



NDLAMBE MUNICIPALITY

TENDER DOCUMENT

FOR

REFURBISHMENT OF KENTON ON SEA WWTW

CONTRACT REFERENCE NO: 134 /2020 (WSIG2020-006)

BIDDER'S NAME:	
TENDERED AMOUNT INCL. VAT.	
CLOSING DATE:	4 SEPTEMBER 2020
CLOSING TIME:	12H00
OFFER VALIDITY:	90 DAYS

PREPARED BY:

NDLAMBE LOCAL MUNICIPALITY

47 CAMPBELL STREET

PORT ALFRED

6170

CONTRACT REFERENCE NO: 134 /2020 (WSIG2020-006)

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SUPPLIER____ Witness 1 _____ Witness 2 _____ CLIENT _____ Witness 1____ Witness 2____

Part T1.2: Tender Data

T1.1 TENDER NOTICE AND INVITATION TO TENDER



NOTICE TO TENDER TENDER NOTICE & INVITATION TO TENDER FOR SUITABLE CONTRACTORS PROJECT NAME: REFURBISHMENT OF KENTON ON SEA WWTW

Tenders are hereby invited from suitably qualified service providers for the Supply and Installation of the following:

PROJECT NAME	TENDER NO	PPPFA	CIDB GRADING	CLOSING DATE & TIME
REFURBISHMENT OF KENTON ON SEA WWTW	NOTICE NO: 134 /2020 (WSIG2020-006)	80/20	3ME or Higher	04/09/2020 12h00

Only Tenderers with a Construction Industry Development Board (CIDB) minimum grading as indicated above will be eligible to tender.

The project scope includes the following but not limited to:

REFURBISHMENT OF KENTON ON SEA WWTW

- Inlet Works (deep clean, flow measurement, refurbishment of sluice gates)
- Refurbish package plant mechanical and electrical equipment (Aerators, pumps, etc.)
- Outlet (flow measurement, chlorine dosing)
- Thorough clean of the WWTW
- Furnish and maintain operator's office
- Maintenance of fence

Tender documents may be collected from the Ndlambe Supply Chain Offices, 44 Campbell Street, Port Alfred, 6170, from **Thursday 20th August 2020 until Thursday, 3rd September 2020** (Office hours 08h00 until 16h00). A non-refundable cash deposit of **R222.60** for each document is required OR can be downloaded on the Municipal website at NO CHARGE. Bid Documents will only be issued on a receipt obtained from the cashier's office at Ndlambe Local Municipality and on collection bidders will be required to sign an attendance register

Due to Covid-19 regulations **NO COMPULSORY briefing session** will be held through the zoom meeting and bidders who wish to attend the tender briefing should indicate via email at wsigprojects@ndlambe.gov.za and the Municipality will forward them the ID for the virtual meeting.

Details of the meetings are:

Venue: Join Zoom Meeting

Date: Tuesday, 25 August 2020

Time: 10h00

Completed tender documents in sealed envelopes clearly written on the outside the **project name and tender number (134 /2020 (WSIG2020-006))** must be placed in the tender box at Supply Chain offices at No. 44 Campbell Street, Port Alfred by no later than **12:00 on 4th September 2020** (as indicated on the table above). Bid opening register will be forwarded to all bidders on the same day and the opening meeting will be conducted through zoom for transparency. Interested bidders who

SUPPLIER _____ Witness 1 _____ Witness 2 _____ CLIENT _____ Witness 1 _____ Witness 2 _____

would like to witness the tender opening should indicate via email and the municipality will forward them the ID for the virtual meeting.

BIDS WILL BE EVALUATED ON THE BASIS OF RESPONSIVENESS FIRST THEN FUNCTIONALITY AND ONLY RESPONSIVE BIDS WILL BE EVALUATED ON PRICE.

Functionality: 100 points, Minimum qualifying points will be 70 for further evaluation.

ITEM	Weight
STAGE 1 OF EVALUATION – FUNCTIONALITY	
Functionality	100
• Methodology and Programme	20
• Expertise	40
• Company Experience	40
STAGE 2 OF EVALUATION – PRICE & B-BBEE	
B-BBEE	20
Price	80
TOTAL	100

FUNCTIONALITY – PRE-QUALIFICATION

The following functionality criterion is to be utilized. A minimum threshold obtaining a total score above **70%** will be evaluated in terms of price and BBEE.

BIDDERS SHALL TAKE NOTE OF THE FOLLOWING CONDITIONS:

- Bidders will be adjudicated in accordance with the Municipality Supply Chain Management Policy and in terms of Preferential Procurement Policy Framework Act and new regulations of 2017 and will be based on price only.
- Prices must be valid for at least ninety (90) days from the closing date (confirmation hereof to be stated on quotation).
- Prices quoted must be firm and must be inclusive of VAT (in case of non VAT vendor, an awarded bidder will be force to comply with VAT).
- Ndlambe Local Municipality does not bind itself to accept the lowest bid or any other bid and reserves the right to accept the whole or part of the bid.
- Bids that are late will not be considered, whilst the lowest or only quotation will not necessarily be accepted. Quotations per fax or E-mail will also not be considered.
- An original tax clearance certificate issued by SARS must accompany all quotations OR a tax reference number and PIN or TCC number must be provided.
- The following forms (which are obtainable from the Supply Chain Management Offices in Campbell Street) are required to be completed and submitted together with the bid: MBD4, MBD8, MBD9, MBD6.1 as well as an original certified copy of the proof of B – BBEE status level contributor (Certificate or Affidavit).
- In case of the joint Venture, a memorandum of agreement indicating the level of involvement and responsibilities of each joint venture partner must be submitted. Individual partners are to comply and submit all relevant documents.
- Successful bidders to submit a letter of Good standing from compensation commission within 7 days upon receipt of the letter of intent to appoint.

SUPPLIER_____ Witness 1 _____ Witness 2 _____ CLIENT _____ Witness 1_____ Witness 2_____

- Bidders must submit a Company Registration Certificate.
- Latest Municipal Billing Clearance Certificate, which covers both the company and its directors, must accompany all bids.
- Evidence of registration of company on the Central Supplier Database must be provided (CSD “MAAA” number).
- Failure to complete All the supplementary information will result in bidder being deemed non – responsive.

Enquiries relating to the bid documents may be directed to the Director of Infrastructure to the following:
Telephone: 046 604 5500, Email: wsigprojects@ndlambe.gov.za

NOTICE NUMBER: 134 /2020

20 August 2020

ADV. R. DUMEZWENI

MUNICIPAL MANAGER

Municipal Website, Notice Boards, Talk of the Town Newspaper

SUPPLIER____ Witness 1 Witness 2 ____ CLIENT ____ Witness 1____ Witness 2____

INVITATION TO TENDER**MBD 1****PART A**

YOU ARE HEREBY INVITED TO TENDER FOR THE FOLLOWING PROJECT:
TENDER NO: 134 /2020 (WSIG2020-006): REFURBISHMENT OF KENTON ON SEA WWTW

NOTE THE FOLLOWING REQUIREMENTS

TENDER NUMBER:	134 /2020 (WSIG2020-006)	CLOSING DATE:	4 September 2020	CLOSING TIME:	12:00
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All tenderers fill in and sign the Form of Offer and Acceptance.

Tender documents must be deposited in the tender box at Supply Chain offices at No. 44 Campbell Street, Port Alfred.

Tenderers should ensure that tenders are delivered timeously to the correct address. If the tender is late, it will not be accepted for consideration.

Tender box accessible during weekdays during office hours from 08:00 – 16:00.

All tenders must be submitted on the official forms – **(not to be re-typed or dismantle this document)**

THE FOLLOWING PARTICULARS MUST BE FURNISHED (FAILURE TO DO SO MAY RESULT IN YOUR TENDER BEING DISQUALIFIED)
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Name of Tenderer	
Postal Address	
Street Address	
Telephone Number	Code: Number:
Cell phone Number	
Facsimile Number	Code: Number:
Vat Registration Number	

Has an original tax clearance certificate been submitted (MBD 2)?	YES / NO
Are you the accredited representative in South Africa for the goods/services offered	YES / NO (IF YES ENCLOSE PROOF)

SIGNATURE OF TENDERER	
DATE	
CAPACITY UNDER WHICH THIS TENDER IS SIGNED	
TOTAL TENDER PRICE (INCL. VAT)	

SUPPLIER _____ Witness 1 _____ Witness 2 _____ CLIENT _____ Witness 1 _____ Witness 2 _____

T1.2 Tender Data

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

The additional conditions of tender are:

Clause number	Tender Data
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F.1.1	The Employer is Ndlambe Local Municipality
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F.1.2	The tender documents issued by the employer comprise:
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Part T1: Tendering Procedures

T1.1 Tender notice and invitation to tender

T1.2 Tender data

Part T2: Returnables for tender evaluation purposes

T2.1 Returnable documents (Compulsory Submission)

T2.2 Returnable documents for tender evaluation

T2.3 Returnable documents for scoring

Part C1: Agreements and contract data

C1.1 Form of offer and acceptance

C1.2 Contract data

C1.3 Form of guarantee

C1.4 Agreement in terms of OH&S act

Part C2: Pricing data

C2.1 Pricing instructions

C2.2 Activity schedules / Bills of Quantities

Part C3: Scope of work

C3.1 General specifications

intensive construction specifications

Part C4: Site information

C4.1 Site information

C4.2 Drawings

SUPPLIER _____ Witness 1 _____ Witness 2 _____ CLIENT _____ Witness 1 _____ Witness 2 _____

- F.2.1 Only those tenderers who are registered with the CIDB, or are capable of being so prior to the evaluation of submissions, in a Contractor grading designation equal to or higher than a Contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25(1b) or 25(7A) of the Construction Industry Development Regulations, for a **3ME** or higher class of construction work, are eligible to have their tenders evaluated. Registrations must be valid throughout the tender evaluation and adjudication periods.
- Joint ventures are eligible to submit tenders provided that:
- (1) every member of the joint venture is registered with the CIDB;
 - (2) the lead partner has a Contractor grading designation in the **3ME or higher** class of construction work; and
 - (3) the combined Contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a Contractor grading designation determined in accordance with the sum tendered for a **3ME 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.
- F.2.7 The arrangements for a Non-compulsory clarification meeting are:
- Location: Join Zoom Meeting
 - Date: **Tuesday, 25 August 2020**
 - Starting time: 10h00
- Register for tenderers who attended the meeting will be taken during the briefing session. Addenda will be issued only to tenders whose names are appearing on the attendance register.
- F2.13.9 Telephonic, telegraphic, telex, facsimile or e-mailed tender offers will not be accepted. The closing time for submission of tender offers is **Friday, 4 September 2020 at 12:00**
- F.2.16 The tender offer validity period is 90 days.
- F.2.23 The tenderer is required to submit with tender:
- 1) Certificate of Contractor Registration issued by the Construction Industry Development Board.
 - 2) Tax clearance certificate
 - 3) B-BBEE certificate
 - 4) all schedules requested under returnable documents
- Where a tenderer satisfies CIDB Contractor grading designation requirements through joint venture formation, such tenderers must submit the Certificates of Contractor Registration in respect of each partner.
- F.3.4 Tenders will be opened immediately after the closing time for tenders at supply chain offices, No. 47 Campbell Street, Port Alfred, 6170.
- F.3.11 The procedure for the evaluation of responsive tenders is Method 2 subject to a prerequisite of a score of 70 for functionality.
- The financial offer will be scored using Formula 2 (option 1) where the value of W_1 is:
- 2) 90 where the financial value inclusive of VAT of one or more responsive tender offers is above R50 million.
- F3.13.1 Tender offers will only be accepted if:
- a) the tenderer's tax matters have been declared by the South African Revenue Service to be in order;
 - b) the tenderer is registered with the Construction Industry Development Board in an

SUPPLIER _____ Witness 1 _____ Witness 2 _____ CLIENT _____ Witness 1 _____ Witness 2 _____

appropriate Contractor grading designation;

- c) the tenderer or any of its directors 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;
- d) the tenderer has not:
 - i) abused the Employer's Supply Chain Management System; or
 - ii) failed to perform on any previous contract and has been given a written notice to this effect; and
- e) has completed the Compulsory Enterprise Questionnaire and there are no conflicts of interest which may impact on the tenderer's ability to perform the contract in the best interests of the employer or potentially compromise the tender process.
- f) if requested schedules are not completed as required no scores will be allocated.
- g) failure to provide any mandatory information required in the submission may result in the submission being deemed null and void and may be considered non-responsive.

F.3.17 The number of paper copies of the signed contract to be provided by the employer is one.

SUPPLIER____ Witness 1 Witness 2 ____ CLIENT ____ Witness 1____ Witness 2____

STANDARD CONDITIONS OF TENDER



Conditions of Tender

(July 2015 edition)

As published in Annex F of the CIDB Standard for Uniformity in Construction Procurement in Board Notice 136 Government Gazette No 38960 of 10 July 2015

F.1 General

F.1.1 Actions

F.1.1.1 The employer and each tenderer submitting a tender offer shall comply with these conditions of tender. In their dealings with each other, they shall discharge their duties and obligations as set out in F.2 and F.3, timeously and with integrity, and behave equitably, honestly and transparently, comply with all legal obligations and not engage in anticompetitive practices.

F.1.1.2 The employer and the tenderer and all their agents and employees involved in the tender process shall avoid conflicts of interest and where a conflict of interest is perceived or known, declare any such conflict of interest, indicating the nature of such conflict. Tenderers shall declare any potential conflict of interest in their tender submissions. Employees, agents and advisors of the employer shall declare any conflict of interest to whoever is responsible for overseeing the procurement process at the start of any deliberations relating to the procurement process or as soon as they become aware of such conflict, and abstain from any decisions where such conflict exists or recuse themselves from the procurement process, as appropriate.

Note: 1) A conflict of interest may arise due to a conflict of roles which might provide an incentive for improper acts in some circumstances. A conflict of interest can create an appearance of impropriety that can undermine confidence in the ability of that person to act properly in his or her position even if no improper acts result.

2) Conflicts of interest in respect of those engaged in the procurement process include direct, indirect or family interests in the tender or outcome of the procurement process and any personal bias, inclination, obligation, allegiance or loyalty which would in any way affect any decisions taken.

F.1.1.3 The employer shall not seek and a tenderer shall not submit a tender without having a firm intention and the capacity to proceed with the contract.

F.1.2 Tender Documents

The documents issued by the employer for the purpose of a tender offer are listed in the Tender data.

F.1.3 Interpretation

F.1.3.1 The tender data and additional requirements contained in the tender schedules that are included in the returnable documents are deemed to be part of these conditions of tender.

F.1.3.2 These conditions of tender, the tender data and tender schedules which are only required for tender evaluation purposes, shall not form part of any contract arising from the invitation to tender.

F.1.3.3 For the purposes of these conditions of tender, the following definitions apply:

- a) **conflict of interest** means any situation in which:
 - i) someone in a position of trust has competing professional or personal interests which make it difficult to fulfil his or her duties impartially;
 - ii) an individual or organisation is in a position to exploit a professional or official capacity in some

SUPPLIER _____ Witness 1 _____ Witness 2 _____ CLIENT _____ Witness 1 _____ Witness 2 _____

way for their personal or corporate benefit; or

iii) incompatibility or contradictory interests exist between an employee and the organisation which employs that employee.

b) **comparative offer** means the price after the factors of a non-firm price and all unconditional discounts it can be utilised to have been taken into consideration;

c) **corrupt practice** means the offering, giving, receiving or soliciting of anything of value to influence the action of the employer or his staff or agents in the tender process;

d) **fraudulent practice** means the misrepresentation of the facts in order to influence the tender process or the award of a contract arising from a tender offer to the detriment of the employer, including collusive practices intended to establish prices at artificial levels;

e) **organization** means a company, firm, enterprise, association or other legal entity, whether incorporated or not, or a public body; and

f) **functionality** means the measurement according to the predetermined norms of a service or commodity designed to be practical and useful, working or operating, taking into account quality, reliability, viability and durability of a service and technical capacity and ability of a tenderer.

F.1.4 Cancellation and Re-Invitation of Tenders

Each communication between the employer and a tenderer shall be to or from the employer's agent only, and in a form that can be readily read, copied and recorded. Communications shall be in the English language. The employer shall not take any responsibility for non-receipt of communications from or by a tenderer. The name and contact details of the employer's agent are stated in the tender data.

F.1.5 The employer's right to accept or reject any tender offer

F.1.5.1 An organ of state may, prior to the award of the tender, cancel a 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.

F.1.5.2 The decision to cancel a tender must be published in the CIDB website and in the government Tender Bulletin for the media in which the original tender invitation was advertised.

F.1.6 Procurement procedures

F.1.6.1 General

Unless otherwise stated in the tender data, a contract will, subject to F.3.13, be concluded with the tenderer who in terms of F.3.11 is the highest ranked or the tenderer scoring the highest number of tender evaluation points, as relevant, based on the tender submissions that are received at the closing time for tenders.

F.1.6.2 Competitive negotiation procedure

F.1.6.2.1 Where the tender data require that the competitive negotiation procedure is to be followed, tenderers shall submit tender offers in response to the proposed contract in the first round of submissions. Notwithstanding the requirements of F.3.4, the employer shall announce only the names of the tenderers who make a submission. The requirements of F.3.8 relating to the material deviations or qualifications which affect the competitive position of tenderers shall not apply.

F.1.6.2.2 All responsive tenderers, or not less than three responsive tenderers that are highest ranked in terms of the evaluation method and evaluation criteria stated in the tender data, shall be invited in each round to enter into competitive negotiations, based on the principle of equal treatment and keeping confidential the proposed solutions and associated information. Notwithstanding the provisions of F.2.17, the employer may request that tenders be clarified, specified and fine-tuned in order to improve a tenderer's competitive position provided that such clarification, specification, fine-tuning or additional information does not alter any fundamental aspects of the offers or impose substantial new requirements which restrict or distort competition or have a discriminatory effect.

F.1.6.2.3 At the conclusion of each round of negotiations, tenderers shall be invited by the employer to make a fresh tender offer, based on the same evaluation criteria, with or without adjusted weightings. Tenderers shall be advised when they are to submit their best and final offer.

F.1.6.2.4 The contract shall be awarded in accordance with the provisions of F.3.11 and F.3.13 after tenderers have been requested to submit their best and final offer.

SUPPLIER _____ Witness 1 _____ Witness 2 _____ CLIENT _____ Witness 1 _____ Witness 2 _____

F.1.6.3 Proposal procedure using the two stage-system

F.1.6.3.1 Option 1

Tenderers shall in the first stage submit technical proposals and, if required, cost parameters around which a contract may be negotiated. The employer shall evaluate each responsive submission in terms of the method of evaluation stated in the tender data, and in the second stage negotiate a contract with the tenderer scoring the highest number of evaluation points and award the contract in terms of these conditions of tender.

F.1.6.3.2 Option 2

F.1.6.3.2.1 Tenderers shall submit in the first stage only technical proposals. The employer shall invite all responsive tenderers to submit tender offers in the second stage, following the issuing of procurement documents.

F.1.6.3.2.2 The employer shall evaluate tenders received during the second stage in terms of the method of evaluation stated in the tender data, and award the contract in terms of these conditions of tender.

F.2 Tenderer's obligations

F.2.1 Eligibility

F.2.1.1 Submit a tender offer only if the tenderer satisfies the criteria stated in the tender data and the tenderer, or any of his principals, is not under any restriction to do business with employer.

F.2.1.2 Notify the employer of any proposed material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used by the employer as the basis in a prior process to invite the tenderer to submit a tender offer and obtain the employer's written approval to do so prior to the closing time for tenders.

F.2.2 Cost of tendering

F2.2.1 Accept that, unless otherwise stated in the tender data, the employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer comply with requirements.

F2.2.2 The cost of the tender documents charged by the employer shall be limited to the actual cost incurred by the employer for printing the documents. Employers must attempt to make available the tender documents on its website so as not to incur any costs pertaining to the printing of the tender documents.

F.2.3 Check documents

Check the tender documents on receipt for completeness and notify the employer of any discrepancy or omission.

F.2.4 Confidentiality and copyright of documents

Treat as confidential all matters arising in connection with the tender. Use and copy the documents issued by the employer only for the purpose of preparing and submitting a tender offer in response to the invitation.

F.2.5 Reference documents

Obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, conditions of contract and other publications, which are not attached but which are incorporated into the tender documents by reference.

F.2.6 Acknowledge addenda

Acknowledge receipt of addenda to the tender documents, which the employer may issue, and if necessary apply for an extension to the closing time stated in the tender data, in order to take the addenda into account.

F.2.7 Clarification meeting

Attend, where required, a clarification meeting at which tenderers may familiarize themselves with aspects of the proposed work, services or supply and raise questions. Details of the meeting(s) are stated in the tender data.

F.2.8 Seek clarification

Request clarification of the tender documents, if necessary, by notifying the employer at least five working days before the closing time stated in the tender data.

SUPPLIER _____ Witness 1 _____ Witness 2 _____ CLIENT _____ Witness 1 _____ Witness 2 _____

F.2.9 Insurance

Be aware that the extent of insurance to be provided by the employer (if any) might not be for the full cover required in terms of the conditions of contract identified in the contract data. The tenderer is advised to seek qualified advice regarding insurance.

F.2.10 Pricing the tender offer

F.2.10.1 Include in the rates, prices, and the tendered total of the prices (if any) all duties, taxes (except Value Added Tax (VAT), and other levies payable by the successful tenderer, such duties, taxes and levies being those applicable 14 days before the closing time stated in the tender data.

F.2.10.2 Show VAT payable by the employer separately as an addition to the tendered total of the prices.

F.2.10.3 Provide rates and prices that are fixed for the duration of the contract and not subject to adjustment except as provided for in the conditions of contract identified in the contract data.

F.2.10.4 State the rates and prices in Rand unless instructed otherwise in the tender data. The conditions of contract identified in the contract data may provide for part payment in other currencies

F.2.11 Alterations to documents

Do not make any alterations or additions to the tender documents, except to comply with instructions issued by the employer, or necessary to correct errors made by the tenderer. All signatories to the tender offer shall initial all such alterations.

F.2.12 Alternative tender offers

F.2.12.1 Unless otherwise stated in the tender data, submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted as well as a schedule that compares the requirements of the tender documents with the alternative requirements that are proposed.

F.2.12.2 Accept that an alternative tender offer may be based only on the criteria stated in the tender data or criteria otherwise acceptable to the employer.

F.2.12.3 An alternative tender offer may only be considered in the event that the main tender offer is the winning tender.

F.2.13 Submitting a tender offer

F.2.13.1 Submit one tender offer only, either as a single tendering entity or as a member in a joint venture to provide the whole of the works, services or supply identified in the contract data and described in the scope of works, unless stated otherwise in the tender data.

F.2.13.2 Return all returnable documents to the employer after completing them in their entirety, either electronically (if they were issued in electronic format) or by writing legibly in non-erasable ink.

F.2.13.3 Submit the parts of the tender offer communicated on paper as an original plus the number of copies stated in the tender data, with an English translation of any documentation in a language other than English, and the parts communicated electronically in the same format as they were issued by the employer.

F.2.13.4 Sign the original and all copies of the tender offer where required in terms of the tender data. The employer will hold all authorized signatories liable on behalf of the tenderer. Signatories for tenderers proposing to contract as joint ventures shall state which of the signatories is the lead partner whom the employer shall hold liable for the purpose of the tender offer.

F.2.13.5 Seal the original and each copy of the tender offer as separate packages marking the packages as "ORIGINAL" and "COPY". Each package shall state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.

F.2.13.6 Where a two-envelope system is required in terms of the tender data, place and seal the returnable documents listed in the tender data in an envelope marked "financial proposal" and place the remaining returnable documents in an envelope marked "technical proposal". Each envelope shall state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.

F.2.13.7 Seal the original tender offer and copy packages together in an outer package that states on the outside only the employer's address and identification details as stated in the tender data.

F.2.13.8 Accept that the employer will not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.

SUPPLIER _____ Witness 1 _____ Witness 2 _____ CLIENT _____ Witness 1 _____ Witness 2 _____

F.2.13.9 Accept that tender offers submitted by facsimile or e-mail will be rejected by the employer, unless stated otherwise in the tender data.

F.2.14 Information and data to be completed in all respects

Accept that tender offers, which do not provide all the data or information requested completely and in the form required, may be regarded by the employer as non-responsive.

F.2.15 Closing time

F.2.15.1 Ensure that the employer receives the tender offer at the address specified in the tender data not later than the closing time stated in the tender data. Accept that proof of posting shall not be accepted as proof of delivery.

F.2.15.2 Accept that, if the employer extends the closing time stated in the tender data for any reason, the requirements of these conditions of tender apply equally to the extended deadline.

F.2.16 Tender offer validity

F.2.16.1 Hold the tender offer(s) valid for acceptance by the employer at any time during the validity period stated in the tender data after the closing time stated in the tender data.

F.2.16.2 If requested by the employer, consider extending the validity period stated in the tender data for an agreed additional period with or without any conditions attached to such extension.

F.2.16.3 Accept that a tender submission that has been submitted to the employer may only be withdrawn or substituted by giving the employer's agent written notice before the closing time for tenders that a tender is to be withdrawn or substituted.

F.2.16.4 Where a tender submission is to be substituted, submit a substitute tender in accordance with the requirements of F.2.13 with the packages clearly marked as "SUBSTITUTE".

F.2.17 Clarification of tender offer after submission

Provide clarification of a tender offer in response to a request to do so from the employer during the evaluation of tender offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors by the adjustment of certain rates or item prices (or both). No change in the competitive position of tenderers or substance of the tender offer is sought, offered, or permitted.

Note: *Sub-clause F.2.17 does not preclude the negotiation of the final terms of the contract with a preferred tenderer following a competitive selection process, should the Employer elect to do so.*

F.2.18 Provide other material

F.2.18.1 Provide, on request by the employer, any other material that has a bearing on the tender offer, the tenderer's commercial position (including notarized joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the employer for the purpose of a full and fair risk assessment. Should the tenderer not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the employer's request, the employer may regard the tender offer as non-responsive.

F.2.18.2 Dispose of samples of materials provided for evaluation by the employer, where required.

F.2.19 Inspections, tests and analysis

Provide access during working hours to premises for inspections, tests and analysis as provided for in the tender data.

F.2.20 Submit securities, bonds, policies

If requested, submit for the employer's acceptance before formation of the contract, all securities, bonds, guarantees, policies and certificates of insurance required in terms of the conditions of contract identified in the contract data.

F.2.21 Check final draft

Check the final draft of the contract provided by the employer within the time available for the employer to issue the contract.

SUPPLIER _____ Witness 1 _____ Witness 2 _____ CLIENT _____ Witness 1 _____ Witness 2 _____

F.2.22 Return of other tender documents

If so instructed by the employer, return all retained tender documents within 28 days after the expiry of the validity period stated in the tender data.

F.2.23 Certificates

Include in the tender submission or provide the employer with any certificates as stated in the tender data.

F.3 The employer's undertakings

F.3.1 Respond to requests from the tenderer

F.3.1.1 Unless otherwise stated in the tender Data, respond to a request for clarification received up to five working days before the tender closing time stated in the Tender Data and notify all tenderers who drew procurement documents.

F.3.1.2 Consider any request to make a material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used to prequalify a tenderer to submit a tender offer in terms of a previous procurement process and deny any such request if as a consequence:

- a) an individual firm, or a joint venture as a whole, or any individual member of the joint venture fails to meet any of the collective or individual qualifying requirements;
- b) the new partners to a joint venture were not prequalified in the first instance, either as individual firms or as another joint venture; or
- c) in the opinion of the Employer, acceptance of the material change would compromise the outcome of the prequalification process.

F.3.2 Issue Addenda

If necessary, issue addenda that may amend or amplify the tender documents to each tenderer during the period from the date that tender documents are available until three days before the tender closing time stated in the Tender Data. If, as a result a tenderer applies for an extension to the closing time stated in the Tender Data, the Employer may grant such extension and, shall then notify all tenderers who drew documents.

F.3.3 Return late tender offers

Return tender offers received after the closing time stated in the Tender Data, unopened, (unless it is necessary to open a tender submission to obtain a forwarding address), to the tenderer concerned.

F.3.4 Opening of tender submissions

F.3.4.1 Unless the two-envelope system is to be followed, open valid tender submissions in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data. Tender submissions for which acceptable reasons for withdrawal have been submitted will not be opened.

F.3.4.2 Announce at the meeting held immediately after the opening of tender submissions, at a venue indicated in the tender data, the name of each tenderer whose tender offer is opened and, where applicable, the total of his prices, number of points claimed for its BBBEE status level and time for completion for the main tender offer only.

F.3.4.3 Make available the record outlined in F.3.4.2 to all interested persons upon request.

F.3.5 Two-envelope system

F.3.5.1 Where stated in the tender data that a two-envelope system is to be followed, open only the technical proposal of valid tenders in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data and announce the name of each tenderer whose technical proposal is opened.

F.3.5.2 Evaluate functionality of the technical proposals offered by tenderers, then advise tenderers who remain in contention for the award of the contract of the time and place when the financial proposals will be opened. Open only the financial proposals of tenderers, who score in the functionality evaluation more than the minimum number of points for functionality stated in the tender data, and announce the score obtained for the technical proposals and the total price and any points claimed on BBBEE status level. Return unopened financial proposals to tenderers whose technical proposals failed to achieve the minimum number of points for functionality.

SUPPLIER _____ Witness 1 _____ Witness 2 _____ CLIENT _____ Witness 1 _____ Witness 2 _____

F.3.6 Non-disclosure

Not disclose to tenderers, or to any other person not officially concerned with such processes, information relating to the evaluation and comparison of tender offers, the final evaluation price and recommendations for the award of a contract, until after the award of the contract to the successful tenderer.

F.3.7 Grounds for rejection and disqualification

Determine whether there has been any effort by a tenderer to influence the processing of tender offers and instantly disqualify a tenderer (and his tender offer) if it is established that he engaged in corrupt or fraudulent practices.

F.3.8 Test for responsiveness

F.3.8.1 Determine, after opening and before detailed evaluation, whether each tender offer properly received:

- a) complies with the requirements of these Conditions of Tender,
- b) has been properly and fully completed and signed, and
- c) is responsive to the other requirements of the tender documents.

F.3.8.2 A responsive tender is one that conforms to all the terms, conditions, and specifications of the tender documents without material deviation or qualification. A material deviation or qualification is one which, in the Employer's opinion, would:

- a) detrimentally affect the scope, quality, or performance of the works, services or supply identified in the Scope of Work,
- b) significantly change the Employer's or the tenderer's risks and responsibilities under the contract, or
- c) affect the competitive position of other tenderers presenting responsive tenders, if it were to be rectified

Reject a non-responsive tender offer, and not allow it to be subsequently made responsive by correction or withdrawal of the non-conforming deviation or reservation.

F.3.9 Arithmetical errors, omissions and discrepancies

F.3.9.1 Check the highest ranked tender or tenderer with the highest number of tender evaluation points after the evaluation of tender offers in accordance with F.3.11 for:

- a) the gross misplacement of the decimal point in any unit rate;
- b) omissions made in completing the pricing schedule or bills of quantities; or
- c) arithmetic errors in:
 - i) line item totals resulting from the product of a unit rate and a quantity in bills of quantities or schedules of prices; or
 - ii) the summation of the prices.

F.3.9.2 The employer must correct the arithmetical errors in the following manner:

- a) Where there is a discrepancy between the amounts in words and amounts in figures, the amount in words shall govern.
- b) If bills of quantities or pricing schedules apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total shall govern and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted shall govern, and the unit rate shall be corrected.
- c) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total of the prices shall govern and the tenderer will be asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices.

SUPPLIER _____ Witness 1 _____ Witness 2 _____ CLIENT _____ Witness 1 _____ Witness 2 _____

Consider the rejection of a tender offer if the tenderer does not correct or accept the correction of the arithmetical error in the manner described above.

F.3.10 Clarification of a tender offer

Obtain clarification from a tenderer on any matter that could give rise to ambiguity in a contract arising from the tender offer.

F.3.11 Evaluation of tender offers

F.3.11.1 General

Appoint an evaluation panel of not less than three persons. Reduce each responsive tender offer to a comparative offer and evaluate them using the tender evaluation methods and associated evaluation criteria and weightings that are specified in the tender data.

F.3.11.2 Method 1: Price and Preference

In the case of a price and preference:

- a) Score tender evaluation points for price
- b) Score points for BBBEE contribution
- c) Add the points scored for price and BBBEE.

F.3.11.3 Methods 2: Functionality, Price and Preference

In the case of a functionality, price and preference:

- 1) Score functionality, rejecting all tender offers that fail to achieve the minimum number of points for functionality as stated in the Tender Data.
- 2) No tender must be regarded as an acceptable tender if it fails to achieve the minimum qualifying score for functionality as indicated in the tender invitation.
- 3) Tenders that have achieved the minimum qualification score for functionality must be evaluated further in terms of the preference points system prescribed in paragraphs 4 and 4 and 5 below.

80/20 system for requirements with a Rand value equal to or above R 30 000 and up to R 50 million (all applicable taxes included);

4)(a)(i) The following formula must be used to calculate the points for price in respect of tenders (including price quotation) with a rand value equal to, or above R 30 000 and up to Rand value of R 1 000 000 (all applicable taxes included):

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

Where

P_s = Points scored for price of tender under consideration;
 P_t = Price of tender under consideration; and
 P_{\min} = Price of lowest acceptable tender.

4)(a)(ii) An employer of state may apply the formula in paragraph (i) for price quotations with a value less than R30 000, if and when appropriate:

4)(b) Subject to subparagraph(4)(c), points must be awarded to a tender for attaining the B-BBEE status level of contributor in accordance with the table below:

B-BBEE Status Level of Contributor	Number of points
1	20
2	18
3	14
4	12
5	8
6	6

SUPPLIER _____ Witness 1 _____ Witness 2 _____ CLIENT _____ Witness 1 _____ Witness 2 _____

B-BBEE Status Level of Contributor	Number of points
7	4
8	2
Non-compliant contributor	0

4)(c) A maximum of 20 points may be allocated in accordance with subparagraph (4)(b).

4)(d) The points scored by tender in respect of B-BBEE contribution contemplated in subparagraph (4) (b) must be added to the points scored for price as calculated in accordance with subparagraph (4)(a).

4)(e) Subject to paragraph 4.3.8 the contract must be awarded to the tender who scores the highest total number of points.

90/10 system for requirements with a Rand value above R 50 million (all applicable taxes included).

5)(a) The following formula must be used to calculate the points for price in respect of tenders with a Rand value above R1 000 000 (all applicable taxes included):

$$P_s = 90 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$$

Where

P_s = Points scored for price of tender under consideration;
 P_t = Price of tender under consideration; and
 P_{\min} = Price of lowest acceptable tender.

5)(b) Subject to subparagraph(5)(c), points must be awarded to a tender for attaining the BBBEE status level of contributor in accordance with the table below:

B-BBEE Status Level of Contributor	Number of points
1	10
2	9
3	6
4	5
5	4
6	3
7	2
8	1
Non-compliant contributor	0

5)(c) A maximum of 10 points may be allocated in accordance with subparagraph (5)(b).

5)(d) The points scored by tender in respect of B-BBEE contribution contemplated in subparagraph (5) (b) must be added to the points scored for price as calculated in accordance with subparagraph (5)(a).

5)(e) Subject to paragraph 4.3.8 the contract must be awarded to the tender who scores the highest total number of points.

F.3.11.6 Decimal places

Score price, preference and functionality, as relevant, to two decimal places.

F.3.11.7 Scoring Price

Score price of remaining responsive tender offers using the following formula:

$$N_{FO} = W_1 \times A$$

Where N_{FO} is the number of tender evaluation points awarded for price.

W_1 is the maximum possible number of tender evaluation points awarded for price as stated in the Tender Data.

SUPPLIER____ Witness 1 Witness 2 ____ CLIENT ____ Witness 1____ Witness 2____

A is a number calculated using the formula and option described in Table F.1 as stated in the Tender Data.

Table F.1: Formulae for calculating the value of A

Formula	Comparison aimed at achieving	Option 1 ^a	Option 2 ^a
1	Highest price or discount	$A = (1 + \frac{P - P_m}{P_m})$	$A = P / P_m$
2	Lowest price or percentage commission / fee	$A = (1 - \frac{P - P_m}{P_m})$	$A = P_m / P$
^a P_m is the comparative offer of the most favourable comparative offer. P is the comparative offer of the tender offer under consideration.			

F.3.11.8 Scoring preferences

Confirm that tenderers are eligible for the preferences claimed in accordance with the provisions of the tender data and reject all claims for preferences where tenderers are not eligible for such preferences.

Calculate the total number of tender evaluation points for preferences claimed in accordance with the provisions of the tender data.

F.3.11.9 Scoring functionality

Score each of the criteria and subcriteria for quality in accordance with the provisions of the Tender Data.

Calculate the total number of tender evaluation points for quality using the following formula:

$$N_Q = W_2 \times S_Q / M_S$$

where: S_Q is the score for quality allocated to the submission under consideration;

M_S is the maximum possible score for quality in respect of a submission; and

W_2 is the maximum possible number of tender evaluation points awarded for the quality as stated in the tender data.

F.3.12 Insurance provided by the employer

If requested by the proposed successful tenderer, submit for the tenderer's information the policies and / or certificates of insurance which the conditions of contract identified in the contract data, require the employer to provide.

F.3.13 Acceptance of tender offer

Accept the tender offer, if in the opinion of the employer, it does not present any risk and only if the tenderer:

- is not under restrictions, or has principals who are under restrictions, preventing participating in the employer's procurement,
- can, as necessary and in relation to the proposed contract, demonstrate that he or she possesses the professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and reputation, expertise and the personnel, to perform the contract,
- has the legal capacity to enter into the contract,
- is not insolvent, in receivership, under Business Rescue as provided for in chapter 6 of the Companies Act, 2008, bankrupt or being wound up, has his affairs administered by a court or a judicial officer, has suspended his business activities, or is subject to legal proceedings in respect of any of the foregoing,
- complies with the legal requirements, if any, stated in the tender data, and
- is able, in the opinion of the employer, to perform the contract free of conflicts of interest.

F.3.14 Prepare contract documents

F.3.14.1 If necessary, revise documents that shall form part of the contract and that were issued by the employer as part of the tender documents to take account of:

- addenda issued during the tender period,
- inclusion of some of the returnable documents, and
- other revisions agreed between the employer and the successful tenderer.

SUPPLIER _____ Witness 1 _____ Witness 2 _____ CLIENT _____ Witness 1 _____ Witness 2 _____

F.3.14.2 Complete the schedule of deviations attached to the form of offer and acceptance, if any.

F.3.15 Complete adjudicator's contract

Unless alternative arrangements have been agreed or otherwise provided for in the contract, arrange for both parties to complete formalities for appointing the selected adjudicator at the same time as the main contract is signed.

F.3.16 Notice to unsuccessful tenderers

F.3.16.1 Notify the successful tenderer of the employer's acceptance of his tender offer by completing and returning one copy of the form of offer and acceptance before the expiry of the validity period stated in the tender data, or agreed additional period.

F.3.16.2 After the successful tenderer has been notified of the employer's acceptance of the tender, notify other tenderers that their tender offers have not been accepted.

F.3.17 Provide copies of the contracts

Provide to the successful tenderer the number of copies stated in the Tender Data of the signed copy of the contract as soon as possible after completion and signing of the form of offer and acceptance.

F.3.18 Provide written reasons for actions taken

Provide upon request written reasons to tenderers for any action that is taken in applying these conditions of tender, but withhold information which is not in the public interest to be divulged, which is considered to prejudice the legitimate commercial interests of tenderers or might prejudice fair competition between tenderers.

F.3.19 Transparency in the procurement process

F.3.19.1 The CIDB prescripts require that tenders must be advertised and be registered on the CIDB Tender system.

F.3.19.2 The employer must adopt a transparency model that incorporates the disclosure and accountability as transparency requirements in the procurement process.

F.3.19.3 The transparency model must identify the criteria for selection of projects, project information template and the threshold value of the projects to be disclosed in the public domain at various intervals of delivery of infrastructure projects.

F.3.19.4 The client must publish the information on a quarterly basis which contains the following information:

- Procurement planning process
- Procurement method and evaluation process
- Contract type
- Contract status
- Number of firms tendering
- Cost estimate
- Contract title
- Contract firm(s)
- Contract price
- Contract scope of work
- Contract start date and duration
- Contract evaluation reports

F.3.19.5 The employer must establish a Consultative Forum which will conduct a random audit in the implementation of the transparency requirements in the procurement process.

F.3.19.6 Consultative Forum must be an independent structure from the bid committees

F.3.19.7 The information must be published on the employer's website.

F.3.19.8 Records of such disclosed information must be retained for audit purposes.

SUPPLIER____ Witness 1 Witness 2 ____ CLIENT ____ Witness 1____ Witness 2____

2. PART T2: RETURNABLES DOCUMENTS

LIST OF RETURNABLE DOCUMENTS

The following returnable documents must be completed:

T2.1 Returnable Documents – Compulsory Submissions

- A. Tax Clearance Certificate (MBD 2)
- B. Letter of Good Standing
- C. Proof of Company Registration
- D. Certificate of Contractor Registration issued by the Construction Industry Development Board
- E. Supplier Database Registration Form
- F. Valid Original or Certified B-BBEE Certificate
- G. Joint Venture Disclosure Form
- H. Declaration of Interest (in the Service of the State) (MBD 4)
- I. Declaration (Validity of Information Provided)
- J. Bank Rating Reference
- K. Declaration of Bidder's Past Supply Chain Management Practices (MBD 8)
- L. Compulsory Enterprise Questionnaire
- M. Occupational Health & Safety File

T2.2 Returnable Documents – Tender Evaluation

- A. Compulsory Tender Clarification Meeting
- B. Certificate of Authority for Signatory
- C. Record of Addenda to Tender Documents
- D. Proposed Amendments and Qualifications
- E. Details of Alternative Tender Submitted
- F. Surety and Bank Details
- G. Schedule Showing Anticipated Local Spending per Category
- H. Intension to Provide Performance Guarantee
- I. Copies of ID Document of Directors
- J. JV Formal Agreement
- K. Municipal Rate Clearance Certificate

T2.3 Adjudication of Tenders for Scoring

- A. Preference Points Claim Form in Terms of the Preferential Procurement Regulations 2017 (MBD 6.1)
- B. Construction Programme
- C. Methodology and Execution Strategy
- D. Schedule of Skills for Key Personnel
- E. Schedule of Company Experience
- F. Location of Operational Office

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

2.1A TAX CLEARANCE CERTIFICATE

MBD 2

It is a condition of Tender that the taxes of the successful Tenderer must be in order, or that satisfactory arrangements have been made with South African Revenue Service (SARS) to meet the Tenderer's tax obligations.

1. In order to meet this requirement Tenderers are required to complete in full the attached form TCC 001 "Application for a Tax Clearance Certificate" and submit it to any SARS branch office nationally. The Tax Clearance Certificate Requirements are also applicable to foreign Tenderers / individuals who wish to submit Tenders.
2. SARS will then furnish the Tenderer with a Tax Clearance Certificate that will be valid for a period of 1 (one) year from the date of approval.
3. The original Tax Clearance Certificate must be submitted together with the Tender. Failure to submit the original and valid Tax Clearance Certificate will result in the invalidation of the Tender. Certified copies of the Tax Clearance Certificate will not be acceptable.
4. In Tenders where Consortia / Joint Ventures / Sub-Contractors are involved, each party must submit a separate Tax Clearance Certificate.
5. Copies of the TCC 001 "Application for a Tax Clearance Certificate" form is available from any SARS branch office nationally or on the website www.sars.gov.za.
6. Applications for the Tax Clearance Certificates may also be made via eFiling. In order to use this provision, taxpayers will need to register with SARS as eFilers through the website www.sars.gov.za.

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

2.1B LETTER OF GOOD STANDING

Supply a valid Letter of Good Standing from the Compensation Commissioner

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

2.1C PROOF OF COMPANY REGISTRATION

Provide a proof of company registration stating that the company is registered.

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

2.1D CERTIFICATE OF CONTRACTOR REGISTRATION ISSUED BY THE CONSTRUCTION INDUSTRY DEVELOPMENT BOARD

Supply a valid certificate from CIDB showing the company's grading.

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

2.1E Central supplier database report

Submit proof of CSD registration

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

2.1F VALID ORIGINAL OR CERTIFIED B-BBEE CERTIFICATE

Provide a certified copy of your B-BBEE certificate issued by a Verification Agency accredited by SANAS or a registered Auditor approved by IRBA or an Accounting Officer as contemplated in the CCA or Certified Affidavit by Commissioner of Oath.

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

2.1G JOINT VENTURE DISCLOSURE FORM

GENERAL

- i) All the information requested must be filled in the spaces provided. If additional space is required, additional sheets may be used and attached to the original documents.
- ii) A copy of the joint venture agreement must be attached to this form, in order to demonstrate the Affirmable, Joint Venture Partner's share in the ownership, control, management responsibilities, risks and profits of the joint venture, the proposed joint venture agreement must include specific details relating to:
 - a) the contributions of capital and equipment
 - b) work items to be performed by the Affirmable Joint Venture Partner's own forces
 - c) work items to be performed under the supervision of the Affirmable Joint Venture Partner.
- iii) Copies of all written agreements between partners concerning the contract must be attached to this form including those, which relate to ownership options and to restrictions/limits regarding ownership and control.
- iv) The joint venture must be formalised. All pages of the joint venture agreement must be signed by all the parties concerned. A letter/ notice of intention to formalise a joint venture once the contract has been awarded will not be considered.
- v) Should any of the above not be complied with, the joint venture will be deemed null and void and will be considered non-responsive.

1. JOINT VENTURE PARTICULARS

- a) Name
- b) Postal address
.....
.....
- c) Physical address.....
.....
.....
- d) Telephone
- e) Fax

2. IDENTITY OF EACH NON-AFFIRMABLE JOINT VENTURE PARTNER

- 2.1(a)** Name of Firm.....
Postal Address
Physical Address
Telephone.....
Fax.....
Contact person for matters pertaining to Joint Venture Participation Goal requirements:
.....
- 2.2(a)** Name of Firm.....
Postal Address
Physical Address

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

Telephone.....
Fax.....
Contact person for matters pertaining to Joint Venture Participation Goal requirements:
.....

(Continue as required for further non-Affirmable Joint Venture Partners)

3. IDENTITY OF EACH AFFIRMABLE JOINT VENTURE PARTNER

3.1(a) Name of Firm.....
Postal Address
Physical Address
Telephone.....
Fax.....
Contact person for matters pertaining to Joint Venture Participation Goal requirements:
.....

3.2(a) Name of Firm.....
Postal Address
Physical Address
Telephone.....
Fax.....

Contact person for matters pertaining to Joint Venture Participation Goal requirements:
.....

3.3(a) Name of Firm.....
Postal Address
Physical Address
Telephone.....
Fax.....

Contact person for matters pertaining to Joint Venture Participation Goal requirements:
.....

4. BRIEF DESCRIPTION OF THE ROLES OF THE AFFIRMABLE JOINT VENTURE PARTNERS IN THE JOINT VENTURE

.....
.....
.....

5. OWNERSHIP OF THE JOINT VENTURE

- a) **Affirmable Joint Venture Partner ownership percentage(s)**%
- b) **Non-Affirmable Joint Venture Partner ownership percentage(s)**%
- c) **Affirmable Joint Venture Partner percentages in respect of :** *
- (i) **Profit and loss sharing**
- (ii) **Initial capital contribution in Rands**

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

.....

 (*Brief descriptions and further particulars should be provided to clarify percentages).

(iii) Anticipated on-going capital contributions in Rands

.....

 (iv) Contributions of equipment (specify types, quality, and quantities of equipment) to be provided by each partner.

6. **RECENT CONTRACTS EXECUTED BY PARTNERS IN THEIR OWN RIGHT AS PRIME CONTRACTORS OR AS PARTNERS IN OTHER JOINT VENTURES**

	NON-AFFIRMABLE JOINT VENTURE PARTNERS	PARTNER NAME
a)		
b)		
c)		
d)		
e)		

	AFFIRMABLE JOINT VENTURE PARTNERS	PARTNER NAME
a)		
b)		
c)		
d)		
e)		

7. **CONTROL AND PARTICIPATION IN THE JOINT VENTURE**

(Identify by name and firm those individuals who are, or will be, responsible for, and have authority to engage in the relevant management functions and policy and decision making, indicating any limitations in their authority e.g. co-signature requirements and Rand limits).

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

- (a) Joint Venture cheque signing
.....
.....
.....
- (b) Authority to enter into contracts on behalf of the Joint Venture
.....
.....
.....
- (c) Signing, co-signing and/or collateralising of loans
.....
.....
.....
- (d) Acquisition of lines of credit
.....
.....
.....
- (e) Acquisition of performance bonds
.....
.....
.....
- (f) Negotiating and signing labour agreements
.....
.....
.....

8. MANAGEMENT OF CONTRACT PERFORMANCE

(Fill in the name and firm of the responsible person).

- (a) Supervision of field operations.....
- (b) Major purchasing
- (c) Estimating
- (d) Technical management

9. MANAGEMENT AND CONTROL OF JOINT VENTURE

- (a) Identify the “managing partner”, if any,
.....
.....
.....
.....

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

- (b) What authority does each partner have to commit or obligate the other to financial institutions, insurance companies, suppliers, SubContractors and/or other parties participating in the execution of the contemplated works?

.....

.....

.....

.....

- (c) Describe the management structure for the Joint Venture's work under the contract

Management function / designation	Name	Partner*

(Fill in "ex Affirmable Joint Venture Partner" or "ex non-Affirmable Joint Venture Partner".

10. PERSONNEL

- (a) State the approximate number of operative personnel (by trade/function/discipline) needed to perform the Joint Venture work under the Contract.

Trade/ function/ discipline	Number ex affirmable joint venture partners	Number ex non-affirmable joint venture partners

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

Trade/ function/ discipline	Number ex affirmable joint venture partners	Number ex non-affirmable joint venture partners

(Fill in "ex Affirmable Joint Venture Partner" or "ex non-Affirmable Joint Venture Partner").

(b) Number of operative personnel to be employed on the Contract who are currently in the employ of partners.

(i) Number currently employed by Affirmable Joint Venture Partners

.....

(ii) Number currently employed by the Joint Venture

.....

(c) Number of operative personnel who are not currently in the employ of the respective partner and will be engaged on the project by the Joint Venture

.....

(d) Name of individual(s) who will be responsible for hiring Joint Venture employees

.....

.....

(e) Name of partner who will be responsible for the preparation of Joint Venture payrolls

.....

.....

11. **CONTROL AND STRUCTURE OF THE JOINT VENTURE**

Briefly describe the manner in which the Joint Venture is structured and controlled.

.....

.....

.....

.....

The undersigned warrants that he/she is duly authorised to sign this Joint Venture Disclosure Form and affirms that the foregoing statements are true and correct and include all material information necessary to identify and explain the terms and operations of the Joint Venture and the intended participation of each partner in the undertaking.

The undersigned further covenants and agrees to provide the Employer with complete and accurate information regarding actual Joint Venture work and the payment therefore, and any proposed changes in any provisions of the Joint Venture agreement, and to permit the audit and examination of the books, records and files of the Joint Venture, or those of each partner relevant to the Joint Venture, by duly authorised representatives of the Employer.

Signature

Duly authorised to sign on behalf of

Name

Address.....

Telephone.....

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

Date

Signature

Duly authorised to sign on behalf of

Name

Address.....

Telephone.....

Date

Signature

Duly authorised to sign on behalf of

Name

Address.....

Telephone.....

Date

(Continue as necessary)

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

2.1I DECLARATION (Validity of information provided)

I..... declare that the information provided is true and correct, the signature to the Tender document is duly authorised and documentary proof regarding any Tendering issue will, when required, be submitted to the satisfaction of the municipality.

SIGNED

DATE

NAME

POSITION

TENDERER

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

2.1J BANK RATING REFERENCE

Provide an original bank stamped document indicating the Contractors current bank rating code.

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

2.1K DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES MBD8

- 1 This Bidding Document must form part of all bids invited.
- 2 It serves as a declaration to be used in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse of the supply chain management system.
- 3 The bid of any bidder may be rejected if that bidder, or any of its directors have:
 - a. abused the supply chain management system or committed any improper conduct in relation to such system;
 - b. been convicted for fraud or corruption during the past five years;
 - c. wilfully neglected, reneged on or failed to comply with any government, municipal or other public sector contract during the past five years; or
 - d. been listed in the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004).
- 4 In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.

Declaration of Fair Bidding Practices

The essence of competitive tendering is that CSIR will receive bona fide competitive proposal from all tenderers. In recognition of these principles, we hereby declare that this is a bona fide tender, intending to be competitive, and that we have not engaged in price-fixing with any other tenderer or person, or in any way colluded with any other tenderer or person in an attempt to alter or pre-empt the outcome of the competitive tender.

SIGNED _____ **DATE** _____

NAME _____ **POSITION** _____

TENDERER _____

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

2.1L COMPULSORY ENTERPRISE QUESTIONNAIRE

The following particulars must be furnished. In the case of a joint venture, **separate** enterprise questionnaires in respect of each partner must be completed and submitted.

Section 1: Name of enterprise:

Section 2: VAT registration number, if any:

Section 3: CIDB registration number, if any:

Section 4: Particulars of sole proprietors and partners in partnerships.....

Name*	Identity number*	Personal income tax number*

* Complete only if sole proprietor or partnership and attach separate page if more than 3 partners

Section 5: Particulars of companies and close corporations

Company registration number:

Close corporation number:

Tax reference number:

Section 6: Record in the service of the state

Indicate by marking the relevant boxes with a cross, if any sole proprietor, partner in a partnership or director, manager, principal shareholder or stakeholder in a company or close corporation is currently or has been within the last 12 months in the service of any of the following:

- | | |
|--|---|
| <input type="checkbox"/> a member of any municipal council | <input type="checkbox"/> an employee of any provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999) |
| <input type="checkbox"/> a member of any provincial legislature | |
| <input type="checkbox"/> a member of the National Assembly or the National Council of Province | <input type="checkbox"/> a member of an accounting authority of any national or provincial public entity |
| <input type="checkbox"/> a member of the board of directors of any municipal entity | <input type="checkbox"/> an employee of Parliament or a provincial legislature |
| <input type="checkbox"/> an official of any municipality or municipal entity | |

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

If any of the above boxes are marked, disclose the following:

Name of sole proprietor, partner, director, manager, principal shareholder or stakeholder	Name of institution, public office, board or organ of state and position held	Status of service (tick appropriate column)	
		Current	< 12 months

*insert separate page if necessary

Section 7: Record of spouses, children and parents in the service of the state

Indicate by marking the relevant boxes with a cross, if any spouse, child or parent of a sole proprietor, partner in a partnership or director, manager, principal shareholder or stakeholder in a company or close corporation is currently or has been within the last 12 months been in the service of any of the following:

<input type="checkbox"/> a member of any municipal council <input type="checkbox"/> a member of any provincial legislature <input type="checkbox"/> a member of the National Assembly or the National Council of Province <input type="checkbox"/> a member of the board of directors of any municipal entity <input type="checkbox"/> an official of any municipality or municipal entity	<input type="checkbox"/> an employee of any provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999) <input type="checkbox"/> a member of an accounting authority of any national or provincial public entity <input type="checkbox"/> an employee of Parliament or a provincial legislature
--	---

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

Name of spouse, child or parent	Name of institution, public office, board or organ of state and position held	Status of service (tick appropriate column)	
		Current	< 12 months

*insert separate page if necessary

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise:

- ii) authorizes the Employer to obtain a tax clearance certificate from the South African Revenue Services that my / our tax matters are in order;
- iii) confirms that neither the name of the enterprise or the name of any partner, manager, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears on the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004;
- iv) confirms that no partner, member, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears, has within the last five years been convicted of fraud or corruption;
- v) confirms that I / we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other relationship with any of the tenderers or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest; and
- vi) confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

SIGNED

DATE

NAME

POSITION

TENDERER

Contractor_____ Witness 1 ____ Witness 2 ____ Employer _____ Witness 1 ____ Witness 2 ____

2.1M HEALTHY AND SAFETY FILE

Attach a health and safety file ready for approval by the OHS Agent.

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

T2.2 Returnable Documents – Tender Evaluation

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

Part T2.2: Returnable Documents – Tender Evaluation

**2.2A CERTIFICATE OF TENDERER'S ATTENDANCE AT CLARIFICATION
MEETING**

MBD 5

This is to certify that, I
representative of (Tenderer)
.....
.....
of (address)
.....
.....
.....

Telephone number:
Fax number:

in the company of (Employer's Agent's representative)
attended tender clarification meeting on (date)

I further certify that I have made myself familiar with all local conditions likely to influence the work and the cost thereof, that I am satisfied with the description of the work and the explanations given by the Client and that I understand perfectly the work to be done, as specified and implied, in the execution of this contract.

TENDERER'S REPRESENTATIVE: (Signature).....
(Name)

EMPLOYER'S AGENT'S REPRESENTATIVE: (Signature)
.....
(Name)

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

2.2B CERTIFICATE OF AUTHORITY FOR SIGNATORY

Signatory for companies shall confirm their authority thereto by attaching a duly signed and dated copy of the relevant resolution of the boards of directors to this form.

An example is given below:

"By resolution of the board of directors passed at a meeting held on
Mr/Mrs....., whose signature appears below, has been duly authorised
to sign all documents in connection with the Tender for Contract No. and any
Contract that may arise there from on behalf of (name of Tenderer in block capitals)
.....

SIGNED ON BEHALF OF THE COMPANY:

IN HIS/HER CAPACITY AS:

DATE:

SIGNATURE OF SIGNATORY:

WITNESSES: 1.

2.

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

2.2C RECORD OF ADDENDA TO TENDER DOCUMENTS

We confirm that the following communications received from the Employer before the submission of this tender offer, amending the tender documents, have been taken into account in this tender offer:

SCHEDULE T2.2C – RECORD OF ADDENDA

	Date	Title or Details
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

Attach additional pages if more space is required.

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

2.2D PROPOSED AMENDMENTS AND QUALIFICATIONS

The Tenderer should record any deviations or qualifications he may wish to make to the tender documents in this Returnable Schedule. Alternatively, a tenderer may state such deviations and qualifications in a covering letter to his tender and reference such letter in this schedule.

The Tenderer's attention is drawn to clause F.3.8 of the Standard Conditions of Tender referenced in the Tender Data regarding the employer's handling of equipment deviations and qualifications.

SCHEDULE T2.2D – PROPOSED AMENDMENTS AND QUALIFICATIONS

PAGE	CLAUSE OR ITEM	PROPOSAL

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

2.2E DETAILS OF ALTERNATIVE TENDER SUBMITTED

2.2F SURETY AND BANK DETAILS

SURETY DETAILS

The Surety we intend providing is from

.....

Contact Person

Contact Telephone numbers

Type of Surety

BANK DETAILS

Bank Name

Account Number

Account Type

Contact Person

Tel No.

Fax No.

Address

TENDERER'S REPRESENTATIVE

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

2.2G PROVIDE SCHEDULE SHOWING ANTICIPATED LOCAL SPENDING PER CATEGORY

The information required can be seen in the sample below.

Labour employment

Category	No. People	Man days	Amount
Local Labour			

Sub-Contractor required

Category	Activity	Amount
Contract 1		

SMME involved (Plinth foundation.....)

Category	Activity	Amount
Appointment 1		

Goods and Services procured (Fuel, Accommodation....)

Category	Product	Amount
Supplier 1		

Material procured (Electrical materials, Cement, aggregates....)

Category	Material	Amount
Supplier 1		

SIGNED _____ DATE _____

NAME _____ POSITION _____

TENDERER _____

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

2.2H INTENTION TO PROVIDE PERFORMANCE GUARANTEE

Provide a letter of intention to provide Performance Guarantee on a company letterhead and signed by authorized person from the intended guarantor. Refer to Compulsory Data clause 6.2.1, Part C1: 1 Agreement and Contract Data.

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

2.2I COPIES OF ID DOCUMENT OF DIRECTORS

Provide certified Id copies of company directors

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

2.2J JV FORMAL AGREEMENT

Provide JV formal agreement in case of Joint Venture

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

2.2K MUNICIPAL RATES CLEARANCE CERTIFICATE

Provide a certificate from the municipality stating that the company is up to date with rates payments.

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

T2.3 Adjudication of Tenders for Scoring

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

Part T2.3: Adjudication of Tenders for Scoring

2.3A PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2017

MBD 6.1

This preference form must form part of all bids invited. It contains general information and serves as a claim form for preference points for Broad-Based Black Economic Empowerment (B-BBEE) Status Level of Contribution

NB: BEFORE COMPLETING THIS FORM, BIDDERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF B-BBEE, AS PRESCRIBED IN THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017.

1. GENERAL CONDITIONS

ITEM	Weight
STAGE 1 OF EVALUATION – FUNCTIONALITY	
Functionality	100
• Methodology and Programme	20
• Expertise	40
• Company Experience	40
STAGE 2 OF EVALUATION – PRICE & B-BBEE	
B-BBEE	20
Price	80
TOTAL	100

1.1 FUNCTIONALITY – PRE-QUALIFICATION

The following functionality criterion is to be utilized. A minimum threshold obtaining a total score above **70%** will be evaluated in terms of price and BBEE.

DETAILED BREAKDOWN OF FUNCTIONALITY POINTS		
Details	Points Score	Item Max. Points
Methodology and Programme		20
1.1 Construction Programme		10
Detailed Construction Programme relevant to the Scope of Work. The Programme must demonstrate the Tenderer's approach and allocation of resources to achieve activities within the prescribed timeframes:		
Unacceptable (Does not demonstrate basic programming techniques & capabilities to meet project objectives. Prescribed timeframes are not met.)		0
Poor (Provided a construction programme but details are missing.)		5
Acceptable (Provided a detailed and convincing construction programme and demonstrated implement ability to meet project objectives.)		8
Good (Submitted a construction programme acceptable for approval by the Employer's Representative with innovative programming interventions to accelerate project objectives.)		10

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____
Part C1: Agreement and Contract Variables

1.2 Methodology		10
Tenderer demonstrates the ability to implement the Construction Programme and have a work implementation strategy assigned to the respective tasks for the optimisation of resources and activities.		
Unacceptable (Does not demonstrate a basic implementation strategy linked with the construction programme and project objectives.)		0
Poor (Provided a basic implementation strategy but lacks a clear understanding of the project scope and detailed deliverables (multi-disciplinary.)		5
Acceptable (Provided a detailed methodology and execution strategy with associated activities and resource optimization synchronized to meet the project objectives. The methodology is to include a schedule of required construction plant and resources required for the successful implementation of the project.)		8
Good (Submitted an excellent methodology and execution strategy that demonstrates clearly how the project objectives will be met along with a clear risk management plan. An innovative approach is to be presented that ensures successful implementation of critical activities.)		10
Expertise: In order to score points CV's with certified qualification certificate must be provided. Failure will result in Zero score.		40
2.1 Contract Manager (CM)		
CM has National diploma in Built or Mechanical Environment and ≥ 15 years' appropriate experience and has completed two (2) Similar projects successfully in Refurbishment of WWTW.		20
2.2 Site Technician (Technician)		
Technician has trade test certificate in mechanical works and ≥ 10 years' appropriate experience in which 3years must be on waste water mechanical equipment.		20
Company Experience: In order to score points completion certificates and Assessment form completed by Client with contract number must be provided. Failure will result in Zero score		40
3.1 Successfully completed ≥ 3 projects in Refurbishment /Construction of WWTW or		40
3.2 Successfully completed ≥ 1 to 2 projects in Refurbishment/ Construction of WWTW in the past 5 years.		20
	Total Point Score	Maximum Points
TOTAL EVALUATION SCORE FOR FUNCTIONALITY		100

- 1.2 The following preference point systems are applicable to all bids:
- the 80/20 system for requirements with a Rand value equal to or above R 30 000 and up to R 50 million (all applicable taxes included); and
 - the 90/10 system for requirements with a Rand value above R 50 million (all applicable taxes included).
- 1.3 The value of this bid is estimated to a value equal to or Above R30 000.00 and up to R 50,000,000 (all applicable taxes included).
- 1.4 Method 2 system shall be applicable.

Preference points for this bid shall be awarded for:

- (a) Price; and
(b) B-BBEE Status Level of Contribution.

- 1.3.1 The maximum points for this bid are allocated as follows:

	POINTS
Price	80
B-BBEE status level of contribution	20
Total points for Price and B-BBEE must not exceed	100

- 1.4 Failure on the part of a bidder to fill in and/or to sign this form and submit a B-BBEE Verification Certificate from a Verification Agency accredited by the South African Accreditation System (SANAS) or a Registered Auditor approved by the Independent Regulatory Board of Auditors (IRBA) or an Accounting Officer as contemplated in the Close Corporation Act (CCA) together with the bid, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.
- 1.5. The purchaser 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 purchaser.

2. DEFINITIONS

- 2.1 **“all applicable taxes”** includes value-added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies;
- 2.2 **“B-BBEE”** means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;
- 2.3 **“B-BBEE status level of contributor”** means the B-BBEE status received by a measured entity based on its overall performance using the relevant scorecard contained in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;
- 2.4 **“bid”** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of services, works or goods, through price quotations, advertised competitive bidding processes or proposals;
- 2.5 **“Broad-Based Black Economic Empowerment Act”** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);
- 2.6 **“comparative price”** means the price after the factors of a non-firm price and all unconditional discounts that can be utilized have been taken into consideration;
- 2.7 **“consortium or joint venture”** 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;
- 2.8 **“contract”** means the agreement that results from the acceptance of a bid by an organ of state;
- 2.9 **“EME”** means any enterprise with an annual total revenue of R5 million or less.
- 2.10 **“Firm price”** means the price that is only subject to adjustments in accordance with the actual increase or decrease resulting from the change, imposition, or abolition of customs or excise duty and any other duty, levy, or tax, which, in terms of the law or regulation, is binding on the Contractor and demonstrably has an influence on the price of any supplies, or the rendering costs of any service, for the execution of the contract;

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____
Part C1: Agreement and Contract Variables

- 2.11 **“functionality”** means the measurement according to predetermined norms, as set out in the bid documents, of a service or commodity that is designed to be practical and useful, working or operating, taking into account, among other factors, the quality, reliability, viability and durability of a service and the technical capacity and ability of a bidder;
- 2.12 **“non-firm prices”** means all prices other than “firm” prices;
- 2.13 **“person”** includes a juristic person;
- 2.14 **“rand value”** means the total estimated value of a contract in South African currency, calculated at the time of bid invitations, and includes all applicable taxes and excise duties;
- 2.15 **“sub-contract”** means the primary Contractor’s assigning, leasing, making out work to, or employing, another person to support such primary Contractor in the execution of part of a project in terms of the contract;
- 2.16 **“total revenue”** bears the same meaning assigned to this expression in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act and promulgated in the Government Gazette on 9 February 2007;
- 2.17 **“trust”** means the arrangement through which the property of one person is made over or bequeathed to a trustee to administer such property for the benefit of another person; and
- 2.18 **“trustee”** means any person, including the founder of a trust, to whom property is bequeathed in order for such property to be administered for the benefit of another person.

3. ADJUDICATION USING A POINT SYSTEM

- 3.1 The bidder obtaining the highest number of total points will be awarded the contract.
- 3.2 Preference points 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;
- 3.3 Points scored must be rounded off to the nearest 2 decimal places.
- 3.4 In the event that two or more bids have scored equal total points, the successful bid must be the one scoring the highest number of preference points for B-BBEE.
- 3.5 However, when functionality is part of the evaluation process and two or more bids have scored equal points including equal preference points for B-BBEE, the successful bid must be the one scoring the highest score for functionality.
- 3.6 Should two or more bids be equal in all respects; the award shall be decided by the drawing of lots.

4. POINTS AWARDED FOR PRICE

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

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

$$P_s = 80 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right) \quad \text{or} \quad P_s = 90 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$$

Where

P_s = Points scored for price of tender under consideration;
 P_t = Price of tender under consideration; and
 P_{\min} = Price of lowest acceptable tender.

5. Points awarded for B-BBEE Status Level of Contribution

- 5.1 In terms of Regulation 6 (2) and 7 (2) of the Preferential Procurement Regulations, preference points must be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

B-BBEE Status Level of Contributor	Number of points (90/10 system)	Number of points (80/20 system)
1	10	20
2	9	18

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____
Part C1: Agreement and Contract Variables

B-BBEE Status Level of Contributor	Number of points (90/10 system)	Number of points (80/20 system)
3	6	14
4	5	12
5	4	8
6	3	6
7	2	4
8	1	2
Non-compliant contributor	0	0

- 5.2 Bidders who qualify as EMEs in terms of the B-BBEE Act must submit a certificate issued by an Accounting Officer as contemplated in the CCA or a Verification Agency accredited by SANAS or a Registered Auditor. Registered auditors do not need to meet the prerequisite for IRBA's approval for the purpose of conducting verification and issuing EMEs with B-BBEE Status Level Certificates.
- 5.3 Bidders other than EMEs must submit their original and valid B-BBEE status level verification certificate or a certified copy thereof, substantiating their B-BBEE rating issued by a Registered Auditor approved by IRBA or a Verification Agency accredited by SANAS.
- 5.4 A trust, consortium or joint venture, will qualify for points for their B-BBEE status level as a legal entity, provided that the entity submits their B-BBEE status level certificate.
- 5.5 A trust, consortium or joint venture will qualify for points for their B-BBEE status level as an unincorporated entity, provided that the entity submits their consolidated B-BBEE scorecard as if they were a group structure and that such a consolidated B-BBEE scorecard is prepared for every separate bid.
- 5.6 Tertiary institutions and public entities will be required to submit their B-BBEE status level certificates in terms of the specialized scorecard contained in the B-BBEE Codes of Good Practice.

6. BID DECLARATION

- 6.1 Bidders who claim points in respect of B-BBEE Status Level of Contribution must complete the following:

7. B-BBEE STATUS LEVEL OF CONTRIBUTION CLAIMED IN TERMS OF PARAGRAPHS 1.3.1.2 AND 5.1

- 7.1 B-BBEE Status Level of Contribution: = (Maximum of 10 or 20 points)
(Points claimed in respect of paragraph 7.1 must be in accordance with the table reflected in paragraph 5.1 and must be substantiated by means of a B-BBEE certificate issued by a Verification Agency accredited by SANAS or a Registered Auditor approved by IRBA or an Accounting Officer as contemplated in the CCA or Affidavit).

8 SUB-CONTRACTING

- 8.1 Will any portion of the contract be sub-contracted? YES / NO (delete which is not applicable)
- 8.1.1 If yes, indicate:
- (i) what percentage of the contract will be subcontracted?%
 - (ii) the name of the sub-Contractor?
 - (iii) the B-BBEE status level of the sub-Contractor?
 - (iv) whether the sub-Contractor is an EME? YES / NO (delete which is not applicable)

9 DECLARATION WITH REGARD TO COMPANY/FIRM

- 9.1 Name of firm :
- 9.2 VAT registration number :
- 9.3 Company registration number :
- 9.4 TYPE OF COMPANY/ FIRM

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____
Part C1: Agreement and Contract Variables

- ☐ Partnership/Joint Venture / Consortium
- ☐ One-person business/sole propriety
- ☐ Close corporation
- ☐ Company
- ☐ (Pty) Limited

[TICK APPLICABLE BOX]

9.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

.....

.....

.....

9.6 COMPANY CLASSIFICATION

- ☐ Manufacturer
- ☐ Supplier
- ☐ Professional service provider
- ☐ Other service providers, e.g. transporter, etc.

[TICK APPLICABLE BOX]

9.7 MUNICIPAL INFORMATION

Municipality where business is situated

Registered Account Number

Stand Number

9.8 TOTAL NUMBER OF YEARS THE COMPANY/FIRM HAS BEEN IN BUSINESS?

9.9 I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BBE status level of contribution indicated in paragraph 7 of the foregoing certificate, qualifies the company/ firm for the preference(s) shown and I / we acknowledge that:

- (i) The information furnished is true and correct;
- (ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form.
- (iii) In the event of a contract being awarded as a result of points claimed as shown in paragraph 7, the Contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;
- (iv) If the B-BBEE status level of contribution has been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the purchaser 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) restrict the bidder or Contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, 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

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

Part C1: Agreement and Contract Variables

(e) forward the matter for criminal prosecution

Signed in the presence of the subscribing witnesses:

Atfor and on behalf of

.....

on this the day of 20.....

SIGNATURE :

CAPACITY :

ADDRESS :

:

:

AS WITNESSES : 1

2

2.3B CONSTRUCTION PROGRAMME

Attach a construction programme (Gantt chart).

2.3C METHODOLOGY & EXECUTION STRATEGY

Attach a detailed methodology of how the work will be executed. The methodology is to include the proposed design and details pertaining to the Refurbishment of Kenton on Sea WWTW.

A detailed summary of the staff required to the Refurbishment of Kenton on Sea WWTW is to be included in the methodology. The contractor must clearly indicate which staff members will be sourced locally.

2.3D EXPERTISE

Adequate CV's and certified qualifications to be attached for Contracts Manager and Technician, as per the example below:

[illegible]

Notes:

- 1) This template must be completed and no points will be awarded in the event the specific requirements are not met

2.3E COMPANY EXPERIENCE

The following template must be completed which summarizes the Contractor's experience.

Completion certificates signed off by client with contract number to be attached in order to score points on functionality.

The above required documentation must be provided and do note the general listing of contracts completed will not suffice and will result in a tenderer scored zero points on functionality.

SUCCESSFUL COMPLETED PROJECTS IN REFURBISHMENT OF WASTE WATER TREATMENT PLANT.

Employer:	Description of Project	Project Value
Contact Person:		Date Completed:
Tel No:		

Notes:

- 2) This template must be completed and no points will be awarded in the event the specific requirement are not met

2.3F LOCATION OF OPERATIONAL OFFICE

THE CONTRACT

PART C1: AGREEMENT AND DATA

PART C1 AGREEMENT AND CONTRACT DATA

C1.1 FORM OF OFFER AND ACCEPTANCE

C1.2 CONTRACT DATA

C1.3 FORM OF GUARANTEE (PRO FORMA).

C1.4 AGREEMENT IN TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, 1993
(ACT NO 85 OF 1993)

SMME____ Witness 1 ____ Witness 2 ____ Main Contractor ____ Witness 1 ____ Witness 2 ____

Part C1: Agreement and Contract Data

C1.1 FORM OF OFFER AND ACCEPTANCE

(Agreement)

OFFER OF TENDER

Name of Contract: Refurbishment of Kenton on Sea WWTW

Contract No.: 134 /2020 (WSIG2020-006)

To: Ndlambe Local Municipality

We have examined the Conditions of Contract, Employer's Requirements, Schedules, Contract Data, and the attached Appendices and Addenda No.s [Number].

for the above-named Contract. We have understood and checked these documents and have ascertained that they contain no errors or other defects except as identified in our Tender. We accordingly offer to Refurbishment of Kenton on Sea WWTW and complete the Works and remedy any defects therein so that they are fit for the purposes defined in the Contract, and to maintain the facility under licence from the Employer for the period of two (2) years and in conformity with the terms and conditions contained in the Contract for the lump sum amount of (Rand and amount in figures)

This amount is made up of the following components:

For the Refurbishment of Kenton on Sea WWTW, the amount of:

Amount in
figures: _____

Amount in
words: _____

For the of Maintenance Service (TWO YEARS), the amount of:

Amount in
figures: _____

Amount in
words: _____

We agree to abide by this Tender until _____ and it shall remain binding upon us and may be accepted at any time before that date.

If this offer is accepted, we will provide the required Performance Security, and commence and complete the Works, and provide the Maintenance Service, in accordance with the above-named documents and the agreed programme.

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

We further undertake, together with the Employer, to jointly appoint the DAB and the Auditing Body in accordance with the requirements of the Contract.

For the tenderer

Signature _____ Date: _____

Name _____ Capacity: _____

(Name and address of organization)

Name and signature of witness _____

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

LETTER OF ACCEPTANCE

Name of Contract: Refurbishment of Kenton on Sea WWTW

Contract No.: 134 /2020 (WSIG2020-006)

To:

We thank you for your Tender dated _____ for the Refurbishment of Kenton on Sea WWTW and completion of the Works comprising the above-named Contract and remedying of defects therein so that they are fit for the purposes defined in the Contract, and for the maintenance thereof under licence for the period of two (2) years, all in conformity with the terms and conditions contained in the Contract as amended by the attached Memorandum, signed by you and ourselves.

We have pleasure in accepting your Tender for the Accepted Contract Amount of:

This amount is made up of the following components:

For the Design-Build of the Works, the amount of:

Amount in
figures: _____

Amount in
words: _____

For the Maintenance Services of (TWO YEARS), the amount of:

Amount in
figures: _____

Amount in
words: _____

In consideration of you properly and truly performing the Contract, we agree to pay you the Accepted Contract Amount or such other sums to which you may become entitled under the terms of the Contract, at such times and as prescribed by the Contract.

We acknowledge that this Letter of Acceptance creates a binding Contract between us, and we undertake to fulfil all our obligations and duties in accordance with the terms of this Contract.

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

For the Employer

Signature _____ Date _____

Name	Capacity
(Name and address of organization)	Ndlambe Local Municipality
	P.O Box 13
	Port Alfred
	6170

Name and signature of witness _____

Date: _____

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

SCHEDULE OF DEVIATIONS

Notes:

1. The extent of deviations from the tender documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender.
2. A Tenderer's covering letter shall not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid, become the subject of agreements reached during the process of offer and acceptance, the outcome of such agreement shall be recorded here.
3. Any other matter arising from the process of offer and acceptance either as a confirmation, clarification or change to the tender documents and which it is agreed by the Parties becomes an obligation of the contract and shall also be recorded here.
4. Any change or addition to the tender documents arising from the above agreements and recorded here, shall also be incorporated into the final draft of the Contract.

- 1 Subject:
 Details:

- 2 Subject:
 Details:

- 3 Subject:
 Details:

- 4 Subject:
 Details:

- 5 Subject:
 Details:

By the duly authorised representatives signing this agreement, the employer and the tenderer agree to and accept the foregoing schedule of deviations as the only deviations from and amendments to the documents listed in the tender data and addenda thereto as listed in the tender schedules, as well as any confirmation, clarification or changes to the terms of the offer agreed by the tenderer 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 tenderer of a completed signed copy of this Agreement shall have any meaning or effect in the contract between the parties arising from this agreement.

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

For the Employer

Signature _____

Date _____

Name _____

Capacity _____

(Name and address of organization)

**Ndlambe Local Municipality
P.O Box 13
Port Alfred
6170**

Name and signature of witness _____

Date: _____

For the tenderer

Signature _____

Date _____

Name _____

Capacity _____

(Name and address of organization)

Name and signature of witness _____

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

CONFIRMATION OF RECEIPT

The Contractor, identified in the Offer part of this Agreement, hereby confirms receipt from the Employer, identified in the Acceptance part of this Agreement, of one fully completed original copy of this Agreement, including the Schedule of Deviations (if any) today:

For the Contractor

Signature _____	Date _____	Place _____
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Name _____	Capacity _____
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(Name and address of organization) _____

Name and signature of witness

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

C1.2 CONTRACT DATA

PART 1: DATA PROVIDED BY THE EMPLOYER

CONDITIONS OF CONTRACT

The General Conditions of Employment Act **FIDIC Short Form of Contract 1st Edition (1999 Green Book)**, published by the FIDIC International Federation of Consulting Engineers, is applicable to this Contract and is obtainable from the South African Institution of Civil Engineering (www.saice.org.za).

Copies of these Conditions of Contract may be obtained from the South African Institution of Civil Engineering, tel. 011 805 5947.

CONTRACT SPECIFIC DATA

The following contract specific data are applicable to this Contract:

Clause	Items and data
1.1	<p>Definitions:</p> <p>1.1.9 "Time for Completion" shall be 150 calendar days calculated from the Commencement Date</p> <p>Replace Clause 1.1.1</p> <p>1.1.1 "Contract" means the documentation of the agreement of the parties in terms of the Form of Offer and Acceptance, and such written amendments or additions to the Contract as may be agreed and signed by both parties.</p> <p>Replace Clause 1.1.8</p> <p>1.1.8 "day" means a calendar day unless specifically stated otherwise</p> <p>Add the following definition:</p> <p>1.1.20 "Schedule of Documents" means the document so designated in and forming part of the Tender Documents.</p> <p>1.1.21 "In Good Time" shall be interpreted as to the discretion of the Client representative.</p>
	<p>The Commencement Date shall be the date the Contractor receives a copy of the signed Letter of Acceptance from the Employer. At such time the Contractor shall be deemed to have received Notice."</p>
1.4	<p>The Law which is to apply to the Contract, and according to which the Contract is to be interpreted, shall be the law of the Republic of South Africa.</p> <p>Add to the end of Clause 1.4</p> <p>OHS Compliance</p> <p>"The Contractor shall, within 14 days of the Commencement Date, deliver to the Employer, for his approval, a health and safety plan as required by Regulations 4(2) and 5(1) of the Construction Regulations, 2003 of the Occupational Health and Safety Act.</p> <p>The Employer shall approve (or disapprove) the health and safety plan within the time stated in the Appendix to Part 1 of the Contract Data from the date of receipt of the submission.</p> <p>The Contractor shall, within 14 days of the Commencement Date, deliver to the Employer a Mandatory Form as envisaged by Section 37(2) of the Occupational Health</p>

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

	<p>and Safety Act. (See Pro Forma: Agreement in terms of the Occupational Health and Safety Act bound in the Quotation Documents.)".</p> <p>Proof of good standing</p> <p>"With regard to the Compensation for Occupational Injuries and Diseases Act (Act No. 130 of 1993), the Contractor shall, within 14 days of the Commencement Date for the production of insurance policies in terms of Clause 8.6.6, deliver to the Employer a letter, either</p> <p>(a) from his Insurance Company certifying that the Contractor has effected insurance with the Company for the full extent of his potential liability in respect of all workmen employed by him on the Contract and undertaking to notify the Employer of the expiry date of the policy at least one calendar month before such date, or</p> <p>(b) from the Compensation Commissioner certifying that the Contractor has complied with the requirements of the above-mentioned Act and is at present in good standing with the Compensation Fund."</p>
1.5	The Language of the Contract and of written communications shall be English
2.1	The Employer shall provide the Site and right of access thereto on the date of the site handover meeting
3.1	<p>The Authorised Person shall be:</p> <p>Mrs N. Viti-Masiza</p>
3.2	<p>The Contractor's Representative as Site Manager shall be:</p> <p>Physical address: Postal address:</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>Telephone: +27, Fax: +27</p> <p>E-mail:</p>
4.4	Performance security shall be 10% of the contract value for the Refurbishment of Kenton on Sea WWTW and must be from an Insurance company, in accordance with the provision of the Form of Guarantee. The wording of the guarantee shall be identical to the pro-forma provided under Clause C1.3 Form of Guarantee of the Contract Data
5.1	The Contractor shall Carry out the design of the Refurbishment of Kenton on Sea WWTW.
7.2	<p>Replace in Clause 7.2</p> <p>Within 14 days of the Commencement Date, the Contractor shall submit to the Employer's Representative a revised programme of the Works.</p> <p>The programme shall be in a Gantt-chart format</p>
7.4	The amount payable due to failure to complete the Works shall be R10 000.00 per day up to a maximum of 10% of the Sum stated in the Agreement.
9.1 & 11.5	The period for notifying defects shall be 3 months from the date stated in the notice under Sub-Clause 8.2.
11.1	Valuation of the Works shall be Remeasurement with tender bill of quantities

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

11.2	<p>Percentage of Value of Materials and Plant shall be</p> <ul style="list-style-type: none"> • Equipment 80%
11.3	<p>The Presentation of Retention shall be 10% to a maximum of 5% of the Supply and Install capital sum and this will be deducted per invoice, or a retention guarantee of 5% of the Supply and Install capital sum</p>
	<p>The Contractor shall be responsible for general Design and Construction of services related to the execution of the Refurbishment of Kenton on Sea WWTW as well as Maintenance requirements of the Agreement.</p> <ul style="list-style-type: none"> • Attending of a Project Meeting once every two weeks to integrate Technical or Progress matters with stakeholders during construction phase of the project; • Monthly Maintenance site visit and report; • Assisting with Scope Change Management processes and requirements; • Procurement Management of sub-contracted Works and Services; • Procurement Management in preparing and submitting Interim Payment Certificates in accordance with Clause 14.7 • Schedule Management; • Quality Management • Integration Management • Keeping and Updating a Project Risk Register <p>In addition to the Contractor's responsibility is to perform Design services of the WWTW. The Contractor shall make sure that the WWTW is design in accordance with the sizes of the Aerator and pumps and shall make available his/ her resources to assist the Employer's Representative in Scope Change Management processes.</p> <p>A Provisional Sum is provided for such services and shall be used in accordance with the Employer's Representative's instructions.</p>
11.7	<p>The Currency of payment shall be the South African Rand</p>
11.8	<p>The Rate of interest shall be at the prime overdraft rate, as charged by the Contractor's Bank</p>
14.1	<p>The amount of cover shall be for the Sum stated in the Agreement plus 15% or more.</p>
14.2	<p>Amount of Maintenance Retention Fund is 5% to a maximum of 5% of the annual Maintenance cost (to be maintained)</p>
	<p>Period of the maintenance service shall be 2 years commencing at the end of the liability period.</p>
15.3	<p>Replace Clause 15.3</p> <p>If the Contract provides for determination of disputes by arbitration and a dispute is still unresolved, the matter shall be referred to a single arbitrator. Any such reference shall be deemed to be a submission to the arbitration of a single arbitrator in terms of the Arbitration Act (Act no. 42 of 1965, as amended), or any legislation passed in substitution therefor.</p> <p>ADD Clause 15.4</p> <p>In the absence of any other agreed procedure, the arbitration shall take place in accordance with the Rules for the Conduct of Arbitrations issued by the Association of Arbitrators (Southern Africa) which is current at the time of the referral to arbitration.</p>

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

	<p>ADDITIONAL CLAUSES</p> <p>Form of Offer</p> <p>The Form of Offer to be used shall be the Offer bound in this document, which is not necessarily the same as that attached to the published version of the General Conditions of Contract.</p> <p>Form of Acceptance</p> <p>The Form of Acceptance to be used shall be the Acceptance bound in this document, which is not necessarily the same as that attached to the published version of the General Conditions of Contract.</p>
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C1.3 PERFORMANCE GUARANTEE

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means:

Physical address:

"Employer" means:

"Contractor" means:

"Employer's Agent" means:

"Works" means:

"Site" means:

"Contract" means: The Agreement made in terms of the Form of Offer and Acceptance and such amendments or additions to the Contract as may be agreed in writing between the parties.

"Contract Sum" means: The accepted amount inclusive of tax of R

Amount in words:

"Guaranteed Sum" means: The maximum aggregate amount of R.....

Amount in words:

"Expire Date" means:

CONTRACT DETAILS

Employer's Agent issues: Interim Payment Certificates, Final Payment Certificate and the Certificate Completion of the Works as defined in the Contract.

FIXED PERFORMANCE GUARANTEE

- 1 Where a Fixed Performance Guarantee has been selected, the Guarantor's liability shall be limited to the amount of the Guaranteed Sum.
- 2 The Guarantor's period of liability shall be from and including the date on which the Performance Guarantee is signed, up to and including the Expiry Date, or the date of issue by the Employer's Agent of the Certificate of Completion of the Works, or the date of payment in full of the Guaranteed Sum, whichever occurs first.
- 3 The Employer's Agent and /or the Employer shall advise the Guarantor in writing of the date on which the Certificate of Completion of the Works has been issued.

CONDITIONS APPLICABLE TO FIXED PERFORMANCE GUARANTEES

1. The Guarantor hereby acknowledges that: Any reference in this Performance Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship. Its obligation under this Performance Guarantee is restricted to the payment of money. Subjects to the Guarantors maximum liability referred to in 1.1 or 2.1, the Guarantor hereby undertakes to pay the Employer the certified upon receipt of the documents identified in 3.2.1 to 3.2.3:
 - 2.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Employers Agent in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 3.2.2;
 - 2.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy of the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 3.2.1 and the sum certified has still not been paid;

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

- 2.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 3.2.
3. Subject to the Guarantor's maximum liability referred to in 1.1 or 2.1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:
- 3.1 the Contact has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 3.3; or
- 3.2 A provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 3.3; and
- 3.3 The aforesaid written demand is accompanied by a copy of the notice of termination and /or the provisional/ sequestration and/ or the provisional liquidation court order.
4. It is recorded that the aggregate amount of payments requires to be made by the Guarantor in terms of 3.2 and 3.3 shall not exceed the Guarantors' maximum liability in terms of 1.1 or 2.1.
5. Where the Guarantor has made payment in terms of 3.3, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Guarantor showing how all monies received in terms of this Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Performance Guarantee shall bear interest at the prime overdraft rate of the Employers bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.
6. Payment by the Guarantor in terms of 3.2 or 3.3 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.
7. Payment by the Guarantor in terms of 3.3 will only be made against the return of the original Performance Guarantee by the Employer.
8. The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may consider fit and the Guarantor shall not have the right to claim his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.
9. The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.
10. This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 1.1.2 or 2.2, where after no claim will be considered by the Guarantor. The original of the Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrates' Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

Signed in the presence of the subscribing witnesses:

Atfor and on behalf of

.....

on this the day of 20.....

SIGNATURE (1) :

CAPACITY :

ADDRESS :

:

:

AS WITNESSES : 1

2

SMME____ Witness 1 ____ Witness 2 ____ Main Contractor ____ Witness 1 ____ Witness 2 ____

Part C1: Agreement and Contract Data

C1.3 AGREEMENT IN TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO 85 OF 1993)

THIS AGREEMENT made at
on this the day of in the year
between (hereinafter called "the
Employer") of the one part, herein represented by
in his capacity as
and (hereinafter called "the
Mandatory") of the other part, herein represented by
in his capacity as

WHEREAS the Employer is desirous that certain works be constructed, viz

and has accepted a Quotation by the Mandatory for the construction, completion and maintenance of such Works and whereas the Employer and the Mandatory have agreed to certain arrangements and procedures to be followed in order to ensure compliance by the Mandatory with the provisions of the Occupational Health and Safety Act, 1993 (Act 85 of 1993);

NOW THEREFORE THIS AGREEMENT WITNESSETH AS FOLLOWS:

- 1 The Mandatory shall execute the work in accordance with the Contract Documents pertaining to this Contract.
- 2 This Agreement shall hold good from its Commencement Date, which shall be the date of a written notice from the Employer or Engineer requiring him to commence the execution of the Works, to either
 - (a) the date of the Taking-Over Notice in terms of Clause 8.2 (FIDIC Short Contract), or
 - (b) the date of termination of the Contract in terms of Clause 12.1 (FIDIC Short Contract).
- 3 The Mandatory declares himself to be conversant with the following:
 - (a) All the requirements, regulations and standards of the Occupational Health and Safety Act (Act 85 of 1993), hereinafter referred to as "The Act", together with its amendments and with special reference to the following Sections of The Act:
 - (i) Section 8 : General duties of employers to their employees;
 - (ii) Section 9 : General duties of employers and self-employed persons to persons other than employees;
 - (iii) Section 37 : Acts or omissions by employees or mandatories, and
 - (iv) Subsection 37(2) relating to the purpose and meaning of this Agreement.
 - (b) The procedures and safety rules of the Employer as pertaining to the Mandatory and to all his subcontractors.

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

- In witness thereof the parties hereto have set their signatures hereon in the presence of the subscribing witnesses:

WITNESS 1 _____ 2 _____

SIGNED FOR AND ON BEHALF OF THE MANDATORY:

WITNESS 1 _____ 2 _____

NAME 1 2

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

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

An example is given below:

"By resolution of the Board of Directors passed at a meeting held on 20.....,

Mr/Ms whose signature

appears below, has been duly authorised to sign the AGREEMENT in terms of THE OCCUPATIONAL
HEALTH AND SAFETY ACT, 1993 (ACT 85 of 1993) on behalf of

.....

SIGNED ON BEHALF OF THE COMPANY :

IN HIS/HER CAPACITY AS :

DATE :

SIGNATURE OF SIGNATORY :

WITNESS: 1. 2.

NAME (IN CAPITALS): 1. 2.

SMME____ Witness 1 ____ Witness 2 ____ Main Contractor ____ Witness 1 ____ Witness 2 ____

Part C1: Agreement and Contract Data

PART C2: PRICING DATE

PART C2: PRICING DATA

C2.1 PRICING INSTRUCTIONS

C2.2 BILLS OF QUANTITIES

C2.1 PRICING INSTRUCTIONS

1. The FIDIC 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 Contractor 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 Engineer 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 Scope of Work. 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 Quantities². 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.
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 several items. 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 Quotation 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 Contractor 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 Quotation rates shall apply should work under these items actually be required.

Should the Contractor group a number of items together and Quotation one sum for such group of items, the single Quotation 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 Quotation 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.

² The standard system of measurement of civil engineering quantities published by the South African Institution of Civil Engineers.

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

- 8 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 Contractor Quotations to do the work
Amount	:	The quantity of an item multiplied by the Quotation rate of the (same) item
Sum	:	An amount Quotation 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

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

%	=	percent
h	=	hour
ha	=	hectare
kg	=	kilogram
kl	=	kiloliter
km	=	kilometer
km-pass	=	kilometre-pass
kPa	=	kilopascal
kW	=	kilowatt
l	=	liter
m	=	meter
mm	=	millimeter
m ²	=	square meter
m ² -pass	=	square meter-pass
m ³	=	cubic meter
m ³ -km	=	cubic meter-kilometer
MN	=	meganewton
MN.m	=	meganewton-meter
MPa	=	megapascal
No.	=	number
Prov sum	=	Provisional sum
PC sum	=	Prime Cost sum
R/only	=	Rate only
sum	=	lump sum
t	=	ton (1000 kg)
W/day	=	Work day

C2.2 BILLS OF QUANTITIES

Bills of Quantities to be completed in accordance with pricing instructions follow herewith.

NDALMBE MUNICIPALITY
KENTON-ON-SEA: EMERGENCY REPAIRS TO WASTE WATER
TREATMENT PLANT

SCHEDULE A: PRELIMINARY AND GENERAL

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	TENDERED AMOUNT
	SCHEDULE A: PRELIMINARY AND GENERAL ITEMS				
A1	Schedule fixed-charge and value-related items				
A1.1	Fixed preliminary and general charges	Sum			
A2	Establishment of facilities on the site:				
A2.1	Facilities for Engineer				
A2.1.1	a) Furnished offices (1 number of) and carport as specified in PSAB 3.2	Sum			
A2.1.2	b) Nameboards (2 number of)	Sum			
A2.2	Facilities for Contractor				
A2.2.1	a) Offices and storage sheds	Sum			
A2.2.2	c) Water Testing Laboratory	Sum			
A2.2.5	f) Tools and equipment	Sum			
A2.2.7	h) Dealing with water	Sum			
A2.2.8	i) Access	Sum			
A2.2.9	j) Plant	Sum			
A2.3	Other fixed-charge obligations	Sum			
A2.4	Removal of engineer's and contractor's site establishment on completion	Sum			
A3	Day works				
A3.1	Labour				
A3.1.1	(i) Unskilled	hour			
A3.1.2	(ii) Semi-skilled	hour			

A3.1.3	(iii) Ganger	hour			
A3.1.4	(iv) Millwright	hour			
A3.2	Plant inclusive of operator, fuel, establishment on and removal from site:				
A3.2.1	TLB	hr			
A3.2.2	Tipper Truck (6m³)	hr			
A3.2.3	Wacker	hr			
A3.2.4	Plate compactor	hr			
A3.2.5	Excavator (exceeding 150 kW)	hr			
A3.2.6	LDV	hr			
A4	Temporary Works				
A4.1	Provision of detection equipment for:				
A4.1.1	a) Water & Sewer Pipes	Sum			
A4.1.2	b) Electrical & other cables	Sum			
Carried Forward					
Brought forward					
A7	Compliance with OHS Act and construction Regulations 2014				
A7.1	Principal Contractor's initial obligations in respect of the Occupational Health and Safety Act and Construction Regulations	Sum			
A7.2	Principal Contractor's time related obligations in respect of the Occupational Health and Safety Act and Construction Regulations	Sum			
A7.3	Provision of Personal Protective Equipment (PPE) including: Reflective vests, hard hats, protective footwear, earplugs, dust masks, gloves, high visibility overalls to SARTSM, ear defenders and gumboots	Sum			
A7.4	Provision of a full time Construction Health and Safety Officer	Month			
A7.5	Cost of medical certificates and medical surveillance				

	(a) Initial (baseline) medical examinations	Sum			
	(b) Periodic and exit examinations	Sum			
A7.6	Induction training	Sum			
A7.7	Provision of First Aid Boxes to GSR requirements	No			
A7.8	Noise monitoring				
	(a) Establishment of noise zones (plant)	No			
	(b) Audiograms (personnel)	No			
A7.9	Submission of a Health and Safety File	Sum			
A7.10	Inoculation for Hepatitis	Sum			
A7.11	Remuneration of CLO	PC sum			
	Carried Forward				-
	TOTAL SCHEDULE A CARRIED TO SUMMARY: REPAIR WORK.				

NDALMBE MUNICIPALITY
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WWTW

SCHEDULE B: REPAIRS TO EXISTING
INFRASTRUCTURE

ITEM NO	DESCRIPTION	UNIT	QTY	TENDERED AMOUNT	
				RATE	AMOUNT
B1	<u>SCHEDULE B1: GENERAL REQUIREMENTS AND PROVISIONS</u>				
	-				
B1.1	Refurbishment & Furnishing of the operator's room	PC Sum	1		
	-				
B1.2	Refurbishment of existing boundary fence	PC Sum	1		
	TOTAL CARRIED TO SUMMARY				
B2	<u>SCHEDULE B2: WASTEWATER TREATMENT WORKS</u> <u>WASTEWATER TREATMENT WORKS</u>				
	-				
B2.1	INLET WORKS				
	Inlet screening (bypass chamber and slab for bins measured elsewhere)				
B2.1.1	Thorough cleaning and desludging	Sum	1		
B2.1.2	New wheel bins for inlet screenings	No.	2		
B2.1.3	Hand rake for screenings	No.	2		
B2.1.4	Maintenance of Sluice gate.	Sum	1		
B2.1.5	Replacement of flow meter	No.	1		

B2.2	WASTE WATER TREATMENT PACKAGE PLANT				
	-				
B2.2.1	Decommission Package Plant	No.	1		
B2.2.2	Empty and remove sludge, mix with ground and dispose	Sum	1		
B2.2.3	Corrosion protection of walkway	Sum	1		
B2.2.4	Replace eroded pipework, fittings, hot dip galvanize panels	Sum	1		
B2.2.5	Service switchgear	No.	2		
B2.2.6	Service aerators, incl removal and re-installation of gearbox and motor (FLENDER MOTOX K100R132S4 12.5 kW) , replace gearbox bearings, motor bearings. Replace bearing housing between the motor and the gearbox. Paint with rust resitant paint.	No.	2		
B2.2.7	Supply, install and commission new aerator, incl motor (FLENDER MOTOX K100R132S4 12.5 kW) and gearbox	No.	1		
B2.2.8	Commission of Package Plant	No.	1		
B2.2.9	Removable hand screen				
	Remove, re-modify the stainless screen including welding and transport from and to site	No	1		
B2.2.10	Provide support to the walkway bridge (seems like its collapsing and can be the cause of the damage to motor and gearbox)	Sum	1		
B2.2.11	Remove, strip and re-wire and install new components on the control panel	sum	1		
B2.3	INLET WORKS				
B2.4.1	Replacement of chlorine dosing equipment.	Sum	1		

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

Part C2: Pricing Data

B2.4.1	Install flow meters at the outlet of plant.	sum	1		
B2.4	GENERAL				
B2.4.1	Inspection, service, repair and/or replace of all process controls (e.g. floatsitches)	Prov Sum	1		
B2.4.2	Allowance for all temporary works to provide electricity during repairs	Sum	1		
	TOTAL CARRIED TO SUMMARY				
B3	<u>SCHEDULE B3: GENERAL DECOMMISSIONING, TESTING AND COMMISSIONING PROCEDURES</u>				
B3.1	Testing and Commissioning				
B3.1.1	Complete Sewerage installation	Sum	1		
B3.2	<u>Operating & Maintenance Manuals</u>				
B3.2.1	Compile and supply a complete set of operating and maintenance manuals	Sum	1		
B3.2.1	Sewerage Installation	No	1		
B3.3	<u>General Training</u>				
B3.3.1	Development of a syllabus or procurement of outside trainers for training of operators for:				
B3.3.1.1	Sewerage Installation	Sum	1		
B3.3.2	Present training course for operators for:				
B3.3.2.1	Sewerage Installation	Sum	1		
	TOTAL CARRIED TO SUMMARY				

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

C	<u>SCHEDULE C: ANNUAL MAINTENANCE OF WASTEWATER TREATMENT WORKS</u>				
C.1	1 ST Year-Maintenance of all mechanical works of waste water treatment works. (Aerators, pumps, etc)	p.a.	1		
C.2	2 nd Year-Maintenance of all mechanical works of waste water treatment works. (Aerators, pumps, etc)	p.a.	1		
	TOTAL CARRIED TO SUMMARY				

NDALMBE MUNICIPALITY
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	TENDERED AMOUNT
<u>SUMMARY OF SCHEDULE OF QUANTITIES</u>	
SCHEDULE A: PRELIMINARY AND GENERAL	
SCHEDULE B1: GENERAL REQUIREMENTS AND PROVISIONS	
SCHEDULE B2: WASTEWATER TREATMENT WORKS	
SCHEDULE B3: GENERAL DECOMMISSIONING, TESTING AND COMMISSIONING PROCEDURES	
SCHEDULE C: ANNUAL MAINTENANCE OF WASTEWATER TREATMENT WORKS (2 Years)	
SUBTOTAL.....	
Add 10% Contingencies	
SUBTOTAL.....	
Add CPAP (7.5%)	
SUBTOTAL.....	
Add VAT (15%)	
TENDER SUM	

4 **PART C3: SCOPE OF WORK**

The scope of work comprises of the following activities which aims to resuscitate the existing Waste Waterer Treatment Works to operate to its optimum hydraulic capacity of 600 kl/day and for the treated waste water to comply with the general environmental limits of the Department of Water and Sanitation:

4.1 Inlet Works:

- Thorough cleaning and desludging of inlet works.
- Maintenance of Sluice gate.
- Replacement of flow meter.

4.2 Waste Water Treatment Works:

- Refurbishment of two aerators to an operational capacity.
- Replacement of all damaged mechanical parts; existing motors, rusted panels, shafts and bearings on the plant.

4.3 Outlet:

- Replacement of chlorine dosing equipment.
- Install flow meters at the outlet of plant.

4.4 Operator's Room

- Renovations and furnishing are required for the operator's to be fully functional.

4.5 Boundary Fence:

- Minor maintenance on the fence is required in order to prevent unauthorised access.

C3.1: Employer's Requirements

This contract covers the Refurbishment of Kenton on Sea WWTW:

Included in the scope the following:

- Inlet Works (deep clean, flow measurement, refurbishment of sluice gates)
- Refurbish package plant mechanical and electrical equipment (Aerators, pumps, etc.)
- Outlet (flow measurement, chlorine dosing)
- Thorough clean of the WWTW
- Furnish and maintain operator's office
- Maintenance of fence

GUARANTEES

All equipment supplied under this contract shall be guaranteed by the supplier to give at least Twelve **(12)** months trouble free and accurate service under operation conditions. Equipment failed to give such service will be examined by an independent testing facility and if found to be defective in workmanship or materials shall be replaced by the supplier free of charge with equipment with the same guarantee as per the original offer.

The supplier shall be entitled to send a representative to examine the equipment considered to be defective before its return for replacement. The supplier shall arrange for collection of defective equipment (or the repair thereof) and return of guaranteed replacements free of charge to Ndlambe Municipality.

Apart from the above, the service provider will be required to be responsible for the maintenance of the equipment for a period of Two **(2)** years from hand over of the equipment. This will include all expenses except for fuel consumed.

COMPLETION OF WORKS

The project shall be completed in **5 months** from the receipt of acceptance letter.

CERTIFICATE OF APPROVAL

The mechanical components (Aerator and pumps) to be supplied must be tested on a load bench and full test results need to be made available at handover of the equipment.

SMME____ Witness 1 ____ Witness 2 ____ Main Contractor ____ Witness 1 ____ Witness 2 ____

TECHNICAL REQUIREMENTS

Treated effluent samples were taken at the WWTW outlet monthly from 10 January 2018 to 16 January 2019. The laboratory analysis of these samples has been averaged for this period and compared to the relevant Department of Water and Sanitation's General Limit. Results are shown in **Table 3.1** below. It is therefore required that on completion of this project, the WWTW is required to conform with the desired general limits of the Department of Water and Sanitation:

Determinant	General Limit	Average Jan 2018 to Dec 2018
Ammonia	<6 mg/L	59.1
Chemical Oxygen Demand	<75 mg/L	236.7
Conductivity at 25°C	<150 mS/m	320.1
Faecal Coliform Bacteria	<1000 Count per 100 mL	62642.1
pH at 25°C	>5.5 and <9.5 pH units	7.6
Suspended Solids	<25 mg/L	135.3
Ortho-Phosphate	<10 mg/L	7.0

Table 3.1 Comparison of General Limit and Treated Effluent

DEVIATION FROM THE SPECIFICATION AS AN ALTERNATIVE (STATE BRIEFLY)

NO	DESCRIPTION
1.	
2.	

Signature

Date

Position

Name of Tenderer

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

C3.2 GENERAL AND PARTICULAR SPECIFICATION

General

PSDM 8 MEASUREMENT AND PAYMENT

PSDM 8.2 Computation of quantities

DELETE THE CONTENTS OF THIS CLAUSE AND REPLACE WITH:

“The appropriate measurement and payment clauses have been included under Clause 8 of SABS 1200 D, 1200DB, PSDB and PSDB.”

SMME____ Witness 1 ____ Witness 2 ____ Main Contractor ____ Witness 1 ____ Witness 2 ____

PSG CONCRETE (STRUCTURAL)

PSG2 INTERPRETATIONS

PSG2.1 Definitions (Subclause 2.3)

Under (a) add:

“Construction joint: a joint required on account of constraints or convenience in the method of construction and that is not a movement, contraction or expansion joint.”

PSG2.2 Designated Joints

Notwithstanding Subclause 2.4.3, “designated joints” will only be joints that are shown on the drawings.

PSG2.3 Strength concrete (Subclause 2.4.2)

Grade 30MPa/40mm means strength concrete grade 30MPa with 37.5mm stone.

PSG2.4 Exposure conditions (Subclause 2.4.1)

All concrete on the Works shall be as specified for severe exposure condition.

PSG 3 MATERIALS

PSG 3.2 Cement

PSG3.2.1 Cement Specifications

REPLACE CLAUSE 3.2.1 ENTIRELY WITH THE FOLLOWING:

“Subject to the provisions of clause 3.2.2, cement will comply with the specifications of SANS 50197-1”

PSG 3.2.2 Alternative types of cement

The type of cement to be used for concrete is indicated below:

MEMBER/USE	TYPE	STRENGTH CLASS
Concrete not further specified below	CEM I or II	≥32,5
Floor, road and pavements with saw cut joints or to carry traffic	CEM I or II	≥42,5

PSG 3.2.3 Storage of cement

ADD THE FOLLOWING:

“Unless approved by the Employer's Agent, cement kept in storage for longer than 8 weeks shall not be used in the Works.

Any cement that contains lumps that cannot easily be crumbled to powder between the fingers, may not be used.”

PSG 3.4 Aggregates

PSG 3.4.1 Application specification

REPLACE THE CONTENTS OF THIS SUBCLAUSE WITH THE FOLLOWING:

The nominal stone size specified in the concrete grade (e.g. 30 MPa/40 mm) shall mean stone conforming to the grading specified in SANS 1083 for the nearest equivalent size, i.e. 20 mm means stone that complies with SANS 1083 for 19 mm size.

PSG 3.4.3 Storage of aggregates

ADD THE FOLLOWING:

“When aggregates of different chloride content are stored on the Site, their use in the various classes of concrete shall be strictly controlled.”

ADD THE FOLLOWING SUBCLAUSE:

PSG3.4.4 Aggregates for grouting

Notwithstanding the requirements of Subclause 3.4.1, the grading of the fine aggregate (sand) and coarse aggregate (stone or pea gravel) to be used for grouting shall conform to the gradings given in Tables 1 and 2 respectively, below.

TABLE 1 – SAND	
Test sieve nominal aperture size, mm	% Passing (by mass)
9,5	100
4,75	95 - 100
1,18	45 - 65
0,3	5 - 15
0,15	0 - 5

TABLE 2 - STONE OR PEA GRAVEL	
Test sieve nominal aperture size, mm	% Passing (by mass)
9,5	100
4,75	95 - 100
2,36	0 - 5

PSG3.4.5 Samples

At least two weeks before commencement of concrete work the Contractor shall supply at his own cost representative samples to the Employer's Agent of the aggregates he intends using, together with certificates from an approved laboratory indicating that the aggregates comply with the specifications. Approximately 50 kg of each sample of aggregate shall be supplied.

After approval these samples shall be taken as standard for the agreed aggregates to be used in the Works. If at any time during the course of the Contract the Employer's Agent considers that there has been any deviation from the approved standard the Contractor shall submit further tested samples of material to the Employer's Agent for approval.

PSG 3.5 Admixtures

PSG 3.5.1 Approval of admixture requirement

REPLACE THE FIRST SENTENCE THIS SUBCLAUSE WITH THE FOLLOWING:

The use of further admixtures will be subject to the approval of the Employer's Agent. The information listed in Subclause 3.5.1 shall be provided. "

ADD THE FOLLOWING NEW CLAUSE:

"PSG 3.9 Curing compound

Curing compound shall be white pigmented natural resin based liquid curing compound complying with ASTM 309-74."

PSG3.10 Precast paving slabs

The paving slabs shall comply with the requirements of SANS 541, shall be as billed and with patterned surface, or equal approved. Samples of the types which the Contractor proposes to use, shall be submitted for approval prior to construction.

ADD THE FOLLOWING NEW CLAUSE:

"PSG 3.12 Materials for building work

PSG 3.12.1 Cement

The requirements stipulated for sub-clause 3.2.1 and PSG 3.2.1 shall apply.

PSG 3.12.2 Sand

Sand for mortar shall comply with SABS 1090.

PSG 3.12.3 Bricks

Brickwork shall be built in stretcher bond. The walls shall be built to the dimensions shown on the drawings or ordered. All bricks shall be well soaked in water immediately before being laid and the previous course of bricks shall be well wetted before the laying of the following course.

Walls shall be carried up regularly so that no brickwork is more than 1m higher than adjoining brickwork.

All bricks shall comply with SABS 227 and shall be NFX burnt clay masonry units free of

SMME____ Witness 1 ____ Witness 2 ____ Main Contractor ____ Witness 1 ____ Witness 2 ____

stones, cracks and other defects. The bricks shall be obtained from an approved manufacturer and samples of the bricks shall be submitted to the Employer's Agent for approval.

PSG 3.12.4 Mortar

Mortar shall comprise of the cement, lime and sand mixed in the proportions given below:

Cement: 50 kg

Lime: 0 – 40L

Sand: 130L (measured loose and damp)"

"PSG 3.13 Classification of no-fines concrete

No-fines concrete shall be type NF19, the prefix denoting the size of the aggregate, namely 19mm.

Each size of aggregate shall be a single size aggregate graded in accordance with SABS 1083.

The volume of aggregate per 50kg of cement shall be 0,3m³."

ADD THE FOLLOWING NEW CLAUSE:

PSG3.11 Materials for movement joints

PSG3.11.1 General

The various jointing materials, the manufacturers of the materials and the methods of application shall be as approved by the Employer's Agent. Materials shall be stored and protected to avoid damage, degradation, distortion or contamination.

The joint materials shall be resistant to ultraviolet light and to biological degradation.

PSG3.11.2 Waterstops

Waterstops shall be of approved manufacture and of the pattern and the material and widths billed and specified and shown on the drawings. They shall comply with the national standards, and have the appropriate physical properties as set out below:

	PVC	Rubber
Tensile strength (@ 25°C)	12,2 MPa	20,7 MPa
Elongation at break (@ 25°C)	250%	500%
Hardness BS degrees (IRHD @ 25°C)		60 to 65
Softness (BS)		28 to 52

All intersections between waterstops shall be prepared by mitring and welding/vulcanising intersection pieces in the factory in accordance with the manufacturer's instructions and to approval of the Employer's Agent. Only straight lengths of waterstop may be field welded using the appropriate jigs and tools.

Where required, waterstops shall have eyelets so that they may be tied securely to the adjacent reinforcement. "Rearguard"-type waterstops shall have flanges or cleats that grip effectively.

PSG3.11.3 Fillers

Closed cell expanded polyethylene fillers shall comply with the following:

Property	Unit	Value Test Method
Density	kg/m ³ 110	DIN 53420
Compression Stress at compression strains of 10% 25% 50%	kPa 175 kPa 210 kPa 340	DIN 53577 DIN 53577 DIN 53577
Compression set after 24 hours Recovery	% 14	
Tensile Strength	kPa 680	DIN 53571
Elongation at Break	% 49	DIN 53571
Max. water absorption after 24 hours by volume	% 0,1	ASTM C-177

Fillers shall be pre-cut to suit the application with a tear-out strip for forming the specified recess

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

for the sealant. If so required, the filler shall be glued into position with an approved epoxy glue.

PSG3.11.4 Bondbreakers, primers and sealants

The bond breaker (if specified) shall be self-adhesive PVC tape (or equal. approved material) with a width the same as the joint recess into which it is to be applied.

The primer, if required for the sealant, shall be fully compatible with the sealing compound that is to be used.

The elastomeric sealant shall be either a two-component polysulphide liquid polymer base complying with the requirements of SANS 110 or a polyethylene based polyurethane "pouring grade" for horizontal or near horizontal joints or "gun grade" for vertical/overhead joints and joints steeper than 1 in 10 to the horizontal. All elastomeric sealants shall comply with BS 4254 Type A1 and shall have a movement tolerance of 25%.

PSG 4 PLANT

PSG 4.1 General

ADD THE FOLLOWING SUB-CLAUSE:

PSG4.3 & 4.4 Mixing plant and vibrators

REPLACE THE CONTENTS OF THESE SUBCLAUSES WITH THE FOLLOWING:

"Stand-by mixers and vibrators of adequate capacity and with an independent power unit shall be maintained on site for immediate use in the event of breakdown of the regular mixers or vibrators or failure of the power supply."

PSG 4.5 Formwork

PSG 4.5.1 Design

ADD THE FOLLOWING:

"All formwork or scaffolding required for any part of the Works shall be designed by the Contractor, and before commencing with the erection of any formwork or scaffolding, the Contractor shall submit the methods he proposes to use to the Employer's Agent for approval. The Employer's Agent has the authority to order alterations to the design or the sizes of any part of the formwork or scaffolding. The Contractor shall check the safety and suitability of all such alterations. The fact that the Employer's Agent has approved or altered any part of the formwork or scaffolding shall not be construed as relieving the Contractor of his responsibility with regard to the strength and stability of the formwork or scaffolding."

PSG 4.5.2 Finish

ADD THE FOLLOWING:

If no formwork finish is indicated on the drawings then the concrete finishes shall be as follows:

CRITERIA	FINISH
Exposed walls	Smooth
Surfaces that will be buried	Rough

PSG 4.5.3 Ties

ADD THE FOLLOWING:

"No plugs, bolts, ties or clamps of any description used to hold the formwork will be allowed to project into or through the concrete unless expressly approved by the Employer's Agent.

The use of sleeves for formwork ties through the walls of water-retaining structures will not be permitted. Ties, when cast in, shall have some form of positive anchorage to prevent any rotation when loosening formwork.

Only approved tie-rods consisting of solid rods (that remain embedded in the concrete) and with removable ends shall be used to hold the formwork of the walls. The removable tie-rod ends shall facilitate removal without damage to the concrete, and no permanently embedded parts of such tie-rods shall have less than 50 mm of cover to the finished concrete surface.

The cavities left in the concrete when the tie-rod end cones are removed shall be soundly

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

caulked with a cement mortar to which an approved shrinkage-reducing agent has been added, and shall be neatly finished to a smooth surface uniform with that of the surrounding concrete.

The cost of supplying special tie-rods as well as the filling of cavities left by the tie-rod cones shall be included in the rates tendered for formwork under the appropriate pay items.

On no account shall formwork be secured to reinforcing bars."

ADD THE FOLLOWING TO SUBCLAUSE 4.5:

PSG4.5.4 Formwork: chamfers and fillets

All exposed external angles in concrete work shall have 20 mm x 20 mm chamfers unless otherwise specified or ordered, but the top edge of a slab that is to receive an applied finish shall not be chamfered.

Internal corners in concrete work need not have fillets unless such fillets have been specified on the drawings or ordered by the Employer's Agent.

PSG 5 CONSTRUCTION

PSG 5.1 Reinforcement

PSG 5.1.2 Fixing

ADD THE FOLLOWING:

"The Employer's Agent will inspect the reinforcing after it has been fixed in place, the formwork has been cleaned, cover blocks have been positioned, and before concreting commences.

Welding of reinforcing steel will not be permitted."

PSG5.1.3 Cover

IN SUBCLAUSE 5.1.3(A) REPLACE THE words "bar or stirrup" TO READ: "bar, secondary reinforcement, tie, stirrup, tying-wire knots or wire ends".

ADD TO SUBCLAUSE 5.1.3: "Tying wire may not encroach on the specified minimum cover by more than a single strand thickness."

ADD THE FOLLOWING SUBCLAUS:

PSG5.1.6 Spacers

Spacers of approved design include approved plastic or other proprietary spacers, or purpose made precast mortar blocks.

Where mortar blocks are used they shall be properly shaped so as not to slip out of position and shall be made of the same mix as the mortar of the concrete in which they are to be placed. The mortar shall be well compacted by approved means into the moulds to result in blocks with a density of at least 2 300 kg/m³ and which are free from honeycombing. The mortar blocks shall be cured in water for at least 7 days. Blocks which have not been manufactured and cured strictly in accordance with these requirements or which are in any other way considered unsatisfactory by the Employer's Agent, will be rejected and shall be removed from the Site.

PSG 5.2 Formwork

PSG 5.2.1 Classification of finishes

(c) Special

ADD THE FOLLOWING:

"This finish is obtained by first giving the surface a smooth finish with the joints between formwork panels forming an approved regular pattern suitable for the appearance of the structure. All projections shall then be removed, irregularities repaired and the surface rubbed or otherwise treated until it is smooth with an even texture, appearance and colour.

If the finish of exposed surfaces does not comply with the requirements for uniformity of the texture and appearance, the Contractor shall, when instructed to do so by the Employer's Agent, rub down the exposed surfaces of the entire structure or any part thereof as specified

SMME_____

Witness 1 _____

Witness 2 _____

Main Contractor _____

Witness 1 _____

Witness 2 _____

below, entirely at his own cost. All repairs must be completed before the rubbing commences.

The surface shall be saturated with water for at least one hour. The initial rubbing of the face shall be carried out with a medium coarse carborundum stone together with a small amount of mortar of the same cement/sand ratio as the concrete being repaired. Rubbing shall continue until all form marks, projections and irregularities have been removed and a uniform surface has been obtained. The paste produced by the rubbing shall be kept in place. The final rubbing shall be carried out with a fine carborundum stone and water. This rubbing shall continue until the entire surface has a smooth, even texture and is uniform in colour. The surface shall subsequently be washed with a brush to remove surplus paste and powder."

PSG 5.2.2 Preparation of formwork

ADD THE FOLLOWING:

"Construction joints shall be positioned as shown on the Drawings."

PSG 5.2.5 Removal of formwork

ADD THE FOLLOWING NEW SUB-CLAUSE:

PSG 5.2.5.6 The Contractor shall make provision for the continued support of beams and slabs while the formwork is being removed and/or for back propping of beams and slabs."

PSG 5.3 Holes, chases and fixing blocks

ADD THE FOLLOWING:

"Cover blocks for reinforcing and fixtures may be placed into the concrete provided that neither the strength nor any other desirable characteristic (such as the appearance) of the concrete section is affected or impaired in the opinion of the Employer's Agent."

PSG 5.5 Concrete

PSG5.5.1.1 General

REPLACE THE CONTENT FOR THIS SUBCLAUSE:

The concrete mix design for strength concrete must be prepared in an approved laboratory and the results of actual test mixes must be submitted for approval together with 7-day and 28-day strength test results. Special attention is drawn to the fact that the concrete mix must provide a very dense and impervious concrete.

No concrete shall be cast until the mix designs have been approved by the Employer's Agent. The Employer's Agent may call for revised mix designs at any stage during the Contract.

The relevant requirements of SPEC RC shall apply to all reinforced concrete water-retaining structures.

PSG 5.5.1 Quality

PSG 5.5.1.5 Durability

The exposure conditions of the reservoir concrete are classified as "severe".

PSG5.5.1.6 Prescribed mix concrete

Notwithstanding the requirements of Subclause 5.5.1.6, samples of aggregates will not be made available by the Employer's Agent. The Contractor shall supply aggregates from commercial sources located by him, complying with the requirements of Subclause 3.4.1, for the production of prescribed mix concrete.

Unless otherwise directed by the Employer's Agent in writing, prescribed mix concrete shall be mixed in the following proportions:

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

Grade	By mass			By volume		
	Cement	Sand	Stone	Cement	Sand+	Stone
30	1	2.2	2.9	1 sk ^{\$}	0,08 m ³	0,09 m ³
25	1	2.5	3.2	1 sk ^{\$}	0,09 m ³	0,11 m ³
20	1	2.9	3.6	1 sk	0,11 m ³	0,13 m ³
15	1	3.6	4.2	1 sk	0,14 m ³	0,15 m ³
10	1	4.5	5.0	1 sk	0,17 m ³	0,17 m ³

+ Assuming 5% moisture in sand

\$ sk = 50 kg sack

PSG 5.5.1.7 Strength concrete

ADD THE FOLLOWING

"The concrete mixes shall be designed by the Portland Cement Institute or a similar approved laboratory.

The minimum ordinary Portland cement content for strength concrete with a 28 day characteristic compressive strength of 25MPa and higher shall be 325kg/m³. The maximum ordinary Portland cement content shall be 400kg/m³ in reinforced concrete and 500kg/m³ in prestressed concrete.

The maximum water: cement ratio shall be 0,55 for ordinary Portland cement."

PSG 5.5.2 Batching

Notwithstanding the requirements of this subclause, the method of batching shall be subject to approval. If volume batching is allowed, only full standard 50kg bags of cement may be used to make up a batch.

PSG 5.5.3 Mixing

PSG 5.5.3.2 Ready-mixed concrete

ADD THE FOLLOWING:

" The use of ready-mixed concrete will only be allowed if its test cubes on site is successful. The mix shall be produced from the proposed ready-mix facility and transported to the site by the proposed transporters."

PSG 5.5.5 Placing

ADD THE FOLLOWING:

"Concreting of the wall between horizontal construction joints shall be carried out in both directions from a point on the wall in order to close the gap with fresh concrete.

Structural concrete shall not be cast directly against the side of any excavation without the use of formwork unless prior approval has been obtained in writing from the Employer's Agent.

Concrete used in pipe trenches for encasement may be cast directly against the side of the excavation. Concrete for thrust/anchor blocks shall be cast directly against the side of the excavation."

PSG 5.5.6 Compaction

DELETE"or (if approved).... by spading, rodding or forking" in the first sentence of subclause 5.5.6.3.

PSG 5.5.7 Construction joints

ADD THE FOLLOWING:

"Construction joints shall be limited to the minimum.

Horizontal construction joints are permitted in the structure walls in positions indicated on the Drawings or approved by the Employer's Agent. Vertical construction joints in the walls are subject to the written approval of the Employer's Agent and the cost of all such vertical or horizontal construction joints will be deemed to be included in the rates for cast-in-situ concrete.

The construction joints in water-retaining structures shall be made strictly in accordance with

SMME____ Witness 1 ____ Witness 2 ____ Main Contractor ____ Witness 1 ____ Witness 2 ____

the details shown on the Drawings. The joints between screeds and concrete floors shall be regarded as construction joints and the surface of the floor shall be prepared as described for construction joints.

Should the Contractor's method of construction necessitate the placing of a construction or other joint in a position not shown on the Drawings, such method of construction and position of the joint shall be approved by the Employer's Agent in writing. The cost of such joint shall be included in the tendered rates and shall include scabbling or the concrete where steel reinforcement is continuous.

The wall shall be cast in lifts of a height that permits each lift to be poured without interruption in one continuous operation during normal working hours.

It is the Contractor's responsibility to ensure that construction joints are watertight. The Contractor's proposed method for ensuring the watertightness of such joints shall be submitted to the Employer's Agent for his approval.

For construction joints at kickers all additional costs for concrete, preparation, etc. will be deemed to be included in the rates tendered for concrete in walls or sides and kicker joints or construction joints will not be measured separately."

PSG 5.5.8 Curing and protection

ADD THE FOLLOWING:

"The curing methods of retaining for formwork in place, covering with a waterproof membrane and use of a curing compound of the type specified in PSG 3.9 are strongly recommended. Concrete will not be paid for unless properly cured and proof of curing is continuously visible on site."

ADD THE FOLLOWING SUBCLAUSES:

PSG5.5.8.1 Horizontal surfaces

Horizontal and near horizontal surfaces shall be treated in accordance with Subclause 5.5.8.

Other surfaces of the concrete shall be treated with a curing compound complying with the Employer's Agents requirement.

PSG5.5.8.2 Formed surfaces

In order to improve the effectiveness of the curing treatment, the specified minimum time for the removal of the formwork shall be four days.

PSG5.5.8.3 Acceptance Criteria

Tests from a ready-mix plant of ready mixed concrete provided will not be acceptable for acceptance testing. All samples will be taken on-site, as close to the point of use as is practical.

PSG5.5.8.4 Curing compound

Before any membrane curing compound is used, each batch shall be tested on a trial surface to ensure that it forms a satisfactory membrane, and any compound which is unsatisfactory in the opinion of the Employer's Agent, shall be rejected. Curing membranes will be disallowed if permanent discolouration of the concrete takes place. Surfaces where curing membranes are used shall be treated in such a manner that the final concrete texture and colour blends in with the rest of the concrete work. Furthermore, the Employer's Agent shall, at his discretion, require the Contractor immediately to adopt an effective alternative means of curing any area of the structure to which a membrane has been applied which, in the opinion of the Employer's Agent, is unsatisfactory. The curing compound used shall be to the approval of the Employer's Agent. Wax based curing compounds will not be permitted.

The curing compound shall be applied immediately as formwork is progressively stripped or, in the case of unformed surfaces, when the concrete has taken its initial set. It shall preferably be applied by spraying and the rate of application shall be strictly in accordance with the manufacturer's recommendations. A method of monitoring the area to which curing compound has been applied and the application rate shall be as approved by the Employer's Agent and rigidly applied by the Contractor.

Surfaces of joint rebates, where elastomeric sealant is to be applied, shall be protected from

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

contamination by curing compound by the use of masking tape.

PSG5.5.9.2 Hot weather conditions

No placing of concrete shall take place if the ambient temperature exceeds 32°C, or is likely to rise to above 32°C during the casting period or within eight hours after casting is completed.

PSG 5.5.10 Concrete surfaces

All unformed concrete surfaces shall, except where otherwise ordered, be given a steel float finish.

ADD THE FOLLOWING NEW SUB-CLAUSE:

“5.5.10.4 Where the surfaces of the concrete are to be additionally hardened or protected the positions of such surfaces and the method to be used will be shown on the Drawings and will be scheduled. Materials or products with a ferrous content will not be allowed.”

PSG5.5.13 Grouting to Machine and Structural Bedplates

Replace Clause 5.5.13 with the following

“PSG 5.5.13.1 Materials

- a) Water. Water for grout shall comply with the requirements given in Subclause 3.3 of SABS/SANS 1200G.
- b) Aggregates. Notwithstanding the requirements of Subclause 3.4.1 of SABS/SANS 1200 G, the grading of fine aggregate (sand) and coarse aggregate (stone or pea gravel) shall conform to the gradings given in Tables 1 and 2, respectively, below.
- c) Cement. Cement shall be ordinary portland cement.
- d) Admixtures. Admixtures shall comply with the requirements of Subclause 3.5 of SABS/SANS 1200 G and shall have a proven record of satisfactory performance under conditions encountered in the Republic of South Africa.
- e) Proprietary grouting materials. Unless otherwise approved by the Employer's Agent, proprietary grouting materials shall be obtained ready mixed in sealed pockets as supplied by the manufacturers.

TABLE 1 - SAND

1	2
Test sieve nominal aperture size, mm	% Passing (by mass)
9,5	100
4,75	95-100
1,18	45-65
0,3 (300 µm)	5-15
0,15 (150 µm)	0-5

TABLE 2 – STONE OR PEA GRAVEL

1	2
Test sieve nominal aperture size, mm	% Passing (by mass)
9,5	100
4,75	95-100
2,36	0-5

PSG 5.5.13.2 Preparation and procedures

- a) Before a machine or structural bedplate is placed on the concrete the following steps shall be carried out:
 - 1) All defective concrete, laitance, dirt, oil, grease, and loose material shall be removed from the concrete foundation by bush-hammering, chipping, or other means until sound clean concrete is obtained. The surface of the foundation shall be scabbled, but shall not be so rough as to interfere with proper placing of the grout. All foundation bolt sleeves shall be cut out, or cut off flush if the sleeves cannot be removed. The top of the foundation shall be re-shaped if necessary.
 - 2) The underside of each steel base, particularly in the bearing areas, shall be cleaned and any burrs and ragged edges removed before the base is placed in its final location.
 - 3) All holding-down bolt sleeves shall be thoroughly cleaned of any materials that may prevent the grout from flowing freely to the bottom of the bolt sockets.

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

- b) The base shall be properly aligned and leveled and shall be maintained in that position during grouting.
- c) After the machine or structural bedplate has been placed the following precautions shall be observed:
 - 1) Shimming shall be kept to a minimum. Steel plates shall be used for packing and shall be ground to the required thickness, where necessary.
 - 2) Before grouting is started all loose dirt, oil, grease, and other foreign matter on the surface of the foundation, the undersides of bedplates, and in the bolt holes shall be removed by means of oil free compressed air or other approved means. The surface of the foundation slab shall be thoroughly saturated with clean water, and all free water shall be removed from the surface and the boltholes just before the grout is placed.
 - 3) Grouting shall not be carried out until the alignment of all units to be grouted has been checked and approved by the Employer's Agent.
 - 4) Special care shall be taken with grouting in hot or cold weather to ensure proper setting and gain of strength and, in the case of proprietary grouting materials, by having ice or hot water available, as the case may be, in accordance with the instructions of the manufacturer.

Enclosures shall be provided for the grout such that, until it has set, its temperature will be in the range 15 - 27°C.

Shields to protect the grout from the sun and from hot winds shall be provided by the SubContractor when so ordered.

PSG 5.5.13.3 Formwork

Formwork for grouting shall comply with the applicable requirements of Subclause 5.2 of SABS/SANS 1200 G. Forms shall be caulked where necessary. Adequate clearance between forms and bedplates shall be provided to enable the grout to be worked into place.

PSG 5.5.13.4 Mixing (all free-flowing grouts except epoxy grouts)

The grout shall be mixed to a homogeneous uniform mixture and delivered ready for placing at a temperature between 15°C and 25°C.

The materials and water shall be mixed in a mortar mixer for at least 3 min or, in the case of small jobs only, shall be thoroughly mixed by hand, the entire mass being turned over enough times to ensure even distribution of its components.

The mixing shall be done as close as possible to the place(s) where the grout is placed.

No more grout shall be mixed at any one time than can be placed in a period of 20 min. After the grout has been mixed it shall not be re-tempered by the addition of water.

PSG 5.5.13.5 Grouting (all free-flowing grouts except epoxy grouts)

The grout shall be placed quickly and continuously to avoid the undesirable effects of over-working. (These effects are segregation, bleeding, and breaking-down of initial set). The method of placement shall be subject to approval. The means of placing the grout shall be such that the grout will completely fill the space to be grouted, will be thoroughly compacted, will be free of air pockets, and will have evenly distributed contact over an area in excess of 80% or, in the case of expanding grout, 95% of the bearing area of the item to be supported.

Where practicable, grout shall be placed from one side only and where this is not practicable, care shall be taken to ensure that any entrapped air is released.

After the grout has taken its initial set,

- a) the forms shall be removed;
- b) excess grout shall be so cut away as to leave a smooth and neatly finished job;
- c) except where the grout is intended to provide resistance to side thrust, all edges shall be trimmed at 45° to the vertical, from the bottom edge of the bedplate; and
- d) all excess grout on or about the bedplates shall be removed.

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

Damage to paintwork, if any, shall be repaired within 24 hours.

Packing plates, shims, and other levelling devices shall remain in position.

PSG 5.5.13.6 Dry-packed grout (standard dry sand and cement grout)

Dry-packed grout shall have a minimum compressive strength at 28 d of 20 MPa. The quantity of water added after placing shall be kept to a minimum consistent with placing conditions, and the cement, sand and, where applicable, pea gravel proportions by mass shall be as follows:

- a) Where the clearance between bedplate and foundation is 25 mm or less : 1 part of Portland cement, and 2 parts of sand;
- b) Where the clearance exceeds 25 mm: 1 part of Portland cement, 1 part of sand, and 1 part of pea gravel.

Dry-packed grout shall be rammed by means of tamping rods against formwork placed along three sides of the bedplate.

PSG 5.5.13.7 Non-shrink grout with metallic aggregate

The manufacturer's instructions shall be observed when non-shrink grout with metallic aggregate is used.

Where the clearance between the bedplate and the foundation is less than 50 mm a sand-based mix shall be used. Where the clearance exceeds 50 mm the Employer's Agent may order a mix with a base of sand plus pea gravel to be used.

PSG 5.5.13.8 Expanding grout with powdered aluminium additive

The manufacturer's instructions shall be observed when an expanding grout with powdered aluminium additive is used.

Where the clearance between the bedplate and the foundation is less than 25 mm, a sand-based mix shall be used.

Where the clearance exceeds 25 mm the Employer's Agent may order mix with a base of sand plus pea gravel to be used.

Each batch shall be mixed for at least 6 min after the powdered aluminium has been added. Where a ready-mixed grout is used, the powdered aluminium shall be added at the placing site and the batch mixed as specified in PSG 5.5.13.4. Grout shall be placed within 45 min after the addition of the powdered aluminium.

The Contractor shall not use powdered aluminium additive when the ambient temperature is below 5°C.

PSG 5.5.13.9 Epoxy grout (epoxy mortar type only)

The manufacturer's instructions shall be observed when an epoxy grout is used.

PSG 5.5.13.10 Testing

The Contractor shall, where so ordered, carry out a site test for each grouting procedure and each grouting gang to be used. The tests shall be carried out on a dummy bedplate similar in configuration to that, which is to be grouted, but not exceeding 1 m² in area unless otherwise ordered. When the dummy bedplate is dismantled, the underside shall show a minimum grout contact area of 80% with reasonably even distribution of the grout over the surface grouted except that, in the case of expanding grout, the minimum grout contact area shall be 95%. The test shall show evidence of good workmanship and materials and the results shall be to the satisfaction of the Employer's Agent.

The Contractor shall, when so ordered, make standard test cubes from various grout mixtures and subject them to compression tests to determine whether the specified strength has been achieved. Test procedures shall comply with the relevant requirements of Subclauses 7.2.1-7.2.3 of SABS/SANS 1200 G."

PSG5.5.14

Defects

ADD THE FOLLOWING TO SUBCLAUSES 5.5.14:

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

All defects shall be repaired as soon as possible after the formwork has been removed and the Employer's Agent has inspected the concrete. A statement of the method to be used for each repair shall be submitted to the Employer's Agent for his approval before any work is carried out. The Employer's Agent may prohibit the further placing of concrete in the particular area concerned until he is satisfied that the repair has been satisfactorily executed.

ADD NEW SUBCLAUSES TO CLAUSE 5.5.14:

PSG5.5.14.3 Prevention and repair of plastic shrinkage cracks

The Contractor shall take whatever measures are necessary to prevent plastic shrinkage cracking in the concrete. Particularly on dry windy days or hot sunny days the Contractor shall make provision for fine spraying of the concrete surface with water within one hour of casting or covering of the concrete with black plastic sheeting. It may be necessary to change the aggregates or the concrete mix proportions.

ADD THE FOLLOWING NEW SUB-CLAUSES:

"PSG 5.5.16 Soilcrete

Where soilcrete is specified for filling under floor slabs, the soilcrete shall comply with the requirements of subclause PSDB 3.5 (c) of section 1200 DB as amended and shall be placed as specified in the subclause."

"PSG 5.5.17 Brickwork

Brickwork shall be built in stretcher bond to the dimensions shown on the drawings. All bricks shall be well soaked in water immediately before being laid and the previous course of bricks shall be well wetted before the laying of the following course."

"PSG 5.5.18 Plasterwork

Plasterwork shall consist of a single coat, comprising one application of a 1:6 cement:sand mixture with a woodfloat finish. The thickness of the plaster shall be between 13 and 20 mm. All plaster shall be finished smooth, shall be plumb and corners shall be rounded and square."

"PSG 5.5.19 No-fines concrete

PSG 5.5.19.1 Batching and mixing

Cement shall be measured by mass or full bags of 50kg each and aggregate shall be measured by volume in approved measuring boxes or barrows.

The quantity of water added shall be just sufficient to form a smooth grout that will adhere to and completely coat each and every particle of aggregate and that is just wet enough to ensure that at points of contact of the aggregate the grout will run together to form a small fillet to bond the aggregate together. The mix shall contain no more than 20 ℓ of water per 50kg of cement.

Mixing shall be carried out in an approved batch-type mechanical mixer, but small quantities may be hand mixed.

PSG 5.5.19.2 Placing

No-fines concrete shall be placed in accordance with the procedure approved by the Employer's Agent. It shall be placed in its final position within 15 minutes of having been mixed.

The concrete shall be worked sufficiently to ensure that it will completely fill the space to be concreted and that adjacent aggregate particles are in contact with one another. Excessive tamping or ramming shall be avoided and under no circumstances shall the concrete be vibrated.

PSG 5.5.19.3 Protection

All no-fines concrete shall be protected from the elements and loss of moisture. Protection against loss of moisture shall be accomplished by one or more of the following methods:

- (a) Retaining formwork in place
- (b) Covering exposed surfaces with sacking or other approved material kept continuously wet
- (c) Covering exposed surfaces with plastic sheeting

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

No-fines concrete placed during cold weather shall be adequately protected against frost for at least 3 days."

ADD NEW SUBCLAUSES AS FOLLOWS:

PSG5.6 Holding Down Bolts for Equipment

The treatment-plant/pump Contractor will supply all holding-down bolts for all items of plant and penstocks together with all dimensions and other details necessary for the construction of the pedestals and holding-down bolt pockets, or the fixing of the bolts. The Contractor shall either form pockets or cast in the bolts, as ordered. The items of plant will be aligned and levelled on site by the plant Contractor (by means of metal blocks and shims under the base at the anchor studs and also midway between studs in the case of heavy equipment) and, after the Employer's Agent is satisfied with the alignment and the level of each unit, the Contractor shall grout up the units solidly by filling the voids inside and under the baseplate with an approved non-shrink grout."

PSG5.7 Casting pipes and specials in concrete

Where the pipe or special is supplied by others the Contractor shall provide a box-out in the wall and cast the unit in at a later stage. When constructing such box-outs reinforcement shall not be cut but shall run through the opening. Reinforcement shall be cut and/or bent out at a later stage to suit the item being cast in. After installation of the item the remaining reinforcement shall be bent back in position.

Where entry holes for pipes/specials have been provided in the walls, the Contractor shall be responsible for the concreting in of such pipes/specials regardless of whether or not these have been supplied by himself.

Before commencing the positioning in holes of any pipes/specials the Contractor shall:

- a) remove all formwork and boxing remaining in the holes;
- b) make any alterations required to the position and shape of the holes and cut reinforcement to suit the item, as directed by the Employer's Agent; and
- c) thoroughly scabble the sides of the holes so as to obtain a satisfactory bond surface for the new concrete and treat the surface as specified in Subclause 5.5.7.3.

Immediately prior to concreting being carried out by the placing of mortar and concrete around the pipes, the surface of the existing concrete shall be saturated with water. All surplus water shall be removed and the surface covered with a layer, approximately 12 mm thick, of mortar made of the same mix as the concrete in which the pipes/specials are to be placed.

The concrete ingredients shall be mixed and placed as dry as possible to obtain a dense, waterproof concrete. The concrete shall be carefully worked around the puddle flange, if any, and the pipe barrel or body of the special, and shall be vibrated in layers so as to obviate a falling away from pipe/special surfaces of the concrete already placed. The whole shall, when set, form a dense, homogeneous, and waterproof mass.

PSG5.8 Fixings for items supplied under this Contract

Holding down bolts or other fixings required for the installation of items supplied under this Contract shall be provided by the Contractor. These fixings shall be cast in or grouted into pockets or installed by other means as approved by the Employer's Agent.

Where anchor bolts are used which are installed into holes drilled into concrete or masonry these shall be of a type approved by the Employer's Agent. All such bolts used shall be manufactured from stainless steel or a metal with a resistance to corrosion equal to that of grade 304 stainless steel. No GMS in close proximity to stainless steel will be permitted.

Anchor bolts shall have minimum pull-out forces and minimum ultimate lateral loads at least equal to those specified below:

Specified Anchor Size	Minimum Pull-out Force (kN)	Minimum Ultimate Lateral Load (kN)
M6	10,35	7,60
M8	13,70	11,15
M10	19,44	15,95
M12	31,85	26,90

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

Specified Anchor Size	Minimum Pull-out Force (kN)	Minimum Ultimate Lateral Load (kN)
M16	50,45	45,80
M20	60,50	71,20

PSG6 Tolerances

PSG6.2 Permissible deviations

ADD THE FOLLOWING:

Degree of Accuracy II shall apply except that abrupt changes in a continuous surface shall not be more than 3 mm.

PSG 7 TESTS

PSG 7.1 FACILITIES AND FREQUENCY OF SAMPLING

PSG 7.1.1 Facilities

ADD THE FOLLOWING:

"The Contractor shall provide sufficient storage capacity for the concrete cubes and shall arrange to have them tested by an approved laboratory.

The cost of all testing, including the cost of sampling, storage and transport of samples shall be included in the rates tendered for concrete work."

PSG 7.1.2 Frequency of sampling

Notwithstanding the requirements of this subclause, the Contractor shall take note that he is responsible for taking an adequate number of tests to ensure that the concrete being used complies with the specification. The Employer's Agent will only carry out such control testing as he requires.

PSG7.2.4 Early strength testing of concrete in wall panels

Two samples of the concrete used in the construction of the wall panels shall be tested prior to lifting of the panels.

Where lifting frames are not used the lifting of the panels will not be allowed unless an average strength of 25 MPa has been achieved.

PSG 7.3 Acceptance criteria for strength concrete

ADD THE FOLLOWING:

"Test results obtained from the supplier of ready-mixed concrete will not be accepted for evaluation in terms of Subclause 7.3, but samples for testing shall be taken of such concrete at the point of placing."

PSG 8 MEASUREMENT AND PAYMENT

PSG 8.1 Measurement and rates

PSG8.1.1 Formwork

Notwithstanding the method of measuring and paying for formwork specified in Subclauses 8.1.1, 8.1.2.1 and 8.1.2.2, formwork will be measured per square metre.

This item in the bill will cover the cost of kickers, transportation, placing, removal of formwork including all operations involved in this work.

PSG 8.3.1 Reinforcement

REPLACE THE CONTENTS OF THIS CLAUSE WITH THE FOLLOWING:

"The unit of measurement for steel bars shall be the ton of reinforcement in place, in accordance with the Drawings or as authorised by the Employer's Agent.

Clips, ties, separators, stools and other steel used for positioning reinforcement will not be measured, unless these are shown on the bending schedules.

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

The tendered rate shall include full compensation for the supply, delivery, cutting, bending, welding, placing and fixing of the steel reinforcement, including all tying wire, stools, supports and waste."

PSG 8.3.2 Mesh

REPLACE THE CONTENTS OF THIS CLAUSE WITH THE FOLLOWING:

The unit of measurement for welded mesh shall be square meter of fabric reinforcement in place, and the quantity shall be calculated from the net area covered by the mesh, excluding overlaps.

The tendered rate shall include full compensation for the supply, delivery, cutting, bending, welding, placing and fixing of the mesh, including all tying wire, stools, supports and waste."

PSG8.4 Concrete

PSG8.4.1 Blinding layer

REPLACE THE CONTENTS OF THIS CLAUSE WITH THE FOLLOWING:

The unit of measurement for blinding layer shall be square meter, and the quantity shall be calculated from the dimension given on the drawings.

The tendered rate shall include full compensation for the supply, delivery, cutting, bending, welding, placing and fixing of the mesh, including all tying wire, stools, supports and waste."

PSG8.4.3 Strength concrete grade

The rates for concrete shall also cover:

- a) The cost of the preparation of design mixes by an approved laboratory and submission for approval by the Employer's Agent (see PSG5-5-1-1),
- b) The cost of non-designated joints (see PSG5-5-7-2), and
- c) Screeded finish of unformed surface as specified in PSG5-5-10-2
- d) Chamfers and fillets (No additional payment will be made for chamfers and fillets up to 40 mm wide)
- e) Holding down bolts. The rate shall cover the cost of supplying and installing the bolts including all things necessary to ensure that the bolts are effectively and rigidly held in position during casting, complete with sleeved pockets, all as detailed on the drawings.
- f) The rate shall cover the cost of the supply and floating in of grout under the plates to ensure solid and complete filling of the gap. The rate shall cover the cost of compacting the area, application of weed-killer, supplying, laying and bedding the slabs, grouting the joints and filling any gaps, all as specified.

PSG8.4.4 Unformed surface finishes

The rates for unformed surface finishes shall cover the cost of providing the respective surface finish as specified in PSG5-5-10.

The rate shall cover the cost of the supply and floating in of grout under the plates to ensure solid and complete filling of the gap.

The rate shall cover the cost of compacting the area, application of weed-killer, supplying, laying and bedding the slabs, grouting the joints and filling any gaps, all as specified.

PSG8.4.5 Aggregates.....Unit:m³

ADD THE FOLLOWING:

The rate shall cover the cost of supplying, laying and tools and labour involve for ths work.

PSG8.4.4 Additives

This item is measured per cubic meter.

The rate shall cover the cost of supplying and tools and labour involve for ths work.

SMME _____ Witness 1 _____ Witness 2 _____ Main Contractor _____ Witness 1 _____ Witness 2 _____

PSG8.5 Joints.....Unit:m

Only designated joints as shown on the drawings will be measured for payment according to the length of each type of joint constructed (see PSG5-5-7). The rate shall cover the cost of all materials, labour and plant required to construct each type of joint specified on the drawings, including the cost of all shuttering, treatment of the joint as specified in Subclause 5.5.7.3, the provision of chamfers as specified where concrete is exposed, as well as testing and repairing where necessary.

Non-designated joints will not be measured for payment.

PSG8.9 Water tightness tests

The water tightness test of water retaining structures will be paid by a lump sum separately for each structure.

The sum shall cover the cost of all labour, equipment and materials to carry out the tests, as specified hereafter, to rectify faults and to achieve a test result to the satisfaction of the Employer's Agent.

Water shall be provided free of charge for one filling of the structure. The sum shall include for all water required over and above that required for one filling of the water retaining structure.

Test

The structure shall be cleaned and initially filled with the specified water at a uniform rate that does not exceed 2m in height every 24hours. Structures shall not be backfilled unless specified.

When first filled, the water level shall be maintained by the addition of further water for a stabilizing period of 7 days while absorption and autogenic healing takes place. After the stabilizing period, the level of the water surface shall be recorded at 24 hour intervals for a test period of 7 days. During this 7 day test period, the total permissible drop in water level shall not exceed 1/500 of the average water depth of the full tank or 10mm, whichever is less.

Notwithstanding the satisfactory completion of the test, any evidence of seepage of water to the outside faces of the structure or intensified flow of the underfloor drainage system shall be assessed against the requirements of the specification. Any necessary remedial treatment of the concrete to the cracks of joints shall, where applicable, be carried out from the internal water face. When a remedial water lining is applied to inhibit leakage at a crack it shall have adequate flexibility and have no reaction with the stored water.

Where the structure fails the to satisfy the 7 day test then, after completion of the remedial work, it shall be refilled and a further 7 day test undertaken in accordance with this clause.

PSG8.10 Disinfection of potable water retaining structures

Water retaining structures shall be disinfected in the same manner as potable water pipelines. The Employer's Agent is to confirm the availability of water for disinfection. The disinfection shall take place before testing of the structure commences. The disinfection shall take place in the following manner if there is adequate water available,

- A) The structure shall be flushed out with clean water until all sediment and foreign matter is removed.
- B) The structure shall be filled with a solution of calcium hypochlorite at 0.15g/l at the adding rate of not more than 2m per 24hours and allowed to stand for 24 hours.
- C) The reservoir shall be emptied and sprayed internally with clean water and the walls broomed down to remove the solution from the walls.

In the case of water unavailability for disinfection, the reservoir will be sprayed internally with a high pressure cleaner and the walls, columns and floor scrubbed with the calcium hypochlorite solution by means of stiff brooms. After completion of this step C applies again.

PSHC CORROSION PROTECTION OF STRUCTURAL STEEL. (SANS 1200 HC)

PSHC5.3 Dressing and repairs during fabrication

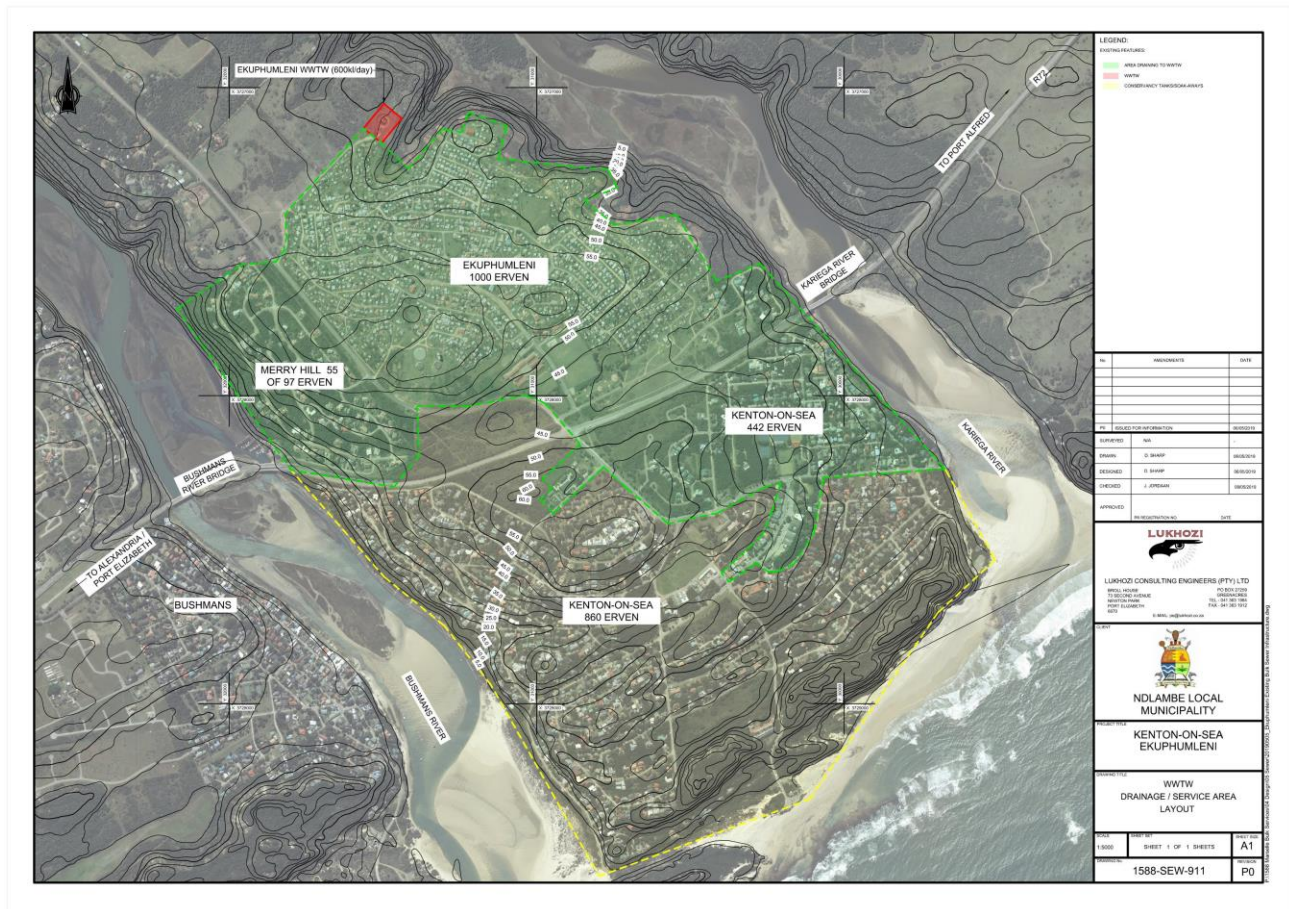
All sharp edges will be ground to a smooth radius of at least 1 mm.

PART C4.1: SITE INFORMATION

C4.1: SITE INFORMATION

Kenton on Sea / Ekuphumleni WWTW is located approximately 130km from Port Elizabeth and 25km from Port Alfred on the R72 highway. The centre of the area's coordinates are as follows: 33°40'12.17"S & 26°39'37.93"E.

The location of the WWTW is indicated on Drawing 1588-SEW-911, refer to Annexure A. The centre of the WWTW coordinates are as follows: 33°40'12.08"S & 26°39'37.33"E.



C4.2: DETAILS OF WWTW FROM TECROVEER

A. BASIC PLANT DATA

SMME____ Witness 1 ____ Witness 2 ____ Main Contractor ____ Witness 1 ____ Witness 2 ____

**A.1 GENERAL DESCRIPTIVE DETAIL OF PLANT CONSIDERATION
WITH MAIN COMPONENTS**

A.1.1 Background in General.

Kenton-on-Sea (south side of the coastal tar road) consists of \pm 850 stands and 150 Ha land with 95% on septic tanks with french drain and 5% on conservancy tanks.

Ekuphumleni Township (on north side of coastal tar road) consists of \pm 609 stands and 50 Ha of land and has pit latrines.

The Ekuphumleni sewage treatment plant is primarily selected for Ekuphumleni, thus introducing water borne sewage with septic tanks resulting in small pipe delivery of effluent from the septic tanks and will all gravitate to the sewage purification plant.

The septic tanks will greatly reduce the organic load by approximately 50% with a resultant sewage treatment plant very much reduced in size and price.

The sewage plant provided is designed for 600 m³/day.

Ekuphumleni is expected to discharge 244 m³/day by August 1998.

Kenton (Central Business District) is expected to discharge 30 m³/day by August 1998.

Ekuphumleni is expected to discharge 400 m³/day by the year 2003 (5 years from now).

Kenton-on-Sea (Central Business District) expected to discharge 200 m³/day by 2003 (5 years from now).

The expected combined future flow in year 2008 is 900 m³/day.

A.1.2 INTRODUCTION TO THE PROCESS

CONSIDERABLE TIME AND MONEY WAS SPENT IN DEVELOPING THE TECROVEER (PTY) LTD SYSTEM. THE TOTAL PROCESS AND EQUIPMENT IS PATENTED IN THIS COUNTRY AND OVERSEAS. REGARDLESS OF THE PATENT RIGHTS, ANY COPY OR DUPLICATION OF THE SYSTEM IS PROHIBITED WITHOUT THE WRITTEN PERMISSION OF TECROVEER (PTY) LTD.

A.1.3

Septic tank effluent flows into the reactor by gravity via inlet channel, consisting of hinged screen bars.

The reactor is aerated by ONE horizontal bridge mounted aerator for PHASE I and 2nd aerator for PHASE II when required. The mixed liquor transfer is via aerators and launder to a central drum in clarifier with water level at higher level than water level in reactor.

The mixed liquor levels for PHASE I is at lower liquid level in the reactor than for liquid levels in reactor for PHASE II.

The effluent is discharged to a chlorination contact tank and flow measured via a vee-notch weir before effluent is discharged into maturation channels overgrown with natural vegetation and marsh land.

Scum is removed by scum launder and scum box at clarifier and discharged to sludge lagoon by gravity.

Sludge return from clarifier to reactor is done hydrostatically and sluice controlled.

The emergency overflow from reactor is by means of gravity to the sludge lagoon.

The wasted sludge to sludge lagoons is by means of pumps that is set and controlled by timers so that correct sludge age is maintained in the system.

A.1.4

The process used in purifying domestic raw sewage is an ACTIVATED SLUDGE process and is based on the fact that sufficient organic load will enter the plant for proper functioning.

Thus conservancy tank contents and septic tank sludges from time to time can be emptied into the purification plant.

The reactor and clarifier are the main components in this process.

The activated sludge process comprises of a reactor basin in which micro-organisms are suspended in the mixed liquor. Oxygen is introduced by mechanical horizontal aerators, the main driving force for bio-chemical reactions to take place by which organic pollutants are removed from the sewage. The suspended active sludge is separated from the effluent in the Clarifier (Settling Tank) and returned to the reactor. The mass of active sludge continually grows and sludge has to be wasted from the system to maintain the correct balance.

The wasted sludge is collected in sludge lagoons for further digestion and is retained for 6 months and more.

The active sludge fed back to reactor from the clarifier is a living micro-culture which feed and grow on the organic degradable material fed into the reactor as raw sewage.

The composition and characteristics of this active sludge are determined by factors such as the composition of the raw sewage, the retention time in the reactor, aeration rates and patterns and the average age of the sludge. These factors determine the way the plant should be operated to utilize the design to a maximum in order to ensure a high quality effluent.

A.1.5 THE MAIN COMPONENTS OF THE PROPOSAL CONSISTS OF THE FOLLOWING:

A.1.5.1 Design Parameters The water retaining concrete structures for the reactor clarifier and sludge lagoons provided is for 600 m³/day.

PHASE I - (Enclosed design sheet 1) is for 300 m³/day.

The concrete structures are for 600 m³/day but plant is operated at a liquid depth of 1,12 m in the reactor as maximum.

PHASE II - (Enclosed design sheet 2) is for 600 m³/day.

The concrete structures remain unaltered, the liquid depth in the reactor is raised to 1,53 metres and second aerator in reactor is timed controlled to suit peak periods etc.

A.1.5 The purification plant consists of the following:

A.1.5.1 Inlet works.

A.1.5.2 Reactor - Circular structure.

A.1.5.3 Clarifier - In the centre of reactor.

A.1.5.4 Waste Sludge - Timed mechanism pump, for mixed liquor from the reactor.

A.1.5.5 Sludge Lagoons - Constructed adjacent to reactor with reactor wall forming part of lagoon wall.

A.1.5.6 Lime Dosing.

A.1.5.7 Chlorine Contact Tank for gas.

A.1.5.8 Gas Chlorination.

A.1.5.9 Maturation channel with at least 24 hour retention.

A.1.5.10 Electrical.

A.2 DESCRIPTIVE DETAIL OF PLANT

A.2.1 Inlet Works

Raw sewage will gravitate into the reactor. The inlet works will consist of the following:

- (a) A hinged steel grid that can swivel onto a removable drying plate. Grid opening is 40 mm.
- (b) A rag catcher consisting of a base plate with 16 mm diameter studs with a removable cleaning plate. The studs span the full width of the inlet channel. A loose plate that moves over the studs with handle for scraping off the rags is also provided.

Flow is measured in the final effluent stage (chlorine contact tank) over a calibrated V-notch weir. Accumulated flow is also determined over the weir.

- (c) A tanker dump slab facility is supplied near inlet screens with hosing down facility.

A.2.2 (a) REACTOR

The reactor is a circular water retaining structure with a secondary settling tank in the middle. The reactor diameter, inside of outer wall is 22,7 metres and inner inside wall is 7,4 metres, with vertical walls 1.7 metre deep.

Two Free span bridge aerators complete with walkway and hand railing will be provided.

Each bridge, steel manufactured and completely galvanised, has a horizontal TNO cage rotor that is 1,1 metres long with elements and side plates manufactured out of 300 W plate with a minimum thickness of 6 mm. All elements will be hot dip galvanised. The FLENDER MOTOX K 140 gearbox with a speed of 63 rpm is vertically mounted with a 18,5 kW motor. The gearbox will be installed with a service factor above two.

The coupling to rotor is a N-Eupex A315.

Mixed liquor transfer to the clarifier and sludge return to the reactor is achieved by means of Tecrover patented process and equipment. A pump transfer launder is fitted over a segment of the rotor. Mixed liquor is pumped with the low lift high volume pump to the clarifier. Transfer quantities is controlled by chocking the delivery pump launder with a sluice.

A surge volume is created on the surface of the reactor. The surge area is 361,7 m² with a surge variation depth of 250 mm. The minimum immersion depth of the rotor is 75 mm and the maximum immersion 325 mm. The energy

input at minimum water level is above ± 15 watt/m³ for each aerator and is sufficient to keep the bio-mass in suspension.

Mixed liquor is transferred via the aerator pump in controlled amounts to the clarifier. One aerator pump is 24 hour in use. This pumps' transfer is set for a sludge return of 7,1 l/s (flow velocity off 0.4 m/s in the 150 mm SS sludge pipe) and a variable discharge of 0,1 l/s at minimum submersion and the selected max discharge at full submersion. The maximum draw-off from the reactor will not exceed the designed upward flow velocity in the clarifier of one m/hour. Thus maximum effluent discharge rate is 10,69 l/sec.

The discharge rate is set to disperse the morning peak volume through the system before the afternoon peak-time is reached. Should greater peak flows occur as result of peak wet-weather flow an emergency overflow mechanism is provided to the sludge lagoons. This emergency overflow serves a double purpose, namely the upward velocity in the clarifier can never be exceeded irrespective of the inflow volume, with the result that the final discharge, irrespective of inflow conditions will be of a high quality.

In proportion to the peak volume decreasing through constant transfer to the settling tank, the depth of submergence decreases, and the pump capacity reduces. Mainly recirculating of mixed liquor takes place with a low discharge component. The mechanical equipment is protected against overloading and flooded conditions.

A.2.2 (b) See Flow Simulation for PHASE I and PHASE II enclosed.

A.2.3 CLARIFIER

A Dortmund type Clarifier 7 metre in diameter with a cone slope of 60° is provided. The water level in the clarifier is respectively 450 mm above the maximum and 860 mm above minimum water level in the reactor on both phases. The stilling drum provided is 1700 mm diameter x 2200 mm deep and is of special design. A 3CR12 manufactured V-notch weir is provided.

Sludge is returned from the clarifier to the reactor via hydrostatic pressure. A straight 150 mm diameter SS pipe extends from the bottom of the clarifier to the control sluice. The control sluice is bolted onto the outside of the clarifier wall. The control sluice discharges to the reactor. The return rate is adjustable and measurable. The sludge return pipe can be flushed with the sliding sluice at its lowest level namely 600 mm below the water level in the clarifier with a static pressure height of 400 mm, where a delivery in excess of 16 l/s is expected.

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Kenton on Sea
Flow simulation
ADWF m³/day
ADWF m³/h
PDWF m³/h
P.F.
Eqw Capita
Litres/capita

300
12.50
42.54
3.40
3333
90.00

N=
v=
Clar dia
Still d

9 ure
0.45 m/s
7.0 m
1.53 m

Surge depth
0.146 m

Time	28.36 %	3.40	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
In flow	P.F.=	7	42.5	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8	10.8
Draw off N hour		16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6	16.6
Surge Volume m ³		26.0	51.9	46.1	40.4	34.6	28.8	23.1	17.3	11.5	5.8	0.0	17.5	29.3	41.1	27.7	14.4
Surge Area Req m ²		178	356	316	277	237	198	158	119	79	40	0	120	201	281	190	99
Stillling drum m		1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53	1.53
Clarifier (v m/h) diam		6.96	6.96	6.96	6.96	6.96	6.96	6.96	6.96	6.96	6.96	6.96	6.96	6.96	6.96	6.96	6.96
Reactor diam		17.0	22.7	21.6	20.4	19.1	17.7	16.3	14.6	12.8	10.7	8.0	14.7	17.9	20.5	17.5	13.7

REACTOR AREA 1
355.50 m²
MAX DEPTH
1.12 m
Diam of Reactor with Clarifier on inside
22.72 m
Diam of Dortmund Type Clarifier
7.0 m

Sludge age (days)	30	25	20	15	10	5
BOD (kg/day) @ 50% reduction	90.00	90.00	90.00	90.00	90.00	90.00
Ammonia nitrogen (NH ₄ -N) @ 0% red	50.00	50	50	50	50	50
Site eff n (Std con n=2kg O ₂ /h)	1.47	1.47	1.47	1.47	1.47	1.47
kg DO req/kg BOD removed	1.68	1.64	1.57	1.7	1.3	1.06
kg O ₂ Req/day	376	373	366	378	342	320
O ₂ Peak Factor	1.45	1.47	1.5	1.55	1.67	1.8
kg O ₂ req on site/hour	23	23	23	24	24	24
Total kW req	15	16	16	17	16	16
kW supplied	1 off 18.5kW		18.5 kW			
kg MLSS prod/kg BOD apl	0.45	0.49	0.54	0.61	0.71	0.89
Sludge density kg mlss/m ³		4.4	3.9	3.5	3.3	3.2
Volume req m ³	243	251	249	235	194	125
Volume supplied m ³			374 m ³			
Anoxic			125 m ³			

Sludge Lagoons

Capita
Area Factor
Total Area for both m²
Outside Diam Reactor m
Inside diam Sludge lagoon m

1667 Chlorine contact tank
0.26 contact time=
442.22 Hw=Havg=
30.00 min
1.12
6.25 m³
5.36 m²

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Scum is trapped on the surface of the clarifier with scum launder and drop box. The scum is skimmed off the surface of the water via a flush mechanism to sludge lagoons.

A.2.4 **SLUDGE WASTAGE**

In order to ensure a quality effluent over the life span of a plant this size, it has been our experience that sludge age must be controlled automatically. The constant draw-off of sludge to the sludge lagoons is not possible as a result of the size of the plant. The wastage of sludge is set at intervals and fixed quantities are automatically wasted with the use of a set of EMELPEE raw sewage pumps. Measuring and control is done by attaching a time mechanism to the pump. The time mechanism will be adjustable and set at predetermined quantities to control the age of the biomass in the reactor.

A.2.4.1 **Sludge Lagoons:**

Two sludge lagoons is constructed adjacent to reactor. Sludge is digested in a natural anaerobic digestion process. Sludge is handled as a wet proses. Smell is limited to a minimum as a supernatant layer is maintained on top of the sludge. This method has proved itself to be a big improvement over sludge drying beds. Especially in the coastal regions.

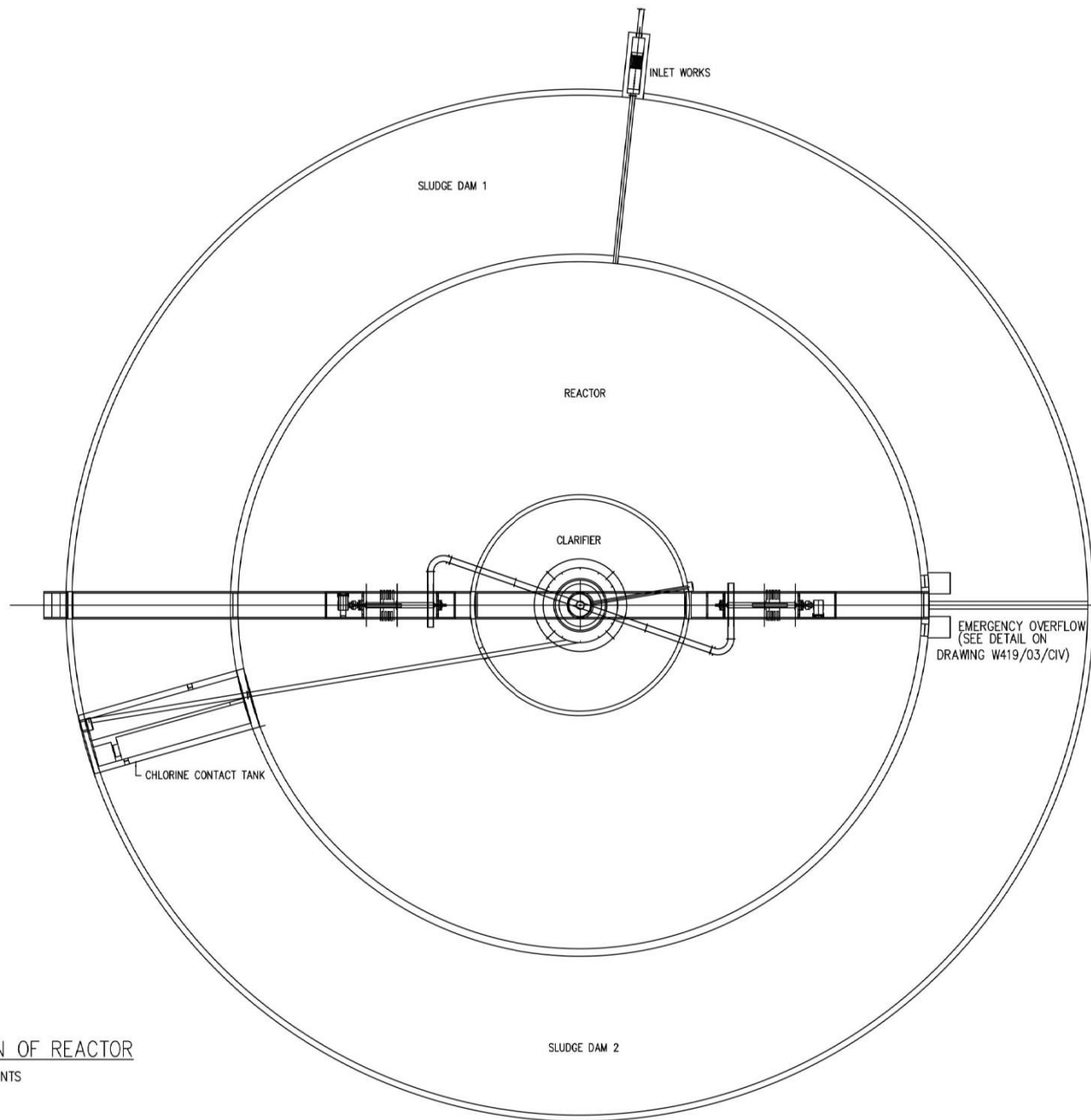
The lagoons will be alternatively in use. Supernatant return will be fed back to the reactor via the emergency over flow weir. The maximum water level inside reactor and sludge lagoon will be the same.

The lagoons can be alternatively used for drying out. Expected capacity of the lagoon will be in excess of one year.

The lagoon that is not in use will be used as an additional surge pond. A drainer pump will be installed inside this lagoon which will automatically return the biomass back into the reactor. (One of sludge wastage pumps).

Supernatant ingress into the natural ground water will cause pollution. For this reason Department of Water Affairs insist that any form of supernatant originated from sludge wastage must be contained and fed back into the system. The sludge lagoons is designed as water retaining structure.

The septic tank sludge can also be emptied out into the sludge lagoons and must be done under controlled conditions.



PLAN OF REACTOR
SCALE NTS

NOTES / NOTAS

1. ONLY ORDINARY PORTLAND CEMENT MAY BE USED OR PORTLAND FLY ASH 15 PFA.
2. 30 MPa STRENGTH CONCRETE TO BE USED
3. NO WELDING OF REINFORCEMENT WILL BE
4. PERMISSIBLE DEVIATIONS:
DEGREE II ACCURACY SHALL APPLY
VERTICALLY, PER METER HEIGHT:
3mm TO A MAXIMUM OF 30mm
5. SHUTTER FURRUES AND TIES SHALL BE OF THE CAST-IN TYPE, RUST RESISTANT AND WATERTIGHT
6. MINIMUM COVER ON REINFORCEMENT:
WATER RETAINING STRUCTURES: 45mm
FOUNDATION STRUCTURES: 75mm

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GP: 100% PRODUCTION, 100 mm ON ORIGINAL

1	96/06/00	EMERGENCY OVERFLOW PROTECTION, PHASE 1	JAE
2	96/06/03	INLET WORKS PROTECTION CHANGED	JAE
3	96/06/04	SLUDGE IN CLARIFIER TANK CHANGED	JAE
4	96/06/05	CLARIFIER WEIR CHANGED	JAE
5	96/06/06	CHECK FOR CONSTRUCTION	JAE
6	96/06/07	CHANGED CHLORINE CONTACT TANK	JAE
7	96/06/08	CHANGED CHLORINE CONTACT TANK	JAE



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ENGINEERING ADVISE SERVICES

CLIENT: KENTON ON SEA
TLC

PROJECT: KENTON ON SEA SEWERAGE PLANT

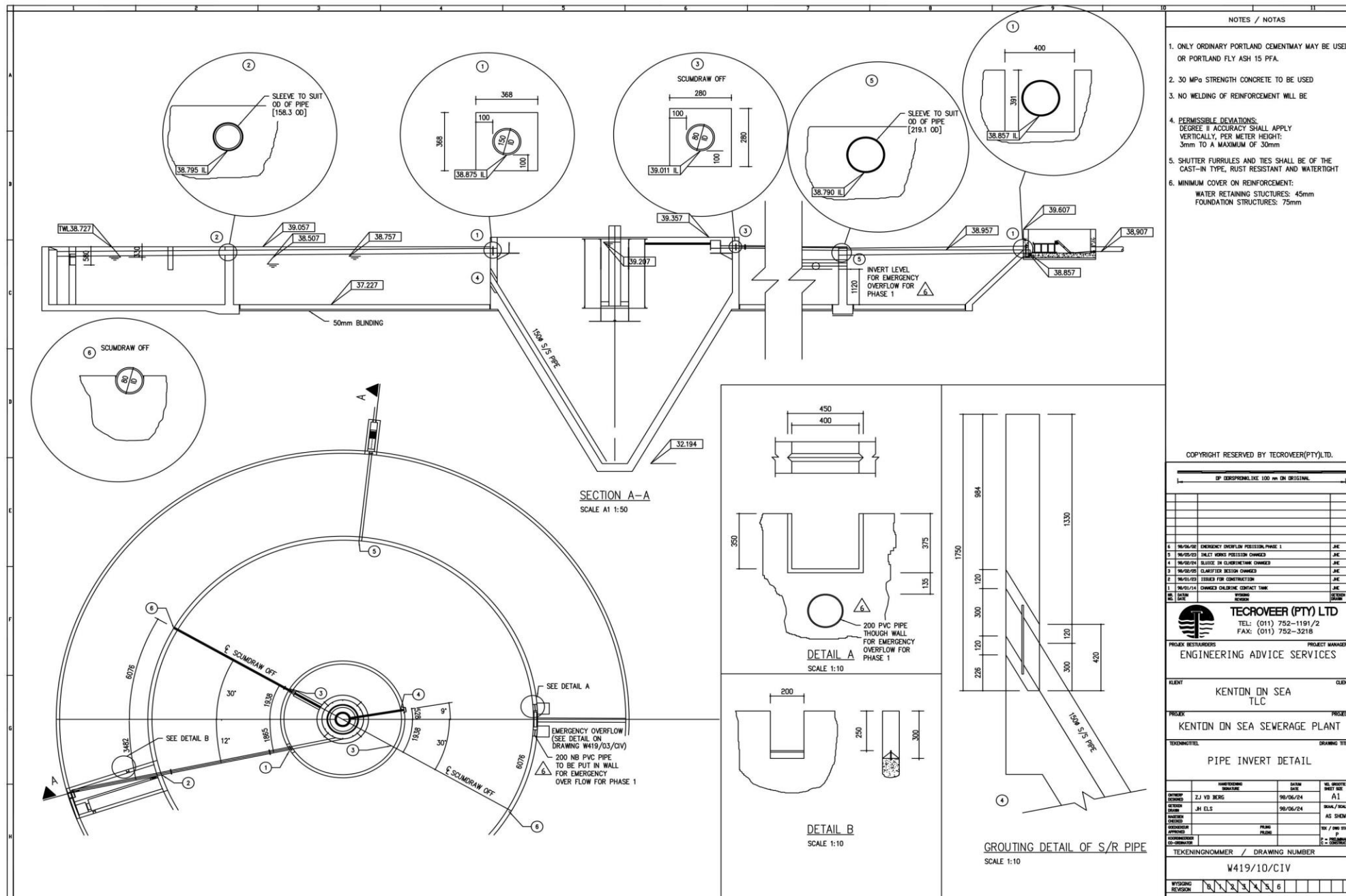
TECHNICAL: DRAWING TITLE
ARRANGEMENT DRAWING OF EQUIPMENT

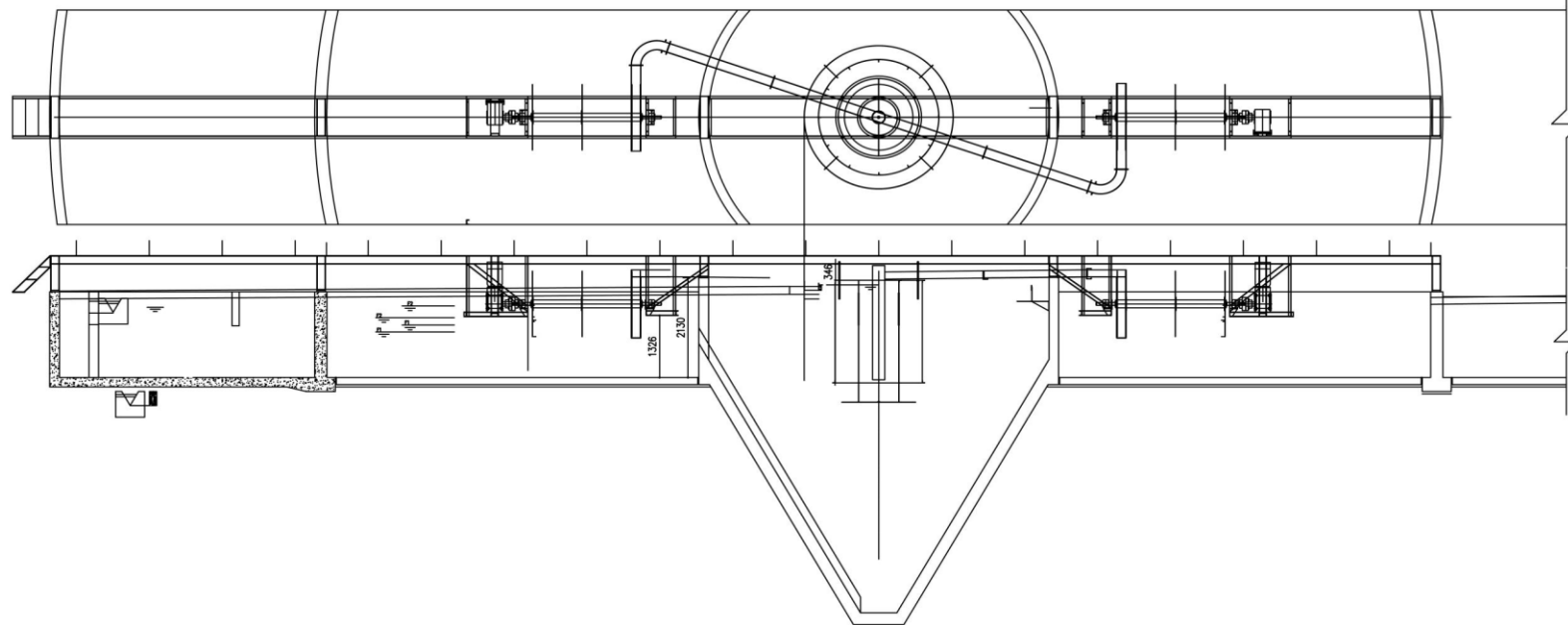
DATE/REVISION	DATE	NO. SHEETS
DESIGNED: Z.J. VO DEK	96/06/24	A1
DRAWN: J.H. ELS	96/06/24	AS SHEET
CHECKED:		
APPROVED:		
CO-ORDINATOR:		

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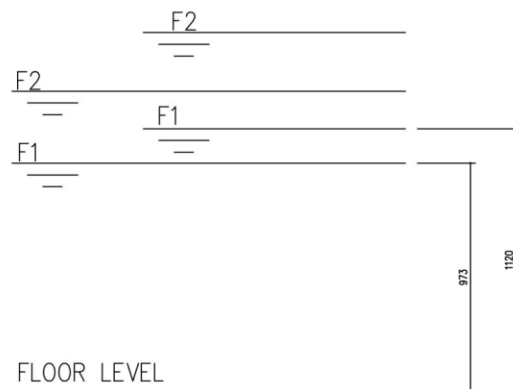
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SCALE 1:50



NOTES / NOTAS

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OP. DESIGNED/SCALE 100 mm ON ORIGINAL

1 16/05/01 ISSUED FOR APPROVAL JAC



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PROJECT MANAGERS
ENGINEERING ADVICE SERVICES

CLIENT
KENTON ON SEA
TLC

PROJECT
KENTON ON SEA SEWERAGE PLANT

TECHNICAL
CLARIFIER & REACTOR
ASSEMBLY

DATE	REVISION	BY	CHKD
16/05/01	1	JAC	
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16/05/01	3	JAC	
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