjustment, calibration, reconditioning, repair, etc.
- (i) Drawings:
 - ✦ circuit diagrams of both instrumentation systems and individual instruments.
 - ✦ overall dimension and installation drawings.

Section 7 - Control Equipment, Network and Software

The following shall be provided:

- (a) A copy of the information applicable to the item and appearing in the Equipment List.
- (b) Cross-referenced listing of all I/O used.
- (c) An annotated program listing.
- (d) Loop drawings showing field terminal numbers, marshalling terminal numbers and PLC rack/slot/terminal numbers.

Section 8 - Drawings

All drawings not filed elsewhere shall be filed in this section.

B37 MAINTAINING THE WORKS DURING THE DEFECTS NOTIFICATION PERIOD

The Contractor shall maintain the whole of the works covered by this specification for a period of 365 days or any extension thereof.

B38 ANNEXURES

The Contractor shall carefully and accurately complete Annexure “A” providing all details of the equipment offered.

B39 VARIATIONS

The Bidder shall complete the Schedule of Rates for Electrical Variations which he would be prepared to accept as a basis for the valuation of extras and omissions where applicable. Refer Section C2.3 of Volume 2.

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WATER AND SANITATION

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MUNICIPALITY IN THE KWAZULU NATAL PROVINCE**

SECTION C

DETAILED ELECTRONIC SPECIFICATION

(Not used)

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SECTION D

STANDARD SPECIFICATION FOR MECHANICAL WORKS
(INCLUDING GENERAL WORKS)

(Not used)

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SECTION E

STANDARD SPECIFICATION FOR ELECTRICAL WORKS

(Not used)

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SECTION F

STANDARD SPECIFICATION FOR ELECTRONIC WORKS

(Not used)

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SECTION G

HEALTH AND SAFETY SPECIFICATION

Responsibility for health and safety relating to the Works lies with the Contractor as described in this Specification. Nothing stated in or omitted from this Specification shall in any way limit the Contractor's obligations and liabilities in terms of the Occupation Health and Safety Act, 1993 (Act No. 85 of 1993).

G1 GENERAL

G1.1 Scope

This Health and Safety Specification is a requirement of the Construction Regulations, 2003, published in terms of the Occupation Health and Safety Act, 1993 (Act No. 85 of 1993) and covers the principles, responsibilities and requirements applicable to health and safety for this Contract.

G1.2 Definitions

For the purposes of this Specification, the definitions given in the OHS Act and the Construction Regulations, 2003 (as defined below) and the following definitions, shall apply:

- (a) "OHS Act" shall mean the Occupational Health and Safety Act, 1993 (Act 85 of 1993).
- (b) "Construction Regulations, 2003" shall mean the Construction Regulations (GNR. 1010 of 18 July 2003) published in terms of the OHS Act.
- (c) "General Safety Regulations, 1986" shall mean the General Safety Regulations (GNR. 1031 of 30 May 1986) published in terms of the OHS Act.

G2 Occupational Health and Safety Act

The Contractor shall comply with, and ensure that all staff members are familiar with, the requirements of the OHS Act, the Construction Regulations, 2003, and all other applicable regulations of the OHS Act.

ADMINISTRATION

G2.1 Personnel

Before commencing any work on Site, the Contractor shall submit a copy of the written appointment of the following personnel to the Engineer:

TITLE	AS DESCRIBED AND APPOINTED IN TERMS OF
Designated Person	Section 16(2) of the OHS Act
First Aider and Emergency Equipment & Procedure Co-ordinator	Clause 3 of the General Safety Regulations, 1986
Incident Investigator	Clause 8(2) of the General Administrative Regulations
Construction Regulations, 2003	

Construction Supervisor	Clause 6(1)
Assistant Construction Supervisor	Clause 6(2)
Construction Safety Officer	Clause 6(6)
Construction Site Risk Assessor	Clause 7(1)
Excavation Work Supervisor	Clause 11(1)
Material Hoist Inspector	Clause 17(8)(a)
Construction Vehicle and Mobile Plant Inspector	Clause 21(1)(j)
Temporary Electrical Installation Controller	Clause 22(e)
Stacking and Storage Supervisor	Clause 26(a)
Fire Fighting Equipment Inspector	Clause 27(h)

G2.2 Insurance

The Contractor shall ensure that all staff members are covered for Compensation in terms of the Occupational Injuries and Diseases Act, 1993 (Act 130 of 1993) during the full Contract Period.

G2.3 Notices

The following information shall be conspicuously posted in the offices of the Contractor for the duration of the Contract:

- (a) Telephone numbers of emergency services.
- (b) Contractor's Health and Safety Management Structure with all names and contact numbers of relevant personnel.
- (c) The name of the person in charge of the first-aid box as well as where the first-aid box is kept, in accordance with the General Safety Regulations, 1986.
- (d) All wayleaves and permits applicable to the Works.

G2.4 Health and Safety Plan and Risk Assessment

Before starting work on Site, the Contractor shall submit the construction phase Health and Safety Plan to the Engineer for acceptance. The Engineer's acceptance shall not relieve the Contractor of any obligation or liabilities in terms of the OHS Act.

A copy of this approved Health and Safety Plan shall be available on Site at all times and shall be updated on an on-going basis as the work progresses.

The Health and Safety Plan shall cover issues relevant to the Works, including (but not limited to) the following:

- (a) The Health and Safety Management Structure, with all names and contact numbers of relevant health and safety personnel appointed in writing.
- (b) Risk Assessment (see below).
- (c) Personal protective equipment and clothing required.
- (d) Emergency procedures.
- (e) Workers' welfare facilities.
- (f) Details of workers' health and safety induction training.
- (g) Product manufacturer's data sheets, hazard & safety information sheets, etc.
- (h) Proposed checklists of plant, tools, equipment, etc.

In terms of Clause 7 of the Construction Regulations, 2003, the Risk Assessment shall include at least the following:

- (i) Identification of risks and hazards to which persons may be exposed (refer to G5),
- (j) The analysis and evaluation of the risks and hazards identified,
- (k) Documented plan of safe work procedures to mitigate, reduce or control the risks and hazards that have been identified,
- (l) Monitoring and control measures to ensure compliance with the Health and Safety Plan,
- (m) A review plan.

The Contractor's Risk Assessment shall relate to his intended method of construction and programming of work.

G2.5 Record Keeping

The Contractor's Health and Safety File shall be kept on Site and shall be made available to the Engineer upon request.

The Contractor shall conduct formal enquiries into incidents and shall submit incident reports to the relevant authorities and the MISA as specified in the OHS Act.

Upon completion of the Works, the Contractor shall hand over the Health and Safety File records, in good order and complete in every respect.

G2.6 Health and Safety Meetings

The Contractor shall have Health and Safety Meetings at least once a month and the minutes of such meetings shall be included in the Health and Safety File.

G3 SITE MANAGEMENT AND RULES

G3.1 General

The Contractor shall:

- (a) ensure that access to the Site is strictly controlled and that only authorised persons are permitted on Site,
- (b) ensure that no firearms, alcohol or other intoxicating substances are brought onto Site and prevent staff under the influence of intoxicating substances from entering the Site,
- (c) maintain a neat and tidy workplace,
- (d) provide all required safety notices and signage,
- (e) provide and maintain adequate staff welfare facilities on Site,
- (f) generally manage and maintain the Site to ensure a safe and healthy environment for both employees and all other persons.

G3.2 Work Permits and Wayleaves

The Contractor shall ensure that, where required, work permits and wayleaves are in place prior to commencing work.

The Contractor shall document his applications for work permits and wayleaves (i.e. date, to whom etc.) and the obtaining of wayleaves and permits shall be indicated on his programme.

G3.3 Signage

Signage as required by the OHS Act shall be posted at suitable places on Site for the duration of the Contract.

G3.4 Co-operation with the MUNICIPAL INFRASTRUCTURE SUPPORT AGENT

The Site falls within boundaries of the Mthamvuna Pump Station, Mthamvuna. The Pump Station will be operational throughout the Contract and the Contractor shall ensure that:

- (a) staff co-operate with all the Pump Station's staff,
- (b) the MISA's rules are adhered to by staff,

- (c) staff are familiar with and comply with all the Pump Station's emergency procedures,
- (d) activities do not adversely affect the health and safety of all the Pump Station's staff.

G4 PLANT AND EQUIPMENT

G4.1 First-Aid

The Contractor shall ensure that an appropriate first-aid box is present on Site at all times, in compliance with the General Safety Regulations, 1986.

G4.2 Fire Fighting Equipment

The Contractor shall ensure that at least one fire extinguisher, in good working order, or firefighting equipment as otherwise specified in the Environmental Management Specification, is available on Site.

G4.3 Construction Tools, Plant, Vehicles and Temporary Works

All such plant and equipment shall be certified "safe for use" as contemplated in the OHS Act and the certificate shall be made available to the Engineer on request.

All plant and equipment shall be rigged and installed by qualified artisans under the supervision of competent persons. All tools and equipment shall be in good working order and "fit for purpose". All rigging and lifting equipment shall comply with the requirements of the OHS Act.

G5 Personal Protective Equipment (PPE) and Clothing

The Contractor shall ensure that all workers are issued with and wear PPE at all times required.

PROJECT SPECIFIC RISKS AND HAZARDS

G5.1 Identification of Risks and Hazards

Care has been taken below to describe potential hazards specifically associated with the work required under this Contract, but it cannot be guaranteed that all have been identified and the Contractor is not relieved of the obligation in terms of Clause 7 of the Construction Regulations, 2003 to identify, analyse and evaluate all risks and hazards which may be present. This analysis by the Contractor must relate to his intended method of construction and programming of work.

G5.2 Environmental Risks and Hazards

G5.2.1 Animals

Not used.

G5.2.2 Noise

Not used.

G5.2.3 Weather Conditions

Not used.

G5.2.4 Services

Not used.

G5.3 Falling

The Works include work which will require caution when carried out near or over wet wells and screw conveyers, and when working on scaffolding.

G5.4 Earthworks

Not used.

G5.5 Material Hoists and Cranes

The Works include work which might require the use of mechanical handling equipment.

G5.6 Electrical Installations

The site is currently supplied from an 11kV switch yard and next to the Pump Station via the RMU to the existing Transformers feeding Stations No's 1 and 2.

As the site is operational for 24 hours a day 7 days a week, it is essential that the Contractor exercises extreme care when working with live boards, etc. when making connections to live equipment.

All Electrical Safety Regulations shall apply.

G5.7 Manual Handling

The Contractor's attention is drawn to the danger of injury resulting from the handling of heavy items especially when being handled above ground level and on scaffolding.

G5.8 Confined Spaces

The Contractor must be aware that he will be working in confined spaces on the sites.

G5.9 Hazardous Substances

Not Used

G5.10 Falling Items

The Contractor shall take note of the danger of falling items when work is being performed above ground level.

G5.11 Painting Activities

The Contractor shall be responsible for ensuring the safety of workers and Plant operational staff on the Site and especially in the proximity of the surface preparation and painting operations to the extent that they are endangered by the execution of the Works. The Contractor shall be responsible for the containment of surface preparation residues.

The Contractor shall ensure that solvents are suitably contained at all times. The Contractor shall ensure that no personnel required to work with solvent containing coatings are exposed to solvent levels above the Threshold Limit Value (TLV).

The Contractor shall provide employees with the required safety equipment in terms of the

Occupational Health and Safety Act, respirators with relevant filters, dust masks, general eye protection, hand protection, safety shoes, hard hats and suitable overalls as appropriate. **Painting Equipment**

All air receivers, moisture traps and pressurised equipment used for blasting and/or spray painting shall comply with the statutory requirements.

G5.12 Paint and Flammable Storage

All safety precautions and statutory regulations relating to flammable storage must be complied with, including:

- (a) The provision of adequate and suitable fire extinguishers placed outside the entrance in a prominent position.
- (b) No smoking signs and a prohibition on smoking.
- (c) A separate store shall be provided for tools, equipment and protective clothing.
- (d) The flammables store shall not be used to accommodate personnel at any time.

C3.2 GENERAL REQUIREMENTS

3.2.1 Management requirements

- a) The Contractor shall in providing the Works observe all statutes, by-laws and associated regulations and industry norms established in relevant South African national standards published in terms of the Standards Act of 2008 or standards recommended by professional associations.

3.2.2 Construction Materials

The Contractor shall only incorporate in the works materials (substances that can be incorporated into the works), products (item manufactured or processed for incorporation into the works), components (products manufactured as distinct units to serve a specific function or functions) and assemblies (set of related components attached to each other) which are:

- a) Fit for their intended purpose, and
- b) Capable of fulfilling required functions under intended use conditions or when in use, with planned maintenance, under the influence of the environmental actions or a result of a self-ageing process for a period of time within industry accepted norms.

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C3.3 MANAGEMENT

3.3.1 General

The Contractor shall:

- c) Provide a fortnightly progress report covering the Scope or Works.
- d) Be required to participate in regular progress meetings with the client and other stakeholders.

3.3.2 Health and safety

The Contractor shall manage health and safety in accordance with the latest edition of the MISA Occupational Health and Safety Specification for Construction Works Contracts (see Annexure 2).

3.3.3 Completion strategy

- a) The Contractor shall develop a completion strategy to minimise the correction of defects after Completion and to achieve Completion on or before the Completion Date. Such a strategy shall include a systematic approach to ensuring that employees and subcontractors search for defects as the work progresses, programme their work in such a manner that defects are corrected ahead of Completion and sufficient time is allowed for commissioning.
- b) The completion strategy should be framed around the systematic acceptance and / or testing of materials, plant, workmanship and subsystems as the works proceed in order to address issues ahead of completion and the allocation of tasks to ensure satisfactory completion.

3.3.7 Communications

All communications with the Employer which are made in terms of the contract should be made using the standard templates provided by MISA.

3.3.9 Invoices

Invoices submitted shall be a Tax invoices. The invoice shall comply with requirements, if any, established by the Employer.

Detailed payment certificates, clearly indicating progress on payment items shall be submitted for approval before any invoice shall be issued. Separate payment certificates shall be submitted for the engineering and construction deliverables. Payment will be according to actual verified progress.



MUNICIPAL INFRASTRUCTURE SUPPORT AGENT

Cooperative Governance & Traditional Affairs

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PART C4: SITE INFORMATION

PART C4.1: Location of the Ray Nkonyeni Local Municipality



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PART C4.2: Location of Works

