



MALUTI-A-PHOFUNG LOCAL MUNICIPALITY MUNICIPAL INFRASTRUCTURE GRANT (MIG)

A CIDB DOCUMENT

NOTICE NUMBER: 08/2025/2026
BID NO. SCM/BID33/2025/2026

Project Title:
**PROCUREMENT OF A SERVICE PROVIDER: THE REPAIR AND
REFURBISHMENT OF TSHIAME WASTEWATER TREATMENT WORKS**

Tenderer	
Address of Tenderer	
Telephone	
Facsimile	
Tender Amount (VAT inclusive)	
Completion Period	

MAY 2026

CLIENT: Maluti-a-Phofung Local Municipality Private Bag x805, Witsieshoek, 9870 TEL : 058 718 3700 Contact Person: Adv Mafokeng (MM)	CONSULTANT: V3 CONSULTING ENGINEERS (PTY) LTD Suite 31, Nobel House, 196 Nelson Mandela Road, Brandwag, Bloemfontein, 9301 TEL : 051 045 1950 / 021 045 0077 Contact Person : Mr G. Muller
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MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

**PROCUREMENT OF A SERVICE PROVIDER: THE REPAIR AND REFURBISHMENT OF
TSHIAME WASTEWATER TREATMENT WORKS**

BID NO: SCM/BID33/2025/2026

CONTENTS

THESE DOCUMENTS CONSIST OF THE FOLLOWING:		PAGE
<u>VOLUME I: TENDERING PROCEDURES</u>		
T1.1	: TENDER PROCEDURE	1
T1.2	: TENDERER DATA	7
T1.2.1	: Instructions to Tenderers	7
T1.2.2	: Invitation to Bid (MBD 1)	13
T1.2.3	: Tax Clearance Certificate requirements (MBD 2)	16
T1.2.4	: Declaration of Interest (MBD 4)	17
T1.2.5	: Conditions of Tender Pertaining to Preferential Procurement (MBD 6.1)	19
T1.2.6	: Declaration Certificate for Local Production (MBD 6.2)	26
T1.2.7	: Declaration of Bidder's Past Supply Management Practice (MBD 8)	30
T1.2.8	: Certificate of Independent Bid Determination (MBD 9)	32
T1.2.9	: Functionality Summary	34
<u>VOLUME 2: RETURNABLE DOCUMENTS</u>		
T2.1	: LIST OF RETURNABLE DOCUMENTS	38
C1.1	: FORM OF OFFER AND ACCEPTANCE (TENDER)	39
C2.1	: SCHEDULE / BILL OF QUANTITIES	45
T2.2	: RETURNABLE SCHEDULES	49
T2.2.1	: Authority of Signatory	55
T2.2.2	: Schedule of Plant Available	57
T2.2.3	: Previous Experience of Tenderer	58
T2.2.4	: Daywork Schedule	59
T2.2.5	: Status of Concern Submitting the Tender	61
T2.2.6	: Preliminary Programme / Cash Flow Schedule	62
T2.2.7	: Sub – Contractors Schedule	66
T2.2.8	: Staffing Profile	67
T2.2.9	: Alterations by Tenderer	68

BID NO: SCM/BID33/2025/2026

T2.2.10 :	Certificate of Tenderer's Visit to Site	69
T2.2.11 :	Financial Ability	71
T2.2.12 :	Municipal services, rates, and Taxes	72

VOLUME 3: CONTRACT

C1.2	:	CONTRACT DATA TO TENDER	73
C1.2.1	:	Schedule of Contract Documents	74
C1.2.2	:	General Conditions of Contract	74
C1.2.3	:	Special Conditions of Contract	75
C1.2.4	:	Contract data by employer and contractor	78
C2.	:	PRICING DATA	79
C3.	:	PROJECT SPECIFICATION	80
C3.1	:	SCOPE OF WORKS	81
C3.2	:	ENGINEERING	83
C3.3	:	SEWER UPGRADE TECHNICAL SPECIFICATION	83
C4.	:	CONSTRUCTION PROGRAMME	86
C5.	:	APPLICABLE STANDARDISED AND PARTICULAR SPECIFICATIONS	88
C7.	:	SITE INFORMATION	89
ANNEXURE A :	PRO FORMA DOCUMENTS	91	
ANNEXURE B :	STANDARDISED/PARTICULAR SPECIFICATIONS	97	
ANNEXURE C :	OCCUPATIONAL HEALTH AND SAFETY	117	
ANNEXURE D :	CONFORMITY WITH EPWP GUIDELINES	157	
ANNEXURE E :	TENDER DRAWINGS	160	
ANNEXURE D :	SCHEDULE OF QUANTITIES	161	

**VOLUME 1
TENDERING PROCEDURES**

BID NO: SCM/BID33/2025/2026

MALUTI-A-PHOFUNG MUNICIPALITY

**PROCUREMENT OF A SERVICE PROVIDER: THE REPAIR AND REFURBISHMENT OF
TSHIAME WASTEWATER TREATMENT WORKS**

TENDER DOCUMENT

PART T1: TENDERING PROCEDURE

BID NO: SCM/BID33/2025/2026

DATA PROVIDED BY THE TENDERER

NAME OF TENDERER: _____

The legal name of the Contractor

ADDRESS OF TENDERER: _____

Physical address, postal address and e-mail address where the Contractor will receive notice

TELEPHONE No. : _____

FAX No. : _____

AUTHORISED PERSON: _____

TENDER AMOUNT (VAT incl): R _____

TIME FOR COMPLETION: The Works shall be completed within _____

State total number of days, weeks, months or years which must include the special non-working days and the year-end break.

TENDERER:

DATE:

NOTICE

CONDITIONS FOR THE ACQUIRING OR PURCHASE OF THIS DOCUMENT

It is explicitly agreed that any person acquiring or purchasing this document does so with the sole purpose of submitting a bona fide tender in terms of the document and will be prohibited to make public the contents of the document or any part thereof or supply it to or let it be used by any other party other than for the purpose of assistance by such other party in meeting any necessary requirements related to the submission of a bona fide tender in terms of the document.

The copy or transformation of any part of this document in any form or by any process whatsoever, without the written consent of V3 CONSULTING ENGINEERS (PTY) LTD is prohibited in terms of the Copy Right Act 98 of 1987 except for the purpose as set out above.

V3 CONSULTING ENGINEERS (PTY) LTD



NOTICE NUMBER: 08/2025/2026
BID NO. SCM/BID33/2025/2026

PROCUREMENT OF A SERVICE PROVIDER WHO WILL ASSIST THE MUNICIPALITY ON THE REPAIR AND REFURBISHMENT OF TSHIAME WASTEWATER TREATMENT PLANT FOR THE PERIOD OF THREE (03) YEARS

Maluti-a-Phofung Municipality hereby invite bids for Procurement of a Service Provider who will assist the Municipality on the Repair and Refurbishment of Tshiame Wastewater Treatment Plant for the Period of Three (03) years

Requirements:

- Bidders must submit a Copy of Company Registration Certificate (CRC) Reflecting Active Members (Except for Sole Traders and Partnership).
- Bidders must be registered with Central Supplier Database (CSD), CSD number must be provided, and in case of a JV all parties must be registered on CSD.
- Bidders are required to submit their unique personal identification Number (Pin) issued by SARS to enable the Municipality to view the taxpayer's profile and tax Status
- All supplementary forms including municipal rates and taxes clearance certificate form contained in the bid documents must be completed in full or (submit a proof that the municipal rates and taxes are not in arrears for more than three months)
- In Bids whereby consortia/ joint ventures/ sub-contractors are involved, each party must submit a separate Tax Compliance Status (TCS) Certificate/Pin/CSD Number.
- CIDB grading of 8CE or Higher
- Copy of Company Profile (with documents for functionality)
- Bidders must index their bid document properly.
- Sealed Bids should clearly indicate: **PROCUREMENT OF A SERVICE PROVIDER WHO WILL ASSIST THE MUNICIPALITY ON THE REPAIR AND REFURBISHMENT OF TSHIAME WASTEWATER TREATMENT PLANT FOR THE PERIOD OF THREE (03) YEARS (SCM/BID33/2025/2026)**

Recommended Briefing Session: **22nd May 2026 @13H00**
(Tshiame) Sediba Hall

Closing date: **18th June 2026 at 10H00**
Bid Box:
Bid Box No. "A"
Maluti-a-Phofung Municipality
Setsing Business Centre
C/O Moremoholo & Motloung streets
Phuthaditjhaba

Supply chain enquiries: M. Motsau (058)7183878/(058) 718 3870 – mastokim@map.fs.gov.za
palesal@map.fs.gov.za

Technical Enquiries: T. Selepe – 082 760 2635– pmu.maluti@gmail.com

Please note:

1. **No bids will be accepted from persons in the service of the state.**
2. Bid documents will be obtainable as from Friday the **15th of May 2026** after 10h00 from the cashiers point, Phuthaditjhaba offices upon payment of a **R 939.87** non-refundable fee (cash or bank guaranteed in favour of Maluti-a-Phofung Municipality) or alternatively the tender document may be download from e-tender portal at no extra charge.
3. No electronic copies, telegraphics, telefaxes and late Bids will be accepted.
4. Municipality is not bound to accept the lowest Bid.
5. Municipality reserve the right not to award the bid.
6. Municipal Supply chain management policy and Preferential Procurement Policy Framework Act No 5 of 2000 (90/10 preferential points allocation system in line with revised Procurement Regulations of 2022 by using the balance scorecard methodology) will be applied.
7. Only one submission for this bid will be considered from the bidder.
8. Failure to comply with the above mentioned conditions may invalidate your bid.
9. Validity period for this bid is 90 days, unless otherwise specified and should you not receive any correspondence from us within that period, regard your bid as unsuccessful.
10. Communication will be limited to the successful bidder.

ADV M.M MOFOKENG
MUNICIPAL MANAGER

NOTICE TO TENDERERS

VERY IMPORTANT NOTICE ON DISQUALIFICATIONS:

A Tender not complying with the peremptory requirements stated hereunder will be regarded as not being an "Acceptable Tender", and as such will be rejected.

"Acceptable Tender" means any Tender which, in all respects, complies with the conditions of Tender and specifications as set out in the Tender documents.

A TENDER WILL BE REJECTED:

1. If any pages have been removed from the Tender document, and have therefore not been submitted, or a copy of the original Tender document has been submitted.
2. In the event of a failure to complete and sign the schedule of quantities as required, i.e. only lump sums provided.
3. In the event of there being scratching out, writing over or painting out rates or information, affecting the evaluation of the Tender, without initialling next to the amended rates or information.
4. In the event of the use of correction fluid (eg. tippex), any erasable ink, or any erasable writing instrument (e.g. pencil)
5. In the event of non-attendance of compulsory information session
6. If the Tender has not been properly signed by a person having the authority to do so. **(Refer to Declaration)**
7. If particulars required in respect of the Tender have not been completed, except if only the Broad – Based Black Economic Empowerment Certificate as provided for in Regulation 10 of The Preferential Procurement Regulations of 2022, is not submitted, the Tender will not be disqualified but no preference points will be awarded.
8. If the Tenderer attempts to influence, or has in fact influenced the evaluation and/or awarding of the contract.
9. If the Tender has been submitted either in the wrong Tender box or after the relevant closing date and time.
10. If any municipal rates and taxes or municipal service charges owed by the Tenderer or any of its directors/members to the municipality or municipal entity, or to any other municipality or municipal entity, are in arrears for more than three months
11. If any Tenderer who during the last five years has failed to perform satisfactorily on a previous contract with the municipality, municipal entity or any other organ of state after written notice was given to that Tenderer that performance was unsatisfactory.
12. The accounting officer must ensure that irrespective of the procurement process followed, no award may be given to a person –
 1. who is in the service of the state, or;
 2. if that person is not a natural person, of which any director, manager, principal shareholder or stakeholder, is a person in the service of the state; or;
 3. who is an advisor or consultant contracted with the municipality in respect of contract that would cause a conflict of interest.
13. If the Tenderer is not registered in the required CIDB contractor grading designation (category) or higher, if required in this Tender documentation.
14. If the Tenderer or any of its directors is 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.
15. If the Tenderer has abused the Maluti-A-Phofung Local Municipality's Supply Chain Management System and action was taken in terms of the Maluti-A-Phofung Local Municipality SCM Policy. In the event of non-submission of financial statements if required **(SEE TENDER DATA OR PRICING SCHEDULE)**. In this regard please note:
 - 15.1 If a Tenderer is a registered company required by law to have its annual financial statements audited or independently reviewed in compliance with the requirements of the Companies Act

BID NO: SCM/BID33/2025/2026

- ,Act No.71 of 2008, or any other law, audited or independently reviewed annual financial statements, as the case may be, prepared within six (6) months of the end of the Tenderers most recent financial year together with the audited or independently reviewed annual financial statements for the two immediately preceding financial years, unless the Tenderer was only established within the past three (3) years in which case all of its annual financial statements must be submitted.
- 15.2 If a Tenderer is a registered close corporation, annual financial statements in compliance with the provisions of the Close Corporations Act, Act No. 69 of 1984, prepared within nine (9) months of the end of the Tenderers most recent financial year together with the annual financial statements for the two immediately preceding financial years, unless the Tenderer was only established within the past three (3) years in which case all of its annual financial statements must be submitted.
- 15.3 Annual financial statements submitted must comply with the requirements of the Companies Act or the Close Corporations Act.
- 15.4 If the Tenderer only commenced business within the past three years, the Tenderer is required to submit annual financial statements in compliance with the provisions of (16.1) and (16.2) above for each of its financial years since commencing business.
- 15.5 If a Tenderer is not required by law to have its annual financial statements audited or independently reviewed, or is not a Close Corporation, then non-audited annual financial statements for the periods referred to above must be submitted.
16. If the following have not been fully completed and signed:
- 16.1 **General Declaration**
- 16.2 **Declaration of Interest**
- 16.3 **Declaration of Tenderer's Past SCM Practices**
- 16.4 **Declaration for Procurement Above R10 Million (If Applicable)**
- 16.5 **Certificate of Independent Tender Determination**
- 16.6 **Declaration for Municipal Accounts**
- 16.7 **Declaration for Municipal Accounts Where Tenders Are Expected to Exceed R10 Million**
17. If the following compulsory documents are not attached (Bidders that fail to submit documents indicated as compulsory will be disqualified)
- 17.1 ***Original certified copy of valid BBEE Certificate only SANAS accredited or Affidavits will be accepted.***
- 17.2 ***Copy of company registration certificate (CK)***
- 17.3 ***Copy of Tax compliance reference pin issued by SARS, to enable the municipality to verify the bidder's tax compliance status***
- 17.4 ***Copy of current municipal account (not older than 3 months) – copy of Lease Agreement (and landlord's municipal rates account)***
- 17.5 ***Valid CSD summary report***
- 17.6 ***Valid CIDB Certificate***
- 17.7 ***Joint Venture Agreement (In case of a Joint Venture)***
- 17.8 ***Joint Ventures should be registered on CSD as a joint venture.***
- 17.9 ***Audited Financial Statements for the past Three (03) years***
- 17.10 ***Valid Workman's Compensation Certificate or Letter***

VERY IMPORTANT NOTICE TO TENDER

1. Tenderers must note that only information filled in at the spaces provided therefore in the Tender document will be considered for evaluation purposes unless additional space is required and then only if the location of the additional information in the attachments is properly referred to by page number and section heading. Information supplied anywhere else will be disregarded which may lead to the rejection of the Tender.
2. The attachment or inclusion of information not specifically asked for is not desirable and lead to delays in the awarding of Tenders. This includes Company Profiles and CV's if not specifically requested.

BID NO: SCM/BID33/2025/2026

T1.2 TENDER DATA

BID NO: SCM/BID33/2025/2026

T1.2.1 INSTRUCTIONS TO TENDERERS

1. ISSUE OF DOCUMENTS

Tender documents will be obtainable from **Maluti-a-Phofung Municipality**, the Cnr Moremoholo & Motlounge streets, Setsing Complex, Phuthaditjhaba, Qwaqwa on the date as advertised. Only cash shall be accepted.

2. TENDER DOCUMENTS

Tenderers shall satisfy themselves that the documents are complete and conform to the index. Should any pages be missing or anything concerning the documents not be clear, the Tenderer shall immediately notify the Engineer, in order to have any discrepancy solved, because neither the Employer nor the Engineer will assume any responsibility for any discrepancies not rectified during the tendering period.

3. TENDER PROCEDURE

Tenders, completed in full, shall be submitted with all the signatures entered where required.

Tenders are to be entered on the Form of Tender, which shall not be detached from this document.

The complete document, priced and completed in full, with any covering letters, specifications, drawings and data to be supplied by the Tenderer, is to be sealed, marked “:

BID NO: SCM/BID33/2025/2026– PROCUREMENT OF A SERVICE PROVIDER: THE REPAIR AND REFURBISHMENT OF TSHIAME WASTEWATER TREATMENT WORKS and reach the Maluti-a-Phofung Municipal Offices in Qwaqwa before 10h00 on the date as advertised.

4. RETURNABLE DOCUMENTS

All returnable documents included in these documents shall be completed in full by the Tenderer and signed where required. The complete list of returnable documents is tabled in section T2.1 of the tender document.

Should insufficient space be provided in any returnable document, the Tenderer shall include additional annexures, of the same format as the tender document. Should all returnable documents not be completed in full, the tender shall be rendered incomplete and may not be taken into consideration.

5. CLARIFICATION MEETING

The clarification meeting is as per Advert.

The Consulting Engineer will meet prospective tenderers at the venue and on the date as advertised to show prospective tenderers the site. Prospective tenderers shall arrange their own transport.

6. TENDER PRICES

Tenderers shall allow in the tender prices for all labour, material, plant and all other matters required to execute and complete the contract in accordance with the contract documents.

7. VALUE ADDED TAX

All unit rates and lump sum prices entered in the Schedule of Quantities shall exclude Value Added Tax.

Provision has however been made for the addition of Value Added Tax to the extended total in the Summary of the Schedule of Quantities. This figure including VAT shall be carried over to the Form of Tender.

8. "RATE ONLY" ITEMS

"Rate only" items shall also be priced by the tenderer but shall not be included in the extended total. Where "Rate only" items tend to be excessively high or inappropriate, the Employer shall have the right to notify the Tenderer to afford him the opportunity to rectify these rates.

9. ALTERNATIVE TENDERS

9.1 ALTERNATIVE SYSTEM PROPOSAL

Alternative tenders will not be accepted.

9.2 ALTERNATIVE ITEMS PROPOSAL

Not applicable

10. RESOLUTION OF AUTHORITY

If the tender is submitted by a company it shall be signed by a person authorized to do so. A resolution of authorization, by the directors of the company, shall be submitted with the tender.

If the tender is submitted by a consortium of two or more persons or companies for firms, the following shall be attached:

- a) The original or certified copy of the agreement setting out the composition of the consortium, the conditions on which it operates as well as the period of validity of the consortium.
- b) A certificate signed by each member of all participating parties, companies or firms, affording power of attorney to a nominated person.

11. VALIDITY OF TENDER

The tender shall be valid for the period as stated in the Annexure to the Tenderer.

12. TELEGRAPHIC TENDERS

Telegraphic tenders will **NOT** be considered.

13. WITHDRAWAL OF A TENDER

Any Tenderer has the right to change or withdraw a tender after submission providing he applies for withdrawal before the closing date and time.

The original tender with the written changes on it will be accepted as the final submission.

After the official closing date and time, a tender will not be allowed to be withdrawn or changed.

BID NO: SCM/BID33/2025/2026

Should the successful Tenderer withdraw his tender after the advertised closing date, or after notification that his tender has been accepted, fail to sign the contract in accordance with the Form of tender within a period of 14 days, or an extended time agreed, he will be held responsible for all additional costs incurred in re-advertising the contract and/or the difference in cost incurred by appointing a less favourable Tenderer.

14. INCOMPLETE TENDERS

Any tender that does not comply with the conditions of tender will be considered incomplete and will be liable for rejection.

15. TENDER EXPENSES VENTURE

The Employer will not be held liable for any expenses incurred in preparing and lodging tenders.

16. ALTERATION OF TENDER BY EMPLOYER**16.1 ARITHMETICAL ERRORS**

The responsive tender offers shall be checked for arithmetical errors, which will be corrected in the following manner (Per Government Gazette, 9 June 2004, No 26427):

- Where there is a discrepancy between the amounts in figures and in words, the amount in words shall govern.
- For this schedule / bill of quantities, where 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 will be corrected.

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 a bill of quantities applies) to achieve the tendered total of the prices.

16.2 INAPPROPRIATE TENDER PRICES

Should any price or rate seem inappropriate or unacceptable to the Employer, the Employer shall require of the Tenderer the following:

Justify the specific price or rate by doing a financial breakdown of the complete rate, and/or to change the rate or price.

Should a Tenderer refuse to alter any price or rate, the Employer may disqualify the Tender, after 7 days written notification thereof.

17. ADDITIONAL INFORMATION REQUIRED

The Tenderer shall include with his tender all information, data, design calculations and drawings as maybe stipulated in the specification and annexures.

BID NO: SCM/BID33/2025/2026

The Employer reserves the right to demand more information where such information as submitted is considered inadequate. The Tenderer shall supply the required supplementary information within 7 days after notification.

All costs incurred during the design of proposals and compilation of the required information, shall be included in the tendered rates.

18. OWNERSHIP OF TENDER DOCUMENTS

All persons in possession of the Tender Documents, whether Tenders are submitted or not, shall regard the contents of the Documents as private and confidential.

No part of any Document may be reproduced or copied without the prior consent of SADC Project Consulting (Pty) Ltd.

19. TIME OF COMPLETION

The time of completion shall be determined by the tenderer; taking into account all factors, which may influence the construction period. This shall be entered in the appropriate position in the **Summary of Tender** as well as the **Contract data page 37 of this Tender**.

20. ACCEPTANCE AND REJECTION OF TENDERS

Acceptance of a tender does not imply that the program, construction method or any other item in detail will be accepted in full. Final drawings for final approval in accordance with the General Conditions of Contract shall be submitted, should that be a requirement of the tender.

Tenders may be rejected if additional requirements are not presented as requested in the tender documents, or if the tender has been qualified, other than indicated in "**Alterations by Tenderer**", or if any absurdities is encountered in the form of tender, annexures or bill of quantities.

The Employer is not compelled to accept the lowest or any tender.

21. REVENUE STAMPS

Any stamp duties related to the contract shall be for the account of the Tenderer.

22. SECURITY

It is a provision of the contract that the Contractor shall provide the Employer with the "Type of Security" for the due performance of the Contract, as selected in the Contract Data. The time to deliver the guarantee and the liability of the guarantee are stated in the Contract Data (C1.2.4).

23. VARIATIONS BY THE TENDERER

Should the Tenderer wish to vary any terms of the General Conditions of Contract or Specification, he shall do so in Annexure 1 attached to this document. In the absence of any entries in this Annexure, the tender will be treated as a tender complying in every respect with the General Conditions and Specification. Preference will be given, other things being generally equal to tenders entailing a minimum of alterations.

24. AMBIGUITY

In the event of there being any doubt about any matter or of further information being required, Tenderers are invited to obtain such further information from the Consulting Engineers.

25. FOREIGN TENDERERS

Tenderers not resident in the Republic of South Africa will supply the name and address of their official agent in the Republic. Any tender failing to comply with this condition will be rejected.

26. DISQUALIFICATION AS THE RESULT OF UNJUST INFLUENCING AND CANVASSING

Shall there be any evidence of any unjust influencing or canvassing by the Tenderer his tender will be liable to rejection.

27. "TIME IS OF THE ESSENCE" (MORA)

Time is an essential element of the Contract.

28. REDUCTION OF WORK

The Employer reserves the right to withdraw any section of item in the bill of quantities in which case the Contractor will have no claim in this respect.

29. GENERAL CONDITIONS

29.1 The following general conditions are applicable to this tender:

- I. The Main Contractor must appoint a Community Liaison Officer (CLO) for the entire duration of the Project; the CLO will be identified by the Maluti-a-Phofung Municipality.
- II. The Main Contractor may import only key personnel for the execution of the project. All general labour and subcontractors must be locally based within the Maluti-a-Phofung Municipal Area.
- III. A Tender / Quotation submitted by a Company which is in arrears of payment for services provided by the Council, will not be considered.
- IV. Failures to provide and attach to the Tender / Quotation the information required may result in a loss of points or disqualification.

**PART A
INVITATION TO BID**

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF MALUTI-A-PHOFUNG LOCAL MUNICIPALITY					
BID NUMBER:	SCM/BID33/2025/2026	CLOSING DATE:	18 JUNE 2026	CLOSING TIME:	10H00
DESCRIPTION	PROCUREMENT OF A SERVICE PROVIDER WHO WILL ASSIST THE MUNICIPALITY ON THE REPAIR AND REFURBISHMENT OF TSHIAME WASTEWATER TREATMENT WORKS				
THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (MBD7).					

BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT:

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY
CNR MOREMOHOLO & MOTLOUNG STREETS
SETSING BUSINESS CENTRE
PHUTHADITJHABA
9870
BID BOX "A"

SUPPLIER INFORMATION

NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
TAX COMPLIANCE STATUS	TCS PIN:		OR	CSD No:	
ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES OFFERED?	<input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES ENCLOSE PROOF]		ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES OFFERED?		<input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES, ANSWER PART B:3]
TOTAL NUMBER OF ITEMS OFFERED			TOTAL BID PRICE	R	
SIGNATURE OF BIDDER	.....		DATE		
CAPACITY UNDER WHICH THIS BID IS SIGNED					

BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO:		TECHNICAL INFORMATION MAY BE DIRECTED TO:	
DEPARTMENT	SCM	CONTACT PERSON	Mr T. Selepe
CONTACT PERSON	MISS M. MOTSAU OR MISS P. LITSIBANE	TELEPHONE NUMBER	082 760 2635/ 071 793 4346
TELEPHONE NUMBER	058 718 3878/70	FACSIMILE NUMBER	N/A
FACSIMILE NUMBER	N/A	E-MAIL ADDRESS	Pmu.maluti@gmail.com/ maxwell.maluti@gmail.com
E-MAIL ADDRESS	mastokim@map.fs.gov.za palesal@map.fs.gov.za		

**PART B
TERMS AND CONDITIONS FOR BIDDING**

1. BID SUBMISSION:	
1.1.	BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
1.2.	ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED (NOT TO BE RE-TYPED) OR ONLINE
1.3.	THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE PREFERENTIAL PROCUREMENT REGULATIONS THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.
2. TAX COMPLIANCE REQUIREMENTS	
2.1	BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.
2.2	BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VIEW THE TAXPAYER'S PROFILE AND TAX STATUS.
2.3	APPLICATION FOR THE TAX COMPLIANCE STATUS (TCS) CERTIFICATE OR PIN MAY ALSO BE MADE VIA E-FILING. IN ORDER TO USE THIS PROVISION, TAXPAYERS WILL NEED TO REGISTER WITH SARS AS E-FILERS THROUGH THE WEBSITE WWW.SARS.GOV.ZA.
2.4	FOREIGN SUPPLIERS MUST COMPLETE THE PRE-AWARD QUESTIONNAIRE IN PART B:3.
2.5	BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.
2.6	IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.
2.7	WHERE NO TCS IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.
3. QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS	
3.1.	IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)? <input type="checkbox"/> YES <input type="checkbox"/> NO
3.2.	DOES THE ENTITY HAVE A BRANCH IN THE RSA? <input type="checkbox"/> YES <input type="checkbox"/> NO
3.3.	DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA? <input type="checkbox"/> YES <input type="checkbox"/> NO
3.4.	DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA? <input type="checkbox"/> YES <input type="checkbox"/> NO
3.5.	IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION? <input type="checkbox"/> YES <input type="checkbox"/> NO
IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 ABOVE.	

NB: FAILURE TO PROVIDE ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID. NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE.

SIGNATURE OF BIDDER:

CAPACITY UNDER WHICH THIS BID IS SIGNED:

DATE:

BID NO: SCM/BID33/2025/2026

BID NO: SCM/BID33/2025/2026

MBD 2

TAX CLEARANCE CERTIFICATE REQUIREMENTS

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

1. In order to meet this requirement bidders 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 bidders / individuals who wish to submit bids.
2. SARS will then furnish the bidder 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 bid. Failure to submit the original and valid Tax Clearance Certificate will result in the invalidation of the bid. Certified copies of the Tax Clearance Certificate will not be acceptable.
4. In bids 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 are 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.

PLEASE NOTE THAT THE COMMISSIONER FOR THE SOUTH AFRICAN REVENUE SERVICE (SARS) WILL NOT EXERCISE HIS DISCRETIONARY POWERS IN FAVOUR OF ANY PERSON WITH REGARD TO ANY INTEREST, PENALTIES AND / OR ADDITIONAL TAX LEVIABLE DUE TO THE LATE- OR UNDERPAYMENT OF TAXES, DUTIES OR LEVIES OR THE RENDITION RETURNS BY ANY PERSON AS A RESULT OF ANY SYSTEM NOT BEING YEAR 2000 COMPLIANT.

[MBD 2]

BID NO: SCM/BID33/2025/2026

BID NO: SCM/BID33/2025/2026

MBD 4

DECLARATION OF INTEREST

- 1. No bid will be accepted from persons in the service of the state .
- 2. Any person, having a kinship with persons in the service of the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid. In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons connected with or related to persons in service of the state, it is required that the bidder or their authorised representative declare their position in relation to the evaluating/adjudging authority and/or take an oath declaring his/her interest.

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

3.1 Full Name:

3.2 Identity Number:

3.3 Company Registration Number:

3.4 Tax Reference Number:

3.5 VAT Registration Number:

3.6 Are you presently in the service of the state **YES / NO**

3.6.1 If so, furnish particulars.
.....
.....

3.7 Have you been in the service of the state for the past twelve months? **YES / NO**

3.7.1 If so, furnish particulars
.....

3.8 Do you, have any relationship (family, friend, other) with persons in the service of the state and who

- MSCM Regulations: "in the service of the state" means to be –
 - (a) a member of –
 - (i) any municipal council;

BID NO: SCM/BID33/2025/2026

- (ii) any provincial legislature; or
- (iii) the national Assembly or the national Council of provinces;

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

may be involved with the evaluation and or adjudication of this bid?

3.8.1 If so, furnish particulars.

.....
.....

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

YES / NO

3.9.1 If so, furnish particulars

.....
.....

3.10 Are any of the company's directors, managers, principal shareholders or stakeholders in service of the state?

YES / NO

3.10.1 If so, furnish particulars.

.....
.....

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

YES / NO

3.11.1 If so, furnish particulars.

.....
.....

3.10 Are any of the company's directors, managers, principal shareholders or stakeholders in service of the state?

YES / NO

BID NO: SCM/BID33/2025/2026

3.10.1 If so, furnish particulars.

.....
.....

3.12 Are any spouse, child or parent of the company's directors, **YES / NO**
managers, principal shareholders or stakeholders in service of the state?

3.11.1 If so, furnish particulars.

.....

CERTIFICATION

I, THE UNDERSIGNED (NAME)

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

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

FALSE.

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

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

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

1 Are you by law required to prepare annual financial statements for auditing? ***YES / NO**

1.1 If yes, submit audited annual financial statements for the past three years or since the date of establishment if established during the past three years.

.....
.....

2 Do you have any outstanding undisputed commitments for municipal services towards any municipality for more than three months or any other service provider in respect of which payment is overdue for more than 30 days? ***YES / NO**

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

2.2 If yes, provide particulars.

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

* Delete if not applicable

3 Has any contract been awarded to you by an organ of state during the past five years, including particulars of any material non-compliance or dispute concerning the execution of such contract? YES / NO

3.1 If yes, furnish particulars

.....
.....

4. Will any portion of goods or services be sourced from outside the Republic, and, if so, what portion and whether any portion of payment from the municipality / municipal entity is expected to be transferred out of the Republic? *YES / NO

4.1 If yes, furnish particulars

.....
.....

CERTIFICATION

I, THE UNDERSIGNED (NAME)

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

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

FALSE.

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

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

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

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

1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to all bids:

- **the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and**
- **the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).**

1.2

a) The value of this bid is estimated to exceed/not exceed R50 000 000 (all applicable taxes included) and therefore the 80/20 preference point system shall be applicable; or

1.3 Points for this bid shall be awarded for:

- (a) Price; and
- (b) Specific goals

1.4 The maximum points for this bid are allocated as follows:

1.5

	POINTS
PRICE	90
SPECIFIC GOALS	10
Total points for Price and Specific Goals must not exceed	100

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

- 1.7 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

The words in this policy shall bear a meaning as prescribed and/or ascribed by applicable legislation, and in the event of a conflict, the meaning attached thereto by National Legislation shall prevail:

- (a) "Act" means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).
- (b) "Black people" as defined in the Broad-Based Black Economic Empowerment Act, 2003 (Act No 53 of 2003), is a generic term which means Africans, Coloured and Indians.
- (c) "Tender" means a written offer or bid in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of services or goods.
- (d) "price" means an amount of money tendered for good or services, and includes all applicable taxes less all unconditional discounts;
- (e) "rand value" means the total estimated value of a contract in rand, calculated at the time of bid tender invitation, and includes all applicable taxes and
- (f) "tender for income generating contracts" means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auction.

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1 POINTS AWARDED FOR PRICE

3.1.1 THE 90/10 PREFERENCE POINT SYSTEMS

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

90/10

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

Where

Ps = Points scored for price of bid under consideration

Pt = Price of bid under consideration

Pmin= Price of lowest acceptable bid

4. POINTS AWARDED FOR SPECIFICATION GOALS

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

4.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—

- (a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or
- (b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,

then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

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

(Note to organs of state: Where either the 90/10 or 80/20 preference point system is applicable, corresponding points must also be indicated as such.

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

The specific goals allocated points in terms of this tender	Number of points allocated (90/10 system) (To be completed by the organ of state)	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points allocated (90/10 system) (To be completed by the tenderer)	Number of points allocated (80/20 system) (To be completed by the tenderer)
Location based: <ul style="list-style-type: none"> • Within Maluti-A-Phofung 06 points • Within Thabo Mofutsanyana District 04 points • With Free State Province 02 points • Outside Free State Province 0 points 	06			
Historically advantaged = 02 Points	02			
Youth (Enterprises owned by person younger than 35 years) (02 Points)	02			
Total Points Allocated	10			

DECLARATION WITH REGARD TO COMPANY/FIRM

4.1 Name of company/firm:.....

4.2 VAT registration number:.....

4.3 Company registration number:.....

4.4 TYPE OF COMPANY/ FIRM

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

[TICK APPLICABLE BOX]

I, the undersigned, who is duly authorised to do so on behalf of the company/firm,

certify that the points claimed, based on the specific goals as advised in the tender, qualifies the company/ firm for the preference(s) shown and I acknowledge that:

- 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 paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;
- iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –
 - (a) disqualify the person from the tendering process;
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
 - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
 - (d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the audi alteram partem (hear the other side) rule has been applied; and
 - (e) forward the matter for criminal prosecution, if deemed necessary.

Signature(s) of Tenderer(s): _____ Date: _____

DECLARATION OF BIDDER’S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

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

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

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

CERTIFICATION

I, THE UNDERSIGNED (FULL NAME.....)

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

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

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

T1.2.8 MBD 9 CERTIFICATE OF INDEPENDENT BID DETERMINATION

- 1 This Municipal Bidding Document (MBD) must form part of all bids¹ invited.
- 2 Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging).² Collusive bidding is a *pe se* prohibition meaning that it cannot be justified under any grounds.
- 3 Municipal Supply Regulation 38 (1) prescribes that a supply chain management policy must provide measures for the combating of abuse of the supply chain management system, and must enable the accounting officer, among others, to:
 - a. take all reasonable steps to prevent such abuse;
 - b. reject the bid of any bidder if that bidder or any of its directors has abused the supply chain management system of the municipality or municipal entity or has committed any improper conduct in relation to such system; and
 - c. cancel a contract awarded to a person if the person committed any corrupt or fraudulent act during the bidding process or the execution of the contract.
- 4 This MBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bidrigging.
- 5 In order to give effect to the above, the attached Certificate of Bid Determination (MBD 9) must be completed and submitted with the bid:

¹ Includes price quotations, advertised competitive bids, limited bids and proposals.

² Bid rigging (or collusive bidding) occurs when businesses, that would otherwise be expected to compete, secretly conspire to raise prices or lower the quality of goods and / or services for purchasers who wish to acquire goods and / or services through a bidding process. Bid rigging is, therefore, an agreement between competitors not to compete.

CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

—

(Bid Number and Description)

in response to the invitation for the bid made by:

—

(Name of Municipality / Municipal Entity)

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

I certify, on behalf

of: _____ that:

(Name of Bidder)

1. I have read and I understand the contents of this Certificate;
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign, the bid, on behalf of the bidder;
5. For the purposes of this Certificate and the accompanying bid, I understand that the word

“competitor” shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:

- (a) has been requested to submit a bid in response to this bid invitation;
- (b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
- (c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder

T1.2.9 FUNCTIONALITY EVALUATION SUMMARY

PROCUREMENT OF A SERVICE PROVIDER: THE REPAIR AND REFURBISHMENT OF TSHIAME WASTEWATER TREATMENT WORKS

BID NO: SCM/BID33/2025/2026

Peremptory Requirements

Each Tenderer must include a detailed response on how their proposed Telemetry and Pre-paid Water meter products/system complies with the requirements as stated in section PART C3: PROJECT SPECIFICATIONS of the tender document.

Any tender submission that does not include a detailed response on how the above requirements are met shall be rejected and will not move onto technical evaluation as their bid submission will have failed to comply with the peremptory requirements.

The Maluti-a-Phofung Municipality reserves the right to

- ✦ request samples of the complete proposed Telemetry system and Pre-paid Water meters to conduct tests of compliance as per the specifications outlined in PART C3: PROJECT SPECIFICATIONS of the tender document.
- ✦ conduct tests of its own or to elect a third party to do so for any of the items on offer before and after acceptance of the items on offer.

Any samples failing any of the tests described in the specification will result in the Tenderer being nonresponsive and shall be disqualified.

TECHNICAL EVALUATION

Evaluation criteria	Max Points	Points Distribution	Typical PoE								
Bidders Work Experience	30	<p>Projects above R90 million, full points as stated below (depending on number of sewer projects completed). Projects between R50 million and up to R90 million, half points per category will be provided</p> <p>Categories</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;"><u>Projects above R90 million,</u></th> <th style="text-align: center;"><u>Projects between R50 million and up to R90 million</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><u>3 or more Projects = 30</u></td> <td style="text-align: center;"><u>3 or more Projects = 15</u></td> </tr> <tr> <td style="text-align: center;"><u>2 Projects = 20 Points</u></td> <td style="text-align: center;"><u>2 Projects = 10 Points</u></td> </tr> <tr> <td style="text-align: center;"><u>1 Project = 10 Points</u></td> <td style="text-align: center;"><u>1 Project = 5 Points</u></td> </tr> </tbody> </table> <p>0 points – company with no relevant project completed.</p> <p>Only sewer construction contracts from government or state-owned entities will be considered.</p>	<u>Projects above R90 million,</u>	<u>Projects between R50 million and up to R90 million</u>	<u>3 or more Projects = 30</u>	<u>3 or more Projects = 15</u>	<u>2 Projects = 20 Points</u>	<u>2 Projects = 10 Points</u>	<u>1 Project = 10 Points</u>	<u>1 Project = 5 Points</u>	<p>Provide these Three:</p> <ol style="list-style-type: none"> 1. Appointment letter OR signed form of offer and acceptance. 2. Signed completion certificate 3. Reference from the client (with client's stamp) with a contact person <p style="text-align: right;">Failure to submit anyone of the above will result in forfeiture of points</p>
<u>Projects above R90 million,</u>	<u>Projects between R50 million and up to R90 million</u>										
<u>3 or more Projects = 30</u>	<u>3 or more Projects = 15</u>										
<u>2 Projects = 20 Points</u>	<u>2 Projects = 10 Points</u>										
<u>1 Project = 10 Points</u>	<u>1 Project = 5 Points</u>										
Project Personnel	45	<p>Allocated personnel to this project. Provide organogram for this project.</p> <p>CE – Civil Engineering</p> <p>Contract's Manager [B-degree (min). To spend minimum of 50% on site]. Registered with ECSA/SACPCMP as PrEng/PrCM and must have NQF Level 7 accreditation in Labour Intensive Construction (Develop and Promote Labour-Intensive Construction Strategies). 15 points: CE project experience of 10years or more 10 points: CE project experience of 5 – 9 years and 11 months 5 points: CE project experience of less than 5 years AND Site Agent N.Dip Civil Engineering (min). To spend minimum of 100% on site]. Registered with ECSA/SACPCMP as a Professional in any category and must have NQF Level 5 of accreditation in Managing Labour Intensive Construction Projects. 15 points: CE project experience of 7 years or more 10 points: CE project experience of 3 – 6 years and 11 months 5 points: CE project experience of less than 3 years AND Safety Officer as a SACPCMP registered professional. [To spend minimum of 60% on site]. 15 points: CE project experience of 7years or more 10 points: CE project experience of 3 – 6 years and 11 months 5 points: CE project experience of less than 3 years</p>	<p>Provide organogram, designated for this project and for each person submit:</p> <ol style="list-style-type: none"> 1. CV/Resume 2. Certified qualifications <p style="text-align: right;">Failure to submit an organogram indicating personnel stated in the immediate left column will result in forfeiture of points</p>								

Evaluation criteria	Max Points	Points Distribution	Typical PoE
Available Equipment	30	<p>Bidder to provide eNatis certificate or Pre-lease agreement with eNatis certificate.</p> <p>2 Excavator: 10 points</p> <p>2 TLB: 10 points</p> <p>2 Tipper truck: 10 points</p> <p>0 points for non-submission of relevant document or for non-submission.</p>	<p>Proof of ownership by the bidder</p> <p>OR</p> <p>A letter of commitment to lease (indicating project details) and Lessor's proof of equipment ownership. – eNATIS certificate</p>
Project Preparedness	20	<p>Only programmes that indicated duration of not more than 36 months will be considered.</p> <p>Only cashflow indicating expenditure of R25million in the first 6 month will be considered.</p> <p>20 points: Programme of works (with critical path) and Cashflow</p> <p>10 points: Programme of works (without critical path) and cashflow</p> <p>7 points: Programme only (with critical path)</p> <p>5 points: Programme only (without critical path)</p> <p>2 points: Cashflow only</p>	<p>Work Programme (in MS project or similar) and Cash flow show</p>
Socio Economic	15	<p>A commitment to sub-contract</p> <p>15 points: 30% and above</p> <p>0 points for non-submission or different submission</p>	<p>A signed commitment in the bid document to sub-contract to a local contractor</p>
Total Points	140		Minimum point to attain
			105 (75%)

Only tenderers scoring 75 % or more for functionality will be evaluated further on the 90/10-point system for price and preference.

VOLUME 2
RETURNABLE DOCUMENTS

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

PROCUREMENT OF A SERVICE PROVIDER: THE REPAIR AND REFURBISHMENT OF TSHIAME WASTEWATER TREATMENT WORKS

BID NO: SCM/BID33/2025/2026

PART T2: RETURNABLE DOCUMENTS

The following documents are to be completed and returned as they constitute the tender. Whilst many of the returnable are required for the purpose of evaluating the tenders, some will form part of the subsequent contract, as they form the basis of the tender offer. For this reason, it is very important that tenderers return all information requested.

RETURNABLE DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

Form A: Compulsory Declaration 53

Form B: Declaration of Bidder's Past Supply Chain Management Practices

Form C: Declaration of Interest

Form D: Authority of Signatory

Form E: Declaration of Good Standing Regarding Tax

Form F: Financial References / Tenderer's Credit Rating and Bank Details

Form G: Municipal Utility Account

Form H: Preference Schedule

Form I: Proposed Key Personnel

Form J: Schedule of Previous Experience

Form K: Schedule of Current Projects

Form L: Schedule of Infrastructure and Resources / Plant and Equipment

Form M: Schedule of Proposed Sub-Contractors

Form N: Record of Addenda to Tender Documents

Form O: Proposed amendments and qualifications

Form P: Proof of Good Standing with Compensation Commissioner

Form Q: Tenderer's Project Structure

Form R: Certificate of Independent Bid Determination

Form S: Declaration of Tenderer's Litigation History

Form T: Annual Financial Statements Declaration and Audited 3-Year Financial Statements

Form U: Declaration for Procurement above R10 Million (All Applicable Taxes Included)

Form V: Form of Intent to Provide Guarantee

C1.1 FORM OF OFFER AND ACCEPTANCE (TENDER)

C1.1.1 Offer

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

BID NO: SCM/BID33/2025/2026– PROCUREMENT OF A SERVICE PROVIDER: THE REPAIR AND REFURBISHMENT OF TSHIAME WASTEWATER TREATMENT WORKS

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

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

THE OFFERED TOTAL OF THE PRICES INCLUSIVE OF VALUE ADDED TAX IS

.....
.....

..... Rand (in words);

R (in figures),

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

Signature(s)

Name(s) **Capacity**

.....

for the Tenderer

(Name and address of organization)

Name & signature of

Witness

Date

C1.1.2 Acceptance

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

The terms of the contract, are contained in

- Part T1 Tendering Procedures
- Part T2 Returnable Documents
- Part C1 Agreements and Contract Data, (which includes this Agreement)
- Part C2 Pricing Data
- Part C3 Scope of Work
- Part C4 Site Information

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

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

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

Signature(s)

Name(s)

Capacity

for the Employer

(Name and address of organization)

Name & signature of

witness

Date

C1.1.3 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 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	.....
6	Subject	.....
	Details	.....

By the duly authorised representatives signing this Schedule of Deviations, 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 change 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.

FOR THE TENDERER:

Signature(s)
Name(s)
Capacity
.....
(Name and address of organization)

Name & signature of witness
Date

For the Employer:

Signature(s)
Name(s)
Capacity
.....
(Name and address of organization)

Name & signature of witness
Date

C1.2: CONTRACT DATA – PROCUREMENT OF A SERVICE PROVIDER: THE REPAIR AND REFURBISHMENT OF TSHIAME WASTEWATER TREATMENT WORKS

PART 1: DATA PROVIDED BY THE EMPLOYER

CONDITIONS OF CONTRACT

The General Conditions of Contract (GCC) for Construction Works, Fourth Edition (2025), published by the South African Institution of Civil Engineering, is applicable to this Contract.

CONTRACT SPECIFIC DATA

The following contract specific data, referring to the GCC, are applicable to this Contract :

Compulsory Data

Clause 1.1.1.13

The Defects Liability Period is 12 months from the date of the Certificate of Completion.

Clause 1.1.1.15 :

The name of the Employer is Maluti-a-Phofung Municipality.

Clause 1.2.1.2 :

The address of the Employer is Maluti-a-Phofung Municipality, Private Bag X805, WITSIESHOEK, 9866 Clause

1.1.11.16 :

The name of the Engineer is **V3 CONSULTING ENGINEERS (PTY) LTD** Clause 1.2.1.2 :

The address of the Engineers is **Suite 31, Nobel House, 196 Nelson Mandela Road, Brandwag, Bloemfontein, 9301.**

Email – George.muller@v3consulting.co.za

Clause 1.1.1.26 :

The Pricing Strategy is **Re-measurement Contract**.

Clause 5.3.1 :

The documentation required before commencement with Works execution are :

Health and Safety Plan (refer to clause 4.3)

Initial programme (refer to clause 5.6)

Security (refer to clause 6.2) Insurance

(refer to clause 8.6)

Clause 5.3.2 :

The time to **submit** the documentation required **before commencement** with Works execution is **14** days.

Clause 5.8.1 :

The non-working days are **Sundays**. The

special non-working days are:

1. New Year's Day, Human Rights Day, Good Friday, Family Day, Freedom Day, Workers' Day, Youth Day, National Woman's Day, Heritage Day, Reconciliation Day, Christmas Day, Day of Goodwill. These days will also be excluded from time calculations.
2. The year break commences on **11 December 2026** and ends on **8 January 2027** and **10 December 2027** and ends on **7 January 2028**

**C1.2.4: CONTRACT DATA UPGRADING OF THE SEWER NETWORK IN TSHIAME KHALANYONI:
UPGRADING OF BULK AND SEWER NETWORK SERVICES**

Clause 5.13.1 :
The penalty for failing to complete the Works is **R5000.00** per day.

Clause 5.16.3 :
The latent defect period is 10 years.

Clause 6.10.1.5 :
The percentage advance on materials not yet built into the Permanent Works is max **80% of invoice price.**

Clause 6.10.3 :
The limit of retention money is **10%.**

Clause 8.6.1.1.2 :
No plant or materials shall be supplied by the Employer.

Clause 8.6.1.1.3 :
The amount to cover professional fees for repairing damage and loss to be included in the insurance sum **is R500 000.00**

Clause 8.6.1.3 :
The limit of indemnity for liability insurance is **R5 000 000.00.**

Clause 10.5.3 :
The number of Adjudication Board Members to be appointed is 1.

PART 2 : DATA PROVIDED BY THE CONTRACTOR

Clause 1.1.1.9 :
The name of the Contractor is

Clause 1.2.1.2 :
The Address of the Contractor is
.....

Clause 1.1.1.14 :
The time for achieving Practical Completion is

Clause 6.2.1 :
The security to be provided by the Contractor shall be one of the following :

TYPE OF SECURITY (inclusive of VAT)	Contractor's Choice Indicate "yes" or "no"
Cash deposit of 10% of the Contract Sum	
Performance guarantee of 10% of the Contract Sum	
Retention of 10% of the value of the Works	
Cash deposit of 5% of the Contract Sum plus retention of 5% of the value of the Works	
Performance guarantee of 5% of the Contract Sum plus retention of 5% of the value of the Works	

PART C2: SCHEDULE OF QUANTITIES

C2. SCHEDULE/BILL OF QUANTITIES

The schedule of quantities forms the basis on which the Tenderer arrives at the offered total in the Form of Offer. By signing the Acceptance of the Form of Offer and Acceptance, the Employer accepts the Tenderers offer, and the Schedule of Quantities is then included in the Contract Agreement between the parties.

C2.1.1 Preamble to Schedule of Quantities

1.1.1 The General Conditions of Contract, the Special Conditions of Contract (if any), the Specifications (including the Project Specifications) and the drawings are to be read in conjunction with the Schedule of Quantities.

1.1.2 a) The schedule comprises items covering the Contractor's profit and costs of general liabilities and of the supply and installation of permanent apparatus.

b) The Tenderer is at liberty to insert a rate of his own choosing for each item in the schedule and his attention is drawn to the fact that the Contractor has the right, under various circumstances, to payment for additional works 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 inserted in the schedule by the Contractor.

1.1.3 Descriptions in the Schedule of Quantities are abbreviated.

1.1.4 The prices and rates to be inserted in the Schedule of Quantities are to be the full inclusive prices to the Employer for apparatus/work described under the several items. Such prices shall cover all costs and expenses that may be required in and for the execution of the work described, and shall cover the cost of all general risks, liabilities and obligations set forth or implied in the documents on which the tender is based.

1.1.5 A price or rate is to be entered against each item in the Schedule of Quantities, whether the quantities are stated or not. An item against which no price is entered will be considered to be covered by the other prices or rates in the schedule.

1.1.6 The contractor will be paid an amount for the item of work in the schedule of quantities which is the rate for the work multiplied by the quantity completed.

1.1.7 The units of measurement described in the Bill of Quantities are metric units. Abbreviations used in the Bill of Quantities are as follows :

%	=	percent
h	=	hour
ha	=	hectare
kg	=	kilogram
kl	=	kilolitre
km	=	kilometre
km-pass	=	kilometre-pass
kPa	=	kilopascal
kW	=	kilowatt
l	=	litre
m	=	metre
mm	=	millimetre
m ²	=	square metre
m ² -pass	=	square metre-pass
m ³	=	cubic metre
m ³ -km	=	cubic meter-kilometre
MN	=	mega newton
MN.m	=	mega newton-metre
MPa	=	mega pascal
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 SCHEDULE OF QUANTITIES

The Schedule of Quantities for this tender stage will be incorporated as part of the contract at project implementation stage.

The quantities set out in the Schedule of Rates are the estimated quantities of the Contract Works, but the Contractor shall be required to undertake whatever quantities may be directed by the Engineer from time to time. The Contract Price for the completed Works shall be computed from the actual quantities of work done, valued at the relevant unit rates and/or prices.

The rates and/or prices to be inserted in the Schedule of Rates are to be the full inclusive prices for the work described under the several items. Such rates and/or prices shall cover all costs and expenses that may be required in and for the execution of the work described, and shall cover the cost of all general risks, liabilities, and obligations set forth or implied in the documents, as well as overhead charges and profit. Reasonable charges shall be inserted as these shall be used as a basis for assessment of payment for additional work that may have to be carried out.

NOTE: The completed Schedule of Quantities is required to be able to do a proper comparative analysis and provide a clear indication of how much it will cost Maluti-a-Phofung Municipality to implement the solution

C2.1.2 SUMMARY OF SCHEDULES

SECTION	DESCRIPTION	AMOUNT R
	SUMMARY OF PRINCIPAL SCHEDULES	
A	SCHEDULE A1: PRELIMINARY AND GENERAL: ESTABLISHMENT	
A	SCHEDULE A3 : P & G: MANAGEMENT, ENVIRONMENTAL, H & S COMPLIANCE	
A	SCHEDULE A4 : P & G: TRAINING & COMMISSIONING	
A	SCHEDULE A5 : P & G: MAINTENANCE & CONTRACTOR 1-YEAR O & M SUPPORT	
	SUB-TOTAL A: PRELIMINARIES & GENERAL	
B	SCHEDULE B1 : DAYWORKS & PROVISIONAL	
B	SCHEDULE B2 : TANK CLEANING, DEMOLITIONS & REPLACEMENT FENCING	
B	SCHEDULE B3 : EARTHWORKS, PIPELINES AND ELECTRICAL CABLE DUCTS	
B	SCHEDULE B4: BULK EARTHWORKS: SLUDGE DRYING BEDS & COMPOSTIING AREA	
B	SCHEDULE B5: INLET WORKS: CONCRETE WORKS (STRUCTURAL)	
B	SCHEDULE B6: SLUDGE DRYING BEDS: CONCRETE WORKS (STRUCTURAL)	
B	SCHEDULE B7: MODIFICATIONS & REPAIRS: CONCRETE WORKS (STRUCTURAL)	
B	SCHEDULE B8: INTERAL ACCESS ROAD AND DRAINAGE	
B	SCHEDULE B9: BIO-FILTER: RE-BUILD	
B	SCHEDULE B10: BUILDING WORK: REFURB, RE-BUILD AND NEW (STRUCTURAL)	
B	SCHEDULE B11: STEEL & METAL WORK (RAILINGS, VALVES, MISCELLANEOUS)	
B	SCHEDULE B12: PONDS: SLUDGE REMOVAL & IMPROVEMENTS. EROSION PROTECTION	
B	SCHEDULE B13: BUILDING WORKS - SPARES	
	SUB-TOTAL B: CIVIL WORKS	
C	SCHEDULE C1 : ELECTRICAL: BULK FEEDER, TRANSFORMER & SWITCHGEAR	
C	SCHEDULE C2 : ELECTRICAL: LV CABLES (RETIC)	
C	SCHEDULE C3 : ELECTRICAL & ELECTRONIC: MCC's - INLET WORKS & MAIN PLANT ROOM	

C	SCHEDULE C4 : ELECTRICAL & ELECTRONIC: CONTROL, PLC, TELEMETRY, INSTRUMENTS	
C	SCHEDULE C5 : ELECTRICAL: BUILDINGS - ELECTRICAL INSTALLATIONS	
C	SCHEDULE C6 : ELECTRICAL: SITE ILLUMINATION	
C	SCHEDULE C7 : ELECTRICAL: STANDBY GENERATOR & ACCESSORIES	
C	SCHEDULE C8 : ELECTRICAL: SECURITY SYSTEMS & REGS COMPLIANCE	
C	SCHEDULE C9 : ELECTRICAL: EARTHING & LIGHTNING PROTECTION SYSTEM	
C	SCHEDULE C10 : ELECTRICAL & ELECTRONIC: SPARES	
SUB-TOTAL C: ELECTRICAL & ELECTRONIC WORKS		
D	SCHEDULE D1 : MECHANICAL: INLET WORKS	
D	SCHEDULE D2 : MECHANICAL: IMHOFF TANK WORKS	
D	SCHEDULE D3 : MECHANICAL: BIOFILTER WORKS	
D	SCHEDULE D4 : MECHANICAL: BIOREACTOR (BNRAS) WORKS	
D	SCHEDULE D5 : MECHANICAL: CLARIFIER WORKS	
D	SCHEDULE D6 : MECHANICAL: CHLORINATION WORKS	
D	SCHEDULE D7 : MECHANICAL: MISCELLANEOUS WORKS	
D	SCHEDULE D8 : MECHANICAL: SPARES	
SUB-TOTAL D: MECHANICAL		
T1	SUB-TOTAL T1: A + B + C + D	
	ADD PROVISIONAL CONTINGENCIES OF 10% ON SUB-TOTAL T1 (see Vol 1A, Part C3 Scope of Work, payment item PSA7.1)	
T2	SUB-TOTAL T2	
	ADD PROVISIONAL CONTRACT PRICE ADJUSTMENT OF 10% ON SUB-TOTAL T2 (see Vol 1A, Part C3 Scope of Work, payment item PSA7.2)	
T3	SUB-TOTAL T2	
	ADD VAT (15%) ON SUB-TOTAL T2	
T4	TOTAL AMOUNT OF TENDER CARRIED FORWARD TO FORM OF OFFER	

TIME FOR COMPLETION:36..... months

TENDERER:

DATE:

CIDB Status:

SIGNATURE:

Capacity of Signatory in Organization:

BANKING DETAILS

Bank:

Branch:

Clearance No.:

Account No.:

Phone Number of Branch:

BID NO: SCM/BID33/2025/2026

T2.2 RETURNABLE SCHEDULES

OTHER DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

The tenderer must provide the following returnable documents:

- Form 2A: Verification certificate from a verification agency accredited by SANAS and recognized as an Accredited B-BBEE Verification Agencies (see www.sanas.co.za/directory/bbee_default.php) or a registered auditors approved by IRBA if preference points are claimed in respect of Broad-Based Black Economic Empowerment.
- Form 2B: Certificate of Contractor Registration issued by the Construction Industry Development Board
- Form 2C: A letter of good standing from the Compensation Fund or a licensed insurer as contemplated in the Compensation for Occupational Injuries and Diseases Act 1993 (Act No. 130 of 1993)
- Form 2D: Central Supplier Database

Returnable Schedules that will be used for tender evaluation purposes and be incorporated into the contract

- C1.1 Form of Offer and Acceptance
- C1.2 Contract Data Part 2: Data Provided by the Contractor
- C1.3 Performance Guarantee
- C2.2 Bill of Quantities

Form A: Compulsory Declaration

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

Section 1: Enterprise Details

Name of enterprise:	
Contact person:	
Email:	
Telephone:	
Cell no	
Fax:	
Physical address	
Postal address	

Section 2: Particulars of companies and close corporations

Company / Close Corporation registration number	
---	--

Section 3: SARS Information

Tax reference number	
VAT registration number:	

Section 4: CIDB registration number

CIDB Registration number (if applicable)	
--	--

Section 5: National Treasury Central Supplier Database

Supplier number	
Unique registration number	

Section 6: Particulars of principals

Principal: means a natural person who is a partner in a partnership, a sole proprietor, a director of a company established in terms of the Companies Act of 2008 (Act No. 71 of 2008) or a member of a close corporation registered in terms of the Close Corporation Act, 1984, (Act No. 69 of 1984).

Full name of principal	Identity number	Personal tax reference number

Attach separate page if necessary

Section 7: Record in the service of the state

Indicate by marking the relevant boxes with a cross, if any principal is currently or has been within the last 12 months in the service of any of the following:

- a member of any municipal council
- a member of any provincial legislature
- a member of the National Assembly or the National Council of Province
- a member of the board of directors of any municipal entity
- an official of any municipality or municipal entity
- an employee of any department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act of 1999 (Act No. 1 of 1999)
- a member of an accounting authority of any national or provincial public entity
- an employee of Parliament or a provincial legislature

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

Name of principal	Name of institution, public office, board or organ of state and position held	Status of service <i>(tick appropriate column)</i>	
		Current	Within last 12 months

*insert separate page if necessary

Section 8: Record of family member in the service of the state

family member: a person’s spouse, whether in a marriage or in a customary union according to indigenous law, domestic partner in a civil union, or child, parent, brother, sister, whether such a relationship results from birth, marriage or adoption

Indicate by marking the relevant boxes with a cross, if any family member of a principal as defined in section 5 is currently or has been within the last 12 months been in the service of any of the following:

- a member of any municipal council
- a member of any provincial legislature
- a member of the National Assembly or the National Council of Province
- a member of the board of directors of any municipal entity
- an official of any municipality or municipal entity
- 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)
- a member of an accounting authority of any national or provincial public entity
- an employee of Parliament or a provincial legislature

Name of family member	Name of institution, public office, board or organ of state and position held	Status of service (tick appropriate column)	
		Current	Within last 12 months

*insert separate page if necessary

Section 9: Record of termination of previous contracts with an organ of state

Was any contract between the tendering entity including any of its joint venture partners terminated during the past 5 years for reasons other than the employer no longer requiring such works or the employer failing to make payment in terms of the contract.

Yes No (Tick appropriate box)

If yes, provide particulars (insert separate page if necessary)

Section 10: Declaration

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the tendering entity confirms that the contents of this Declaration are within my personal knowledge, and save where stated otherwise in an attachment hereto, are to the best of my belief both true and correct, and: i) neither the name of the tendering entity or any of its principals appears on:

- a) the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004 (Act No. 12 of 2004)
- b) National Treasury’s Database of Restricted Suppliers (see www.treasury.gov.za)

ii) neither the tendering entity or any of its principals has within the last five years been convicted of fraud or corruption by a court of law (including a court outside of the Republic of South Africa);

iii) any principal who is presently employed by the state has the necessary permission to undertake remunerative work outside such employment (attach permission to this declaration);

iv) the tendering entity is not associated, linked or involved with any other tendering entities submitting tender offers

v) has not engaged in any prohibited restrictive horizontal practices including consultation, communication, agreement, or arrangement with any competing or potential tendering entity regarding prices, geographical areas in which goods and services will be rendered, approaches to determining prices or pricing parameters, intentions to submit a tender or not, the content of the submission (specification, timing, conditions of contract etc) or intention to not win a tender;

vi) has 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;

vii) neither the tenderer or any of its principals owes municipal rates and taxes or municipal service charges to any municipality or a municipal entity and are not in arrears for more than 3 months;

viii) SARS may, on an on-going basis during the term of the contract, disclose the tenderer's tax compliance status to the Employer and when called upon to do so, obtain the written consent of any subcontractors who are subcontracted to execute a portion of the contract that is entered into in excess of the threshold prescribed by the National Treasury, for SARS to do likewise.

Signature		Date
Capacity under which the Bid is signed		Name of bidder

NOTE 1 The Standard Conditions of Tender contained in Annexure F of the CIDB "Standard for Uniformity for construction Procurement, Board Notice 136 Government Gazette No 38960 of 10 July 2015" prohibits anticompetitive practices (clause F1.1.1) and requires that tenderers avoid conflicts of interest, only submit a tender offer if the tenderer or any of his principals is not under any restriction to do business with employer (F1.1.2) and submit only one tender either as a single tendering entity or as a member in a joint venture (clause F.2.13.1). Clause F3.7 also empowers the Employer to disqualify any tenderer who engages in fraudulent and corrupt practice. Clause F1.1.1 also requires tenderers to comply with all legal obligations.

NOTE 2: Section 30(1) of the Public Service Act, 1994, prohibits an employee (person who is employed in posts on the establishment of departments) from performing or engaging remunerative work outside his or her employment in the relevant department, except with the written permission of the executive authority of the department. When in operation, Section 8(2) of the Public Administration Management Act, 2014, will prohibit an employee of the public administration (i.e. organs of state and all national departments, national government components listed in Part A of Schedule 3 to the Public Service Act, provincial departments including the office of the premier listed in Schedule 1 of the Public Service Act and provincial departments listed in schedule 2 of the Public Service Act, and provincial government components listed in Part B of schedule 3 of the Public Service Act) or persons contracted to executive authorities in accordance with the provisions of section 12A of the Public Service Act of 1994 or persons performing similar functions in organs of state from conducting business with the State or to be a director of a public or private company conducting business with the State. The offence for doing so is a fine or imprisonment for a period not exceeding 5 years or both. It is also a serious misconduct which may result in the termination of employment by the employer.

NOTE 3: Regulation 44 of Supply Chain Management regulations issued in terms of the Municipal Finance Management Act of 2003 requires that organs of state and municipal entities not award a contract to a person who is the service of the state, a director, manager or principal shareholder in the service of the state or who has been in the service of the state in the previous twelve months.

NOTE: 4: Regulation 45 of Supply Chain Management regulations requires a municipality or municipal entity to disclose in the notes to the annual statements particulars of any award made to a close family member in the service of the state.

NOTE: 5 Corrupt activities which give rise to an offence in terms of the Prevention and Combating of Corrupt Activities Act of 2004) include improperly influencing in any way the procurement of any contract, the fixing of the price, consideration or other moneys stipulated or otherwise provided for in any contract and the manipulating by any means of the award of a tender.

NOTE: 6 Section 4 of the Competition Act of 1998 prohibits restrictive horizontal practice including agreements between parties in a horizontal relationship which have the effect of substantially preventing or lessening competition, directly or indirectly fixing prices or dividing markets or constitute collusive tendering. Section 5 also prohibits restrictive vertical practices. Any restrictive practices that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties

ATTACH THE FOLLOWING DOCUMENTS HERETO:

1. For Closed Corporations

- CK1 or CK2 as applicable (Founding Statement)

2. For Companies

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

3. For Joint Venture Agreements

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

4. For Partnership

- Certified Copies of the ID's of the partners

5. One-person Business / Sole trader

- Certified Copy of ID

6. B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE

- Sworn affidavit and valid B-BBEE Status Level Verification Certificates or Certified Copy thereof.

BID NO: SCM/BID33/2025/2026

T2.2 RETURNABLE SCHEDULES

T2.2.1: AUTHORITY OF SIGNATORY

T2.2.1.1: SIGNATORIES FOR COMPANIES

Form D: Authority of Signatory

Details of person responsible for tender process:

Name :

Contact number :

Office address :

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

PRO-FORMA FOR COMPANIES AND CLOSE CORPORATIONS:

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

Mr _____

___ has been duly authorized to sign all documents in connection with the Tender for:

BID NO: SCM/BID33/2025/2026– PROCUREMENT OF A SERVICE PROVIDER: THE REPAIR AND REFURBISHMENT OF TSHIAME WASTEWATER TREATMENT WORKS and any Contract which may arise there from on behalf of:

(BLOCK CAPITALS)

SIGNED ON BEHALF OF THE COMPANY IN HIS CAPACITY AS:

DATE: _____

FULL NAMES OF SIGNATORY: _____

AS WITNESSES: 1. _____

2. _____

PRO-FORMA FOR JOINT VENTURES:

We, the undersigned, are submitting this tender offer in Joint Venture and hereby authorise

Mr/Ms _____,

Authorised signatory of the company _____,

Acting in the capacity of lead partner, to sign all documents in connection with the tender offer and any contract resulting from it on our behalf.

NAME OF FIRM	ADDRESS	DULY AUTHORISED SIGNATORY
		Signature: _____ Name: _____ Designation: _____
		Signature: _____ Name: _____ Designation: _____
		Signature: _____ Name: _____ Designation: _____
		Signature: _____ Name: _____ Designation: _____

ATTACH THE FOLLOWING DOCUMENTS HERETO:

- Duly signed and dated original or certified copy of Authority of Signatory on company letterhead.

TENDERER :

DATE.....

T2.2.2:

SCHEDULE OF PLANT AVAILABLE

Form L: Schedule of Infrastructure and Resources / Plant and Equipment

Note: Attach additional pages to this page if more space is required.

Provide information on the following:

1. Infrastructure and resources available for this project:

Physical facilities and Buildings.

Description	Address	Owned / Leased

2. Equipment

Provide information on equipment and resources that you have available for this project.

1. Earthmoving Equipment	No. of Units Owned by Contractor	Number of Units Allocated to this Contract	
		Owned	Hired
2. Construction Equipment			

Size of enterprise and current workload:

What was your turnover in the previous financial year?

What is the estimated turnover for your current financial year?

TENDERER :

DATE.....

T2.2.3: PREVIOUS EXPERIENCE OF TENDERER

Form J: Schedule of Previous Experience

The procedure for the evaluation of responsive Bids will be on the average of the previous four projects where the firm was involved for Maluti-a-Phofung projects or other clients. Reference of clients other than Maluti-a-Phofung must be provided.

Evaluation of the Tenderer's position in terms of his previous experience. Emphasis will be placed on the following:

- *Experience* in the relevant technical field
- Experience of contracts of similar size
- At least four of the references will be contacted to obtain their input.

Provide the following information on relevant previous experience (indicate specifically projects of similar or larger size and/or which is similar with regard to type of work. This information is material to the award of the Contract.

Description of Work / Experience	Value (R) VAT excluded	Period work executed		Reference		
		Appointment Date	Completion Date	Name	Organisation	Tel No and e-mail

Form K: Schedule of Current Projects

Provide the following information on current projects. This information is material to the award of the Contract.

Description of Project	Value (R) VAT excluded	Appointment Date	Completion Date	Reference		
				Name	Organisation	Tel No and e-mail /

T2.2.4: DAYWORK SCHEDULE

The Tenderer shall complete this Annexure in every respect.

The rates and prices given below shall be utilized in settling any claim or claims for which no comparable rate is available in the Schedule of Quantities.

The Tenderer will be required to prove that such rates and prices are reasonable.

1. MATERIAL

✓	Cement	Per 50kg pocket delivered	.....
✓	Sand	Per cubic metre delivered	.....
✓	38mm - Nom. stone	Per cubic metre delivered	.....
✓	20mm - Nom. stone	Per cubic metre delivered	.....
✓	13mm - Nom. stone	Per cubic metre delivered	.....
✓	Clay face bricks	Per 1000 delivered	.....
✓	Engineering clay bricks	Per 1000 delivered	.....

2. LABOUR

✓	Foreman	Per week	.....
✓	Ass Foreman	Per week	.....
✓	Steel Erectors	Per hour	.....
✓	Sheet Layers	Per hour	.....
✓	Carpenters	Per hour	.....
✓	Painters	Per hour	.....
✓	Gangers	Per hour	.....
✓	Unskilled labour	Per day	.....
✓	Plumbers	Per day	.....
✓	Brick layers	Per day	.....

The above wages and rates shall allow for the gross remuneration of workmen and foremen and the nett cost of materials actually used. These rates shall be subject to the markup percentages stated in the Contract data as required under Clause 40(4) b of the General Conditions of Contract.

3. TRANSPORT

Rate per cubic meter per kilometer as

- Measured in vehicle
- Rate per metric ton per kilometer

No percentage allowance shall be added to rates for transport.

4. PLANT

The Contractor is to provide rates for any equipment and plant he may consider necessary for the execution of any daywork he may encounter. Rates stated here shall include all profit, etc. These rates will be deemed to include the cost of operator/s if any. In the event of plant used for which no rates are mentioned hereunder, the costs will be held as the average of the rates supplied by three recognized plant hire specialists including an extra over of 15%.

DESCRIPTION		OPERATING TARIFF	STANDING TIME TARIFF
Backactor	Per hour		
Backactor	Per hour		
Backactor	Per hour		
Backactor Case	Per hour		
Backactor	Per hour		
Loader	Per hour		
Tippers m ³	Per hour		
Compressor c.f.m.	Per hour		
Grader	Per hour		
Bulldozer	Per hour		
Bulldozer	Per hour		

TENDERER:

DATE.....

T2.2.5: STATUS OF CONCERN SUBMITTING THE TENDER

1. GENERAL

State whether the tenderer is a company, a closed corporation, a partnership or a one-man concern)

(Make an X in the appropriate space hereunder)

Company Closed Corporation Joint Venture Other

2. INFORMATION TO BE PROVIDED (Block letters)

2.1 IF THE TENDERER IS A COMPANY :

- (a) Affix a certified copy of the Certificate of Incorporation to this page
- (b) List of Directors

.....
.....

2.2 IF THE TENDERER IS A CLOSED CORPORATION :

- (a) Affix a certified copy of the Founding Statement to this page
- (b) List of Members

.....
.....

2.3 IF THE TENDERER IS A JOINT VENTURE:

- (c) Affix a certified copy of the relevant status documents of concern to this page
- (d) List the firms forming part of the Joint Venture

.....
.....

2.4 IF THE TENDERER IS ANY OTHER:

Provide full particulars and description for type of concern

.....

TENDERER:

DATE.....

BID NO: SCM/BID33/2025/2026

T2.2.6: PRELIMINARY PROGRAMME / CASH FLOW SCHEDULE

Tenderers shall provide their preliminary programme and estimated cash flow for the contract period including a provision for expected escalation but excluding contingencies.

	ACTIVITY	WEEKS				WEEKS				WEEKS				WEEKS				WEEKS				WEEKS						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1																												
2																												
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10																												
11																												
12																												
13																												
14																												
15																												
CASHFLOW																												

	ACTIVITY	WEEKS				WEEKS				WEEKS				WEEKS				WEEKS				WEEKS						
		29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
16																												
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27																												
28																												
29																												
30																												
CASHFLOW																												

Tenderers shall provide their preliminary programme and estimated cash flow for the contract period including a provision for expected escalation but excluding contingencies.

	ACTIVITY	WEEKS				WEEKS				WEEKS				WEEKS				WEEKS				WEEKS						
		57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83
31																												
32																												
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42																												
43																												
44																												
45																												
CASHFLOW																												

Tenderers shall provide their preliminary programme and estimated cash flow for the contract period including a provision for expected escalation but excluding contingencies.

	ACTIVITY	WEEKS				WEEKS				WEEKS				WEEKS				WEEKS				WEEKS						
		85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
46																												
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CASHFLOW																												

TENDERER:

DATE :

BID NO: SCM/BID32/2025/2026

T2.2.7: SUB-CONTRACTORS SCHEDULE

Form M: Schedule of Proposed Sub-Contractors

NAME AND ADDRESS OF SUBCONTRACTOR	DESCRIPTION OF WORK TO BE DONE BY SUB-CONTRACTOR	% age OF CONTRACT	VALUE OF WORK

TENDERER:

DATE.....

BID NO: SCM/BID32/2025/2026

T2.2.8: STAFFING PROFILE

Form I: Proposed Key Personnel

The Tenderer shall list below the key personnel whom he proposes to employ on the project should his Tender be accepted.

Please list the personnel that you intend to appoint on this contract.			
DESCRIPTION	Name of Full-time member	Staff to be appointed on this contract	
		No of Full-Time employment	No of Part Time employment
Site Agent			
Contract Manager			
Senior Foreman			
Construction Manager			
Quality Control Officer			
Safety Officer			
Clerk			
Foreman			
Material Technician			
Surveyor			
Operators			
Supervisor			
Labourers			
Other			
1.			
2.			
3.			

Provide two paged Curriculum Vitae (CV) of each Proposed Key Personnel to be used in this project. Each CV should give at least the following:

- Position in the firm and within the organization of this assignment;
- Proof of Educational qualifications;
- Relevant experience (actual duties performed, involvement and responsibility), including locations, dates and durations of assignments, starting with the latest;
- Language proficiency; and
- References (company name, individual name, position held, contact details).

ATTACH THE FOLLOWING DOCUMENTS HERETO:

- CV and qualifications

BID NO: SCM/BID32/2025/2026

T2.2.9: ALTERATIONS BY TENDERER

Form O: 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.1.6.2** of the CIDB Standard Conditions of Tender regarding the employer's handling of material deviations and qualifications.

Page	Clause or item	Proposal

TENDERER:

DATE.....

BID NO: SCM/BID32/2025/2026

T2.2.10: CERTIFICATE OF TENDERER'S VISIT TO THE SITE

This is to certify that I, the undersigned Tenderer, visited the site on (date) having previously studied the Contract Documents, I carefully examined the site.

I further CERTIFY that I am satisfied with the description of this work and explanations given by the said Engineer and that I understand perfectly the work to be done, as specified and implied, in the execution of this Contract.

Signature

Name

Capacity

for the Tenderer
(Name and address of organization)

It is hereby confirmed that the above tenderer visited the site.

ENGINEER
SADC Project Consulting (Pty) Ltd

T2.2.11: FINANCIAL ABILITY TO EXECUTE THE PROJECT

Form T: Annual Financial Statements Declaration and Audited 3-Year Financial Statements

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

- 1) The enterprise's financial year end is
- 2) The enterprise's financial statements have been prepared in accordance with the provisions of the Companies Act of 2008 or the Close Corporation Act of 1984, as applicable 3)

The enterprise has compiled its financial accounts [tick one box]:

- internally independently

- 4) The following statement applies to the enterprise [tick one box and provide relevant information]

- enterprise has had its financial statements audited;
name of auditor

- enterprise is required by law to have an independent review of its financial statements
name of independent reviewer:

- enterprise has not had its financial statements audited and is not required by law to have an independent review or audit of such statements

- 5) The attached income statement and balance sheet is a true extract from the financial statements complying with applicable legislation for the preceding financial year within 12 months of the financial year end.

[Attach the income statement and the balance sheet contained in the financial statement]

- 6) The annual turnover for the last financial year is R
- 7) The total assets as at the end of the last financial year is R
- 8) The total liabilities as at the end of the financial year is R

Form T: Annual Financial Statements Declaration and Audited 3-Year Financial Statements

ATTACH THE FOLLOWING DOCUMENTS HERETO:

- 3 Year audited financial statements.

I hereby declare that the contents of this Declaration are within my personal knowledge and save where stated otherwise are to the best of my belief both true and correct.

TENDERER:

DATE:.....

T2.2.11: FINANCIAL ABILITY TO EXECUTE THE PROJECT

Provide details on the surety you will provide if the tender is awarded to you Which of the following institutions will provide surety?

- Bank registered in terms of the Bank Act 1990 (Act 94 of 1990)
- Insurance Company registered in terms of the Short-Term Insurance Act 1998 (Act 53 of 1998)
- Cash
- Other (specify)

FINANCIAL STATEMENTS

I/We agree, if required, to furnish an audited copy of the latest set of financial statements together with my/our Directors' and Auditors' report.

DETAILS OF TENDERING ENTITY'S BANK

If the Tenderer is a Joint Venture or partnership, the information requested below is required for each member / partner.

I/We hereby authorise the Employer/Engineer to approach all or any of the following banks for the purposes of obtaining a financial reference:

DESCRIPTION OF BANK DETAIL	BANK DETAILS APPLICABLE TO TENDERER
Name of bank	
Contact person	
Branch name	
Branch code	
Street address	
Postal address	
Telephone number	()
Fax number	()
Account number	
Type of account, (i.e. cheque account)	

TENDERER'S TAX DETAILS

Tenderer's VAT vendor registration number:

Tenderer's SARS tax reference number:

TENDERER :

DATE :

Maluti-a-Phofung Municipality



Setsing Business Centre
C/o Moremoholo & Motlounng Streets
Phuthaditjhaba
9866

Private Bag
Witsieshoek
9870
Tel: 058 718 3700
Fax 058 713 0459

Enquiries: Supply Chain Management Unit

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

The purpose of this form is to obtain prove that municipal services, rates and taxes of the service provider are not more than three months in arrears with the relevant municipality / landlord in the municipal area where the service provider conduct his / her business. **This form is to be completed only if the service provider's rates and taxes are not in arrears for more than three months.**

PART A – to be completed by the relevant municipality in the case where the service provider is the registered owner of the site / owner pays for municipal services / tenant pays for municipal services

OR

PART B – to be completed by the landlord in the case where the service provider is renting the premises / rental paid by tenant include municipal services.

PART A (TO BE COMPLETED BY THE RELEVANT MUNICIPALITY)	
Name of the Municipality:	
Property Physical Address:	
Registered Name:	
Official's Name: _____	Municipality Stamp Here
Signature : _____	
Date: _____	
Please tick whether in arrears or up-to-date	
Rates and taxes : Up-to-date	/ in arrears for more than 3 months
Water: Up-to-date	/ in arrears for more than 3 months
Electricity: Up-to-date	/ in arrears for more than 3 months

Refuse : Up-to-date / in arrears for more than 3 months

Other services: Up-to-date / in arrears for more than 3 months

PART B (TO BE COMPLETED BY THE LANDLORD)

Name of the Landlord:

Property Physical Address:

Landlord Signature:

Date: _____

**Landlord's business stamp here Or an Affidavit from
SAPS**

Lease Agreement (Compulsory)

Please tick whether up-to-date or in arrears

Rental: Up-to-date / in arrears for more than 3 months

Municipal services: Up-to-date / in arrears for more than 3 months

NB: In the event that company is operating on leased premises and the address is not the same as the

Company registration both lease agreement and landlord statement of account (not in arrears for more than three months) must be attached.

: If the company address or operate in rural settlement the service provider should attach their electricity purchase pattern. Electricity purchase pattern can be validated once the company purchase electricity in three (03) consecutive months.

: In the event the landlord does not have a business stamp an affidavit from SAPS AND lease Agreement must be attached.

VOLUME 3
CONTRACT

C1.2 CONTRACT DATA

C1.2.1 SCHEDULE OF CONTRACT DOCUMENTS

THE FOLLOWING DOCUMENTS FORM PART OF THIS CONTRACT:

C1.2.1.1 "General Conditions of Contract for Construction Works Third Edition (2015)" prepared under the auspices of the South African Institution of Civil Engineers, The South African Association of Consulting Engineers and the Institution of Municipal Engineering of Southern Africa and the South African Federation of Civil Engineering Contractors.

C1.2.1.2 SABS 1200 – Standardized Specifications for Civil Engineering Construction (the applicable standardized specifications are listed in the Project Specification).

C1.2.1.3 Occupational Health and Safety Act. Act No. 85 of 1993.

C1.2.1.4 This volume containing Conditions of Tender, Special Conditions of Contract, the Project Specification, Bill of Quantities, Contract data, Agreement, Schedules, etc.

C1.2.2 GENERAL CONDITIONS OF CONTRACT

The General Conditions of Contract that apply to this contract are:

General Conditions of Contract for Construction Works Third Edition (2015).

As prepared under the auspices of the South African Institution of Civil Engineers, South African Association of Consulting Engineers and the Institution of Municipal Engineering of Southern Africa and the South African Federation of Civil Engineering Contractors.

Copies of this document may be purchased from:

- The Secretary SAICE East Wing Howick Gardens Waterfall Park BekkerStr Vorna Valley Midrand	- The Secretary SAACE St James House Hampton Park North 20 Georgian Crescent Bryanston Sandton 2021	- The Secretary SAFCEC 12 Skeen Boulevard Bedfordview 2008
---	--	--

It is deemed that the Contractor is in possession of and has read and understood the "General Conditions of Contract" described above.

C1.2.3 SPECIAL CONDITIONS OF CONTRACT

The General Conditions of Contract make several references to the Contract Data for details that apply specifically to this Tender. The following contract specific data are applicable to this Contract

CLAUSE
<p>DEFINITIONS, INTERPRETATIONS AND GENERAL PROVISIONS</p> <p>1.1.1.15 The "Employer" means MALUTI-A-PHOFUNG MUNICIPALITY</p> <p>1.1.1.16 The "Engineer" means <u>V3 CONSULTING ENGINEERS (PTY) LTD</u></p>
<p>ENGINEER AND ENGINEER'S REPRESENTATIVE</p> <p>3.1.3 The duties and functions of the Engineer requiring the specific approval of the Employer before execution of any of these duties are as follows:</p> <p>i) Any variation of the form, quality of quantity of the Works or any part thereof which will result in the Tender Sum being exceeded irrespective of the magnitude of the over expenditure;</p> <p>ii) Any payment, which will result in the tender sum being exceeded irrespective of the magnitude of the over expenditure.</p>
<p>BASIS OF CONTRACT</p> <p>4.2.2 In addition to what is stated in Clause 4.2.2, in matters relating to the safety of workmen or the public the Contractor shall comply with any instruction issued by the Employer's Safety officer.</p> <p>Add Clause 2.6 to read as follows :</p> <p>2.6 Occupational Health and Safety Act</p> <p>4.4.6 Add the following to Sub-clause : 4.4.6</p> <p>"Should the employer make payment directly to a Nominated or Emerging Subcontractor in terms hereof, consequent on default on the part of the Contractor, the Contractor shall be deemed to have forfeited all his rights to receive payment of "handling charges", "commission" and/or other fees and charges to which, in terms of the Contract he would otherwise have been entitled, in respect of the amount so paid by the Employer directly to the nominated Subcontractor. If the Subcontractor fails to pay his labourers then the Employer reserves the right to pay such labourers directly from the contract or to nominate the Contractor to pay such labour. The Subcontractor shall be deemed to have forfeited all his rights to receive payment in terms of the contract or any subcontract."</p>
<p>COMMENCEMENT OF WORKS</p> <p>5.3 Add Clause 5.3 to read as follows :</p> <p>The Contractor shall not start any work before receipt of the Engineer's instruction; which instruction is subject to the submission by the contractor of documentation required as set out in the Contract Data.</p> <p>5.9 Add Sub-clause 5.9.8 to read as follows:</p> <p>"The Engineer shall give the survey details to the Contractor, whereafter the Contractor shall be responsible to establish his own benchmarks, reference pegs and setting out of the Works."</p> <p>"The Contractor shall take care not to disturb or destroy property beacons, trigonometrical survey beacons or setting out beacons. A registered Land Surveyor who shall certify such replacement shall replace property and trigonometrical survey beacons that have been destroyed or disturbed. The cost of replacing all beacons that have been disturbed or destroyed during the course of the Contract shall be borne by the Contractor."</p>
<p>CONTRACTOR'S GENERAL OBLIGATIONS</p> <p>4.5.1.2 Add the following at the end of Clause 4.5.1.2:</p> <p>The Contractor shall pay particular attention to the contents of the following Acts:</p> <p>a Section 59 of the Industrial Conciliation Act No 28 of 1966 and any amendments thereto.</p> <p>NB: Unskilled labour in the building industry are subject to an agreement in terms of the said Industrial Conciliation Act.</p> <p>b Machinery and Occupational Safety Act No 6 of 1983 as amended.</p> <p>c Workmen's Compensation Act No 30 of 1941.</p>

CLAUSE

PROGRESS AND TIME FOR COMPLETION

5.12.2 Add the following to this sub-clause :

Time is an essential element to the agreement. The Contractor will submit his claim for extension of time, either written at the normal site meetings, or in accordance with the conditions stipulated in the General Conditions of Contract.

5.12.2.2 Abnormal climatic conditions

The Contractor must supply a rain gauge on site.

The amount of rain must be recorded daily by the Engineer's Representative and the Contractor for discussion at the site meetings.

No extension of time of completion will be granted for normal rainfall, but extension of time in terms of clause 5.12 of the General Conditions will be calculated according to the following formula, separately for each calendar month or part thereof. This will be calculated for the whole time of completion including any extension thereof that may be granted:

$$E = (Nw - Nn) + \frac{(Rw - Rn)}{20} \text{ if } (Nw - Nn) > 0.$$

WHERE

E = Extension of time in calendar days in respect of the calendar month under consideration.

Nw = Actual number of days during the calendar month under consideration on which a rainfall of 10mm or more had been recorded.

Nn = Average number of days in the relevant calendar month as derived from existing rainfall records provided in the project specification on which a rainfall of 10mm or more has been recorded.

Rw = Actual rainfall in mm for the calendar month under consideration.

Rn = Average rainfall in mm for the calendar month as derived from the rainfall records supplied in the project specifications.

The total extension of time shall be the algebraic sum of the monthly totals for the period under consideration. But if the grand total is negative, the time for completion shall not be reduced on account of abnormal rainfall. Extension of time for parts of a month shall be calculated by pro-rata values of Nn and Rn being used.

The factor $(Nw - Nn)$ shall be considered to represent a fair allowance for variations from the average number of days during which rainfall exceeds 10mm. The factor $\frac{Rw - Rn}{20}$ shall be considered to

represent a fair allowance for variations from the average for the number of days during which rainfall does not exceed 10mm but when wet conditions prevented or disrupted work. This formula does not take into account any flood damage, which could cause further or concurrent delays and should be treated separately in so far as extension of time is concerned.

Accurate rain gauging shall be taken at a suitable point on the site, and the contractor shall, at his own expense, take all necessary precautions to ensure that the rain gauges cannot be interfered with by unauthorized persons.

Should Nw for any month be smaller than Nn, the following formula shall be used:

$$E1 = (Nn - Nw)$$

Therefore, the total extension of time for completion will be the difference between E and E1.

$$\text{Total extension of time} = E - E1.$$

CLAUSE

5.12.2.2 The following are the most reliable figures of Nn and Rn available and shall be used should no agreement be reached beforehand.

SOURCE OF INFORMATION : WEATHER BURO, PRETORIA

Rainfall district : **MALUTI-A-PHOFUNG: WITSIESHOEK**

MONTH	Nn	Rn
January	8.5	166
February	4.3	71.7
March	6.3	86.4
April	3.2	34.2
May	1.6	17.8
June	1.2	10.4
July	0	0
August	1.6	21.5
September	1.6	18.2
October	5.8	67.9
November	7.3	127.4
December	6.3	84.9
YEARLY AVERAGE		706.4

This formula does not take account of flood damage, which could cause further or concurrent delays and will be treated separately as far as extension of time is concerned.

6.8.2 The CPAF should be calculated according to the formula and the conditions as set out in the General Conditions for Construction Works, Fourth Edition, 2025.

6.8.3 Price adjustments for variations in the costs of special materials are allowed.

10.7.1 The determination of disputes shall be by arbitration.

PROVISIONS

9.2. In addition to but without limiting the provisions of Clause 7.9 the following shall apply:

"If the Contractor fails to execute the works in accordance with the provisions of the Contract the Engineer may give notice in writing to the Contractor to make good the failure, delay or default and should the Contractor fail within seven (7) days to commence effective action to remedy the failure, delay or default then and in such case, the Engineer shall without prejudice to any rights under the Contract, and without invalidating the Contract, be at liberty to take such work out of the Contractor's hands and contract with any person or persons to complete such work. The cost to the Employer of so completing such work will be payable by the Contractor."

CESSIONS

6.10 Add the following to this sub-clause:

1. Cessions will only BE ALLOWED on payment of material, labour and management.
2. Any other requests for cessions must be submitted to the Municipal Manager for consideration.
3. Cessions will not be allowed on newly awarded tenders. Contractors / companies may only apply for a cession after half of the timeframe allowed for the completion of the project has lapsed.

CLAUSE

ACT No 85 OF 1993 OCCUPATIONAL HEALTH AND SAFETY ACT

The employer and the contractor hereby agree, in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act, Act No. 85 of 1993, hereinafter referred to as "the Act", that the contractor as an employer in its own right and in its capacity as contractor for the executions of the works, shall have certain obligations and that the following arrangement shall apply between them to ensure compliance by the contractor with the provisions of the Act, namely-

- i) The contractor undertakes to acquaint the appropriate officials and the employees of the contractor with all relevant provisions of the Act, and the regulations promulgated in terms of the Act, and
- ii) The contractor undertakes that all relevant duties, obligations and prohibitions imposed in terms of the Act and regulations will be fully complied with, and
- iii) The contractor hereby accepts sole liability for such due compliance with the relevant duties, obligations and prohibitions imposed by the Act and regulations and expressly absolves the employer and the employer's consulting engineers from being obliged to comply with any of the aforesaid duties, obligations and prohibitions in respect of the work included in the contract.
- iv) The contractor shall be obliged to report forthwith to the employer any investigation, complaint, or criminal charge which may arise as a consequence of the provisions of the Act and regulations pursuant to work performed on behalf of the employer, and shall, on written demand, provide full details in writing of such investigation, complaint or criminal charge.
- v) The Contractor shall submit a complete Health and Safety Plan, in accordance with the Act prior to the commencement of any permanent work for approval by the engineer.

Addendum C contains the pre contract Health and Safety Specification which must be used as a guideline by the Principal Contractor and his appointed Sub Contractors to compile the Health and Safety Plan for this project and forms part of the tender documentation.

The Contractor must include as part of the Health and Safety Plan a procedure to create HIV/AIDS awareness amongst all of the workers involved in the project for the duration of the project, through the following strategies :

- Awareness about HIV/AIDS must be raised through education and information on the nature of the disease, how it is transmitted, safe sexual behaviour, attitudes towards people affected and people living with HIV/AIDS, how to live a healthy lifestyle with HIV/AIDS, the importance of voluntary testing and counselling, the diagnosis and treatment of Sexually Transmitted Infections and the closest health Service Providers.
- Informing workers of their rights with regard to HIV/AIDS in the workplace.
- Providing workers with access to condoms and other awareness material that will enable them to make informed decisions about sexual practices.

C1.2.4 CONTRACT DATA: PROVIDED BY THE EMPLOYER & PROVIDED BY THE CONTRACTOR

The above Contract Data have been placed for convenience after Part C1.1 Agreement and Contract Data

PART C2: PRICING DATA

C2.1 PRICING INSTRUCTIONS

Pricing instructions are incorporated in Part T1.2.1 Instructions to Tenderers.

C2.2 SCHEDULE OF QUANTITIES

The Schedule of Quantities have been placed for convenience after Part T2.1 for this tender stage and will be incorporated as part of the contract at project implementation stage.

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

**PROCUREMENT OF A SERVICE PROVIDER: THE REPAIR AND REFURBISHMENT OF
TSHIAME WASTEWATER TREATMENT WORKS**

BID NO: SCM/BID33/2025/2026

PART C3: PROJECT SPECIFICATIONS

SCOPE OF WORK

	PAGE	
C3.1	DESCRIPTION OF THE WORKS	C3-1
C3.2	ENGINEERING	C3-2
C3.3	PROCUREMENT	C3-3
C3.4	CONSTRUCTION	C3-4
C3.5	MANAGEMENT	C3-5
C3.6	HEALTH & SAFETY SPECIFICATION.....	C3-6

C3.1 DESCRIPTION OF THE WORKS

C3.1 DESCRIPTION OF THE WORKS

C3.1.1 Employer's Objectives

It is the objective of the Employer to refurbish Tshiame Wastewater Treatment Works (WWTW) which is dysfunctional due to excessive theft and vandalism. This WWTW, located near Harrismith in the Free State, discharges final effluent to the Upper Tributary of the Wilge River. Presently final effluent being discharged at this WWTW is not compliant with the existing Water Use Licence's limit values and the issue of non-compliance and lack of service delivery as a result of WWTW condition is to be addressed.

The scope of works covered by this contract will comprise civil (and structural), mechanical and electrical (including electronic) components and it is the Employer's objective to implement the works under a single contract. A civil or mechanical contracting entity will assume the role of the main contractor with suitably qualified electrical contractor appointed as sub-contractors.

It is furthermore the Employer's objective to stimulate local economic development through this Contract and the Contractor will be expected to participate in the process by employing local labour and acquiring plant and materials from local enterprises as far as practically possible. The Contractor's attention is drawn to form section T2.3.18 (Form R) – Local Economic Participation (LEP) Specification for more details on this important aspect of the Contract.

C3.1.2 Overview of the Works

The proposed works included under this project comprises the refurbishment, construction and commissioning of the existing Tshiame Wastewater Treatment Works which is dysfunctional due to excessive theft and vandalism. The WWTW has a treatment design capacity of 4ML/d (ADDWF) and the existing DWS Water Use Licence (WUL) will remain in place; the WUL limits daily average discharge (final effluent) to 2.8 ML/d.

Works comprises of the following:

Installation of new mechanical fine screen and screenings handling equipment (hydro-conveyor and wash-compactor) at the existing inlet works

Installation of new automated de-gritting system at the existing inlet works (complete with two new reinforced concrete vortex basins, paddle stirrers for each, grit removal pumps and one no of mechanical grit classifier).

Replacement of the screenings canopy structure at the inlet works to permit municipal operations staff (MaP Water) to work in all weather conditions and protect mechanical equipment.

Refurbishment of all existing buildings, which includes the following:

Inlet Works building (for housing MCC control panel, providing limited office space and with ablution and hot-water shower facilities). Refurbishment work includes a new reinforced concrete roof

Main MCC plant building

Operator's Office & Welfare building

Chlorination building

Storeroom (requires a complete re-build) and relocation to the side of the existing chlorination building

Building a new small guardhouse at the main entrance to assist the site owner in complying with Water Use Licence conditions in managing security and access control.

Replacement of all security fencing which includes fencing of the ponds. Two types of fencing are to be used for the two security zones as indicated in contract documents. The higher security zone ("Fence type 1") with concrete palisade fencing is also to be provided with electrified wires (at the top) as added security deterrent. "Fence type 2" comprise of welded mesh fencing (medium security) with required vertical aperture as indicated in contract documents.

Refurbishment of the primary settlement tank (existing Imhoff Tank)

Civils: Refurbishment of the bio-filter (trickling filter). Notably this requires:

the temporary un-stacking of existing Loffelstein concrete blocks (presently stacked vertically, but bulging outwards) and stone media; starting from the top of the structure. Materials to be stockpiled in close proximity for re-use (see below)

the sieving and sorting of stone media into 5 no of effective stone sizes. Generally, as a guide, this is expected to be 100mm size, 75mm size, 63mm size, 50mm size and 40mm stone size groupings but may vary subject to final range of stone size encountered, once temporary de-stacking and removal has been completed.

The equipment to be used for stone size sieving and sorting is not specified and is for the Contractor to determine. However as indicated below, the civil works to dismantle and re-build the bio-filter is to be largely accomplished

using labour intensive construction methods and as such the Contractor is encouraged to select and /or design sieving equipment that is suitable for labour intensive construction purposes.

re-packing of Loffelstein concrete blocks in 5 no of vertical layers and at a maximum angle of 15 degrees to the vertical axis, with associated repacking of existing stone media. Largest effective stone size to be placed in the bottommost layer and the smallest effective stone layer to be placed in the topmost layer.

It is expected that this work will generally be done using labour intensive construction methods and provides a good opportunity for local labour to be employed.

Mechanical: Refurbishment of the bio-filter (trickling filter) distribution system

Refurbishment the Biological Nutrient Removal Activated Sludge (BNRAS) bio-reactor with associated replacement of all mechanical and electrical equipment.

Refurbishment of the secondary settlement tank (clarifier) with associated mechanical and electrical equipment

Refurbishment of the waste activated sludge (WAS) system and pumps

Refurbishment of the RAS pump system with replacement of associated mechanical and electrical equipment

Construction of 14 number of new sludge drying beds, complete with all influent pipework (WAS and scum removal), overflow, supernatant draw-off and filtrate drainage system that returns filtrate to the RAS pump sump.

Construction of a compost processing area (masonry pens) and gravel hardstanding to ensure that treated dried sludge can be turned into compost and offered to local farmers and gardeners for agricultural use (soil improvement)

Remove an estimated 4,375 m³ of sludge accumulated over a period of 10 years from the former sludge lagoons

Re-purposing the former sludge lagoons to become maturation ponds. Once the new sludge drying beds are commissioned and sludge removed from the lagoons, those lagoons can be converted to maturation ponds, which will assist with natural disinfection (UV process) and result in a reduction of chlorination dosage

Refurbishment of the chlorination system by installing a calcium hypochlorite dosing system that is safer to manage than the old chlorine gas system and that does not require electric power.

Undertake interior refurbishment of all concrete water retaining tanks by undertaking minor crack repairs and then applying an economic cementitious flexible slurry product that provides a thin rendering layer (to repair concrete pin-holes, spalling and honeycombing) and that also provide a waterproof seal. Apply thereafter a chemical resistance layer (when specified) and as indicated in contract documents.

Replacement of all electrical cabling, switchgear and electrical equipment. This includes the replacement of a section of incomer HV (overhead cabling) and the replacement / installation of a new 400 kVA transformer.

Replacement of site illumination by installing 5 no of 15m high mid-hinged flood lights.

Replacement of all electrical services to buildings

Installing a new containerised diesel-powered back-up generator (300 kVA) complete with an on-board diesel tank, adjacent buried 4,500L buried diesel tank and over-pumping facilities. The installation is located within the larger (higher security) fenced enclosure and will also be separately fenced for security purposes.

Installation of water re-use system with new abstraction manhole caisson and submersible pumps at pond no 3 existing outlet structure. A new associated buried pipeline will pump water to new non-potable wash-water storage tanks (2 x 10,000L plastic tanks) at the inlet works.

Refurbishment and installation of non-potable booster fed and gravity fed wash-water system that will provide non-potable wash-water to various equipment and wash-points across the site.

Restoring potable water services to buildings.

Selective refurbishment and replacement of badly deteriorated / non-functioning / missing sluice valves, hand-stops, gate valves and manhole covers.

Replacement of all stolen hand-railings and galvanised steel access grids / gratings.

Re-building of the on-site gravel access road that are presently non-existent

The Employer reserves the right to reduce the scope of works in line with suitable funding.

Cognisance shall be taken of the fact that the Works will be executed at a partly operational wastewater treatment works facility and the Contractor shall implement the necessary measures to ensure the continuous operation of the existing plant at all times

C3.1.3 Location of the works

Tshiamé WWTW is located some 11 km west of the town of Harrismith, 10 km north of Tshiamé Dam and lies within the jurisdiction of Maluti-a-Phofung Local Municipality (Free State Province). The site can be accessed from the N5 national road that links Harrismith to Bethlehem. Geographical co-ordinates for the site:

Table C3.1.3-1 Latitude and Longitude for Tshiamé WWTW

Latitude	Longitude	Approx Elevation (mASL)
28° 16' 47.35" S	28° 59' 23.09" E	1609

The following climatic and general conditions are prevalent on Site and the specified capacities of all equipment provided under this Tender shall be applicable under these conditions.

Maximum ambient temperature: 40°C
Minimum ambient temperature: -10°C
24-hour maximum temperature: 26°C
Altitude (meters above mean sea level): ±1609 m
Humidity: 58%
Atmosphere: Dusty
Lengthy periods of sunshine cause high temperatures in indoor enclosures. High breakdown of outdoor synthetic materials due to extended exposure to ultra-violet rays.
Lightning: Medium to high lightning rate

C3.1.4 Construction Program

The 6 no of work installation packages are described in Additional Management Specification “SC – Decommissioning, Testing and Commissioning” (clause SC11.2) and in this document: section C3.4.2.2, Civils project specification PSA7.13

It is estimated that the total construction period of the infrastructure (civil and mechanical/electrical works) for installations 1 to 5 will be approximately 17 months (510 calendar days) from the Commencement Date, including the builder’s holiday. This period includes the following
Pre-construction Enabling Period prior to Work Execution: 3 months (see notes below)
Construction Period of 14 months (including public holidays and Contractor breaks) with works split across six (6) no of Installation Work Packages resulting in Works Completion for each.

Installation no 6 (Effluent Pond Refurbishment) is to be done during the 1-Year Defects Liability Period for Installations no 1 to 5, which also coincides with the 1-Year Contractor Operations & Maintenance Period as described elsewhere in this document.

The duration of this maintenance construction activity is estimated as 2 months.

A defects liability period of only 8 months will apply to installation no 6 to ensure that the Defects Liability Period for all installations will come to an end on the same date.

The above programme for installations 1 to 5 includes construction enabling works that is estimated as 3 months in duration and comprising of the following works:

Contractor generated pre-construction documentation (including Health & Safety documentation) and submitting that to the Employer for Approval.

Employer Approval of Contractor’s pre-construction documentation

Applying for a Construction Permit and estimated time (50 days) for Department of Labour to issue a Construction Permit

Labour recruitment and planning

.

The Contractor to submit all documentation that is required before commencement of Works Execution as indicated in Tender part C1, Agreement and Contract Data, C1.2.3, clause 5.3.1.

Alternative offers for a shorter construction period may be submitted as an alternative and will be considered during the tender evaluation stage. The One-Year Contractor Operations and Maintenance Period will however remain fixed at 12 months.

The contractor shall complete the whole of the works within the maximum Time for Completion indicated in the Tender contract data as calculated from the Commencement Date. In this regard the contractor shall note that: Construction includes testing and commissioning of the refurbished WWTW

Construction includes Operations & Maintenance training of MaP Municipality’s designed Operations staff (MaP Water). Training also included Health & Safety Training.

Testing, training and commissioning of the WWTW is to be done during the last quarter of the construction programme. Of which testing and commissioning will comprise of:

Dry Testing

Wet Testing after successful completion of Dry Testing. This includes water tightness testing of refurbished water retaining structures / tanks and all mechanical-electrical process treatment equipment. It is anticipated that 3 weeks will be required for this testing period.

Full Commissioning 60-day Trial Period after successful completion of Wet testing. This includes the introduction of sewage to the refurbished WWTW. A minimum of 60 continuous calendar days (2 months) is required for the full commissioning test.

Successful completion of the Full Commissioning Trial Period will be required to obtain a Practical Completion Certificate

Each Tenderer shall submit with his Tender a suitable and realistic preliminary construction programme (referred to as the Tender Programme) for consideration by the Engineer. This programme shall commence on the Commencement Date, shall be prepared in accordance with the maximum Time for Completion comprising the Works and shall provide interim completion dates for each milestone or element of the works, including the period for executing the Dry, Wet and Full Commissioning Tests as described above.

The tenderer shall allow in his programme for all alterations to the existing inlet works (head of the works) as shown on the tender drawings, whilst maintaining the current by-pass arrangement. The current by-pass arrangement at the inlet works permits sewage once manually screened (hand rake coarse screen) to by-pass the primary settlement tank, bio-filter, bio-reactor, secondary settlement tank and chlorination process and is presently merely discharged to the sludge lagoons. The tenderer shall programme construction works to have the least and / or limited impact in the operation of the existing (ordinary) by-pass as per aforementioned.

During the construction period the tenderer shall ensure that MaP Water staff can continue with daily Operations and Maintenance tasks, which notable includes the raking and removal of screenings at the single manual coarse screen (located in the re-purposed by-pass channel at the inlet works).

After award of a Contract, the Contractor shall submit a detailed construction programme to the Engineer in accordance with the requirements of Sub-Clause 5.6 [Programme] of the Conditions of Contract. Except as provided above, the approval by the Engineer of the Contractor's construction programme, or of any amendment or adjustment thereto, shall not in any way alter the Contract, act as an estoppel or limit the right of the Employer to demand due performance under the Contract.

The approval of a construction programme by the Engineer indicates only that the Engineer will be satisfied if the work is carried out according to such programme and that the Contractor undertakes to carry out the work in accordance with the programme. However, the approval of a construction programme by the Engineer shall not limit his right to give notice to the Contractor to submit a revised programme if the existing programme fails to comply with the Contract.

C3.1.4.1 Delay Damages and Early Completion Reward

Delay damages for late completion of the Works are indicated in the Appendix to Tender.

The Employer shall not pay an early completion reward to the Contractor for the early completion of Works.

C3.1.4.2 Construction Period (exclusive of Contractor 1-Year Operation & Maintenance Period)

The maximum time for completion of all the works are 17 months and comprise of the following stages:

3 months: Pre-construction activities, from date of Contract being signed to date of on-site commencement of construction work. As explained further above this period includes the application and receipt of the construction application and Employer approval of Contractor's pre-construction documentation.

14 months: Construction of the Works for installations no 1 to 5 that includes Commissioning

The above programme includes all weekends, public holidays, non-working days and December break.

C3.1.5 Exceptionally Adverse Climatic Conditions

Extension of time resulting from abnormal rainfall or other forms of exceptionally adverse weather conditions in terms of sub-clause 5.12 of the GCC 2015 General Conditions of Contract shall be determined in term of the Critical-path method.

Critical path method – A delay caused by exceptionally adverse climatic conditions will be regarded as a delay only if, in the opinion of the Engineer, all progress on an item or items of work on the critical path of the latest approved working programme of the Contractor has been brought to a halt. Delays on working days only will be taken into account for the extension of time, but the Contractor shall make provision in his programme of work for an expected "n" working days caused by normal rainy weather, for which he will not receive any extension of time. The value of "n" shall be according to Table 1 below.

Table 1: Average delays due to adverse climatic conditions

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Tot
"n" delays (rain)	2.9	3.7	2.0	1.0	1.0	0.1	0.5	0.5	0.4	1.5	4.0	3.6	21.2
"n" delays (other)	0	0	0	0	0	0	0	0	0	0	0	0	0
Avg rainfall (mm)	94	89	60	39	29	12	7	19	13	55	107	100	624

The number of rain-related delays is the average number of days on which 10mm of rain or more has been measured by the weather station at Weather Station Harrismith 0333/226AX. Other exceptionally adverse climatic conditions, for which the Contractor must make allowance in his programme, have been derived from previous experience of wind and temperature influence on similar construction in the area of the site(s). Actual extensions of time due to exceptionally adverse climatic conditions shall be agreed between the Engineer's and Contractor's representatives on the site. The agreed whole days or parts thereof shall be recorded in the site diary and monthly site meetings. Adjustment of the contract period shall only be made at the end of the Contract when the Contractor may submit his claim for the agreed extension due as well as any additional payment resulting from the delay.

If approved extensions of time extend the completion date beyond the start of the Contractor's holiday in December, the holiday period shall not be considered as working days. Any remaining extension of time at this date shall be calculated from the first statutory working day in January the following year, provided that the Contractor has shown in his programme that he intends to close during the traditional Christmas/New Year break.

C3.1.6 Geotechnical Information

A copy of the geotechnical study and report for the Site has been appended under section C4 – Site Information; Part C4.1.

All information regarding sub-surface conditions and materials on the Site is provided in good faith, for the Contractor's convenience, as an indication of the conditions likely to be encountered. The Employer accepts no responsibility for the accuracy or comprehensiveness of the information or that the information is representative of the conditions or materials likely to be encountered. The provision of such information shall not be regarded as in any way limiting, or detracting from the Contractor's responsibilities under the Contract. The Contractor will be deemed to have satisfied himself as to all surface and sub-surface conditions to be encountered on the Site of the Works and to have allowed accordingly in his tendered amounts.

C3.2 ENGINEERING

C3.2 ENGINEERING

C3.2.1 ENGINEER'S DESIGN

The Engineer has designed the Permanent Works on behalf of the Employer as shown on the Drawings and although the Engineer has selected Plant and Equipment that are deemed suitably sized and selected for the intended purposes of the Employer for tendering purposes, the Contractor shall be responsible for the detailed design of all propriety plant and mechanical and electrical equipment and associated systems in order to ensure these are appropriately selected and installed to meet the intended application and particular installation conditions on Site.

The Contractor shall:

submit detailed General Arrangement (GA) and detail drawings of all mechanical systems and pipework for the Engineer's approval (where those might differ from the Engineer's design for Permanent Works or where they are of a proprietary nature) prior to manufacturing and procurement of equipment.

submit detail electrical wiring and reticulation drawings (where those might differ from the Engineer's design for Permanent Works) for the Engineer's approval prior to manufacturing and procurement of equipment.

submit detail electronic wiring and signal drawings (where those might differ from the Engineer's design for Permanent Works or lack detail or where they are of a proprietary nature) for the Engineer's approval prior to manufacturing and procurement of equipment.

Submit programming detail to the Engineer for Approval for the two number of Programmable Logic Controllers (PLC's), that needs to control process treatment and monitoring functions as indicated in the Engineer's Particular Specification for PLC's and related specifications and drawings. Approval to be obtained from the Engineer prior to procurement and programming of equipment.

With regards to site and interconnecting pipework, the Engineer has provided the proposed layout of the sewers and pipework on the Drawings for tendering purposes. However, the Contractor shall be responsible for all final measurements on site, correct manufacturing and installation of all pipe items and specials to suit the installation. Any/all modifications on site shall be handled in terms of the relevant Specifications for repairs to damaged corrosion protection. The Contractor shall also maintain suitable records of all such items in order for the Contractor to complete the as-built drawings at the completion of the works.

The Contractor shall submit detailed equipment lists for each mechanical and electrical installation included under the Contract.

The Contractor shall be expected to construct the Works in terms of the construction drawings compiled and issued by the Engineer or special directives issued by the Engineer in writing.

In cases where there is a discrepancy between the civil drawings and structural (rebar) drawings, the Contractor shall request clarification from the Engineer prior to proceeding with the affected work.

In cases where there is a discrepancy between the mechanical drawings and civil drawings, the Contractor shall request clarification from the Engineer prior to proceeding with the affected work.

In addition, the Contractor shall submit for the Engineer's approval applicable design calculations associated with Contractor's selection of all equipment (where those differ from the design and equipment specified by the Engineer) to be supplied under this Contract, including but not limited to instrumentation, pumps, mixers, gearboxes, motors, dosing equipment, surface aerator components, MCC's et cetera (mechanical and electrical equipment) and the Contractor shall take due consideration of the civil constraints, location of installation with envisaged worst-case ambient conditions, hydraulics, ergonomics and applicable health and safety requirements.

C3.2.2 ALTERNATIVE OFFERS AT TENDER STAGE

The Contractor shall complete the tender in terms of the information provided and requested in the tender document. Failure to complete the tender document, including all items included in the schedule of quantities, may lead to the rejection of the bid.

Where offers from multiple suppliers are required in terms of the Conditions of Tender, the highest-cost offer shall be used to determine the Tender Price. It must however be highlighted that the Employer reserves the right to choose any of the offered alternatives that complies with the Specifications and the Employer further reserves the

right to adjust the Tender Price for any of the options to determine comparative tender prices for evaluation purposes. It is therefore in the interest of the Contractor to ensure that all offered alternatives as required in terms of the Conditions of Tender are competitively priced.

In evaluating tenders received, and in accordance with its adopted procurement policy, the Employer is required to satisfy itself as to the competitiveness and cost effectiveness of each tender received. In addition, as a public entity, the Employer is required to ensure that its procurement process is fair, equitable and transparent at all times. Accordingly, except for alternatives requested in the tender documents, any tenderer wishing to submit (an) alternative offer(s) for the consideration of the Employer shall ensure that the competitiveness and cost effectiveness of the alternative can easily be determined by the Employer. Bids that are difficult to compare to the prescribed condition of tender and contract and/or to the specified technical requirements are likely to be rejected. Even if comparable, a tender that deviates from the specified conditions or requirements may not be acceptable to the Employer for reasons of risk apportionment or otherwise. Tenderers are therefore instructed to price the specified requirements and schedule of quantities before submitting any alternative offer for the Works.

C3.2.3 DRAWINGS

Refer to Volume 3 for the drawings issued for tender purposes.

END OF SECTION

C3.3 PROCUREMENT

C3.3 PROCUREMENT

C3.3.1 General Clauses and Requirements

C3.3.1.1 Tenders received shall be evaluated in terms of the tender evaluation criteria described in the Tender Data, taking cognisance of the Employer's preferential procurement requirements as provided.

C3.3.1.2 The works shall be carried out by a suitably qualified, experienced and capable with a CIBD grading corresponding to the value of the works, inclusive of VAT. See table 1 further below for guidance. Based on the Engineer's pre-tender estimate, the required grading shall be at least 7CE.

In accordance with CIBD best practice guideline no A6, "Applying the Registers to Construction Procurement" (version 2, July 2021), the Tender Value Ranges provided in the Board's contractor grading designations are as tabulated in Table 1. Tender Range Values are similarly published on the CIBD website (<https://www.cidb.org.za/contractors/register-of-contractors/requirements-for-grading/>)

<u>Tender Value Range Designation</u>	<u>Upper Limit of Tender Value Range, inclusive of VAT</u>
<u>1</u>	<u>R 500 000</u>
<u>2</u>	<u>R 1 000 000</u>
<u>3</u>	<u>R 3 000 000</u>
<u>4</u>	<u>R 6 000 000</u>
<u>5</u>	<u>R 10 000 000</u>
<u>6</u>	<u>R 20 000 000</u>
<u>7</u>	<u>R 60 000 000</u>
<u>8</u>	<u>R 200 000 000</u>
<u>9</u>	<u>No Limit</u>

With reference to Table 1 above and as indicated in the aforementioned CIBD guide, note that: Where the estimated value is within 20% of the lower limit of a Tender Value Range, base the designation on the tender value range immediately below the Tender Value Range within which the estimate falls.

Failure to meet the minimum CIBD requirements for civil contracting entities may result in the tenders being disqualified and tenders shall submit all information necessary in order for the Engineer to assess the proposed (sub) contractors in terms of the capability and experience (refer to functionality criteria).

C3.3.2 Local Economic Participation

The Contractor shall procure local goods, services and labour in order to stimulate local economic development in terms of the requirement of the Local Economic Participation Specifications included under section T2.3.18 (Form R).

C3.3.3 Sub-contractors

The Contractor shall appoint such authorities and/or specialist sub-contractors and suppliers as may be designated or nominated by the Employer or the Engineer for those portions of the Works specified in the Scope of Works.

In accordance with the Preferential Procurement Regulations, 2017, the Contractor shall subcontract 30% of the Contract Sum (excluding Preliminary and General Items) to a local sub-contractor(s).

As required by the Conditions of Contract, the Contractor shall be responsible for all work carried out by sub-contractors (whether nominated by the Employer or selected by the Contractor) on his behalf. The Engineer will not liaise directly with any such sub-contractor, nor will he become involved in any problems and/or disputes related to payments, programming, workmanship, etc., unless provided for in the Conditions of Contract. Such problems and/or disputes shall remain the sole concern of the Contractor and his sub-contractors.

No additional management fee will be payable to the Contractor for works executed by the sub-contractor(s).

Notwithstanding other requirements of the Contract, the Contractor shall not sub-contract any part of the Contract without prior consent of the Engineer, which consent shall not be unreasonable withheld.

Any consent granted by the Engineer for the appointment of any sub-contractor shall not imply a contract between the Employer and the sub-contractor, or a responsibility or liability on the part of the Employer to the sub-contractor and shall not imply a contract between the Engineer and the sub-contractor, or a responsibility or liability on the part of the Engineer to the sub-contractor and shall not relieve the Contractor from any liability under the Contract and the Contractor shall be liable for the acts, defaults and neglects of any sub-contractor, his agents or employees as fully as if they were the acts, defaults or neglects of the Contractor, his agents or employees.

Before the Engineer, in terms of Clause 6.10 [Issue of Interim Payment Certificates] of the GCC 2015 General Conditions of Contract, issues any certificate that includes any payment in respect of work done or goods supplied by any sub-contractor in terms of Sub-Clause 4.4 [Subcontractors] of the General Conditions of Contract, he shall be entitled to call upon the Contractor to furnish reasonable proof that all payments (less retention moneys) included in previous certificates in respect of the work or goods of such sub-contractors have been made or discharged by the Contractor, in default of which, unless the Contractor:-

1. Informs the Engineer in writing that he has reasonable cause for withholding or refusing such payment, and
2. Submits to the Engineer reasonable proof that he has informed such sub-contractor accordingly in writing.

The Employer shall be entitled to pay directly such sub-contractor on the Engineer's certificate all payments (less retention moneys) the Contractor has failed to make to such subcontractor and to deduct, by way of settlement, the amount so paid by the Employer from any moneys owing to or that may become owing to the Contractor.

Provided always that where the Engineer has certified and the Employer has paid directly as aforesaid, the Engineer shall, in issuing any further certificate in favour of the Contractor, deduct from the amount thereof the amount paid direct as aforesaid, but shall not withhold or delay the issue of the certificate when due to be issued in terms of the Contract.

C3.3.4 Contractor's Personnel

The Contractor shall limit the utilisation of his permanently employed personnel to that of key personnel only on the Works, as defined below, and shall execute and complete the Works utilising a temporary workforce employed directly by the Contractor and/or by his sub-contractors, using the assistance of the Labour Desk(s), from the various communities that are established in proximity to the Works or which will be consumers from the Scheme.

Without derogating from the Contractor's obligations to complete the Works within the specified time for completion in terms of the General Conditions of Contract, the numbers in each category of the Contractor's key personnel, as stated by the Contractor in the Returnable Schedules, will be strictly controlled during the contract period and any increase in numbers will be subject to the prior approval of the Employer.

Key personnel mean all contracts managers, designers, site agents, site clerks, materials and survey technicians, quantity surveyors, trainers, supervisors, foremen, skilled plant operators, brick layers, welders, shutter hands and the like, and all other personnel in the permanent employ of the Contractor or his sub-contractors who possess special skills, and/or who play key roles within the Contractor's or his sub-contractor's operations.

The Engineer may at his discretion, upon receipt of a written and fully motivated application from the Contractor, and where he deems the circumstances so warrant, authorise in writing that the Contractor may utilise in the execution of the Works, workers not being his key personnel but who are in his permanent employment. Without limiting the generality of application of this Sub-Clause, circumstances which may be considered by the Engineer to warrant authorization of the use of the Contractor's permanent employees other than key personnel, include:

1. The unavailability from local sources of sufficient numbers of temporary workers and/or sub-contractors to execute the Works, provided always that the Contractor has satisfied the Engineer that he has exercised his best endeavours and taken all reasonable actions to recruit sufficient temporary workers and sub-contractors from local sources.

2. The unavailability within the temporary worker pool and/or from subcontractor sources available to the Contractor in terms of the Contract, of sufficient skills necessary to execute the Works or specific portions thereof, in situations where the completion period allowed in the Contract is insufficient to facilitate the creation of the necessary skills through the provision of suitable training as contemplated in the Contract.

3. Any other circumstances which the Engineer may deem as constituting a warrant.

C3.3.5 Temporary Workforce

The Contractor shall employ labour from the local communities through the Labour Desk(s). Accordingly, the workforce that is employed on Site shall consist of local residents, except for approved key staff in the permanent employ of the Contractor, to the maximum extent that is compatible with the requirements of Clause C3.3.2.

With the assistance of the Infrastructure Portfolio Committee of the VAAL CENTRAL WATER BOARD and local ward committees, and a Project Steering Committee (PSC) will be established. The PSC will appointment a Community Liaison Officer (CLO) that will be employed by the Contractor for the duration of the Contract.

The CLO will assist the Contractor with local labour issues, including employment conditions, remuneration, performance monitoring, etc.

The PSC shall assist in identifying available local labour and, where available, semi-skilled labour as well as local sub-contractors. The PSC shall also assist and advise regarding conditions of employment, minimum wages, disputes and disciplinary procedures. The function of the PSC shall however in no way diminish the responsibilities of the Contractor in terms of the Conditions of Contract.

Although the Contractor shall adhere to the statutory minimum wage rates, he is however at liberty to negotiate additional incentive payments based on performance.

A contract of employment or subcontract shall be signed between the Contractor and each of his employees and sub-contractors. Likewise, contracts of employment must be entered into between each such sub-contractor and each of the specific sub-contractor's employees. Although the Contractor shall adhere to the minimum wage rates described below, he is at liberty to negotiate additional incentive payments based on performance.

Contracts of employment or sub-contracts should provide for the following basic conditions:

The minimum wage payable will be determined in terms of latest applicable (at the time of tendering) legislation and shall, as a minimum, adhere to section 56(1) of the Basic Conditions of Employment Act (Act 75 of 1997), Sectorial Determination 2: Civil Engineering Sector as published by the Department of Labour.

The Contractor shall adhere to the provisions for payment method and intervals, overtime and pay for work on Sundays and public holidays (if required) in the Basic Conditions of Employment Act (Act 75 of 1997).

The Contractor shall register all labourers employed on the Contract with the Workmen's Compensation Commissioner and the Unemployment Insurance Fund, as applicable. The Contractor shall obtain the Unemployment Insurance Fund and Workmen's Compensation registration cards.

Workers shall be entitled to one (1) day sick leave with full pay per month worked. This will accumulate if the leave is not used.

Annual leave shall be calculated as published in terms of (the latest edition of) section 56(1) of the Basic Conditions of Employment Act (Act 75 of 1997), Sectorial Determination 2: Civil Engineering Sector as published by the Department of Labour.

Upon termination of the Contract, each locally employed labourer shall be entitled to receive his/her Unemployment Insurance Fund and the Workmen's Compensation registration cards as well as a Certificate of Employment from the Contractor clearly stating the following:

The type of work done.

The duration of employment.

The number of days absent from work.

The Contractor's general impression of the quality of work done.

The Occupational Health and Safety Act must be adhered to with reference to the safety of all employees employed by the Contractor. Suitable safety equipment and clothing shall be issued and maintain by the Contractor for the duration of construction.

Contractor's company policy regarding:

Inclement weather

Sickness and absence

Disciplinary matters

Grievances

Should any of the above conditions be less favourable than any bargaining council agreement or Act applicable to the Contractor, the more favourable condition shall apply.

END OF SECTION

C3.4 CONSTRUCTION

C3.4 CONSTRUCTION

C3.4.1 GENERAL CLAUSES AND REQUIREMENTS

These general clauses cover the general, administrative, legal and organizational requirements relating to quality of materials, installation, testing, commissioning and maintenance of the installation applicable to this Contract.

These clauses should be read together with all other sections and Standard and Particular Specifications included in the Contract documents or Standard Specifications mentioned in the Contract documents but separately available. The documents should be read and interpreted jointly in order to determine the full requirements of the Contract.

Any/all deviations from these general clauses or technical specifications shall be listed in writing as Deviations at tender stage. Where the Engineer does not approve of these deviations, the Contractor shall be responsible to conform to the requirements of these general clauses and technical specifications.

The general clauses have been sub-divided under four main headings via Section A: General Contract Administration, Section B: General Technical Requirements, Section C: Testing and Commissioning, Section D: General, and Section E: Alterations and Modifications to Existing Works.

A. GENERAL CONTRACT ADMINISTRATION

C3.4.1.1 RELEVANT ACTS, REGULATIONS AND STANDARDS

The whole of the installation shall comply and the work shall be executed in accordance with the latest edition of the following:

The Occupational Health and Safety Act, 1993 (Act no 85 of 1993) and the regulations promulgated in terms of the Act or the Factories Machinery and Building Works Act of 1941, whichever is applicable and their respective Regulations;

The regulations and bylaws of the local supply authorities;

The applicable regulations of the relevant telecommunications authority;

The local Fire Department Regulations; and

The latest revisions of the relevant SANS, DIN, BS, IEC and ISO supporting specifications referred to in the Particular Specifications.

C3.4.1.2 RESPONSIBLE PERSONS AND REPRESENTATION

The Contractor shall, before establishing on site, appoint and submit to the Engineer in writing a project organisational chart, listing the name(s) of the responsible person(s) in terms of the Occupational Health and Safety Act, 1993 (Act no 85 of 1993) and the regulations promulgated in terms of the Act within 14 days from being appointed.

The Contractor shall submit to the Employer and Engineer within 14 days of the Commencement Date a list of addresses and telephone numbers of his Representative and key personnel who may be contacted both during and outside normal working hours in connection with the Works. The Contractor shall also refer to Sub-Clauses 4.3 and 6.8 of the Conditions of Contract.

C3.4.1.3 HEALTH AND SAFETY

From the date of site handover until the Taking Over Certificates are issued, the Contractor shall be responsible for maintaining safe working conditions as prescribed by the Occupational Health and Safety Act and the regulations promulgated in terms thereof on site. In the event that the Site of the Works is managed by another contractor, the Contractor shall be expected to also adhere to the health and safety regulations prescribed by such contractor.

The Contractor shall be responsible for supplying and installing the required safety signs as determined by the Occupational Health and Safety Act, 1993 (Act no 85 of 1993) and the regulations promulgated in terms of the Act, both during the construction phase and the completed works. All safety signs shall comply with the requirements of the latest edition of SANS 1186-1 as applicable.

The Contractor shall comply with the Occupational Health and Safety Specification prepared by the Employer in terms of the Construction Regulations, 2014 promulgated in terms of Section 43 of the Occupational Health and Safety Act (Act No. 85 of 1993).

The Contractor shall submit an approved Health and Safety Plan to the Engineer within 14 days from the date that the Agreement made in terms of the Form of Offer and Acceptance comes into effect.

Without limiting the Contractor's obligations in terms of the Contract, the Contractor shall before commencement of the Works or any part thereof, be in the possession of an approved Health and Safety Plan.

Notwithstanding any actions which the Employer may take, the Contractor accepts sole liability for due compliance with the relevant duties, obligations, prohibitions, arrangements and procedures imposed by the Occupational Health and Safety Act, 1993 (Act 85 of 1993), and all its regulations, including the Construction Regulations, 2014, for which he is liable as mandatory. By entering into this Contract it shall be deemed that the parties have agreed in writing to the above provisions in terms of Section 37 (2) of the Act.

The Contractor and his designer shall accept full responsibility and liability to comply with the Occupational Health and Safety Act, 1993 (Act 85 of 1993) and the Construction Regulations, 2014 for the design of the Temporary Works and those part of the Permanent Works which the Contractor is responsible to design in terms of the Contract

C3.4.1.4 QUALITY ASSURANCE AND CONTROL

All materials and workmanship shall be of a suitable type and quality to ensure that the Works will operate satisfactorily in accordance with the Specifications.

The Contractor shall submit a Quality Assurance Plan outlining quality assurance policies and procedures to be used for the project relating to the areas such as materials, manufacturing, and installation and testing. A documented quality control and quality assurance system shall be maintained, which shall be in accordance with ISO 9000 or equivalent approved by the Engineer. The Contractor shall ensure that the same requirements is applied to products, systems, and services supplied by his sub-contractors and suppliers. The Contractor shall file all quality certification documents relating to the products and systems supplied for the Works. The Engineer shall have full access to such files.

Registration to ISO 9001:2015 or earlier editions is preferable and evidence of current registration to this or another acceptable quality management system shall be provided upon request.

C3.4.1.5 DRAWINGS, DOCUMENTATION AND SAMPLES

C3.4.1.5.1 Engineer's Drawings and Documentation

In order that the Engineer may collate the as-built drawings (that have been prepared by the Contractor) and compile the completion report for the Employer, the Contractor shall submit to the Engineer all as-built documents and operation and maintenance manuals in accordance with Sub-Clause 4.1(d) of the Conditions of Contract prior to commencement of the Tests on Completion.

In constructing the Works, the Contractor may use only figured dimensions; the drawings may not be scaled unless the Contractor is so instructed by the Engineer in writing. The Engineer will upon written request provide any dimension(s) that may have been omitted from the drawings.

Only A0, A1 and A3-size drawings (as indicated on the drawing) in hard-copy format bearing the signature of the Engineer shall be used for construction purposes.

Where there are discrepancies between, for instance, civil and reinforcing drawings, clarification shall be requested from and issued by the Engineer in writing prior to commencing or continuing with the work in question.

The Contractor shall generally receive 2 x A1 / A0 and 1 x A3 size construction drawings. Additional copies may be made by the Contractor at his expense.

C3.4.1.5.2 Contractor's Drawings and Documentation

The following requirement are applicable for portions of the works designed by the Contractor such as final pipe items and fittings, mechanical and electrical configurations and systems.

C3.4.1.5.2.1 General

All drawings and documentation submitted by the Contractor shall be in English and shall comply with the requirements prescribed below.

All symbols used in electrical drawings shall be in accordance with IEC Publication 60617 unless otherwise specified in the Project Specifications and the SI system of units shall be used throughout.

All designs shall be complete, accurate and geographically correct. The designs and drawings shall be sufficiently detailed to enable construction and installation to proceed without further need for additional drawings or documentation.

All drawings and documentation submitted shall be suitably identified and labelled by means of title blocks, page numbers and revision status.

All designs and drawings shall be submitted for the Engineer's approval prior to commencement of manufacturing or construction on site. Approval by the Engineer of any design or drawing shall not relieve the Contractor of his responsibility for the accuracy or correctness of designs and drawings, or for the safety, adequacy and suitability of any part of the works manufactured or constructed in accordance with the design or drawing. Designs approved by the Engineer shall not be altered without his written agreement.

C3.4.1.5.2.2 Preparation and Submission of Drawings

All drawings shall be accurately scaled in terms of generally accepted scaling factors and submitted on international A4, A3, A1 or A0 size sheets.

Electronic submissions of drawings shall in all instances comprise *.DXF (Drawing Exchange Format) or *.DWG (AutoCad) formats accompanied by the *.PDF (Adobe Reader) format.

The Contractor may request a set of the Engineer's drawings in digital or paper format for modification and updating if necessary. These drawings shall be re-titled in accordance with the Contractor's system and shall thereafter be submitted as a Contractor's drawing.

The Contractor shall submit all drawings with reasonable promptness and in an orderly sequence as to cause no delay in the execution of any work directly or indirectly linked to the finalisation of the details contained in the drawings. The Engineer shall be given reasonable opportunity of at least 14 days to evaluate, comment on or approve the drawings. In the event that the Engineer does not respond within the said period, the Contractor shall notify the Engineer in writing of his acceptance that the drawings have been approved and that manufacturing and/or construction will commence in accordance with the drawings.

The Contractor shall make any corrections or provide additional information if requested by the Engineer and shall re-submit the corrected or updated drawings until approved. When re-submitting drawings, the Contractor shall specifically direct the Engineer's attention (in writing) on revisions other than corrections required by the Engineer on previous submissions.

C3.4.1.5.2.3 'As Built' Drawings

'As Built' drawings shall be furnished by the Contractor on completion and the relevant completion certificate shall not be issued until such as built drawings have been received and approved by the Engineer.

As-built drawings is to be generated by the Contractor for each of the following disciplines:

Civils Work

Structures Work

Mechanical & Process Related Work

Electrical Work (drawings to include electrical wiring diagrams)

Electronic Work (drawings to include electronic and telemetry / signal wiring diagrams, that were custom-designed and installed, other than proprietary products that can be purchased already assembled)

Final and approved as built drawings shall be submitted to the Engineer in five-fold hard copy in A3 size accurately scaled. In addition, the Contractor shall also prepare one complete set of all drawings in digital format as specified above for submission to the Engineer.

C3.4.1.5.3 Operation and Maintenance Manuals

The requirements for the submission of a comprehensive Operations & Maintenance Manual for Tshame WWTW is specified in Additional Management Specification "SB" that can be found in volume 2 of the tender documents.

As indicated in specification "SB" (O & M Manuals), section SB 5.1, the Contractor is required to submit the following number of hard-copy and electronic-copies of the O & M Manual:

Draft / Final	When to prepare (see SB 2.2) ?	No of hard-copies	No of e-copies (USB stick)
Draft	Prior to Dry and Wet Commissioning Testing & prior to the H & S Test	1	1
Draft (final)	At least 1 week prior to the Full Commissioning Test Period	2	2
Final	Once final draft has been approved by the Employer's Representative (Consulting Engineer) and prior to the issue of a Certificate of Completion	4	4
Total	7	7	

The manuals shall be printed on durable paper and be neatly and securely bound in A4 size hard-backed plastic/waterproof ring binders with clear pockets on the spine and front cover for insertion of title slips giving contract number, scheme description and equipment supplied.

As built drawings in A3 size, index and other title pages shall be contained in separate pockets and bound in an A3 size ring-binder with clear-plastic pockets. Drawings larger than A3 size, shall be neatly folded and place in sperate plastic pockets in the A3 sized folder.

C3.4.1.5.4 Documents to be submitted with Tender

Apart from the documents required in terms of the Tender Data and Returnable Documents, the following information shall be submitted with the Tender, neatly bound in an A4 level-arch file and titled 'Proposal'. One original plus a full copy shall be provided with the tender.

Cover letter containing the tender price and well as comments on the compliance with the commercial terms of the tender, including confirmation of acceptance of proposed Contract Price Adjustment formulae;
List of items subject to variations in Rate of Exchange, including costs subject to variations, currency and rate of exchange applicable to the tender pricing;
Comments on technical compliance, recording any deviations from the specification by quoting the relevant clause number;
Reference list for all plant and equipment offered, including country of origin. All equipment offered shall have a minimum of 5 years proven record, shall have local agents carrying the necessary inventory of critical spares and local (South African) installations.
Technical literature (supplier brochures, pump curves, technical pamphlets) relating to offered plant and equipment listed under (4).
Recommended list of critical spares and consumables with associated costs;

C3.4.1.5.5 Samples

The Contractor shall, prior to placing orders, and if required by the Engineer, submit samples of all material and equipment to the Engineer for approval.

For large equipment such as high voltage switchgear, transformers, standby generators, pumps, electric motors and gear assemblies, catalogues and brochures shall be submitted for approval.

Equipment and material shall only be approved in writing by the Engineer and the Contractor is responsible for obtaining such approval prior to commencing with the installation.

C3.4.1.6 Construction Programme

In addition to the requirements of Clause 5.6 of the General Conditions of Contract, the programme shall be compiled by means of MS Project in Gantt chart format clearly marked as:

Tshame Wastewater Treatment Works (WWTW) Refurbishment - Construction and Commissioning of Civil, Mechanical and Electrical Works;

The initial construction programme shall be approved by the Engineer in writing and shall constitute the baseline programme. The critical path shall be clearly indicated on the programme and shall be used to assess all possible claims by the Contractor for extension of time due to any reason whatsoever. No extension of time will be granted in the absence of an approved baseline programme, which may be updated from time to time as ordered by the

Engineer. Any revisions of the baseline program that influences the critical path shall be brought to the Engineer's attention in writing, also stating the reasons for such changes.

No extension of time will be granted in the absence of an approved baseline programme, which may be updated from time to time when ordered by the Engineer. Any revisions of the baseline program that influences the critical path of the civil works shall be submitted for approval by the Engineer. The Contractor's programmes shall clearly indicate the required milestone dates for handing over of the Works to the mechanical and electrical sub-contractors.

C3.4.1.7 Contractor's Equipment

The Contractor's Equipment for construction and erection of the Works shall be adequate for the purpose required, of modern design and in good condition to carry out the Works expeditiously. Should the Engineer be of the opinion that the Contractor's Equipment is in anyway unsuitable for carrying out the Works in a manner or at a rate commensurate with the requirements of the Contract, he shall have the right to instruct the Contractor at any time during the Contract to provide additional or improved plant, tools and equipment in order to meet the specified requirements.

C3.4.1.8 Coordination Meetings

The Contractor or his authorized representative shall attend all meetings held on the site with representatives of the professional team at dates and times to be determined by the Engineer. Such meetings shall be held at least once a month for coordination purposes and to evaluate the progress of the contract. Ad-hoc technical meetings will be arranged at a suitable venue as and when required.

The Engineer will chair all site meetings, prepare and circulate minutes, as determined by him in consultation with the Employer. The Contractor shall submit monthly progress reports as required by Sub-Clause 4.21 of the Conditions of Contract in a format to be agreed between the Contractor and Engineer.

C3.4.1.9 Sub-Contractors

The appointment of any sub-contractor shall be subject to the approval of the Engineer and/or the Employer. All sub-contractors employed by the Contractor shall be suitably qualified and experienced to carry out its portion of the work.

C3.4.1.10 Co-Operation with other Contractors

The Employer reserves the right to execute additional refurbishment work to existing infrastructure during the contract period, either using other contractors currently working for the Employer or under a Variation to this Contract.

C3.4.1.11 Training

The requirements for training of the Municipality's Operations and Maintenance Staff (Process Controllers, Maintenance Personnel & General Works) are specified in the Additional Management Specification "SD" (Knowledge Transfer & Skills Development) for details.

The Principal Contractor shall be responsible for overseeing Training and Knowledge Transfer as detailed in above-mentioned specification. Operational and Maintenance Training shall take place during the testing and commissioning of the Works. Training shall focus on the correct operation and maintenance of the Plant and shall address the following issues, amongst others:

- Start-up, shut-down and health and safety procedures;
- Troubleshooting and corrective actions;
- Understanding all processes, equipment and control methodology;
- Operation and maintenance of PLC's (this includes an explanation of why, when and how default PLC settings may need to be changed to further improve efficiencies, albeit not ordinarily required)
- Operating the works in manual mode when needed (if applicable);
- Execution of tests, relevant calculations and calibration of equipment;
- Maintenance of instrumentation;
- Planning reactive and planned maintenance activities
- Collection, interpretation and reporting of process data.
- Optimising the operation and process efficiency of the works
- Trouble shooting and solving problems (Operations & Maintenance)

Budgeting and timeously ordering of chemicals and spares / replacement parts
General grounds maintenance
Regulatory reporting and daily record keeping
Complying with the requirements of the DWS issued Water Use Licence and all issued amendments as applicable

Once the training has been completed, all operators shall be examined by the Contractor to ensure that the subjects and training material covered has been adequately mastered. The Contractor shall subsequently compile a training report for the Engineer's approval stating the following:

Training subjects and material covered;
Name and ID number of all operators trained;
Outcomes for examination of Operators;
Final sign-off from Contractor that all training in terms of Specifications has been completed.

The sub-contractor's training staff shall be conversant in English and shall be knowledgeable and experienced in the manufacture, erection, testing, fault finding and maintenance of the equipment installed under the Contract.

C3.4.1.12 Guarantees

All plant and equipment supplied under the Contract, shall be fully guaranteed against all defects arising from faults in the design, manufacture and workmanship for a period of 5 years from the date of handing over.

All equipment shall be guaranteed for a period of 5 years from the date of handing over to cover all defects attributable to inadequate corrosion protection.

All defects recorded within the above periods shall be rectified entirely at the expense of the Contractor. The attendance of the Contractor, specialists appointed by the Contractor or any sub-contractor required to resolve the defect shall be required within 10 days of notification of such defect(s).

Should any design fault become apparent to the Engineer or the Employer for a period of 5 years after handing over of the Works, the Contractor shall deliver all components necessary to correct the fault, together with all the specialist assistance, free of charge to the Employer.

B. GENERAL TECHNICAL REQUIREMENTS

C3.4.1.13 Design

With regards to the civil portion of the works, the Engineer has designed the works and details thereof are indicated on the tender Drawings and Specifications. The civil works included under this Contract shall be constructed by the main civil contractor strictly in terms of the Drawings and Specifications.

With regards to this Contract, the Employer's Requirements, including the proposed size and position of the new equipment, cable routes etc. are indicated on the tender Drawings issued under Volume 3, while the technical details are described in subsequent clauses and in the Specifications (refer to Volume 1A). Although the Engineer, on behalf of the Employer, has endeavoured to design and specify the mechanical and electrical works as accurately as possible for tender purposes, the sub-contractors shall be responsible for the final design of the mechanical and electrical equipment to be included in the Permanent Works, ensuring that all equipment offered are fit for its intended purpose.

When designing the mechanical and electrical works, the sub-contractors shall take cognisance of the following:

The Works shall be designed to facilitate easy accessibility, equipment replacement, maintenance, handling, inspection, cleaning and repairs, and to ensure satisfactory operation in which safety of plant, personnel and public and continuity of service is primary considerations.

All plant, equipment and apparatus shall operate satisfactorily under the ambient climatic conditions prevailing at the site specified under Section C3.1.

All apparatus shall be designed to prevent the risk of accidental short circuits due to the activities of animals, birds, ants and vermin.

Fire risk shall be minimised as far as possible.

All moving, rubbing or wearing surfaces shall be machined or ground where they bear upon each other.

All equipment shall be designed for operation on normal electrical supply systems with voltage fluctuations of $\pm 10\%$.

The Works shall be designed for a life span of at least 10 years for mechanical and electrical equipment.

C3.4.1.14 Standards

All electrical equipment shall be of approved manufacture and its construction, design and testing shall be in accordance with the requirements of the most recent South African National Standards, British Standards or IEC publications including all amendments issued thereto up to the date of tender. The design and installation of the equipment shall also comply with the relevant clauses of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) and the regulations promulgated in terms of this Act, as well as the Code of Practice for the Wiring of Premises, SANS 0142.

For all material and equipment that are required to conform to any national or international specification or standard, the Contractor shall submit a certificate to the Engineer, issued by an accredited testing laboratory clearly stating that the material and equipment complies with the specific specification or standard.

Notwithstanding reference in this specification to the South African or British Standards and the IEC or ISO recommendations, the supplier may submit for approval by the Engineer, material and designs conforming to other technically equivalent national standards and shall submit documentary proof in English of actual compliance therewith.

C3.4.1.15 Quality of Materials

All material and equipment shall be new and suitable for the prevailing conditions at the Site, which shall include climatic conditions as well as the conditions under which materials and equipment are installed, stored and operated without distortion, deterioration or inducing undue stresses in any part such as to affect the efficiency and reliability of the plant and also without affecting the strength and suitability of the various parts for the duty which they have to perform.

All material and equipment shall conform in respect of quality, manufacture, tests and performance, with the relevant requirements of the SANS or where no such standards exist, with relevant current specification of the British Standards Institution and/or relevant IEC and/or ISO publications. Where applicable, the material shall bear the stamp of the relevant standards body.

Where proprietary materials and equipment are specified or required, approval of such materials or equipment shall be at the sole discretion of the Engineer once the appropriate samples or technical literature have been submitted.

C3.4.1.16 Electromagnetic Interference

All equipment installed under the Contract shall comply with the requirements of IEC 61000 Parts 1 to 6 Electromagnetic Compatibility (EMC).

Any equipment found producing Electromagnetic interference subsequent to commissioning shall be suppressed or replaced to the satisfaction of the Engineer without any additional costs to the Employer.

C3.4.1.17 Corona, Radio and TV Interference

All plant and equipment shall be designed so as to minimize corona or electrical discharge and radio and TV interference, and shall comply with national rules and regulations in respect to radio and TV interference.

Any equipment found producing radio or TV interference subsequent to commissioning shall be suppressed or replaced to the satisfaction of the Engineer without any cost to the Employer.

C3.4.1.18 Interchangeability

Corresponding parts throughout the works shall be made to accurate tolerances that similar components or spares shall be fully interchangeable without any further alterations or adjustments being necessary.

C3.4.1.19 Bolts and Nuts

Unless otherwise specified in the Project or Particular Specifications, the following general requirements shall be applicable:

The threads of all bolts, nuts and studs shall be in accordance with SANS 1700-7-3, 1700-7-5, 1700-14-3, 1700-14-4 (in part);

No brass bolt or stud shall have a diameter of less than 6mm;

Two washers shall be installed underneath each bolt and nut;

Each bolt shall protrude by at least three threads but not more than five threads through the nut with all washers in position;

The Contractor shall supply to the Employer any special tool required for any nut, bolt, screw or other fastener used in a position which is not accessible using conventional tools. This also applies where the size or shape of the fastener is not conventional.

C3.4.1.20 Galvanising

Unless otherwise specified in the Project or Particular Specifications, the following general requirements shall be applicable:

Where galvanising is specified or a requirement of the design, such galvanising shall be performed by the hot-dip process to SANS EN 10240 in part and SANS ISO 1461;

For all parts, other than wires, the equivalent zinc coating thickness shall not be less than 455 g of zinc per square metre of surface;

The galvanising must be clean, smooth, of uniform thickness, unblemished and free from defects;

All drilling, welding, cutting, sawing, punching, filing and bending shall be complete and the metal shall be cleaned of any machining blemishes, millscale, rust and lubricants, before galvanising;

Galvanised areas must be kept free of lubricants. Surfaces which are in contact with oil shall not be galvanised or cadmium plated;

Electrolytic deposition of zinc is not acceptable.

C3.4.1.21 Welding

Unless otherwise specified in the Project or Particular Specifications, the following general requirements shall be applicable:

All welding shall comply with the appropriate South African National Standards such as SANS 10011-1:2004, SANS 10167:2004, SANS 719:2011 and SANS 9606-1:1994 as well as best practice international standards;

Welding shall be executed in accordance with modern accepted practice and shall be sound, full strength and free from undercut and slag inclusions. Crater effects at the end of weld runs shall be eliminated;

Intermittent welding and incomplete penetration butt-welding will not be accepted;

All fabricated items shall be stress relieved after welding.

C3.4.1.22 Labels and Notices

Unless otherwise specified in the Project or Particular Specifications, the following general requirements shall be applicable:

Identification labels shall be attached to all equipment, motors, control gear and all panels and equipment contained therein;

All labels and plates shall be of an approved non-corrosive material and shall be fixed with stainless steel or nickel-plated screws of ISO metric thread form;

Labels shall have a matt or satin finish to minimise reflection;

Labels shall have black lettering on a white background. Danger plates shall have white lettering on a red background;

Cables shall be labelled at both ends, at through joints and at regular intervals;

Cables shall be labelled on both sides where the cable passes through a permanent obstruction;

All lettering shall be in uppercase letters, except where standard abbreviations of units are used such as kVA, kWh or MPa.

C. TESTING AND COMMISSIONING

C3.4.1.23 FACTORY ACCEPTANCE TESTS

Manufacturer type or factory acceptance tests (FAT's) shall be performed on all equipment as described in the Project or Particular Specifications.

For equipment manufactured outside the borders of South Africa, the requirement for witnessing factory acceptance tests by a representative(s) of the Engineer and the Employer shall be clearly specified in the Project Specification and a separate payment item provided in the schedule of quantities for attendance of such tests.

The Engineer or a duly appointed third party inspectorate reserves the right to be present at all/any tests conducted on any equipment to be supplied under the Contract.

For any factory acceptance test, at least one (calendar) weeks' notice shall be given to the Engineer of such test in writing.

No equipment shall be dispatched to site prior to approval of the factory test results by the Engineer.

C3.4.1.24 TESTS ON COMPLETION

Notwithstanding any requirements of Clause 5.14.1 (Practical Completion) [Tests on Completion – Contractor's Obligations] of the General Conditions of Contract, the following tests on completion shall be executed by the Contractor:

C3.4.1.24.1 Dry testing as part of construction

Once the construction of the Works or a Sub-section has reached the stage of completion where it can be tested, the Contractor shall give to the Employer notice of the date at which the Contractor will be ready to carry out the Dry Commissioning of the Works or any Sub-section thereof. Dry Commissioning shall commence as soon as the Works or a Sub-section is mechanically and electrically ready to test, it shall undergo pre-commissioning tests and inspections to check the following general aspects:-

Components of the Works or Sub-section are complete and comply with the Drawings, Specifications and data as indicated in the manufacturer's documentation;

The assembly has been carried out in compliance with the above documents and professional practice;

Visual checking of general installation and appearance.

In addition dry commissioning shall include the following specific aspects:

Thorough check of all ergonomic (lighting and noise), maintainability and safety related aspects;

Thorough check of flow lines of products, materials, fluid, and compressed air;

Thorough check of electrical, hydraulic, pneumatic and electromechanical circuits;

Thorough check of all functional and control loop tests (equipment level);

Dry-run of every machine and checking of its operation and, if necessary, running in;

Calibration checks and supporting documentation on all metering and monitoring equipment;

Dry-run or no-load run of every section;

Fixing of equipment, pipes, brackets, anchors, etc.;

Written proof of all direction testing and alignment tests on pumps, motors and rotating equipment;

Statutory testing requirements (Lifting, hoisting, pressure vessels etc.);

Checking and testing of all actuators, valve and control valve settings;

Water testing of chemical dosing equipment, pipes, joints;

Water tightness and pressure tests on all water retaining structures, pressure vessels, pipelines and pipe fittings;

Visual checking of general appearance and equipment labelling;

Checking of all terminations;

Verify correctness of field equipment statuses in relation to PLC and SCADA displays (if applicable);

Testing of low voltage cables;

Testing of high voltage cables;

Checking of all safety settings;

Directional testing of rotating elements;

General safety of installations;

Signals and SCADA/MMI configuration;

Completion and issuing of all test reports and test certificates;

Completion of cathodic and lightning protection;

Compilation of an asset register suitable for integration with the Financial and Computerised Maintenance Management system of the Client;

Completion and issuing of all equipment and O&M manuals including functional specifications and control philosophy;

Supply of all critical spares and special tools on site;

Check that first charge of chemicals has been delivered (if applicable).

C3.4.1.24.2 Wet commissioning and testing as part of construction

Once the dry testing of all equipment in terms of the above has been completed, each process and system will be wet commissioned, which shall include the same operations as for dry commissioning tests but with the equipment loaded. The Employer will provide suitable raw water and power as set out by the Contract. The Contractor shall provide the first charge of chemicals (if applicable) for testing purposes. Wet commissioning shall entail the following:

Performance testing of all equipment at specified duties and efficiencies for at least 24 hours continuously. Checking of levels, flows, pressures and temperatures at minimum and maximum operating conditions for all operational scenarios.

Temperatures of all bearings.

Vibration of rotating elements.

Calibration of dosing equipment.

Water tightness tests of installations at full production.

Functional and control loop testing (process level).

Site performance tests on individual equipment as per the testing plan.

Performance and control tests on the entire system

After successful completion of the Wet Commissioning of all equipment and processes and the Works as a whole, the Trial Operation Period as defined below shall commence.

C3.4.1.24.3 Full Commissioning Trial and O&M Training Period

After successful completion of the "Dry" and "Wet" commissioning phases and submission of the draft Operation & Maintenance manuals in the prescribed format (and subsequent approval thereof by the Employer's Representative), a continuous 60 day Full Commissioning Trial Operation Period shall commence during which the new treatment processes shall be operated under the auspices of the Contractor. The Contractor shall provide full-time attendance for the duration of the Trial Operation Period during normal working hours (07h00 to 18h00) and shall have an individual(s) on standby during non-working hours for any/all emergencies.

The purpose of the Trial Operation Period is to (a) prove the functionality of all mechanical and electrical equipment installed under the Contract, to (b) do final adjustment and optimization of relevant operational settings. This period is also furthermore to be used by the Contractor to provide the municipality's designated Operations staff (MaP Water) with hands-on Operations and Maintenance training and mentorship in accordance with the Contractor's Training Plan that needs to be submitted to the Engineer for approval, prior to such training commencing (see also C3.4.1.11 and Additional Management Specification "SD").

The Trial Operation Period shall be declared successful if / when the plant operates as intended without any mechanical and / or electrical failure for a continuous period of 60-days, at which time the Works Completion and Taking-Over Certificate shall be issued signifying the start of the 12-month defects liability and maintenance period.

The Contractor shall allow in his tender for the supply of the following chemicals and consumables for testing, commissioning and observance of the Trial and Operation Period:

Hydrated Lime

Calcium Hypochlorite Chips

Chlorine shall be supplied by the Contractor for testing and commissioning purposes.

The purpose of the Trial Operation Period is to prove the functionality of Works constructed under the Contract and to do final adjustment and optimization of relevant operational settings.

C3.4.1.25 Guarantees of Performance

The Contractor shall guarantee the output and efficiency of all machines, which guarantees shall be binding under the Contract.

The fulfillment of these guarantees shall be demonstrated at the Contractor's factory premises or a suitable off-site test facility approved by the Engineer.

All measuring instruments used in the tests shall have previously been certified by an independent testing authority, not more than one month prior to the test and to the Engineer's satisfaction.

Where guaranteed performance is specified, certified test curves shall be drawn from the test data obtained from the purchased pumps and shall include; head (m), quantity pumped (m³/h or l/s), efficiency (%), power consumption (kW), speed in rpm and speed/torque (rpm/kNm). The probable performance with maximum and minimum impellers shall also be indicated, as well as tested NPSH available.

Each pump shall be checked for acceptable vibration limits and noise limits during testing. The Contractor shall ensure that the pumps deliver the "Required minimum and maximum discharge", by fitting new impellers or taking whatever action is necessary should there be any shortfall in the quantity of water measured when the pumps are delivering at the total head associated with the "duty point" in fulfillment of the Guaranteed Performance criteria.

Payment by the Contractor in lieu of under-performance of the pump sets relative to the Guaranteed Performance will not be acceptable.

C3.4.1.26 Test Plan and Reports

Method statements and test reports shall be submitted prior to and after the successful completion of each testing phase. The following documents shall be submitted in writing to the Employer:

Overall testing method statement to be submitted prior to starting dry commissioning;

Progressive testing reports as detailed in the testing plan;

Tests on completion:

Dry commissioning report;

Wet commissioning report;

Method statement for the execution of the Full Commissioning Trial Operation Period;

Failure investigation reports (where necessary) during Defects Notification Period.

D. GENERAL

C3.4.1.27 Site Facilities and Services Available

C3.4.1.27.1 Location of site camp and depot

The proposed position of the Contractor's camp and depot of the Works Site will be indicated to the Contractor at the pre-tender site visit.

C3.4.1.27.2 Access to Site

The Contractor may make use of the existing access road to and within the Site, but shall be responsible to restore these roads as part of the rehabilitation requirements to a similar or better condition that prevailed at the Commencement Date and at his expense. If the Contractor requires additional access to and within the Site, these shall be submitted to the Engineer for approval and constructed at his own expense. Proper access control shall be instituted by the Contractor to prevent any unauthorised entry to the Work as well as to the Employer's facilities.

C3.4.1.27.3 Water supply

Potable water is available on Site and the Contractor shall be responsible under the Contract for the supply and distribution at his Cost of all water that he may require for purposes of human consumption, construction, testing and commissioning of the Works. Accordingly, the Contractor shall pay all consumption charges, and at his cost provide and install all connections, consumption meters, pipework, storage tanks, transport and other items associated with the supply of water for construction activities. All connections to pipelines of the Employer shall be in accordance to standards approved by the Employer and the Engineer.

C3.4.1.27.4 Power supply

Electricity is available near the Site but the assurance of supply cannot be guaranteed. Part of the Electrical Works required is for the Contractor to apply and arrange with Maluti-a-Phofung Municipality for the re-building of the last section of 11,000 V overhead primary power supply line that had to be removed following the extreme vandalism and theft during and after COVID-19. The Contractor shall be responsible for the supply and distribution at his cost of all electricity that he may require for the purposes of constructing the Works. The Contractor may apply with the local authority (Maluti-a-Phofung Municipality) for installation of an electrical connection. Accordingly, the Contractor shall pay all consumption charges, and at his own cost provide all connections, distribution,

consumption meters and the like for construction of the Works. The distribution of electricity shall be in accordance with the applicable bylaws and regulations of the local authority.

C3.4.1.27.6 Sanitation

The Contractor shall provide the necessary ablution facilities for his camp and depot. Pit latrines shall not be allowed and the Contractor shall either provide a connection to the existing outfall sewer or install a conservancy tank, which will be removed once construction has been completed.

C3.4.1.28 Existing Services and Structures

The position and details of all existing services and structures known to the Engineer are shown on the Drawings or as-builts of previous construction activities that shall be issued to the Contractor on award of the Contract. Although the Engineer has endeavoured to indicate the position of the services and structures as accurately as possible, it will remain the responsibility of the Contractor to prove the exact position of all services impacted by construction activities prior to commencing with such activity.

Any/all services and structures damaged during the construction period due to construction activities shall be repaired by the Contractor as soon as practically possible at the Contractor's expense. In emergency situations, the Employer or its mandated agent may undertake critical repairs at the cost of the Contractor should this be deemed necessary.

It must be highlighted that the majority of construction activities will be undertaken in and around an existing wastewater treatment facility and it is a specific requirement of this Contract that the construction of the new infrastructure shall have no or minimal impact on the operation of the existing plant. In this regard it is noted herein that the current condition of Tshame WWTW is presently such that only a part of the Inlet Works is still functional (manual screening with coarse hand rake screen as cleaned daily, but with no grit removal in operation) and that screened raw effluent is presently being discharged (downstream of the Inlet Works) via an existing sewer by-pass with discharge to the sludge lagoons (3 no of), prior to final discharge to the River (Upper tributary of the Wilge River). The existing grit removal channels (at the Inlet Works), PST (Imhoff Tank), Bio-filter Inlet Tank, Bio-filter, Biological Nutrient Removal Activated Sludge Reactor (BNRAS), Secondary Settlement Tank (or Clarifier) and Chlorination Contract Channel are all presently being by-passed and not in use. This situation makes it possible for the Contractor to work on the aforementioned process units without major impact on the current daily operation of the Tshame Wastewater Treatment Works (WWTW).

In the event that the Contractor deems it necessary to make alterations to the existing services or structures, such alteration shall be approved by the Engineer prior to execution.

C3.4.1.29 Fire-Risk

The Contractor shall be responsible to safeguard the plant and areas adjacent to the Contractor's camp against fire caused in any way by the construction activities on Site. The Contractor shall be responsible for any damage or loss suffered in this regard.

C3.4.1.30 Conditions of Employment of Local Labour

In accordance with the Conditions of Contract the Contractor shall be responsible to engage all staff and labour, local (including CLO's) or otherwise, collectively the Contractor's Personnel, and for their payment, housing, feeding and transport. A contract of employment or subcontract shall be signed between the Contractor and each of his employees or sub-contractors as the case may be. Likewise contracts of employment must be entered into between each such sub-contractor and each of the specific subcontractor's employees. Although the Contractor shall adhere to the minimum wage rates described below he is at liberty to negotiate additional incentive payments based on performance.

Contracts of employment or sub-contracts should provide for the following basic conditions:

The minimum wage payable will be determined in terms of latest applicable (at the time of tendering) legislation and shall, as a minimum, adhere to section 56(1) of the Basic Conditions of Employment Act (Act 75 of 1997), Sectorial Determination 2: Civil Engineering Sector as published by the Department of Labour.

The Contractor shall adhere to the provisions for payment method and intervals, overtime and pay for work on Sundays and public holidays (if required) in the Basic Conditions of Employment Act (Act 75 of 1997).

The Contractor shall register all labourers employed on the Contract with the Workmen's Compensation Commissioner and the Unemployment Insurance Fund, as applicable. The Contractor shall obtain the Unemployment Insurance Fund and Workmen's Compensation registration cards.

Workers shall be entitled to one (1) day sick leave with full pay per month worked. This will accumulate if the leave is not used.

Annual leave shall be calculated as published in terms of (the latest edition of) section 56(1) of the Basic Conditions of Employment Act (Act 75 of 1997), Sectorial Determination 2: Civil Engineering Sector as published by the Department of Labour.

Upon termination of the Contract, each locally employed labourer shall be entitled to receive his/her Unemployment Insurance Fund and the Workmen's Compensation registration cards as well as a Certificate of Employment from the Contractor clearly stating the following:

- i) The type of work done.
- ii) The duration of employment.
- iii) The number of days absent from work.
- iv) The Contractor's general impression of the quality of work done.

The Occupational Health and Safety Act must be adhered to with reference to the safety of all employees employed by the Contractor. Suitable safety equipment and clothing shall be issued and maintained by the Contractor for the duration of construction.

Should any of the above conditions be less favourable than any bargaining council agreement or Act applicable to the Contractor, the more favourable condition shall apply.

C3.4.1.31 Survey and Setting Out and As-built survey (after drain-down and cleaning of tanks)

The Engineer has shown the position of the permanent benchmarks on the relevant Drawings.

The Engineer's professional registered Land Surveyor previously set-out benchmarks using 12mmØ steel round pegs and will point those out to the Contractor at the start of the Project. Hence, it is not required for the Contractor to set out benchmarks by using a professional registered land surveyor, however a nominal allowance for a professional registered land surveyor is included under the Day Works schedule (Civil Works) in the price schedule. The Contractor is responsible for protecting benchmarks during the duration of the Contract.

Drain down and cleaning of existing water retaining channels and tanks are required to enable confirmation of as-built levels and dimensions (see paragraph below) as prepared by the Engineer and to enable refurbishment works to commence. Payment for draining, cleaning and disposal of wastewater and silt / sludge is captured as specific payment items in the Civil Works price schedule.

As-built Level & Structures Dimension Survey (following drain-down and cleaning of water retaining channels and tanks) will include the following existing structures:

Inlet Works: Channels and Grit Removal Channels (those not presently in use)

PST / Imhoff Tank

Bio-filter Inlet Tank

BNRAS

SST / Clarifier

RAS Pump Sump

Chlorine Contact Tank

Ponds (3 no of) – only once construction and practical completion of the new sludge drying beds and process units as described above are complete. Survey will be limited to the existing outlet structures

Other manholes if required as instructed by the Engineer.

The cost for undertaking the above mentioned As-built Level & Structures Dimension Survey is included under Day Works in the Price Schedule, using the item reserved for professional registered land surveyor.

C3.4.1.32 Security of the Site

The Contractor shall allow at all times for the necessary security and watching to prevent theft or damage to Materials, Plant and Contractor's Equipment, and to ensure the safety of both the Contractor's Personnel and the Employer's Personnel.

It is in the interest of the Contractor to establish and maintain healthy community liaison and employment structures throughout the duration of the Contract as healthy structures will serve to elicit the support of affected communities in detecting and prosecuting criminal activity.

E ALTERATIONS AND MODIFICATIONS TO EXISTING WORKS

3.4.1.33 Description of Proposed Work

3.4.1.33.1. Refurbishment, Alterations and Additions

Works comprises of the following:

Installation of new mechanical fine screen and screenings handling equipment (hydro-conveyor and wash-compactor) at the existing inlet works
Installation of new automated de-gritting system at the existing inlet works (complete with two new reinforced concrete vortex basins, paddle stirrers for each, grit removal pumps and one no of mechanical grit classifier).
Replacement of the screenings canopy structure at the inlet works to permit municipal operations staff (MaP Water) to work in all weather conditions and protect mechanical equipment.
Refurbishment of all existing buildings, which includes the following:
Inlet Works building (for housing MCC control panel, providing limited office space and with ablution and hot-water shower facilities). Refurbishment work includes a new reinforced concrete roof
Main MCC plant building
Operator's Office & Welfare building
Chlorination building
Storeroom (requires a complete re-build) and relocation to the side of the existing chlorination building

Building a new small guardhouse at the main entrance to assist the site owner in complying with Water Use Licence conditions in managing security and access control.
Replacement of all security fencing which includes fencing of the ponds. Two types of fencing are to be used for the two security zones as indicated in contract documents. The higher security zone ("Fence type 1") with concrete palisade fencing is also to be provided with electrified wires (at the top) as added security deterrent. "Fence type 2" comprise of welded mesh fencing (medium security) with required vertical aperture as indicated in contract documents.
Refurbishment of the primary settlement tank (existing Imhoff Tank)
Civils: Refurbishment of the bio-filter (trickling filter). Notably this requires:
the temporary un-stacking of existing Loffelstein concrete blocks (presently stacked vertically, but bulging outwards) and stone media; starting from the top of the structure. Materials to be stockpiled in close proximity for re-use (see below)
the sieving and sorting of stone media into 5 no of effective stone sizes. Generally, as a guide, this is expected to be 100mm size, 75mm size, 63mm size, 50mm size and 40mm stone size groupings but may vary subject to final range of stone size encountered, once temporary de-stacking and removal has been completed.
The equipment to be used for stone size sieving and sorting is not specified and is for the Contractor to determine. However as indicated below, the civil works to dismantle and re-build the bio-filter is to be largely accomplished using labour intensive construction methods and as such the Contractor is encouraged to select and /or design sieving equipment that is suitable for labour intensive construction purposes.
re-packing of Loffelstein concrete blocks in 5 no of vertical layers and at a maximum angle of 15 degrees to the vertical axis, with associated repacking of existing stone media. Largest effective stone size to be placed in the bottommost layer and the smallest effective stone layer to be placed in the topmost layer.
It is expected that this work will generally be done using labour intensive construction methods and provides a good opportunity for local labour to be employed.

Mechanical: Refurbishment of the bio-filter (trickling filter) distribution system
Refurbishment the Biological Nutrient Removal Activated Sludge (BNRAS) bio-reactor with associated replacement of all mechanical and electrical equipment.
Refurbishment of the secondary settlement tank (clarifier) with associated mechanical and electrical equipment
Refurbishment of the waste activated sludge (WAS) system and pumps
Refurbishment of the RAS pump system with replacement of associated mechanical and electrical equipment
Construction of 14 number of new sludge drying beds, complete with all influent pipework (WAS and scum removal), overflow, supernatant draw-off and filtrate drainage system that returns filtrate to the RAS pump sump.
Construction of a compost processing area (masonry pens) and gravel hardstanding to ensure that treated dried sludge can be turned into compost and offered to local farmers and gardeners for agricultural use (soil improvement)
Remove an estimated 4,375 m³ of sludge accumulated over a period of 10 years from the former sludge lagoons

Re-purposing the former sludge lagoons to become maturation ponds. Once the new sludge drying beds are commissioned and sludge removed from the lagoons, those lagoons can be converted to maturation ponds, which will assist with natural disinfection (UV process) and result in a reduction of chlorination dosage

Refurbishment of the chlorination system by installing a calcium hypochlorite dosing system that is safer to manage than the old chlorine gas system and that does not require electric power.

Undertake interior refurbishment of all concrete water retaining tanks by undertaking minor crack repairs and then applying an economic cementitious flexible slurry product that provides a thin rendering layer (to repair concrete pin-holes, spalling and honeycombing) and that also provide a waterproof seal. Apply thereafter a chemical resistance layer (when specified) and as indicated in contract documents.

Replacement of all electrical cabling, switchgear and electrical equipment. This includes the replacement of a section of incomer HV (overhead cabling) and the replacement / installation of a new 400 kVA transformer.

Replacement of site illumination by installing 5 no of 20m high mid-hinged flood lights.

Replacement of all electrical services to buildings

Installing a new containerised diesel-powered back-up generator (300 kVA) complete with an on-board diesel tank, adjacent buried 4,500L buried diesel tank and over-pumping facilities. The installation is located within the larger (higher security) fenced enclosure and will also be separately fenced for security purposes.

Installation of water re-use system with new abstraction manhole caisson and submersible pumps at pond no 3 existing outlet structure. A new associated buried pipeline will pump water to new non-potable wash-water storage tanks (2 x 10,000L plastic tanks) at the inlet works.

Refurbishment and installation of non-potable booster fed and gravity fed wash-water system that will provide non-potable wash-water to various equipment and wash-points across the site.

Restoring potable water services to buildings.

Selective refurbishment and replacement of badly deteriorated / non-functioning / missing sluice valves, hand-stops, gate valves and manhole covers.

Replacement of all stolen hand-railings and galvanised steel access grids / gratings.

Re-building of the on-site gravel access road that are presently non-existent

Note that the Work is split into six (6) installation packages of work as indicated in Volume 2 of the tender documents, Additional Management Specification "SC – Decommissioning, Testing and Commissioning", clause SC 11.2

The Employer reserves the right to reduce the scope of works in line with suitable funding.

3.4.1.33.2. Tie-in to existing services

Contractor to provide a method statement for approval prior to commencement of the following tie-ins.

Inlet works –

Construction of new primary reinforced concrete channel (connect at upstream end to existing "future" channel) to connect existing raw influent at head of works with upstream end of the 2 no of existing grit channels

Demolition of part of the existing reinforced concrete channels and central section of the existing grit channels to accommodate construction of new circular vortex de-gritting basins and new primary reinforced concrete influent channel (the latter for screening purposes and to feed the de-gritting basins).

Removing sludge from the formed sludge lagoons and then re-purposing the three no of lagoons to become maturation ponds.

Dewatering, drying-out of sludge and removal of sludge only to be done once the new sludge drying beds have been constructed and following successful dry and wet testing of the sludge drying beds.

Works to be done prior to the Full Commissioning Trial Period

Works to be done in adherence to Environmental Management Plan specification.

END OF SECTION

C3.4.2 CONSTRUCTION OF CIVIL WORKS

C3.4.2.1 STANDARD SPECIFICATIONS

Note 1 The Standard Specifications are not bound into the tender and contract documents, but are available at the Tenderer's/Contractor's expense from the South African Bureau of Standards in Pretoria, Private Bag X191, PRETORIA, 0001.

Website:

The applicable "Standard Specifications" shall be the following:

SANS 1200 Series: Standard Specifications for Civil Engineering Construction, as issued by the South African Bureau of Standards

SANS 2001 Series: Construction Works

SANS 10400 Series: The Application of the National Building Regulations

National standards as indicated above (see table below) and Other National Standards as indicated in table C3.4.2.1-A below.

Table C3.4.2.1-A: Civil Works Standard Specifications for Construction Purposes

SANS No	Ed	Year	Title
28	4.0 2	2024	Metal ties for cavity walls
121	3	2024	ISO 1461: 2022 Hot dip galvanized coatings on fabricated iron and steel articles — Specifications and test methods
227	4.0 4	2007	Burnt clay masonry units
282	6	2011	Bending dimensions and scheduling of steel reinforcement for concrete
508	1.0 2	2020	Concrete retaining blocks
664-1		lates t	Wedge gate and resilient seal valves for waterworks. Part 1: General
664-2		lates t	Part 2: Wedge gate valves.
664-3		lates t	Part 3: Resilient seal valves.
676		lates t	Reinforced concrete pressure pipes
677		lates t	Concrete non-pressure pipes
878	4.0 2	2012	Ready-mixed concrete
927	3.3	2019 / lates t	Precast concrete kerbs, edging and channels
986	3.2	2012 / lates t	Precast reinforced concrete culverts.
1024	2.0 2	2012	Welded steel fabric for reinforcement of concrete
1083	2.0 6	2018	Aggregates from natural sources - Aggregates for concrete

SANS No	Ed	Year	Title
1123	3.4	2017 / latest	Pipe flanges
1200 A	3	1986	Standardized specification for civil engineering construction Section A: General
1200 AA	3	1986	Standardized specification for civil engineering construction Section AA: General (small works)
1200 AB	3	1986	Standardized specification for civil engineering construction Section AB: Engineer's office
1200 AD	2	1986	Standardized specification for civil engineering construction Section AD: General (Small dams)
1200 C	1	1980	Standardized specification for civil engineering construction Section C: Site clearance
1200 D	3	1988	Standardized specification for civil engineering construction Section D: Earthworks
1200 DA	3	1988	Standardized specification for civil engineering construction Section DA: Earthworks (small works)
1200 DE	1	1984	Standardized specification for civil engineering construction Section DE: Small earth dams
1200 DK	3	1996	Standardized specification for civil engineering construction Section DK: Gabions and pitching
1200 DM	1	1981	Standardized specification for civil engineering construction Section DM: Earthworks (roads, subgrade)
1200 F	1	1983	Standardized specification for civil engineering construction Section F: Piling
1200 G	1	1983	Not Applicable - Replaced by SANS 2001 CC1 and CC2
1200 LG	1	1983	Standardized specification for civil engineering construction Section LG: Pipe jacking
1200 M	2	1996	Standardized specification for civil engineering construction Section M: Roads (general)
1200 ME	1	1981	Standardized specification for civil engineering construction Section ME: Subbase
1200 MF	1	1981	Standardized specification for civil engineering construction Section MF: Base
1200 MFL	1	1996	Standardized specification for civil engineering construction Section MFL: Base (light pavement structures)
1200 MG	2	1996	Civil engineering construction Section MG: Bituminous surface treatment
1200 MH	3	1996	Civil engineering construction Section MH: Asphalt base and surfacing

SANS No	Ed	Year	Title
1200 MJ	1	1984	Standardized specification for civil engineering construction Section MJ: Segmented paving
1200 MK	1	1983	Standardized specification for civil engineering construction Section MK: Kerbing and channelling
1200 MM	1	1984	Standardized specification for civil engineering construction Section MM: Ancillary roadworks
1215	1.0 4	2008	Concrete masonry units
1294		2020 / lates t	Precast concrete manhole sections and components
1580	1.3	2010 / lates t	Hexagonal steel wire mesh gabions and revet mattresses
2001-BE1	1	2008	Construction works Part BE1: Earthworks (general)
2001-BE3	1	2012	Construction works Part BE3: Repair of sinkholes and subsidences in dolomite land
2001-BS1	1	2008	Construction works Part BS1: Site clearance
2001-CC1	1.0 1	2012	Construction works Part CC1: Concrete works (structural)
2001-CC2	1	2007	Construction works Part CC2: Concrete works (minor works)
2001-CG1	1.0 1	2018	Construction works Part CG1: Installation of glazing in window and door frames
2001-CM1	1.0 1	2012	Construction works Part CM1: Masonry walling
2001-CM2	1	2011	Construction works Part CM2: Strip footings, pad footings and slab-on-the-ground foundations for masonry walling
2001-CS1	1.0 2	2017	Construction works Part CS1: Structural steelwork
2001-CT1	1.0 1	2011	Construction works Part CT1: Structural timberwork (flooring)
2001-CT2	1.0 2	2011	Construction works Part CT2: Structural timberwork (roofing)
2001-DP1	1.0 1	2011	Construction works Part DP1: Earthworks for buried pipelines and prefabricated culverts
2001-DP2	1	2010	Construction works Part DP2: Medium pressure pipelines

SANS No	Ed	Year	Title
2001-DP3	1	2010	Construction works Part DP3: Cable ducts
2001-DP4	1	2010	Construction works Part DP4: Sewers
2001-DP5	1	2010	Construction works Part DP5: Stormwater drainage
2001-DP6	1.0 1	2012	Construction works Part DP6: Below-ground water installations
2001-DP7	1	2021	Construction Works:Part DP7-Sewers for buildings
2001-DP8	1	2011	Construction works Part DP8: Pipe jacking
2001-EM1	1	2007	Construction works Part EM1: Cement plaster
2001-EJ	1	2021	Construction works: Part EJ: Joinery
4427-1		lates t	Plastics piping systems for water supply and for drainage and sewerage under pressure – Polyethylene (PE) – Part 1: General
4427-2		lates t	Part 2 Pipes
5860	1.0 1	2006	Concrete tests - Dimensions, tolerances and uses of cast test specimens
5861-1	2.0 1	2006	Concrete tests - Mixing fresh concrete in the laboratory
5861-2	2.0 1	2006	Concrete tests Part 2: Sampling of freshly mixed concrete
5861-3	2.0 1	2006	Concrete tests - Making and curing of test specimens
5862-1	2.0 1	2006	Concrete tests - Consistence of freshly mixed concrete - Slump test
5862-2	2.0 1	2006	Concrete tests - Consistence of freshly mixed concrete - Flow test
5862-3	2.0 1	2006	Concrete tests - Consistence of freshly mixed concrete - Vebe test
5862-4	2.0 1	2006	Concrete tests - Consistence of freshly mixed concrete - Part 4: Compacting factor and compaction index
5863	2.0 1	2006	Concrete tests - Compressive strength of hardened concrete
5864	2.0 1	2006	Concrete tests - Flexural strength of hardened concrete
5865	2	1994	Concrete tests - The drilling, preparation, and testing for compressive strength of cores taken from hardened concrete

SANS No	Ed	Year	Title
6250	1.0 1	2006	Concrete tests - Density of compacted freshly mixed concrete
6251	1.0 1	2006	Concrete tests - Density of hardened concrete
6252	1.0 1	2006	Concrete tests - Air content of freshly mixed concrete - Pressure method
6253	1.0 1	2006	Concrete tests - Tensile splitting strength of concrete
6254	1.0 1	2006	Mortar tests - Initial drying shrinkage and wetting expansion of mortar
6255	1.0 1	2006	Mortar tests - Compressive strength of mortar
10100 -1	2.0 2	2000	The structural use of concrete Part 1: Design
10100 -2	3	2014	The structural use of concrete Part 2: Materials and execution of work
10104	2	1991	Handrailing and balustrading (safety aspects)
10109 -1	3.0 1	2012	Concrete floors Part 1: Bases to concrete floors
10109 -2	3.0 2	2023	Concrete floors Part 2: Finishes to concrete floors
10112	2.2	2011 / lates t	The installation of polyethylene and poly(vinyl chloride) (PVC-U and PVC-M) pipes
10144	3	2012	Detailing of steel reinforcement for concrete
10162 -1	2.0 1	2011	The structural use of steel Part 1: Limit-states design of hotrolled steelwork
10162 -2	2	2011	The structural use of steel Part 2: Cold-formed steel structures
10162 -4	1	1997	Structural use of steel Part 4: The design of cold-formed stainless steel structural members
10163 -1	2.0 3	2003	The structural use of timber Part 1: Limit-states design
10163 -2	1.0 1	2001	The structural use of timber Part 2: Allowable stress design
10164 -1	1	1980	The structural use of masonry Part 1: Unreinforced masonry walling
10164 -2	1.0 2	2008	The structural use of masonry Part 2: Structural design and requirements for reinforced and prestressed masonry
10252 -1	3.2	2018 /	Water supply and drainage for buildings. Part 1: Water supply installations for buildings

SANS No	Ed	Year	Title
		latest	
10252-2		latest	Water supply and drainage for buildings. Part 2: Drainage Installations for Buildings
10254	4.2	2022	The installation, maintenance, replacement and repair of fixed electric storage water heating systems
10299-2		2003 / latest	Development, maintenance and management of groundwater resources Part 2: The design, construction and drilling of boreholes
10299-4		2004 / latest	Part 4: Test-pumping of water boreholes
10313		latest	Protection against lightning: A - Physical damage to structures and life hazard
10400-A	4	2022	The application of the National Building Regulations Part A: General principles and requirements
10400-B	4	2020	The application of the National Building Regulations Part B: Structural design
10400-C	3.0 1	2016	The application of the National Building Regulations Part C: Dimensions
10400-D	4.0 1	2022	The application of the National Building Regulations Part D: Public safety
10400-F	3.0 1	2017	The application of the National Building Regulations Part F: Site operations
10400-G	3.0 1	2017	The application of the National Building Regulations Part G: Excavations
10400-H	3	2012	The application of the National Building Regulations Part H: Foundations
10400-J	3.0 1	2016	The application of the National Building Regulations Part J: Floors
10400-K	3.0 1	2015	The application of the National Building Regulations Part K: Walls
10400-L	4	2020	The application of the National Building Regulations Part L: Roofs
10400-M	3.0 1	2018	The application of the National Building Regulations Part M: Stairways
10400-N	3.0 1	2012	The application of the National Building Regulations Part N: Glazing
10400-O	3	2011	The application of the National Building Regulations Part O: Lighting and ventilation
10400-P	3	2010	The application of the National Building Regulations Part P: Drainage

SANS No	Ed	Year	Title
10400 -Q	4	2021	The application of the National Building Regulations Part Q: Non-water-borne means of sanitary disposal
10400 -R	3	2012	The application of the National Building Regulations Part R: Stormwater disposal
10400 -S	3	2011	The application of the National Building Regulations Part S: Facilities for persons with disabilities
10400 -T	5	2024	The application of the National Building Regulations Part T: Fire protection
10400 -V	3.0 1	2018	The application of the National Building Regulations Part V: Space heating
10400 -W	3	2011	The application of the National Building Regulations Part W: Fire installation
10400 -XA	2	2021	The application of the National Building Regulations Part X: Environmental sustainability Part XA: Energy usage in buildings
12236	1	2013 / lates t	Geosynthetics — Static puncture test (CBR test)
50124	1	lates t	Gully tops and manhole tops for vehicular and pedestrian areas — Design requirements, type testing, marking, quality control

C3.4.2.2 VARIATIONS AND ADDITIONS TO THE STANDARD AND PARTICULAR SPECIFICATIONS FOR CIVIL WORKS (Project Specifications)

The Standard Specifications do not cover all the different types of work included in the Contract. The general requirements for portions of the Works not covered by the Standard Specifications are described in the Particular Specifications under section C3.4.2.3.

The Clauses under section C3.4.2.2 (Project Specifications) are numbered “PS” and refers to the clauses in the Standard or Particular Specifications. New clauses not covered by clauses in the Standard or Particular Specifications, if included here, are also designated “PS” followed by a number.

The various documents listed under sections C3.4.2.1 and C3.4.2.2 shall be treated as mutually explanatory. However, should any requirement of section C3.4.2.2 (Project Specifications) conflict with any requirement of the Standard Specification or with any requirement of the Particular Specifications, then the requirement of section C3.4.2.2 (Project Specifications) shall prevail.

Index to Project Specifications:

Page Nr

PSA GENERAL C3.4.Error! Bookmark not defined.

PSAB ENGINEER'S OFFICEC3.4.Error! Bookmark not defined.

PSC SITE CLEARANCE.....C3.4.Error! Bookmark not defined.

PSD EARTHWORKSC3.4.Error! Bookmark not defined.

PSDB EARTHWORKS (PIPE TRENCHES)C3.4.Error! Bookmark not defined.

PSDK GABIONS AND PITCHINGC3.4.Error! Bookmark not defined.

PSDM	EARTHWORKS (Roads, subgrade)	C3.4.Error! Bookmark not defined.
PSG CONCRETE (STRUCTURAL).....		C3.4.Error! Bookmark not defined.
PSHA	STRUCTURAL STEELWORK (SMALL WORKS).C3.4.	Error! Bookmark not defined.
PSME	SUBBASE.....	C3.4.Error! Bookmark not defined.
PSMF	BASE	C3.4.Error! Bookmark not defined.
PSMJ	SEGMENTED PAVING	C3.4.Error! Bookmark not defined.
PSMK	KERBING AND CHANNELLING	C3.4.Error! Bookmark not defined.
PSL MEDIUM PRESSURE PIPELINES		C3.4.Error! Bookmark not defined.
PSLB	BEDDING (PIPES).....	C3.4.Error! Bookmark not defined.

PSA GENERAL

PSA1 QUALITY (Sub-Clause 3.1)

All material used in the Works shall, where such mark has been awarded for a specific type of material, bear the SABS/SANS mark. Alternatively, the Contractor shall furnish the Engineer with certificates of compliance of materials, which bear the official mark of the appropriate standard.

Also refer to General Clause C3.4.1.4 for additional requirements regarding quality assurance and control.

PSA2 CONTRACTOR'S OFFICES, STORES AND SERVICES (Sub-Clause 4.2)

PSA2.1 Contractor's Camp

It is envisaged that the Contractor's site camp will be at the Tshiame WWTW site with exact location and footprint as determined by the Contractor. All progress and technical meetings will be held at the Contractor's site camp.

The Contractor's camp shall be kept clean at all times during construction and conform to the requirements and regulations of the Employer, authorities and the applicable Environmental Management Plan.

The Contractor must fence off his construction camp area with 1.8m high diamond mesh fence (or higher security fence if so preferred by the Contractor). The inside of the site camp area shall be screened off from the public by 1.8m high green shade cloth neatly tied to the inside of the fence. All temporary fencing must be removed on completion of the Contract.

The camp may be used for the working hours activities of the Contractor's and the Employer's personnel and for all related facilities required by the Contractor and the Employer. The Contractor's personnel, including bona fide night watchmen, may only sleep within the camp should the Contractor:

take all the necessary steps required to comply fully with public legislation and regulations and all specification clauses governing the environment, health, transport, safety and public disturbance impacts of such on-site accommodation;

Acquire the written permission of the Employer and relevant authority (Maluti-a-Phofung Municipality and its state-owned entity, Maluti-a-Phofung Water) and comply with their requirements.

Should at any stage of the Contract the Employer and/or the Engineer is of the opinion that the housing of personnel within the camp site of the Contractor is causing disturbance or inconvenience to the public, then the authority granted by this clause for the Contractor to house personnel on site may be withdrawn, either partially or entirely.

The Contractor shall at all times conform with all requirements contained in law or bylaws, as well as any other requirements set by the controlling local authority.

The Contractor shall water all access roads to the construction camp, as well as working areas used by vehicles inside the camps, twice daily including weekends as required (subject to level of dust generated that may cause nuisance) or as may be directed by the Engineer, to prevent dust being churned up by vehicles or wind.

At the completion of the construction work, the Contractor must break down and remove all concrete slabs, etc. in the construction camps and at the batching plant (if applicable), remove all rubble from the camp site and hand back the sites in a clean and tidy condition.

No Taking-over Certificate shall be issued for the Works unless the site clearing is done to the satisfaction of the Engineer.

PSA2.2 Source of Water Supply

Except as provided for in of the General Clauses (section C3.4.1) or the Particular Conditions of Contract, the Contractor is responsible under the Contract for the supply and distribution at his cost of all water that he may require for purposes of constructing, testing and commissioning the Works.

Accordingly, the Contractor shall pay all consumption charges, and at his cost provide all connections, consumption meters, pipework, storage tanks, transport and other items associated with the supply of water for the execution of the Works. All connections to pipelines at the existing treatment facilities shall be at points and to standards approved by the Engineer and the Operator of the works (Maluti-a-Phofung Municipality).

PSA2.3 Source of Power Supply

The Contractor is responsible under the Contract for the supply and distribution at his cost of all electricity that he may require for purposes of constructing the Works. Accordingly, the Contractor shall pay all consumption charges, and at his cost to provide all connections, transformers, consumption meters, cables, distribution boards and other items that are associated with the supply of electricity for construction of the Works.

The Contractor shall, subject to the approval of the Engineer, make any necessary arrangements with the relevant authority for the requisite connection(s). The distribution of electricity shall be in accordance with the applicable bylaws and regulations of the supply authority.

PSA2.4 Rail Facilities

Rail facilities are available at Harrismith (some 15 km from the Site of Works) are no longer working.

PSA2.5 Sanitary facilities

Ablution facilities shall be kept hygienic at all times. In addition, the Contractor shall at all times during construction of the Works provide adequate sanitary facilities on site so that all employees are at all times within easy reach of sanitary facilities.

PSA2.6 Housing

The Contractor will not be permitted to house any personnel within his camp site unless the Employer and Maluti-a-Phofung Water approves a written request to this end by the Contractor.

PSA3 PROTECTION OF OVERHEAD AND UNDERGROUND SERVICES (Sub-Clause 5.4)

PSA3.1 Existing services and structures

The position and details of all existing services and structures known to the Engineer are shown on the Drawings as Site Data. In accordance with Sub-Clauses 4.10 to 4.12 of the General Conditions of Contract, the Drawings show the best information available to the Employer at time of tender. The Employer takes no responsibility as to the accuracy or completeness of this information and has provided this information merely as an aid to the tenderers in preparing their bids for construction of the Works.

The Contractor shall protect all known existing services as well as all work being carried out and structures being erected on the Site by other contractors or public authorities. The Contractor must familiarize himself with the various standard regulations of the relevant public authorities and act accordingly. Any damage caused to these services or structures, or any obstructions or hindrance caused to other contractors or public authorities by the

Contractor and all claims arising from such damage, obstruction or hindrance shall be the sole responsibility of the Contractor.

All repair work shall be carried out at the Contractor's expense to the entire satisfaction of the Engineer or the appropriate public authority. The same obligations shall be imposed on the Employer and on other contractors employed by the Employer in respect of the Works being executed under this Contract.

The Contractor shall conduct the necessary search for unknown services as required by the Standard Specifications. After searching, all services shall be deemed as known. The Contractors' cost of searching for existing services and accommodating all existing services and relocating all services shall be priced into the appropriate items forming part of the Contract.

PSA4 TESTING (Clause 7)

PSA4.1 All test results obtained by the Contractor in the course of his process control of the Works shall be submitted to the Engineer or his Representative prior to requesting inspection of the relevant portions of the Works. Any request for inspection shall be submitted on the prescribed forms that will be issued once the Contract has been awarded.

PSA4.2 The Contractor shall make suitable arrangements for process control prior to commencement with the Works. Should he intend using site personnel for this purpose he shall ensure that suitably trained and competent personnel take charge of the necessary test work, and that the necessary equipment is at their disposal prior to commencement of the Works. Failure to comply with these requirements shall be just cause for the Engineer to order suspension of the Works without additional remuneration, or for him to recommend termination to the Employer in terms of the Conditions of Contract.

PSA4.3 The Contractor shall deliver to the Engineer, for his consideration, quality assurance programmes (as obtained from all the Contractor's proposed suppliers of pipes, valves and specials) prior to the Contractor's appointment of any suppliers.

PSA5 OTHER GENERAL FIXED-CHARGE ITEMS

Add the following new sub-clause 8.3.5 – Other general fixed-charge items

PSA5.1 8.3.5.1 Provision of LEP Plan Unit: Sum

The sum tendered shall include full compensation for the provision of a suitable Local Economic Participation plan as required in terms of Section T2.2 [Local Economic Participation Specification]. The tendered sum shall also include for the auditing by a recognised external auditing firm of the expenditure on local goods, services and labour as defined in the mentioned specifications. Two audits shall be included – the first interim audit shall be undertaken once 70% of the construction period has lapsed while the second and final audit will be done once the Taking-Over Certificate has been issued. The issue and approval of the final audit results will be a pre-requisite for the issue of the Performance Certificate. The tendered sum shall furthermore include for the submission of monthly progress information related to LEP.

PSA5.2 8.3.5.2 Provision of benchmarks Unit: Sum

Benchmarks will be indicated on the Engineering drawings as issued by the Employer's Representative. At least 2 benchmarks will also be physically pointed out by the Employers' Representative and /or his registered external land surveyor at no cost to the Contractor. No additional cost will be permitted by the Contractor for this item and hence the quantity is indicated as NIL in the Schedule of quantities. The Contractor shall be responsible for making, maintaining and protecting the benchmark on site in consultation with the Employer's Representative.

PSA5.3 8.3.5.3 Compliance with Health and Safety Requirements Unit: Sum

The tendered sum shall cover all fixed charge expenses to ensure compliance with the Occupational Health and Safety Act (Act 85 of 1993) and its Regulations and with the Employer's Health and Safety Specification. The tendered sum shall include, but not be limited to the following:

- Preparation of Health and Safety Plan
- Establishment of Health and Safety File;
- Health and Safety Training;
- Issue of personal protective clothing and equipment;

Fences, barricades and signage;
Establishment of Safety Administration;
Conducting medical assessments on all labour
Other obligations not mentioned above, but deemed applicable.

PSA5.4 8.3.5.4 Environmental Management Plan Unit: Sum

The Contractor shall comply with the record of Decision and Environmental Management Programme Specification (S-EMP). The tender fixed charge item shall cover all costs, overheads, profits and charges incurred for the establishment of a suitable environmental control system on site and compliance with the requirements of the EMP. Refer to the Tender Schedule of Quantities and Environmental Management Programme Specification (S-EMP) for further detail.

PSA5.5 8.3.5.5 Provide as-built drawings Unit: Sum

The sum tendered shall include full compensation for the provision of As-Built drawings drafted by a qualified draughtsperson and in accordance with the requirements described in the General Clauses and Requirements Part C3.4.1.

The Price Schedule makes provision for As-built drawings to be prepared by the Contractor for each of the related work disciplines, bearing in mind that the Contractor may choose to make use of Sub-Contractors (within the provisions allowed therefore in terms of this tender). As-built drawings is to be generated by the Contractor for each of the following disciplines (payment for each with Unit: Sum):

Civils Work
Structures Work
Mechanical & Process Related Work
Electrical Work (which includes Electronic Work)

PSA5.6 8.3.5.6 Provide Operation and Maintenance Manuals Unit: Sum

The sum tendered sum shall include full compensation for the provision of draft manuals, submitting these to the Engineer for approval, modifying as required until the final manuals have been approved by Engineer. The tendered sum shall further include for full compensation for providing the necessary amount of copies (hard and electronic) as specified in clause SB 5.1 of Additional Management Specification "SB" (O & M Manuals). The need for O & M Manuals to be prepared in the required format is also captured in section C3.4.1.5.3 of this tender document (Part C3 – Scope of Work).

PSA5.7.1 8.3.5.7 Clean Wet Commissioning Per Installation Unit: Sum

The Contractor shall make allowance under this payment item for all direct and indirect costs related to complying with the specified requirements for Clean Wet Commissioning (per installation) as specified in the Additional Management Specification "SC" (Decommissioning, Testing and Commissioning)

PSA5.7.2 8.3.5.7 Full Commissioning, 60-day Trial Operation Period Unit: Sum

The Contractor shall make allowance under this payment item for all direct and indirect costs related to complying with the specified requirements of the 60-day Trial Operation Period as described in the General Clauses and Requirements Part C3.4.1.24.3 and Additional Management Specification "SC" (Decommissioning, Testing and Commissioning)

Additional and related payment items for the appointment of an independent supervising Professional Process Controller (Pr PC Water), the Contractor's profit mark-up on the Pr PC Water resource and the calibration of mechanical-electrical equipment by the Contractor's mechanical-electrical commissioning team is indicated in related payment clauses under SC 12.3.2 to SC 12.3.4 in Additional Management Specification "SC" (Decommissioning, Testing and Commissioning)

PSA5.8 8.3.5.8 Training Unit: Sum

The tendered sum shall include full compensation for the delivery of training to the operating personnel identified by the Employer, including all literature and hand-outs but excluding catering, accommodation and facilities. Also refer to Part C3.4.1.11 and to Additional Management Specification "SD" (Knowledge Transfer & Skills Development) for details.

PSA5.9 8.3.5.9 Charges and Profits on Maintenance Spares Unit: Sum

The unit of measurement shall be the % tendered on the actual amount spent and shall include full compensation for all overhead charges, profit, handling and delivery to Site of maintenance spares as ordered under provisional item PSA 7.17.

PSA5.10 8.3.5.10 Supply of Chemicals Unit: Sum

The Contractor shall supply and uphold all chemicals required for the operation of the Works for the duration of the Full Commissioning trial operation period and shall provide all labour, travel, consumables, tools etc associated herewith. Also refer to Part C3.4.1 for details.

Important note: This provision shall remain in force until the amount of chemicals allowed for in tender has been reached.

PSA6 OTHER GENERAL TIME-RELATED CHARGE ITEMS

Add the following new sub-clause 8.3.6 – Other general time-related charge items

PSA6.1 8.3.6.1 Compliance with Health and Safety Requirements Unit: Sum

The tendered sum shall cover all time-related charge expenses to ensure compliance with the Occupational Health and Safety Act (Act 85 of 1993) and its Regulations and with the Employer's Health and Safety Specification. The tendered sum shall include, but not be limited to the following:

The employment cost of all health and safety personnel including consultants, health and safety officers, inspectors, supervisors and issuers required in terms of the Contractor's Health and Safety Plan;
Updating the Health and Safety Plan when required;
Carrying out of periodic internal audits and follow-up audits;
Compiling ongoing risk assessments and risk assessment reports as required by the Works;
Convening of regular safety meetings with the Safety Representatives;
Accompanying and supporting the Employer and his authorised Safety Agent during ad-hoc audits;
Compilation of monthly safety reports and statistics for the Employer or his authorised Safety Agent;
Ongoing health and safety-related training;
Maintenance of personal protective clothing and equipment;
Maintenance of fences, barricades and signage;
Maintenance of safety administration;
Other health and safety obligations not listed above

PSA6.2 8.3.6.2 Environmental Management Plan

The Contractor shall comply with the South African Government record of Decision (noting that an application for Environmental Impact Assessment Application is not required in this instance due to the refurbishment nature of the project) and Environmental Management Programme specification (S-EMP). The tender time-related charge item shall cover all costs, overheads, profits and charges incurred for the establishment of a suitable environmental control system on site and compliance with the requirements of the S-EMP. Reference shall be made to the Particular Management Specification designated S-EMP (Environmental Management Programme Specification) as included in the tender documents. As captured in the Schedule of Quantities, the Contractor shall take note of the following payment items:

8.3.6.2 (a) Unit: Sum

Compliance with Environmental Management Requirements (with appointed DEO): Construction Phase (inclusive of testing, training and commissioning of refurbished works but excludes Contractor 1-year O & M Support period that is overseen by MaP Water): Contractor Works, inclusive of Contractor appointed DEO (Designated Environmental Officer) for duration of construction and commissioning period as described in the contract documents

8.3.6.2 (b) Unit: Prov Sum

Compliance with Environmental Management Requirements (with appointed ECO): Construction Phase (inclusive of testing, training and commissioning of refurbished works): Employer's appointed (independent) ECO (Environmental Control Officer). Part-time monitoring for duration of construction but excl. 1-year Contractor O & M support period. The Contractor will be asked to obtain 3 quotations for the services of an ECO, whereafter the Employer and the Employer's Agent will proceed to select and appoint the ECO with monthly invoices for ECO services included within the Contractor's monthly payment certificate for services rendered.

PSA6.3 8.3.6.3 Security Unit: Sum

There is no functional and continuous security fence remaining at Tshiame WWTW site and theft and vandalism of remaining / new infrastructure is common. The Contractor shall maintain a 24-hour security presence on Site for the full duration of the construction activities to protect the Contractor's equipment and materials. The Contractor shall also be responsible to control access to the Site/plant for construction activities and shall implement a suitable access control system in conjunction with MaP Water to prevent unauthorised entry to the Site and designated construction areas. All gates and access to be secured for the entire site.

The Contractor is not expected to provide security during the 1-year Operations & Maintenance Support period as Maluti-a-Phofung Local Municipality and its designated Water Services Entity (MaP Water) will be responsible for all 24-hour security following completion of the construction, commissioning and hand-over phase.

PSA7 SUMS STATED PROVISIONALLY (Clause 8.5)

PSA7.1 Contingencies

A Provisional Sum shall be included in the Summary of Schedules for contingencies. No percentage mark-up will be applicable to any payments made using contingency money other than the mark up included in prices for variations determined in terms of the Conditions of Contract. The value of the Provisional Sum shall be based on the percentage of the sub-total value as specified in the Summary of Schedules.

PSA7.2 Contract Price Adjustment

A Provisional Sum shall be included for Contract Price Adjustment in the Summary of Schedules to make provision for contract price adjustment in terms of the Conditions of Contract. The value of the Provisional Sum shall be based on the percentage of the subtotal value as specified in the Summary of Schedules. No percentage mark-up will be applicable to any payments made in this regard. In accordance with guidance provided by the CIDB in their guideline document titled "A6 – Applying the Registers to Construction Procurement" (v2, July 2021), the required Contractor CIDB grading is determined on the pre-tender estimate that is inclusive of VAT but that excludes the provisional amount for Contract Price Adjustment.

PSA7.3 Salary for a Community Liaison Officer (or a Labour Desk Officer)

A Provisional Sum has been included in Schedule A3 for a salary to be paid to the Community Liaison Officer.

In addition to the abovementioned amount, provision is made in Schedule A3 for a mark-up on the amount to be paid as stated in the Appendix to Tender. The mark-up shall be regarded as full compensation for overheads, charges and profits as provided for in Clause 13.5 of the Conditions of Contract.

PSA7.4 Not Applicable

PSA7.5 Telephone Calls and Rental

A Provisional Sum has been included in Schedule A3 for telephone calls (cellular only, incl. data use) of the Engineer's Representative for the duration of the Contract. The Engineer's Representative will provide his own cellular telephone for the Contract. Payment for cellular calls will be based on call and rental costs.

In addition to the above amount, provision is made in Schedule A3 for a mark-up on any payments made by the Contractor. The mark-up shall be regarded as full compensation for overheads, charges and profits as provided for in Clause 13.5 of the Conditions of Contract.

PSA7.6 Office consumables for Engineer's site facility

A provisional sum has been included in schedule A3 for the provision of all office consumables for the Engineer's office establishment to cover all expenses related to stationary, paper, printer cartridges etc.

In addition to the above amount, provision is made in Schedule A3 for a mark-up on any payments made by the Contractor. The mark-up shall be regarded as full compensation for overheads, charges and profits as provided for in Clause 13.5 of the Conditions of Contract.

PSA7.7 Electronic Equipment for the Engineer's office

A provisional sum has been included in schedule A3 for the provision of all electronic equipment required by the Engineer and his representatives/assistants for the execution of their task during the construction stage, which includes the following:

New Laptop computer & accessories
Desktop Monitor & accessories to be used with the computer
Black and white Laser Printer (for A4 & A3 printing)

Details of equipment to be procured will be indicated by the Engineer prior to site establishment. All equipment procured for the Engineer and his representatives shall be new and remain the property of the Employer i.e. ownership shall revert back to the Employer upon completion of the Works with the intent of the Employer transferring this equipment in turn to the Municipality's WSP entity, MaP Water for site use.

In addition to the above amount, provision is made in Schedule A3 for a mark-up on any payments made by the Contractor. The mark-up shall be regarded as full compensation for overheads, charges and profits as provided for in Clause 13.5 of the Conditions of Contract.

PSA7.12 Specialized Services

A Provisional Sum has been included in Schedule A3 for the appointment and payment for specialized services if and when required. These may include all work required by the following specialists, which will be appointed as nominated sub-contractors following a 3-quotation process for each with individual appointment approvals verified by the Employer's Representative:

Professional Registered Aquatic Scientist
Professional Registered Geohydrologist
Specialist Drilling Contractor
Laboratory testing & analysis: waste sludge
Laboratory water quality testing & analysis:
Environmental compliance monitoring by the Employer's nominated independent Environmental Control Officer (ECO);

Health and Safety compliance monitoring – Employer's Health & Safety Agent.

In addition to the above-mentioned amount, provision is made in Schedule A3 for a Contractor mark-up on the provisional sum to be paid as stated in the Schedule of Quantities. The mark-up shall be regarded as full compensation for overheads, charges and profits as provided for in Clause 13.5 of the Conditions of Contract.

PSA7.13 Operation and maintenance assistance during the refurbishment of the works (prior to start of 1-Year Contractor Operation and Maintenance Support Period)

Once the Tshiamo WWTW site (Class C Works) is handed over to the Contractor for Construction, he will assume full responsibility for the following Operation (24-hour, 7 days a week) & Maintenance activities (but noting that Maluti-a-Phofung Water's Operations staff will be seconded to the Contractor's team to assist with such work as mentioned further below):

Security (providing Contractor arranged security, see C3.4.1.32 and PSA6.3)
Operating & Maintaining those installations (process units and infrastructure) that is still functional and comprising of:

Installation 2: Inlet Works (Coarse Screening) –
Daily monitoring to maintain functionality of screening process
Manual raking and removing of screenings.

Removed screenings are to be dried, treated with Lime, disposed of in a mini-waste skip (3 m3 size) and disposed of weekly at an off-site landfill site.

Installation 6: Sludge Lagoons (Effluent Ponds) –

Daily monitoring to ensure all inlets and outlets are functional and that water levels are controlled with final discharge via pond no 3 to the existing buried sewer pipe that drains to the chlorination contact channel (or CCT by-pass) and final discharge to the river.

Removal of litter that floats on the surface of the ponds by using an aluminium swimming pool skimmer pole or similar equipment as approved by the Employer's Representative

As indicated for General Maintenance below: Monthly cutting reeds and weeds along the entire embankment perimeter for each of the three ponds (monthly) and depositing of garden waste at a nearby farm or municipal garden waste acceptance (landfill) centre.

General Maintenance: Keeping the whole site tidy, by ensuring that the grass is cut at least monthly over the entire site and that all litter is collected (weekly). This includes the cutting of grass and brush at the existing river discharge structure (outfall, part of installation 1) to prevent brush from obscuring the mouth of the discharge pipe. The Contractor shall make provision for hire of grass-cutting trimmers and/or gardening services as the use and frequency of MaP Water gardening equipment cannot be relied upon.

Supply, provision and use amongst Contractor staff and seconded MaP Water staff of hygienic cleansing materials (soap, etc.) for washing of hands

Maluti-a-Phofung Water (MaP Water) Operations Staff shall continue on a "secondment basis" to the Contractor with daily operations and maintenance activities (which are presently minimal) due to the dysfunctional state of the WWTW. All influent raw wastewater currently flows through a part of the inlet works (one channel with coarse screen) and discharges via an existing sewer (that by-passes the central treatment works) to the existing sludge lagoons (ponds) before eventual discharge to the existing chlorination tank and outfall structure to the river. This arrangement makes it easier to undertake Contractor planned refurbishment work (for installations 1 to 5 as captured in Additional Management Specification "SC" (Decommissioning, Testing and Commissioning) with sub-clause SC 11.2 defining all 6 no of Installations. Installation no 6 (reconfiguring the existing sludge lagoons to maturation ponds by draining down and removal of sludge and associated refurbishment work), can only commence once installations 1 to 5 have successfully passed the Full Wet Commissioning test and have become operational (with final treated effluent temporarily being discharged via an existing sewer pipe at the ponds to the existing chlorination channel downstream of the ponds and thereafter to the existing outfall structure to the river as opposed to the ponds in the first instance).

MaP Water Staff Complement for the Secondment Period (prior to Contractor 1-year O & M support) period: Staffing levels may vary, but for tendering purposes, note that it is expected that MaP Water will provide the following staff:

Two general workers on a shift pattern (day & night)

Senior Process Controller (at least level III PrCr, WISA registered):

Plant Superintendent (level V PrCr, WISA registered): part-time (typically a visit once a week, but contactable by phone on a daily basis)

Mechanical & Electrical Maintenance Artisans: part-time only on a call-out basis should there be a need to maintain and/or repair mechanical equipment (note that there is presently no such functional equipment on site).

Recommended Contractor Maintenance Staff Complement for the Maintenance period prior to Contractor 1-year O & M support period;

Two general workers on a shift pattern (day & night). To share work-load with MaP Water staff and cover for possible MaP Water staff sickness or unexpected absence from work. General workers can also be utilised to undertake gardening maintenance

Foreman and/or Senior Process Controller (at least level III PrCr, WISA registered): Full-time.

The Foreman and/or Senior Process Controller (at least level III PrCr, WISA registered) can also be used for related / other Construction work activities, subject to skill, training and experience.

Due to the simplistic nature of the operations and maintenance work required as described above (installation 2, 6 and grounds maintenance) and reliance on the MaP Water senior staff (Process Controller & Plant Superintendent) no additional senior Process Controller staff is required.

The Contractor's duties (and related payment claims) will exclude the following:

Payment of MaP Water staff member salaries

Payment of Eskom Electrical Costs (only those services that are ordinarily associated with the operation of the WWTW). Presently there is now functional power supply to the site, which is ordinarily for MaP Municipality's own account.

Supply & dosage of chlorine is excluded as the existing chlorination unit is completely dysfunctional (no assets remaining). Note however that refurbishment of the chlorination system and payment of chemicals (during the 60-day Wet Commissioning Trial period) is indicated as discrete payment items elsewhere in the Pricing Schedule. Providing MaP Water staff with appropriate PPE. Should it however become necessary at some point to provide them with such an equipment, then a provisional sum allowance in price schedule A5, called "Materials and/or

equipment to be supplied and /or third party work to be executed by the Employer or Employer's Representative (Engineer) or Municipality's WSP (MaP Water) in support of Operation and Maintenance works when approved by the Employer" shall be used for this purpose.

Payment for Health and Safety equipment, Health and Safety Compliance and Health and Safety Training is catered for in price schedule A3

Payment Items for Contractor maintenance work (prior to the 1-year Contractor O & M Support Period) as described herein:

A Fixed Price Sum has been included in Schedule A5 for the appointment and payment of a service provider for operation and maintenance work (per installation) as described above.

In addition to the abovementioned amount, provision is made in Schedule A5 for a mark-up on the amount to be paid as stated in the Appendix to Tender. The mark-up shall be regarded as full compensation for overheads, charges and profits as provided for in Clause 13.5 of the Conditions of Contract.

PSA7.14 Contractor's One Year Post-Commissioning Operation and Maintenance Support Period

Tshiame WWTW is classified as a Class C works.

Payment items as listed in Schedule A5 makes provision for Contractor provided One-Year Post-commissioning Operations & Maintenance Support. This period will coincide with the Contractor's 1-year Defects Liability Period

The Contractor will be fully responsible for Operations and Maintenance of Tshiame WWTW on a 24-hour, 7 day week basis. The Contractor will be supported in this by a secondment of MaP Water Operations Staff who will remain employees of MaP Water (with their salaries paid by the municipality), but reporting to the Contractor (and MaP Water Plant Superintendent) on a daily basis.

Although municipal staff from MaP Water, will be seconded to the Contractor to assist with daily Operations and Maintenance (O & M) of Tshiame WWTW, the Contractor is expected to provide O & M support and leadership during this Support period on a daily basis, comprising of:

Mentorship and Knowledge Transfer

Planning of Daily Operations (consulting also with MaP Water's Plant Superintendent)

Planning and Scheduling of Maintenance Activities

Monitoring process treatment efficiency and guiding MaP Water Operations staff and Process Controllers in optimising WWTW operation

Mentorship and help in financial planning, budgeting and procurement of chemicals and consumables in order to ensure continuous running of the WWTW.

Assisting the MaP Water staff in producing monthly / regular regulatory and municipal reports in adherence to Water Use Licence requirements.

Assisting with Trouble shooting relating to O & M of the WWTW

Flagging issues of Municipal non-payment (for example electrical Eskom costs) and non-conformance (such as not undertaking daily allocated tasks) to the Employer and MaP Water Senior Management and where needed DWS (after obtaining such consent from the Employer) and submitting written and factual reports in support thereof.

The Contractor shall provide for the following Contractor staff (during the 1-Year Support period) as indicated below:

Management Staff (1 no x 20% of time/ month)

Class V WISA Registered Process Controller (1 no x 100% of time / month)

Class III WISA Registered PrCr (1 no x 100% of time / month).

Mechanical & Electrical Maintenance staff (2 no 25% of time/month each)

General Workers (2 no x 100% of time/month each) each.

MaP Water Staff Complement for the One-year O & M support)period may vary, but is expected to at least compromise of:

Two(2) to four(4) general workers on a shift pattern (day & night): full-time

Senior Process Controller (at least level III PrCr, WISA registered): full-time

Junior Process Controller: full-time

Plant Superintendent (level V PrCr, WISA registered): part-time)

Mechanical & Electrical Maintenance Artisans: part-time and available on a call-out basis should there be a need to maintain and/or repair mechanical equipment

The Tenderer's price for above O & M Support should also include:

Travel cost for its staff for the whole year. The use of a shared vehicle (provided by the Contractor) is required.

Local accommodation (off-site), living allowance, internet / data and cell phone expenses for the staff as listed above for the whole year. The use of affordable and shared self-catering accommodation is recommended. Company overheads, printing costs and the use of a single Contractor issued laptop for use by the Class V Process Controller

Site Office: It is envisaged that the Contractor will make use of one of the refurbished buildings (Inlet Works or Operator Office adjacent MCC Plant room) to accommodate his staff for daily activities. The Contractor may also choose to maintain an additional temporary office for this purpose for the 1-year duration. Should he choose to do so, then he can make use of the Office related item under Preliminary & General Items (Schedule A1)

Excluded from the Contractor's Payment Claims & Responsibilities are:

All daily / monthly / annual costs for:

Power bills: mains power electricity (Eskom) and diesel for the Stand-by Generator (other than small quantities of diesel and lubricants required for maintenance related work). These are to be paid by the Municipality.

Municipal staff wages is for the MaP Municipality's (MaP Water's) account.

Municipal provided Security Staff (on a 24-hour basis)

PSA7.15 Water Quality Monitoring, Sampling & Analysis

A Provisional Sum has been included in Schedule A5 and elsewhere in the price schedule for raw water and final effluent water quality monitoring, sampling and analysis (analysis by SANAS accredited laboratory). The District Municipality and MaP Water is advocating the use of a water laboratory in Kestel for this purpose.

In addition to the abovementioned amount, provision is made in Schedule A5 for a mark-up on the amount to be paid as stated in the Appendix to Tender. The mark-up shall be regarded as full compensation for overheads (including transport if not collected by a third party), charges and profits as provided for in Clause 13.5 of the Conditions of Contract.

PSA7.17 Maintenance Equipment and Laboratory Equipment

A Provisional Sum has been included in Schedule A5 for the acquisition at the sole discretion of the Employer of critical on-site Maintenance Equipment and Laboratory equipment (those that are not captured in Schedules D (Mechanical Works).

In addition to the abovementioned amount, provision is made in Schedule A5 for a mark-up on the amount to be paid as stated in the Appendix to Tender. The mark-up shall be regarded as full compensation for overheads, charges and profits as provided for in Clause 13.5 of the Conditions of Contract.

Note that spares are not included under this item (or in schedule A5) as a provisional sum allowance is made under Capital works under schedules B13, C10 and D8 respectively.

PSA8 PRIME COST ITEMS (Clause 8.6)

PSA8.1 Materials for Dayworks

A Provisional Sum has been included in Schedule B1 for materials to be used during the execution of dayworks. Payment made shall be regarded as full compensation for overheads, charges and profit on the materials that are used when executing dayworks.

PSAB ENGINEER'S OFFICE

PSAB1 NAME BOARDS (Clause 3.1)

The Contractor shall supply and erect one (1) name board in accordance with the details shown on the Drawings and in positions instructed by the Engineer.

PSAB2 OFFICE BUILDING (Clause 3.2)

PSAB2.1

Resident Engineer's Offices and Equipment

The Contractor shall provide one (1) furnished office for the Resident Engineer and one assistant at the Tshiame WTW site establishment and shall properly maintain these facilities for the duration of the Contract. The facilities shall be provided according to the Standard Specifications and as amended below. It shall be deemed that the Contractor has allowed in his rate tendered under this item for all requirements described below as well as under points (a) to (e).

The offices shall have the floor area of at least 15 m² and a ceiling height of at least 2,5 m. The offices shall be weatherproof with wooden boarded floors that are at least 150 mm above the ground, and shall be provided with ceilings, a door with a secure lock, and with opening windows of glazed area at least 40% of the floor area. Offices shall be well ventilated and shall be insulated as to provide comfortable working conditions.

The internal finishing of each office shall include the following: --- Detail to be reviewed in light of cost

- a desk with a top of size at least 1,5 m x 0.9 m and at least two lockable drawers;
- a lockable upright steel cabinet with three shelves;
- racks for hanging construction drawings;
- a wash hand basin with towel rack and soap dish (or alternatively access to such welfare / hygiene facilities in an adjacent communal temporary building);
- an electric fan (min 0.5m diameter blade) for cooling / ventilation;
- suitable electrical lighting (fluorescent type);
- two 15 amp plug points with earth leakage;
- one drawing table, 3m long x 1m wide x 0.9m high;
- two chairs to suit the tables;
- an acceptable blind on each window

The Contractor shall provide all electrical equipment as required by the office staff as well as all consumables required for facilities and equipment i.e. paper, toner, stationery etc. Provisional sums have been included in schedule 1 for the electrical equipment and consumables.

The Contractor shall also be responsible to provide and maintain an adequate internet connection for the Engineer's offices.

All offices, facilities and equipment shall be new and be furnished, serviced, cleaned and maintained by the Contractor. The Contractor shall provide a full time assistant for cleaning the offices and car wash. The Contractor shall provide a full time guard service and ablution facilities for the office complex.

The Contractor shall be responsible for all running costs and costs for other services, including telecommunication, electricity, water, etc. to operate and maintain the offices efficiently. The Contractor shall be responsible for all cellular cost by the Engineer's staff. A provisional sum is included in the Contract for this item under schedule 1.

The Contractor will be responsible for the maintenance and insurance of the equipment, which shall become the property of the Contractor upon the issue of the Taking-Over Certificate.

Conference Room

The Contractor shall provide a temporary conference room for the joint use of the Contractor's and the Employer's Personnel at the Tshiame WWTW site. The conference room shall be available to the Engineer for all meetings convened by the Engineer with the Contractor and with the Employer, and on a reasonable basis for the Engineer for meetings with his construction monitoring staff. The Contractor shall properly maintain the conference facility for the duration of the Contract.

The conference room shall be provided in accordance with the Standard Specifications and shall have a floor area of at least 30 m² and a ceiling height of 2,5 m or greater. The room shall be weatherproof with wooden boarded floors that are at least 150 mm above the ground, and shall be provided with ceilings, a door with a secure lock, and with opening windows of glazed area at least 40% of the floor area. Offices shall be well ventilated and shall be insulated as to provide comfortable working conditions.

The internal finishing of the conference room shall include the following:

- a 12-seat conference table;
- 12 table chairs;

a serving table with top size 1,5 m x 0,9 m;
facilities to hang 4 x A1 drawings against the conference room walls;
an electric fan (min 0.5m diameter blade) for cooling / ventilation
suitable electrical lighting (fluorescent type);
three 15 amp plug points with earth leakage;
suitable blinds on each window.

Kitchenette

The Contractor shall provide and properly maintain a kitchenette for the Engineer for the duration of the Contract at the Tshiame WWTW site establishment.

The kitchenette shall have a floor area of 5 m² and generally be constructed in accordance with the standards specified for offices.

Office equipment

The Contractor shall provide the necessary computing, printing and copying equipment for the exclusive use of the Engineer and his staff and shall provide all maintenance and consumables for this equipment for the duration of the Contract. The cost of the equipment and consumables will be covered under provisional sums included under schedule 1.

Carpports

The Contractor shall provide and maintain two carpports with at least durable shade cloth netting for the use of the Engineer and his staff for the duration of the Contract at the Tshiame site establishment. The floor shall consist of crushed aggregate to alleviate dusty and muddy conditions. Carpports should be erected adjacent to the office complex of the Engineer.

Ablution units

The Contractor shall provide two separate toilets for ladies and gents for the exclusive use of the Employer, Engineer and his staff. The Contractor shall provide cleaning materials and toilet paper and maintain the ablutions for the duration of the Contract.

PSAB2.2 Laboratory Equipment

The Engineer only requires access to the laboratory facilities and equipment that are listed below. At the request of the Engineer, the Contractor shall arrange separately with an independent commercial laboratory and/or designated specialists to carry out additional acceptance control tests, over and above the normal quality control testing required for the construction of the Works. A provisional sum is included in the contract for the additional control tests ordered by the Engineer. The Contractor shall remain responsible to carry out the process control testing required by the Standardized, Particular and Project Specifications.

The Contractor shall supply and maintain the following acceptance control equipment for use by the Engineer during the Contract:

1 Troxler nuclear system Model 3440, complete with accessories and stored in a suitable transit case as supplied by the manufacturer. A detailed description of the unit and principals of operation shall be included in the manual for the nuclear instrument. Calibration test certificates shall be provided for each instrument.

Six concrete cube moulds, 150mm nominal size.

PSAB3 SURVEY EQUIPMENT (Sub-Clause 5.5)

The survey equipment listed below shall be made available and be maintained in good condition for the exclusive use of the Engineer or his Representative for the duration of the Contract.

- (a) Automatic surveyor's level complete with tripod and leather carry case such as Zeiss N1-2 or equivalent 1 No
- (b) 20-second tachometer with optical plumbob complete with tripod and leather carry case such as Sokkisha TM20C or equivalent. 1 No.

- (c) Nylon-coated steel surveyor's tape 100m long and 10mm wide 1 No.
- (d) 5m long steel tape 1 No.
- (e) 5m long three-piece telescopic survey staves (metric double-face) complete with angle bracket level 1 No
- (f) Survey books: Level 2 No.
- (g) One metre long spirit level 1 No.

Upon completion of the Contract the equipment will revert back to the Contractor.

PSC SITE CLEARANCE

PSC1 DISPOSAL OF MATERIAL (Sub-Clauses 3.1 and 8.2.1)

Materials arising from clearing and grubbing shall be disposed of at a suitable spoil site. The Contractor shall be responsible to make his own arrangements for a suitable spoil site and all transport costs shall be included in the rates tendered for site clearance. Trees and stumps necessarily removed shall not be burnt unless authorized by the Engineer but shall be cut and stacked at areas designated by the Engineer.

PSC2 CUTTING OF TREES (Sub-Clause 5.2.3.2)

Replace the last sentence with the following:

"There are no trees in the immediate vicinity of the Tshiame WWTW site. However, note that an amount of R 1,000 will be deducted from moneys due to the Contractor as a penalty for every tree that is damaged or removed unnecessarily on the land parcel Randfontein 1880"

PSC3 MEASUREMENT AND PAYMENT (Sub-Clause 8.2.1)

Replace the first line with the following:

"The area designated by the Engineer to be cleared and grubbed will be measured in square meter to the nearest square meter or,"

PSD EARTHWORKS

PSD1 INTERPRETATION (Sub-Clause 2.1)

Replace sub-clause 2.1 with the following:

"Any of the other SABS 1200 specifications or Standard Specifications that form part of the Contract documents." See also C3.4.3.1

PSD2 DEFINITIONS (Sub-Clause 2.3)

Replace the word and the definition for "borrow" with the following:

"Borrow material: Material, other than material obtained from excavations required for the works, obtained from commercial sources or existing borrow pits. 'Borrow' shall have a corresponding meaning."

Replace the definition for "Specified density" with the following:

"Specified density: The specified dry density expressed as a percentage of modified AASHTO dry density."

Replace the definition for "Stockpile" with the following:

"Stockpile (verb): The process of selecting and, when necessary, loading, transporting and off-loading material in a designated area for later use for a specific purpose"

Add the following definitions:

"Commercial source: A source of material provided by the Contractor, not the Employer.

Fill: An embankment or terrace constructed of material obtained from excavations or borrow pits. In roads it includes the earthworks up to the underside of the selected subgrade level.

Fill (material): Material used for the construction of an embankment or terrace

Roadbed: The natural in situ material on which the fill or, in the absence of fill, the pavement layers are constructed"

PSD3 CLASSIFICATION FOR EXCAVATION PURPOSES (Clause 3.1.2)

Delete clause 3.1.2 (a) and clause 3.1.2 (b) and replace with the following:

3.1.2 (a) Soft excavation:

"All material that is not classified as hard rock excavation in terms of clause 3.1.2 (c), boulder excavation class A in terms of clause 3.1.2 (d) or boulder excavation class B in terms of clause 3.1.2 (e) shall be classified as soft excavation"

In clause 3.1.2 (c) (1), replace the words "equivalent to that specified in (b) (1) above" with the words "of mass approximately 35 t, fitted with a single-tine ripper suitable for heavy ripping and of fly wheel power approximately 220 kW."

In the last sentence of clause 3.1.2 (d), replace the words "intermediate excavation" with the words "soft excavation."

In the last sentence of clause 3.1.2 (e) (2), replace the words "or intermediate excavations, according to the nature of the material" with the word "excavation."

PSD4 SELECTION

Add the following new sub-Clause 3.3.3

"Approval of a borrow area for a certain purpose does not necessarily mean that all the material in that area is suitable for the specified purpose. What it does mean is that the borrow area contains some suitable material. The onus shall rest on the Contractor to ensure that only material that is indeed suitable is removed and used for the specified purpose.

When the Contractor has to select excavated material for a specific purpose, the above provisions relating to borrow areas shall apply mutatis mutandis to excavations.

The Contractor shall not waste or contaminate material that has been selected for a specific purpose."

PSD5 PLANT (Sub-Clause 4.4)

Replace the contents of sub-Clause 4.4 with the following:

"The Contractor shall, for the purposes of detecting and locating underground services in accordance with the provisions of sub-clause 5.4 of SABS 1200 A and sub-clause 5.1.2 of SABS 1200 D, at his own cost, provide and use detecting equipment which is suitable for the detection of underground cables and pipes."

PSD6 CONSTRUCTION - PRECAUTIONS

PSD6.1 Safeguarding of Excavations (Sub-Clause 5.1.1.2)

Any cost the Contractor may undergo in ensuring the safety of excavations or any additional excavation and backfilling he may have to undertake due to the unstable sides of excavations and trenches shall be held to his account and the various rates for excavation and trenching included in the Schedule of Quantities shall include full compensation therefore.

PSD6.2 Explosives (Sub-Clause 5.1.1.3)

Replace the contents of this sub-Clause with the following:

"The Contractor will generally be permitted to use explosives for breaking up hard material during excavations, for demolishing existing structures, and for other purposes where explosives are normally required, subject to the following conditions:

- (a) The Engineer may prohibit the use of explosives in cases where, in his opinion, the risk of injury to persons or damage to property or to adjoining structures is too high. Such action by the Engineer does not entitle the Contractor to additional payment for having to resort to less economical methods of construction.
- (b) The Engineer's prior written approval shall be obtained for each and every blasting operation. This approval may be withheld if the Contractor does not use explosives responsibly and carefully.
- (c) The Contractor shall comply fully with the applicable legislation and regulations.
- (d) Before blasting is undertaken, the Contractor shall satisfy the Engineer that he has established whether or not the insurers concerned require pre- and post-blasting inspections of buildings and structures within a certain radius of the proposed blasting.

Should such inspections be required, the Contractor shall, together with the Engineer and the insurer, examine and measure the buildings, houses or structures in the vicinity of the proposed blasting site and establish and record, together with the owner, lessee or occupier, the extent of any existing cracking or damage before blasting operations commence.
- (e) When there is a possibility of damage to power and telephone lines or any other services or property, the Contractor shall adapt his method of blasting and the size of the charges and shall use adequate protective measures (e.g. cover-blasting) to reduce the risk of damage.
- (f) All accidents, injury to persons and animals and damage to property shall be reported to the Engineer in detail and in writing as soon as is practicable.
- (g) The Engineer shall be given 24 hours' notice by the Contractor before each blasting operation is carried out.
- (h) When blasting to specified profiles, the Contractor shall so arrange the holes and charges that the resulting exposed surfaces are as sound as the nature of the material permits. The Contractor shall make good, at his own expense, any additional excavation necessitated by the shattering of rock in excess of any overbreak allowances specified in the Project Specifications or given on any Drawing.

Notwithstanding the Contractor's compliance with the above provisions, the Contractor shall remain liable for any injury to persons and animals and loss of or damage to property occurring as a result of blasting operations."

PSD6.3 Existing Services

PSD6.3.1 Detection, location and exposure (Sub-Clause 5.1.2.2)

Replace the contents of sub-Clause 5.1.2.2 with the following:

"The exposure by the Contractor of underground services, as required in terms of sub-clause 5.4 of SABS 1200 A (as amended) shall be carried out by careful hand excavation at such positions and to such dimensions as are agreed to by the Engineer.

Unless otherwise instructed or agreed by the Engineer, no service shall be left exposed after its exact position has been determined and all excavations carried out for the purposes of exposing underground services shall be promptly backfilled and compacted to the following densities:

- (a) In roadways: 93% Mod AASHTO density; and
- (b) In all other areas: 90% Mod AASHTO density.

Where hand excavations to expose underground services have to be carried out in roadways, the Contractor shall reinstate the road layerworks in accordance with the provisions of sub-clause 5.9 of SABS 1200 DB.

Payment in respect of exposing the services by means of hand excavation as described above, will be made in accordance with sub-clause PSD 8.3.8.1.

Payment in respect of reinstating layerworks in roadways will be made in accordance with sub-clause 8.3.6.1 of SABS 1200 DB (as amended)."

PSD6.3.2 Protection during construction (Sub-Clause 5.1.2.3)

Replace the contents of sub-Clause 5.1.2.3 with the following:

"Protection during construction.

Further to the requirements of sub-clause 5.4 of SABS 1200 A (as amended), major excavating equipment and other plant shall not be operated dangerously close to known services. Where necessary, excavation in close proximity to known services shall be carefully carried out with suitable hand tools, excluding picks wherever their use could damage the services. No additional payment will apply to such more difficult work.

Should any service not being a known service be discovered or encountered during the course of the Contract, the Contractor shall, in addition to complying with the requirements of sub-clause 5.4 of SABS 1200 A (as amended), immediately notify the Engineer thereof and implement such measures as will prevent damage of such service or, if it was damaged in the course of discovery, will prevent and minimise the occurrence of any further damage occurring."

PSD6.3.3 Negligence (Sub-Clause 5.1.2.5)

Delete Sub-Clause 5.1.2.5

PSD6.4 Stormwater and Groundwater (Sub-Clause 5.1.3)

Add the following:

"The Contractor shall, where applicable and at the earliest practicable opportunity, install the permanent drainage specified or shown on the Drawings and shall at his own cost provide the temporary drainage required to protect the works."

PSD6.5 Reinstatement and Maintenance of Roads

Add the following:

"Where crossings have been made, the roads shall be reinstated in accordance with the details specified in sub-clause 5.9 of SABS 1200 DB."

PSD7 CONSTRUCTION – METHODS AND PROCEDURES

PSD7.1 Site Preparation

PSD7.1.1 Conservation of top soil ((Sub-Clause 5.2.1.2)

Add the following:

Topsoil shall be removed from all areas where structures are to be constructed and shall be stockpiled, maintained and reinstated in areas as indicated by the Engineer.

PSD7.2 Excavation

PSD7.2.1 Excavation for general earthworks and for structures (Sub-Clause 5.2.2.1)

Add the following to paragraph (b):

"When the nature of the material precludes the above procedure, additional excavations shall be carried out to provide working space for the erection of formwork. The tendered rate for item 8.3.5 will be deemed to include the cost of a working width of 600mm, but the Contractor may excavate a greater working width at no additional cost to the Employer."

Replace the first sentence of paragraph (e) with the following:

"Where excavations have been carried below the authorised levels, the Contractor shall backfill such excavations to the correct level with approved gravel compacted to 93% of modified AASHTO density or to the density of the surrounding material, whichever is the higher density.

Where excavations for structures have been carried out in hard material, the Engineer may direct that over-excavation be backfilled with weak concrete if there is a danger of settlement or differential settlement of the foundations.

Where the sides of excavations against which concrete is to be cast have been over-excavated or have collapsed partially, the Contractor shall re-trim the excavations if necessary and, unless other remedial measures are agreed to by the Engineer, shall cast the concrete for the structure, including the additional concrete that may be required as a result of the over-excavation or partial collapse. The cost of the additional concrete or remedial measures shall be for the Contractor's account."

PSD7.2.2 Borrow Pits (Sub-Clause 5.2.2.2)

Add the following:

Bedding and backfill materials shall be obtained from trench excavations, borrow pits or commercial sources. Where borrow materials are required, such materials shall be obtained from borrow sources to be identified by the Contractor, who shall be entirely responsible for ensuring that such materials comply in all respects with the material specifications. Unless otherwise specified the opening of new borrow pits shall not be allowed.

The Contractor shall in all respect comply with the various requirements of SABS 1200D and in relation to the opening up, closing down and utilization of borrow pits.

All costs associated with the importation of suitable material from borrow or other sources must be borne by the Contractor, including excavation, crushing, screening, transport and royalties, and the tendered rates for material from borrow must include therefore, as no other payment will be made in this regard.

The Contractor shall co-ordinate his borrowing operations with other contractors that might be using the same borrow pit(s).

The closing down of a borrow put will include all earthworks required to leave the area in a neat condition without irregularities in the surface and with even slopes to the satisfaction of the Engineer and other concerned parties.

PSD7.2.3 Disposal (Sub-Clause 5.2.2.3)

Replace the second sentence with the following:

"The Contractor shall provide all necessary spoil sites for the spoiling of all surplus and unsuitable materials and shall make the necessary arrangements with the owner of the site where the material is disposed of, and pay all charges and levies as may be applicable for the use of such spoil sites.

Every spoil site provided by the Contractor shall be approved by the local authority in whose area it is located, and the spoiling shall comply with the applicable statutory and municipal regulations as well as the requirements of the owner of the spoil site.

If so instructed by the Engineer, surplus or unsuitable materials arising from the works shall be spoiled and neatly spread and levelled so as not to interfere with future works nor to disrupt the natural overland flow of storm runoff, at spoil areas arranged by the Contractor and approved by the land owner and Engineer. Where a pipeline is laid within a rail or road reserve the route of the pipeline shall be finished neatly to be flush with the natural ground level or finished sidewalk level as may be applicable.

Payment to the Contractor in respect of locating and making arrangements for suitable spoil sites and spoiling material at the such sites will be made in accordance with the provisions of sub-clause PSD 8.3.15."

PSD7.2.4 Selection and stockpiling

Add the following new sub-Clause 5.2.2.4

"PSD 5.2.2.4 Selection and stockpiling

Approval or designation of the material in a particular borrow pit or excavation for particular purpose does not imply that all the material in the borrow pit or excavation is suitable for the particular purpose to which the said approval or designation relates, nor that all material in the borrow pit or source should be used for the particular purpose. The Contractor shall select suitable material from that borrow pit or source, discard unsuitable material and reserve material for other purposes as necessary.

The Contractor shall organize and carry out his operations in such a manner as will prevent the contamination of suitable embankment and backfill material with unsuitable materials. Any excavated material which becomes, in the Engineer's opinion, unsuitable for use in embankments or backfill as a result of contamination, shall be disposed of in a manner acceptable to the Engineer and shall be replaced by the Contractor with materials acceptable to the Engineer, all at the Contractor's cost.

When required, or when ordered by the Engineer, material shall be stockpiled for later use. The additional costs for stockpiling material shall be paid to the Contractor in accordance with the provisions of sub-clause PSD 8.3.14."

PSD7.3 Placing and Compaction

Add the following new sub-Clause 5.2.3.3

"PSD 5.2.3.3 Backfilling with soilcrete

Soilcrete backfilling shall be a G5 material as specified in SABS 1200M, stabilised with 5% cement and compacted to 93% modified AASHTO maximum density.

PSD7.4 Transport and earthworks

PSD7.4.1 Freehaul (Sub-Clause 5.2.5.1)

Replace this sub-Clause with the following:

"All haul within the boundaries of the Site up to 500m from the point of excavation will be regarded as freehaul."

PSD8 TESTING

PSD 8.1 Taking and testing of samples

Replace the contents of this sub-clause with the following:

"The Contractor shall arrange with an approved independent laboratory engaged by the Contractor to carry out sufficient tests on a regular basis as agreed between him and the Engineer to determine whether the degree of compaction, and, where applicable, the quality of materials used, comply with the Specifications and shall submit the results of these tests to the Engineer in a form approved by him.

The compaction requirements for fills shall be deemed complied with when at least 75% of the dry-density tests on any lot show values equal to or above the specified density and when no single value is more than five (5) percentage points below the specified value."

PSD9 MEASUREMENT AND PAYMENT

PSD9.1 SCHEDULED ITEMS

PSD9.1.1 Restricted excavation (Sub-Clause 8.3.3)

Replace the words "in 1 m increments" at the end of the first sentence of sub-item (a) with "in the increments indicated in the schedule of quantities".

Replace "in 5.2.2.1 – 5.2.2.3 (inclusive)" at the end of sub-clause (a) with "in sub-clauses 5.2.2.1 to 5.2.2.5 (inclusive)".

PSD9.1.2 PSD8.3.14 Extra over items PSD 8.3.2.(a)(1) and PSD 8.3.3 for temporary stockpilingUnit: m³

Add the following new sub-Clause:

The unit of measurement shall be the cubic meter of material from necessary excavations, temporarily stockpiled by the Contractor on the instructions of the Engineer, before being used in embankments or backfill. Measurements shall be taken in place in compacted embankment or backfill as the case may be.

The tendered rate shall include for the costs, additional to those provided for in PSD 8.3.2(a)(1) and PSD 8.3.3, of off-loading, forming and maintaining the stockpile for as long as is required, reloading and transporting within the applicable free-haul distance from the stockpile.

Payments to the Contractor under this item will only be made in respect of that material stockpiled on the instructions of the Engineer (which instruction shall state specifically that payments for such stockpiling will be paid for under this item) and no payments will be made to the Contractor under this item in respect of materials stockpiled by the Contractor on his own volition, nor for materials necessarily stockpiled by the Contractor in consequence of the sequence of operations adopted by him in the course of executing the works, whether such stockpiling was avoidable or otherwise."

PSD9.1.3 PSD8.3.15 Extra over items PSD 8.3.2(b) and PSD 8.3.3 for disposing of
spoil material on a site provided by the Contractor Unit: m³

The unit of measurement shall be the cubic meter measured in accordance with sub-clause 8.2 of SABS 1200 D of surplus and/or unsuitable material disposed of, on the instruction of the Engineer, at a spoil site or spoil sites provided by the Contractor.

The tendered rate shall include full compensation for the additional cost of providing a spoil site or other means of disposing of surplus spoil material, for transporting the material regardless of the distance involved, for acceptance charges for such material and for all other incidental costs to dispose of the spoil material."

PSD9.1.5 PSD8.3.16 Extra over item PSD 8.3.3 above for:

(1) Soilcrete backfill where directed by the Engineer Unit: m³

The unit of measurement shall be the cubic meter of soilcrete placed on the Engineer's instructions in accordance with sub-clause PSDB 3.5(d), measured in place according to the authorized dimensions.

The tendered rate shall include full compensation for supplying the cement and for selecting, mixing and placing the soilcrete as well as for the cost of shuttering if required."

PSDB EARTHWORKS (PIPE TRENCHES)

PSDB1 CONSTRUCTION

PSDB1.1 Precautions

PSDB1.1.1 Existing Services (Sub-Clauses 5.1.4)

Where any existing service occurs within the specified trench excavation, and the presence of such service is known before being uncovered, then the protection of the service will be scheduled and measured as provided for in Clause 8.3.5 of 1200DB. Only known services (as defined in Clause 5.4 of 1200A) shall be measured for payment.

Where an unknown existing service is damaged during construction, and the Engineer orders that the Contractor should undertake the repair of such service, then such repair will either be measured and paid as dayworks or alternatively as a contractual variation in terms of Clause 13 of the General Conditions of Contract.

No construction activity which may affect the integrity of telephone or electrical poles or stays may be carried out without the prior written approval of the Engineer, which approval shall only be given subject to the acceptance of a modus operandi that will ensure the integrity of such structures during construction.

PSDB1.1.2 Special Water Hazards (Sub-Clause 5.1.2.2)

Where ground water is present during construction to such an extent that, in the opinion of the Engineer, it would hamper the placing and consolidation of the granular or concrete bedding, as the case may be, or would cause buoyancy of the pipes, the Engineer may order the provision of a drain in the bottom of the trench to assist with dewatering during the construction and until the trench has been backfilled to such an extent that buoyancy of the pipeline will be prevented.

The drain shall be constructed over the full width of the trench as follows:

Place filter cloth (Kaytech A4 or similar) to cover the trench bottom and part of the vertical trench sides.
Place and compact 300mm thick 13mm crushed stone bedding.
Cover the stone bedding with the installed filter cloth to a minimum overlap of 300mm.

At points designated by the Engineer, sumps shall be formed from which ground water can be pumped to maintain the water table below the pipe bedding level. The Contractor shall, if instructed, establish on site, operate and remove on completion, a dewatering pump of 10 l/s minimum capacity as per the requirements of Item 8.3.4(b) of 1200 DB. Lengths of trench opened at any one stage shall be limited by the dewatering capacity of the pump.

PSDB1.2 TRENCH WIDTHS (Sub-Clauses 4.1 and 5.2)

Trenches in general shall not exceed the widths laid down in Sub-Clause 8.2.3 or shown on the Drawings. If trenches exceed the specified width the Contractor shall be liable for the cost of any thicker pipes or more expensive bedding which may be required as a result of the additional trench width.

It is to be noted for Tendering purposes that quantities of excavated material, import and backfill as indicated in the price schedule for the installation of new services, have been determined by the Engineer by also recognising that significant lengths of pipe between the Inlet Works and the Central Works will be laid in shared pipe trenches. A detailed breakdown of quantities can be obtained from the Engineer if required.

PSDB1.3 EXCAVATION (Sub-Clause 5.4)

The Contractor will be required to follow a procedure, whereby laying, jointing, testing and backfilling for each section of the pipeline will follow soon after trenching, and he will not be permitted to open up lengths of trench far in advance of pipe laying and backfilling operations. If in the opinion of the Engineer, trenching has proceeded too far ahead of pipe laying and backfilling, the Engineer shall have the right to stop trenching until the pipe laying and backfilling has caught up and the Contractor shall not be entitled to any extra payment due to this instruction.

PSDB1.4 TRENCH BOTTOMS (Sub-Clause 5.5)

Replace the first paragraph of this sub-clause "Material that compacted as directed" with the following :-

Where a firm foundation cannot be obtained at the grade indicated due to soft or unsuitable material, the Engineer may instruct the Contractor to remove such unsuitable material and to backfill the excess depth with approved selected material or concrete, as directed by the Engineer in each particular case, at the cost of the Employer. Backfill other than concrete, shall be placed in layers of 100mm uncompacted thickness, each layer thoroughly compacted to the entire satisfaction of the Engineer, to provide adequate support for the pipe bedding to be placed on top of it.

Should the Contractor remove more ground than is required to secure the proper grade of the pipeline, the Contractor must, at his own cost, backfill the excess excavation with approved selected material or concrete, as directed by the Engineer in each particular case.

PSDB1.5 DISPOSAL OF EXCAVATED MATERIAL (Sub-Clauses 5.6.3 and 5.6.4)

All surplus or unsuitable materials arising from excavation shall be spoiled and spread within or adjacent to the Site of the Works or, when ordered by the Engineer, be spoilt at a spoil site established by Contractor.

PSDB1.6 FREEHAUL AND OVERHAUL (Sub-Clause 5.6.8)

All haul shall be considered as freehaul and no payment will be made for haul.

PSDK GABIONS AND PITCHING

PSDK1 MATERIALS

PSDK 1.1 Stone (Sub-Clause 3.2.1)

Replace the contents of table 2 with the following:

"TABLE 2 SIZE AND MASS OF INDIVIDUAL STONES FOR PITCHING

1	2	3	4
Size/mass of pitching	Thickness of pitching mm, min	Least dimension mm, min	Mass kg, min
Extra heavy	600	300	180
Heavy	400	190	50
Medium	300	150	27
Light	200	110	11

PSDK2 CONSTRUCTION

PSDK2.1 Grouted pitching

Replace the words "(table 4)" in the second line of the first paragraph with "(table 2)".

PSDM EARTHWORKS (Roads, subgrade)

PSDM2 CONSTRUCTION – METHODS AND PROCEDURES

PSDM2.1 Cut and Borrow

PSDM2.1.1 Use of material (Sub-Clause 5.2.2.3)

Add the following paragraph:

"(e) Commercial sources

The provisions of sub-clause PSD 5.2.2.5 of SABS 1200 D as amended shall apply."

PSDM2.1.1 Catchwater mounds and channels and mitre banks and channels (Sub-Clause 5.2.2.6)

Add the following sentence:

"Catchwater mounds and mitre banks shall be compacted to a minimum density of 90% of modified AASHTO density."

PSDM2.2 Treatment of the road-bed

PSDM2.2.1 Removal of suitable ground (Sub-Clause 5.2.3.2)

Replace the second sentence of paragraph (a) with the following:

"The excavated spaces shall then be backfilled with approved imported material compacted to the required density."

Add the following sentence to paragraph (b):

"Unsuitable excavated material will be paid for as cut to spoil."

PSDM2.2.2 Treatment of road-bed (Sub-Clause 5.2.3.3)

Add the following paragraph:

"(c) Three-pass roller compaction

Any portion of the roadbed that is shown on the Drawings or is specified or is directed by the Engineer to be given three-pass roller compaction because of its inadequate natural density, shall be prepared by shaping where necessary and compacting with a roller, complying with the requirements specified below.

Compaction shall comprise three complete coverages by the wheels of the specified roller over every portion of the area that is being compacted. While it is not the intention that the Contractor should apply water to the roadbed for this type of compaction, and while no rigid moisture control will be exercised during compaction, the Contractor shall nevertheless satisfy the Engineer that everything is being done to take full advantage of favourable soil moisture conditions during the rainy season, and that such compaction is as far as possible carried out when the roadbed is neither excessively dry nor excessively wet.

The Engineer has the authority to decide when conditions are favourable for compaction and where such compaction is to be carried out at any particular time, and he has the right to instruct the Contractor to water the roadbed at the Contractor's expense when, in the opinion of the Engineer, the Contractor failed, neglected or refused to comply with these requirements.

The rollers to be used for roller-pass compaction shall conform to the following requirements:

Grid roller: The grid roller shall have a mass of not less than 13,5 t when ballasted, shall be loaded to this mass if required, and shall be moved at a speed of not less than 12 km/h.

Vibratory roller: The vibratory roller shall be capable of exerting a combined static and dynamic force of not less than 120 kN/m width for every metre of loose-layer thickness at an operating frequency not exceeding 25 Hz and shall move at a speed not exceeding 4 km/h."

PSDM2.3 Selected layer (Sub-Clause 5.2.5)

Replace the contents of this sub-clause with the following:

"Except with regard to density, the requirements of sub-clause 5.2.4 shall apply. The degree of compaction shall be:

Upper selected*
Selected* : 93% of modified AASHTO density

PSDM2.4 Gravel surfacing (Sub-Clause 5.2.6)

Replace the third sentence of this sub-clause with the following:

"The relevant requirements in sub-clause 5.2.4.2 shall apply, except that the material shall be compacted to 93% of modified AASHTO density."

PSDM2.5 Transport (Sub-Clause 5.2.8)

Replace the contents of this sub-clause with the following:

"The provisions of sub-clause PSD 5.2.5 of SABS 1200 D, as amended, shall apply."

PSDM3 TESTING

PSDM3.1 Routine Inspection and Testing (Sub-Clause 7.3)

Replace table 2 and the contents of sub-clause 7.3.2 with the following:

"PSDM 7.3.2 The dry density requirements for a particular lot of selected layer or wearing course shall be deemed to be satisfied if the average density and the results of individual tests meet the requirements specified in table 2 below. Refer to sub-clause PSD 7.2 for the requirements for fill.

TABLE 2 - DENSITIES

1	2	3	4	5
Layer	Specified density	Number of	Average	Minimum

	(% of modified AASHTO density)	tests per lot	density, %	density for any single test, %
Upper selected* or selected layer* and gravel wearing course*	93	3 and 4	93,1	89,4
		5	93,4	89,2
		6	93,6	89,0

PSDM4 MEASUREMENT AND PAYMENT

PSDM4.1 Computation of quantities

Replace sub-clauses 8.2.1 to 8.2.3 (inclusive) with the following:

"PSDM 8.2.1 The provisions of subclause 8.2.1 of SABS 1200 D shall apply.

PSDM 8.2.2 The provisions of subclause 8.2.2 of SABS 1200 D shall apply.

PSDM 8.2.3 The provisions of subclause 8.2.2 of SABS 1200 D shall apply."

PSDM4.1.1. Verifying quantities (Sub-Clause 8.2.5)

Replace the first sentence with the following:

"Before any earthworks are commenced but after completion of any site preparation, the Engineer will, upon a written request from the Contractor, provide cross-sections for the purpose of measurement of earthworks quantities."

PSDM4.2 Scheduled items

PSDM4.2.1 Treatment of roadbed (Sub-Clause 8.3.3)

(a) Roadbed preparation and compaction of material to

Add the following:

"The unit of measurement shall be the cubic meter of material recompacted as specified and the volume shall be determined from levelled cross-sections on which are superimposed the levels to which the roadbed is to be constructed. When material is imported to make up the required volume, such material will be paid for as cut or borrow to fill as relevant."

PSDM4.2.2 Cut to fill, borrow to fill (Sub-Clause 8.3.4)

Replace the last sentence of this item with the following:

"The unit of measurement shall be the cubic meter of fill and the volume will be calculated in accordance with the authorized dimensions of the embankment and levelled cross-sections.

The tendered rates shall include full compensation for excavating the material as if in soft material, for selecting, loading, transporting for the free-haul distance, off-loading, watering, mixing and compacting the material as specified. Borrow to fill in this item relates to material from designated borrow areas (provided by the Employer).

Where it is required that material be obtained from commercial sources, payment for procuring the material will be made under item PSDM 8.3.17."

PSDM4.2.3 Selected layer compacted to 93% of modified AASHTO maximum Density (Sub-Clause 8.3.5)

Replace the heading and the contents of this item with the following:

"PSDM 8.3.5 Selected layer using material from commercial sources:

- (a) Compacted to 90% of modified AASHTO density.....Unit: m³
- (b) Compacted to 93% of modified AASHTO density.....Unit: m³

The unit of measurement shall be the cubic meter and the quantity will be calculated from the authorized dimensions of the compacted layer.

The tendered rates shall include full compensation for excavating the material as if in soft material for loading, transporting for the free-haul distance, off-loading, spreading, watering, mixing, breaking down and compacting the layer."

PSDM4.2.4 Cut to spoil or stockpile from (Sub-Clause 8.3.7)

Replace the heading with the following:

"PSDM 8.3.7 Cut to spoil from"

PSDM4.2.5 Overhaul

Replace this item with the following:

"PSDM 8.3.12 Overhaul

Delete this item as no overhaul will be paid on material for the purposes of this Contract and all the costs for transporting material shall be included in the applicable tendered rates and amounts."

PSDM4.2.6 Final finishing and cleaning up of the site of the works

Add the following item:

"PSDM 8.3.18 Final finishing and cleaning up of the site of the worksUnit: sum

The tendered sum shall include full compensation for the clearing, disposal of material, finishing, tidying and all other work required to finish and clean up the Site of the works and affected areas by removing excess earth, stones, boulders, debris and other waste material, by clearing stormwater inlets and outlets and pipe barrels, by clearing the surfacing of all dirt, mud and foreign material, and by neatly finishing off all junctions, intersections and kerbing.

All material resulting from the finishing operations shall be disposed of to a spoil site furnished by the Contractor.

The tendered rate shall make provision for the reinstatement of existing driveways to their original condition where these have been affected by the works, as these items will not be measured and paid for separately."

PSDM4.2.7 PSDM 8.3.19 Extra over items 8.3.4, 8.3.5 and 8.3.16 for

obtaining material from commercial sources..... Unit: m³

Add the following new item:

The tendered rate shall include full compensation for the additional cost of finding a suitable source of material, for procuring the material and paying all royalties or other charges to the owner of the source, for transporting the material to the point of use regardless of the distance hauled and for excavating in intermediate, hard or boulder material as required.

Items PSDM 8.3.6, PSDM 8.3.12 and PSDM 8.3.14 do not apply to material obtained from commercial sources.

PSG CONCRETE (STRUCTURAL)

PSG1 SCOPE (Sub-Clause 1)

This specification covers the requirements for water-retaining structural concrete for civil engineering work.

PSG2 INTERPRETATIONS

PSG2.1 Definition (Sub-Clause 2.3)

For purpose of this variation to the Standard Specification, all reinforced concrete structures at the Tshiame WTW will be regarded as water-retaining structures unless stated otherwise in the Project Specification. The Standard Specification shall be applicable to all other concrete structures not mentioned above.

PSG2.2 Explanation of Terms

PSG2.2.1 Exposure Class (SANS 10100-2: 2014 clause 6.2.2 and SANS 2001-CCI: 2012 clause 4.4.3)

The exposure class shall be considered “Severe” for existing and new reinforced concrete water retaining structures to be built. This notably includes new concrete channels and vortex type de-gritting basins at the existing Inlet Works and the construction of the new Sludge Drying Beds.

Severe classification severity notably due to the following assessed conditions:

Structures in contact with soil

Surface permanently under running water

Furthermore, for the purposes in part of Cement / Binder, water / cement ratio and reinforcement cover specification; exposure class shall also be assessed in accordance with the following:

Durability Assessment done by the Consultant Designer on the basis of a technical paper published in SAICE Journal, Volume 57, March 2015, paper no 1135 and with reference to “Table 5: Exposure Classes in EN 206-1 (2013), modified for South African conditions”, resulting in the following determined exposure classes:

Table 5: Exposure classes in EN 206-1(2013), modified for South African conditions

<u>Corrosion Mechanism</u>	<u>Class for Tshiame</u>	<u>Description of Environment</u>
<u>Induced by carbonation</u>	<u>XC4</u>	<u>Cyclic wet & dry</u>
<u>Induced by chlorides other than seawater</u>	<u>XD2</u>	<u>Wet, rarely dry</u>
<u>Freeze / thaw attack</u>	<u>XF1</u>	<u>Moderate water saturation, without de-icing agent</u>
<u>Chemical attack (for concrete exposed to sulphate attack from natural soils and ground water)</u>	<u>XA1</u>	<u>Slightly aggressive chemical environment¹</u>
<u>Chemical attack for concrete exposed to sulphate attack</u>	<u>XA3</u>	<u>Highly aggressive chemical environment (Interior of wastewater retaining structure)³</u>

Table 5 Notes:

For Tshiame WWTW’s typical soil and groundwater assessment, refer to Consultant’s Geotechnical report (GeoCalibre, 2023):

- a. pH value of 6.4 (trial pit 1 near new guardhouse)
- b. pH value of 7.8 (trial pit 2 near new sludge drying beds, non-corrosive)
- c. EC value of 0.039 S/m (trial pit 2, non-corrosive)

For Tshiame WWTW’s typical raw influent wastewater characteristics, refer to Consultant’s Detail Design Report extract (DDR, Nov 2024) on the basis of composite and grab water quality sampling analysis (April 2023). These indicate amongst other the following typical values:

- a. pH: 7.1
- b. EC: 111 to 122 mS/m
- c. Sulphates (SO₄²⁻): 32 to 36 mg/L (≤ 50 mg/L, considered non-corrosive)
- d. Alkalinity as CaCO₃: 416 to 528 mg/L (Hard water, high in ammonia)

Not stipulated per say in Table 5, but widely recognised that WWTW can experience moderate and highly aggressive chemical environment in a wastewater retaining tank / process unit. International case study information (Poland), indicates that the zone of fluctuating water level, typically 0.5m above and below the average fluctuating water level is most prone to XA3 class of chemical attack, with microbiological induced corrosion (MIC) being a major cause of structural corrosion subject to the right conditions prevailing.

PSG3 CEMENT

PSG3.1 Applicable standards (Sub-Clause 3.2.1)

All cementitious material used in concrete shall comply with the following standards, as relevant:

Common cements

SANS 50197-1: Cement part 1: Cement composition, specifications and conformity criteria

Cement extenders

SABS 1491: Part I Ground granulated blast furnace slag

SABS 1491: Part II Fly ash

SABS 1491: Part III Condensed silica fume

PSG3.2 Binder Type (Sub-Clause 3.2.2)

Add the following as relevant to Tshiame WWTW Refurbishment:

Only one of the following two cement types is permitted:

II B-V + SR (Pulverised Fly Ash with sulphate resistance cement)

PFA shall be obtained from only one Power Station

PFA shall comply with SANS 1491-2: 2005

Contains 21 – 35% PFA by mass of total cementitious material

III A-S + SR (Ground Granulated Blast furnace Slag with sulphate resistance cement)

GGBS shall comply with SANS 1491-1: 2005

Contains 36 – 65% GGBS by mass of total cementitious material

An explanation of the basis for the recommendation above is given below:

With reference to the exposure classification as indicated further above, the following cement / binder types can be considered on the basis of a technical paper published in SAICE Journal, Volume 57, March 2015, paper no 1135 and with reference to "Table 8: Proposed limiting values for concrete composition (for use in revision to SANS 10100-2)

Table 8: Proposed limiting values for concrete composition

<u>Exposure Category / Corrosion Mechanism</u>	<u>Class for Tshiame</u>	<u>Max w/c ratio</u>	<u>Min strength class (mPa)</u>	<u>Min cover (mm)</u>	<u>Cement Types</u>
<u>XC Induced by carbonation</u>	<u>XC4</u>	<u>0.50</u>	<u>C30</u>	<u>25</u>	<u>i) Any cement with clinker content < 70%: increase min nominal cover to 30 mm</u> <u>ii) Any cement with clinker content < 50%: increase min nominal cover to 40 mm</u>
<u>XD Induced by chlorides other than seawater</u>	<u>XD2</u>	<u>0.45</u>	<u>C35</u>	<u>35</u>	<u>IIB-S, IIB-V, IIIA, IIIB, IVB-V</u>
<u>XF Freeze / thaw attack</u>	<u>XF1</u>	<u>0.55</u>	<u>C30</u>	<u>25</u>	<u>Any, except CEM I.</u> <u>For XF3 and XF4 only: do not use IVB-V</u>
<u>XA Chemical attack</u>	<u>XA3</u>	<u>0.45</u>	<u>C40</u>	<u>40</u>	<u>IIB-V + SR, IIIA-S + SR</u>

Notes (Tshiame WWTW, water retaining structural concrete):

The determining w/c ratio is 0.45

The minimum strength class to be adopted is grade 35 mPa

Minimum cover to outer reinforcement: 40mm

Air content range: 4 to 8% by volume for 19mm nominal aggregate size (see also SANS 10100-2: 2014, clause 6.2.3)

Cement type CEM I not suitable on basis of XF class

On the basis that a highly aggressive environment may develop at times (albeit not always), cement type with sulphate resisting (CR) cement is recommended, see specification note above for CEM II or CEM III.

PSG3.3 ADMIXTURES

Add the following:

Air entraining agents shall not be allowed

Admixtures may be used to increase the workability of the concrete but only with the express approval of the Engineer and when the details of the active ingredients of the admixture and their effects are supplied to the Engineer for approval before use.

No additives likely to impair low permeability of the concrete will be approved.

Calcium chloride or admixtures containing chlorides may NOT be used in concrete for water retaining structures.

Other admixtures and constituents may only be used with the approval of, or as specified by the Engineer.

PSG3.4 CONCRETE QUALITY)

Add the following:

Strength Concrete

Concrete strength, unless otherwise indicated on drawings, shall be as follow:

Wastewater Retaining (Inlet work channels, de-gritting basins): Grade 40 / 19

Wastewater Retaining (Sludge Drying Beds): Grade 35/ 19

Mass concrete: Grade 15 / 38

Blinding Layers: Grade 15 / 19

Screeds & Benching: Grade 15 / 10

Mix Design

The concrete mix shall be designed by a specialist organization.

No concrete shall be placed until the Contractor's concrete mix design has been approved by the Engineer.

The Contractor shall submit to the Engineer a statement of the mix proportion proposed, together with a report from the specialist organization, showing the 28 day concrete strength obtained when using the material proposed for the work.

The cost of the concrete mix design shall be borne by the Contractor and shall be deemed to be included in the rates for concrete work.

Water / Cement Ratio:

Water / Cement Ratio as follow:

Wastewater Retaining (Inlet work channels, de-gritting basins): 0.45

Wastewater Retaining (Sludge Drying Beds): to suit design strength

Mass concrete: 0.5

Blinding Layers: 0.5

Minimum Cement Content:

For Structural Water Retaining Concrete: 420 kg / m³

Maximum Cement Content: (SANS 10100-2: 2014, clause 6.1.2.2)

Shall not exceed 550 kg / m³

Sulphates: (SANS 10100-2: 2014, clause 6.1.8)

Add the following:

Content of sulphates in concrete expressed as SO₃ shall not exceed 4% of cement mass

Water Quality for Concrete: (SANS 10100-2: 2014, clause 4.2)

Potable water quality, see SANS 51008

If the water used for batching purposes is not obtained from the public drinking water supply system, the Engineer may require the Contractor to have the suitability of the water proved by means of tests by an approved laboratory. The costs of these tests or any subsequent tests ordered by the Engineer shall be borne by the Contractor.

Concrete cover to reinforcement:
Minimum cover to outermost reinforcement shall be at least 40mm

PSG4 AGGREGATES (Sub-Clause 3.4)

The following additional requirements shall be applicable to water retaining structures:

PSG4.1 Fine Aggregate

Samples of the proposed fine aggregate shall be submitted to the Engineer for his approval before use.

The Contractor shall submit a sieve grading analysis to the Engineer for approval and if unacceptable, the Contractor shall offer another sample and grading for approval, or may blend aggregate from different sources and submit the blend for approval.

The water demand of the fine aggregate shall not exceed 195 l/m³.

Fine aggregate shall be stored on a concrete surface and washed sand shall be allowed to drain for at least 24 (twenty-four) hours before use. The Engineer may require the Contractor to test the sand daily (or more frequently if necessary) for moisture content, impurities and grading before use.

PSG4.2 Coarse Aggregate

The voids ratio of the coarse aggregate shall not exceed 47 % (forty-seven per cent). Single sized aggregates shall be stored on a concrete surface in separate stock piles, according to size. The proportions of the various single sized aggregates required for the various portions of the work shall be submitted by the Contractor for the Engineer's approval.

PSG4.3 Origin

Aggregates for concrete in contact with sewage or sewage gases shall be of dolomitic origin. All concrete for sewers and sewage treatment facilities, except concrete for the following, shall therefore be made with aggregates of dolomitic origin:

Blinding;
Mass concrete for foundation fill;
Concrete for encasing and bedding pipes

PSG5 FORMWORK (Sub-Clause 4.5)

PSG5.1 Design

The use of wooden formwork shall generally not be allowed for the construction of any visible surfaces above normal water level on any structure. This requirement applies to all walls, columns, walkways and steps.

Formwork for circular structures (sedimentation tanks, clarifiers, anaerobic digesters etc) shall be custom-designed and manufactured to suit the specific radius of the structure.

PSG5.2 Finish

Unless otherwise specified, the surface finish of all structural concrete on water-retaining structures shall be Smooth as defined in clause 5.2.1 (b).

PSG6 CONSTRUCTION (Clause 5)

PSG6.1 Reinforcement (Sub-Clause 5.1)

The following additional requirements shall be applicable to water-retaining structures:

PSG6.1.1 Fixing (Sub-clause 5.1.2)

The use of plastic spacer blocks will not be allowed. Concrete spacer blocks, of same mix design as the strength concrete, shall be used.

"The Engineer 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."

PSG6.1.2 Cover (Sub-clause 5.1.3)

In water retaining structures the exposure condition of a reinforcing bar closest to the face in direct contact with water or soil backfilling, shall be classified as severe.

It should be noted that in some water retaining structures only one face of the structural elements will be in contact with water.

Unless detailed to the contrary, the minimum cover on the waterside shall be 40mm on and the cover on the non-water side as specified for mild exposure conditions.

The soffit of a slab suspended above the water (e.g. a reservoir roof) will be treated as being in contact with the water for the purpose of determining the cover.

PSG6.2 Concrete

PSG6.2.1 Strength concrete (Sub-Clause 5.5.1.7)

It is a requirement that the Contractor employ the services of an approved specialist to recommend design mixes compatible with the Specification. The preferred specialist shall confirm in writing:

The proposed concrete mix is suitable for water retaining structures with aggressive (waste) water being retained;

The proposed concrete mix is as specified in clause PSG3.4 above.

No concrete shall be placed until the Contractor's concrete mix design has been approved by the Engineer. The Contractor shall submit to the Engineer a statement of the mix proportion proposed, together with a report from an approved testing laboratory, showing the 28 day concrete strength obtained when using the materials proposed for the work.

The strength determinations shall be based on not less than three concrete test specimens.

When the Contractor can furnish reliable test records of concrete of a quality at least equal to that specified, having been made with materials from the same sources and of the same qualities as he proposes to use, the Engineer may waive all or part of the strength tests required in the above paragraph.

The preparation of the 150 mm test cube specimens and the sampling techniques shall be in accordance with the relevant SABS specification.

PSG6.2.2 Placing (Sub-Clause 5.5.5)

Panels between construction joints shall be cast in long strips and saw cut as per details.

PSG6.2.3 Construction Joints (Sub-Clause 5.5.7)

The following additional requirements shall be applicable to water-retaining structures:

The Engineer may allow the Contractor to cut an additional straight construction joint if it is possible without prejudicing the water tightness of the structure. The additional construction joint shall be sealed with the same seal that is specified for planned construction joints at the expense of the Contractor.

The following additional requirements shall be applicable to water-retaining structures:

Construction joints shall only be placed at intervals and to detail as shown on the drawings or as directed by the Engineer.

If under abnormal conditions a vertical construction joint is unavoidable, it may only be constructed with the approval of the Engineer.”

Preparation of Surface

Prior to placing any further concrete the joint must be clean, damp and free of laitance. During the period when the concrete is still green, all loose material shall be removed, without disturbing the aggregates, by light brushing. Where this is not possible, or if the concrete has already set, the surface film shall be removed by mechanical means appropriate to the degree of hardness of concrete so as to expose the aggregate over the entire surface and leave a sound, irregular surface.

Before Placing Concrete

Where the concrete of the previous lift is more than 3 days old, it shall be kept wet to create a damp substrate before the slush and fresh concrete is placed.

On all construction joints the following steps shall be taken after the surface has been prepared and at the most, 30 minutes before placing the concrete:

Remove all surface water with an air hose; install the swellable bar strictly following the manufacturer’s specification;

Brush a layer of slush consisting of cement and gauging liquid, made up of equal volumes clean water and Duralex (or similar and approved) mixed with cement in the same proportion as used in the concrete;

Place concrete within 30 minutes.

PSG6.2.4 Curing and Protection (Sub-Clause 5.5.8)

SABS 1200 G Clause 5.5.8 will be deleted for the purpose of this Specification and replaced with the following:

“All concrete other than blinding concrete shall be maintained continuously saturated for at least ten days or as directed on the drawings immediately after placement or after stripping formwork in the case of walls, by methods which shall receive the prior written approval of the Engineer if different from the following:

For floors

Ponded water with a minimum depth of 30 mm.

For Walls

Continuously saturated heavy jute sacking or other approved absorbent material maintained in contact with the concrete surface by fastenings spaced at not more than 2 m centres.

Columns

Covering the previously saturated surfaces with approved plastic sheets maintained in contact with the concrete surface and with all edges and joints sealed by methods approved by the Engineer.

Where the ambient temperature is below 4°C the curing period of 10 days or as directed on the drawings, will be extended by 72 hours.

Newly cast concrete sections shall not be used for supporting loaded wheel-barrow, monorails, material or scaffolding, etc., until permission is obtained from the Engineer.”

PSG6.2.5 Adverse Weather Conditions (Sub-Clause 5.5.9)

Concreting in cold weather

During cold weather no material having a temperature below 5 °C shall be used for making concrete.

No concrete shall be placed when the ground or air temperature is below 2°C or if the ground or air temperature is likely to fall below 2° C within 6 (six) hours of placing the concrete.

The temperature of placed concrete shall not be allowed to fall below 5 °C until the concrete has attained a strength of at least 5 Mpa, and the Contractor shall be responsible for all the necessary protective measures to ensure this. All concrete that has been damaged by frost or by the formation of ice in the concrete shall be removed and replaced by the Contractor at his own expense.

Concreting in hot weather

During hot weather, the temperature of the concrete, as placed, shall not exceed 30°C. The Contractor shall ensure that the placing of the fresh concrete does not exceed the ambient temperature by more than 5°C. Where necessary this shall be accomplished by shading aggregate stockpiles, shading or insulating water pipes and water storage tanks.

PSG6.2.6 Concrete Surfaces (Sub-clause 5.5.10)

Wood-Floated Finish

Where wood floating is specified or scheduled, the surface shall first be given a finish as specified in Sub-Clause 5.5.10.1 of SABS 1200 G after the concrete has hardened sufficiently, it shall be floated to a uniform surface free of trowel marks. The screeded surface shall be wood-floated, either by hand or machine, only sufficiently to produce a uniform surface free from screed marks.

Steel-Floated Finish

Where steel is specified or scheduled, the surface shall be treated as specified in PSG6.1 except that, when the moisture film has disappeared and the concrete has hardened sufficiently to prevent laitance from being worked to the surface, the screeded surface shall be steel trowelled under firm pressure to produce a dense, smooth uniform surface free from trowel marks.

Power-Floated Finish

Where power floating is specified or scheduled, the surface shall be treated as specified in PSG6.1 except that the screeded surface shall be power-floated to produce a high quality dense, smooth, uniform surface free from trowel marks.

PSG6.2.7 Watertight Concrete (Sub-Clause 5.5.11)

Construction Joints (Sub-Clause 5.5.7)

Joints in the concrete, at which special measures are taken to achieve subsequent continuity, are termed construction joints. Construction joints will be permitted only where shown on the drawings or approved by the Engineer and shall be formed true to line on all formed or exposed surfaces. Horizontal joints shall be formed by casting against a timber or metal former. Recesses shall be formed as detailed on the drawings. Swellable bars and grout tubes, where detailed on the drawings, shall be cast into the joints. No unplanned construction joints will be allowed. If a breakdown occurs and there is no back-up plant to continue the pour, the contractor shall strip the shuttering as soon as possible and break out all concrete up to the previous planned construction joint.

Except in the case where movement joints are required, the entire joint contact area of the concrete already placed, excluding the swellable bar and grout tube area, shall be thoroughly roughened by chipping with sharp chipping picks before placing concrete against the surface. This surface will not be accepted unless the coarse aggregate projects 5 mm beyond the surrounding matrix. In this connection approved light pneumatic or electric tools are preferred provided that no structural damage is done to the concrete being chipped: otherwise hand tools are to be used. Chipping shall not be commenced until at least 48 (forty-eight) hours after the concrete was placed.

Alternative methods of preparing the surfaces of construction joints to those given above will be considered. The Contractor shall submit proposed alternative methods of achieving the roughened surface required to the Engineer for approval.

Should the Engineer at any time withhold or withdraw permission for alternative methods to be used then the Contractor shall prepare the surfaces of construction joints in accordance with the above specification.

Immediately before the adjoining concrete is placed, the chipped surface shall be prepared as per Clause PSG 6.2.3 [Preparation of surface].

In exceptional cases and only at the discretion of the Engineer, the percentage of coarse aggregate of the mix may be slightly reduced in a layer not exceeding 200 mm in depth immediately above the chipped surface of a horizontal construction joint. Suitable temporary openings shall be left in the shuttering to allow for the removal of sawdust, shavings, nails, debris, etc.

The application of compounds to the surfaces of stop ends at vertical joints to retard the setting of a film of concrete in contact with the stop end will be permitted subject to the Engineer's approval of the compound to be utilized and the Contractor's methods for the application of the same.

Movement Joints

Movement joints shall be formed where shown on the Drawings.

Movement joints shall be formed true to line and shall be thoroughly cleaned of all accretions of concrete or other foreign matter by scraping or other approved means. The surfaces in contact with joint sealing material shall be prepared strictly in accordance with the manufacturer's Specification.

Care shall be taken to ensure that the waterbars are in perfect contact with well compacted void-free concrete throughout, particularly on horizontal joints where special procedures shall be adopted for placing and compacting concrete under the waterbars, to the approval of the Engineer.

WATERPROOFING OF CONCRETE JOINTS

Quantities and products for waterproofing of water retaining structures are indicated in the Price Schedule.

PSG7 TOLERANCES (Clause 6)

PSG7.1 General (Sub-Clause 6.2.1)

Unless otherwise stated on the Drawings, the degree of accuracy applicable to all concrete structures shall be Degree of Accuracy II (refer to table under clause 6.2.3).

PSG8 MISCELLANEOUS

PSG8.1 Porous concrete/No-fines concrete

Porous or no-fines concrete shall be laid under foundations and floor slabs and behind walls, etc, where shown on the drawings and where directed by the Engineer. Porous concrete shall be placed behind shuttering to form a vertical layer against the external face of foundations etc where shown on drawings and where directed by the Engineer. The thickness of the horizontal, sloping and vertical layers shall not be less than that shown on the drawings.

The exposed faces, both horizontal and vertical, of the porous concrete shall be finished with a cement mortar seal where reinforced concrete is to be cast against it. The porous concrete shall be sealed with a 5mm thick layer of mortar composed of one part normal portland cement to two parts of fine aggregate by mass, trowelled on before the porous concrete has hardened to provide a smooth, uniform plane surface without filling any of the internal voids of the porous concrete. The surface of the seal shall have a steel or power float finish.

The schedule rates for porous concrete shall include the cost of the mortar seal and steel float finish.

Porous concrete shall comprise water, cement, coarse aggregate and not more than 5% (five percent) by mass of fine sand. The voids ratio of porous concrete shall not be less than 27.5% (twenty-seven and one half) percent. Testing of porous concrete shall be carried out in accordance with test method 3 of BS 1881 Part 3 – 1970.

Classes of no-fines concrete

No-fines concrete shall be classified by the prefix NF and the size of aggregate to be used. Class NF 19 means a no-fines concrete with a 19 mm nominal size aggregate.

The volume of aggregate per 50 kg of cement for each class of concrete shall be as follows:

Class	Aggregate per 50 kg cement
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NF 38	0,33 m ²
NF 19	0,30 m ²
NF 13	0,27 m ²

Batching and Mixing

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

The aggregate shall be moist or wetted before the cement is added. Where drum mixers are used, about 20% of the water shall be poured into the drum before the aggregate and cement are loaded. The mixing time in the drum shall be about 45 to 50 seconds.

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

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

Placing

No-fines concrete shall be placed in accordance with the procedure approved by the Engineer. 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.

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:

Retaining formwork in place

Covering exposed surfaces with sacking or other approved material kept continuously wet

Covering exposed surfaces with plastic sheeting

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

Measurement and Payment

Cast-in-situ no-fines concrete (state class) Unit: m³

The provisions of sub-clause 8.1.3 of SABS 1200 G shall apply mutatis mutandis.

PSG8.2 Bond breaker

Unless otherwise indicated on the drawings or by site instruction, all no fines (porous) concrete under floor slabs and wall footings etc. shall be covered with a bond breaker consisting of 100 micron tear resistant damp proof membrane to SABS 952 (1969) C having 150mm laps and pierced at 1m intervals to allow the passage of water.

PSG8.3 Pipe work

All pipe specials shall be cast in by the Contractor. Special care shall be taken to maintain them in the exact position shown on the drawings and also to render the joints watertight.

The permanent fixing of any pipe item to the steel reinforcing shall be unacceptable.

For pipework to be cast in at a later stage, square box-outs shall be provided. For pipes with puddle flanges to be cast in, the size of the box-out shall be suitable for the outside diameter of the pipe plus a full size (class 10) flange according to SANS 1123 plus 100mm. For pipes without puddle flanges, the size of the box-out shall be suitable for the outside diameter of the pipe plus 100mm.

Pipework cast into concrete structures shall be done so with a suitable standard non-shrink grout (BASF Masterflow 525, Sika SikaGrout 212 or similar).

PSG8.4 Holding Down Bolts

All holding down bolts and nuts, other than those used in structures retaining liquid shall be galvanised in accordance with SABS 763.

All holding down bolts and nuts in structures retaining liquid shall be Stainless Steel, Grade 316.

All holding down bolts and anchorages shall be set in accordance with the drawings by means of accurate constructed steel templates and securely fixed in position to prevent displacement during the concreting.

Exposed threads of holding down bolts shall be adequately protected with grease and sacking and this protection shall be maintained in all portions of the works until they are taken over.

For the installation of mechanical equipment (aerators, mixers, pump bases etc), nickel anti-seize shall be used on the holding down bolts.

PSG8.7 Testing for Water-tightness

Water for the initial filling of a water-retaining structure will be supplied free of charge by the Employer, however, the Contractor shall make the necessary arrangement to convey the water from a suitable source into the structure and shall provide any/all pumps, pipework etc to make this possible at his expense. It is anticipated that effluent water from pond no 3 will be used for this purpose, using the new to be installed water re-use abstraction pump and pipeline system.

Each water-retaining structure shall be filled with water at a uniform rate not exceeding 2.0m in 24 hours until the top water level has been reached. The water level will then be carefully noted and recorded by the Engineer in relation to a fixed bench-mark, and the structure shall be allowed to remain filled for a period of two weeks to permit complete absorption of water by the concrete.

Any loss of water which may have occurred shall then be made up by again filling the structure to the top water level and by allowing the water to remain undisturbed for a period of not less than four days. The structure shall be considered to be watertight if the drop in level in 96 hours (less the drop caused by evaporation) does not exceed 10mm.

The evaporation shall be measured by the mean drop in level caused by the evaporation of the water in three flat containers floating in the water, being recorded.

The Contractor is free to attend the taking of all measurements by the Engineer.

In the event of an appreciable leakage being evident or visible at any stage of the filling or testing, or in the event of the final degree of water tightness being unsatisfactory, the Contractor shall, when so ordered by the Engineer, discontinue such filling or testing and shall, at his own expense, take approved steps to rectify the leakage, until a test proves that a sufficient degree of water tightness has been obtained.

Before the expiry of the defects notification period, the Engineer shall have the right to retest the structure for water tightness. Results of such further tests will be made available for the information of the Contractor. In the event of these tests indicating an unsatisfactory degree of water-tightness, the Engineer will, before issuing the final certificate, again require the Contractor to rectify the leakage, at his own expense, in such a manner as will cause the least interruption of the WWTW

The costs of re-testing a water-retaining structure for water tightness shall be borne by the Contractor.

PSG8.8.3 Welding

8.8.3.1 Primary Welding Method

All primary welds shall utilise the Split Hot-Wedge Fusion welding method.

The Split Hot- Wedge welder shall be a fully automated device comprising of a heated copper wedge, pressure rollers and electronic controls.

The copper wedge shall be controlled and constantly monitored by a programmable controller with an audible off-temperature alarm and a variable speed drive unit.

The copper wedge shall create two contact fusion areas of a minimum width of 10mm and a 2mm minimum wide void between each of the separate parallel weld zones.

This void shall be created over the entire seam length to allow for field weld pressure testing.

8.8.3.2 Primary Welding Method

All secondary welds shall utilise the manufacturers' surface Extrusion Hand Welders.

The minimum width of the surface extruded bead shall be 15mm.

The surface extrusion welder shall be semi-automated and equipped with electronic controls which constantly monitor outputs for both preheat and HDPE extrudate.

The unit shall be capable of pre-heating the sheet just prior to the casting of HDPE extrudate over the upper and lower section of the weld zone.

The extrusion rod for the surface extruding welding shall be manufactured from the same resin type used in the manufacture of the membrane.

All physical properties shall be identical to those possessed by the membrane raw material.

The manufacturer shall provide certified test data with each batch of welding rod.

All rod supplied shall be packed to prevent the ingress of moisture and other contaminants. If necessary the Installer shall also employ an apparatus specifically built for drying rod to ensure weld quality.

8.8.3.3 General Site Welding

The Installer shall be responsible for regularly checking, calibrating and recording the following items:

Preheat temperature at the nozzle

Internal barrel temperature

Split Copper wedge temperature

Split Copper wedge speed.

8.8.3.4 Weld preparation

The Installer shall ensure prior to any primary or secondary welding that weld zones be clean, free from moisture, dust, and any other foreign matter.

All weld zone surfaces shall be either cleaned or abraded no more than 60 minutes prior to the commencement of welding any seam.

In extremely bad conditions it may be necessary for the installer to clean and/or abrade the weld zone areas only minutes prior to the required weld.

8.8.3.5 Trial Welds

Trial welds shall be made on fragment pieces of membrane to verify that welding machine parameters are set to produce satisfactory welds.

Such trial welds shall be made prior to actual field welds at the beginning of each working day.

Samples shall be cut from the trial weld using a calibrated die cutter and tested on a calibrated tensiometer in shear and peel to determine whether the test welds have passed or failed.

PSG8.8.4 Testing of Material and Welding

8.8.4.1 Testing of wedge fusion weld

Destructive Testing – Prior to actual field welding, the machine technician will run trial welds on fragment pieces of membrane. Such trial welds shall be made at the beginning of each working day. The trial weld sample shall be at a minimum 1.0m long by 0.3m wide with the weld centered lengthways. Four 25mm wide samples shall be cut from the trial weld sample using a calibrated die cutter. Test will be in shear and peel using a calibrated tensiometer to determine whether the test welds have passed.

Destructive seam tests shall also be performed at random selected locations during the installation by the Engineer and Installation Contractor, at a minimum of one sample every 300m. The purpose of these tests shall be to confirm and evaluate seam strength and continuity during the field seaming. Each sample shall be cut using a calibrated die cutter into two 25mm wide pieces and shall be tested in shear and peel.

In the event of a failure, all prior welds shall be tested back to the last test which passed. It will be the responsibility of the Installer to repair and make good the seam/seams to the satisfaction of the Engineer.

Non-Destructive Testing – 100% of all wedge welds will be tested. The air pressure testing kit required, shall be an apparatus consisting of a hollow needle attached to a pressure gauge and air fitting. Air pressure can generally be provided by manual or mechanical pumps. The testing unit shall be capable of withstanding and maintaining pressures between 20 to 45 PSI. The following procedure for air channel testing shall be followed:

Seal both ends of the seam to be tested.

Insert needle into the channel created by the wedge welder.

Connect air pump and pressurize the channel to a minimum of 20PSI and maintain the pressure for approximately two (2) minutes.

If loss of pressure exceeds 10% or does not stabilize, locate faulty area, repair with surface extrusion weld and re-test seam.

Remove the APT kit.

8.8.4.2 Testing of surface extrusion welding

Destructive Testing: - Prior to actual field welding, the Machine Technician will run trial welds on fragment pieces of membrane. Such trial welds shall be made at the beginning of each welding period. The trial weld sample shall be at a minimum .5mm long by 0.3m wide with the weld centered lengthways.

Four 25mm wide samples shall be cut from the trial weld sample and tested in shear and peel using a field tensile tester to determine whether the test welds have passed.

Non-Destructive Testing: - 100% of all surface extrusion welds will be tested. The High Voltage Spark Gun unit required for testing will be supplied by installer.

The procedure for High Voltage Spark Testing shall be as follows:

Area of well must be clean and dry.

Patch is to be heat tacked firm.

Overlap of area to be abraded (min 10mm)

Copper wire to be inserted at overlap of material

Surface weld to be carried out

Allow to cool

Point H.V.S.T at weld moving slowly over welded area

If a spark shows, repair and retest.

8.8.4.3 QA/QC Certificates and records for material and installation

The Lining Installation Contractor shall provide the Engineer with the following listed Test Certificates and Records prior to, during and/or at the completion of the works as each report and record is required.

Certification and Test results of Raw Materials from Raw Materials Supplier.

Certification and Test results of Raw Materials from Membrane Manufacturer.

Roll Test Data Reports for Each Roll of Material.

HDPE Welding rod Test Reports.

Completed as Built Drawing, including roll numbers, panel layout, seam locations and repair locations.

Membrane property, ASTM method, minimum specs and roll rest values for the following must be made available if required:

ASTM

Carbon Black Dispersion D3015

Carbon Black Content D1603

Geomembrane Density D792

ESCR D1693-B

Thickness – Normal D1593/D751

Minimum

Ave. Thickness

Puncture Resistance (Strength) FTMS 101/2065

The following items shall be tested in both machine and cross direction:

ASTM

Tensile Yield Strength D638

Yield Elongation D638

Tensile Break Strength D638

Break Elongation D638

Tensile Impact Strength D1822

Tensile Impact Elongation D1822

Tear Resistance D1004

Dimensional Stability D1204

Any material rejected on site by the Engineer shall be jointly inspected by the Engineer, the installation contractor and the manufacturer. If required, the material shall be tested, and if the material is unable to meet the specification, it shall be replaced by the manufacturer/installer at his cost.

Installation reporting shall comply with SANS 10409:2005 Edition 1, Annexure A to I.

The following daily Installation reports and records are also required for each welder and technician.

Trial Test weld Record

Wedge Weld Records

Surface Extrusion Weld Records

Weld Peel and Tensile Test Records

Wedge Air Channel Pressure Test Records

Patch, Repair and HVT Records

Roll identification and dimensions

Roll number

Production Date

Area of Sheet on Roll

Roll Length

Roll Width

Roll Weight

Resin lot information

Batch Number

Resin Type

Resin Test Results – ASTM

Density D792

Moisture D570

Brittleness D746

Melt Index D1238

O.I.T. D3895

8.8.4.4 Independent testing

The Engineer at his own discretion may require the Lining Installation Contractor to extract random samples of sheet from each roll and from welded seams to qualify the Manufacturers and Installers test results. A provisional sum for control testing is included in the schedule of quantities.

Samples shall be kept to a minimum and the following frequency of samples shall apply:

Material samples - 1 sample per roll

Weld Samples from Site - 1 sample for every 300 metres of seam.

All subsequent independent tests shall be undertaken by an approved testing authority experienced in the testing and evaluation of HDPE Flexible Membrane liners. The tests and results shall be subject to review and/or confirmation by the Membrane Manufacturer.

Material manufacture and supply will take place in accordance with the SANS 1526:2003 specification, and the GRI GM13 and ASTM test methods.

8.8.5.1 Material Specification

The geomembrane shall be Premium Grade High Density Polyethylene or equivalent. The membrane shall be manufactured by flat-cast extrusion process only, and consist of single resin being one hundred percent Virgin and of a narrow molecular distribution. Carbon black shall be added to the Resin for ultraviolet resistance. The flexible membrane shall be manufactured to the following approximate ratios; HDPE 97.5% - Carbon Black 2.5%.

All membrane shall be provided in rolls of a minimum width of 6.8 metres. Each roll shall be labelled to provide the following identifying data:

Name of manufacturer and type

Material thickness

Roll Number

Roll Length

Roll Weight

Roll Width

Cross reference numbers to Raw Material Batch and all Laboratory certified reports

The manufacturers approved QA stamp and the technicians signature

The material shall be free from holes, blisters, folds, undispersed raw materials, and any sign of contamination by foreign matter.

PSG9 TESTS (Clause 7)

PSG9.1 Facilities (Sub-Clause 7.1.1)

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."

PSG9.2 Acceptance criteria for strength concrete (Sub-Clause 7.3)

Add the following:

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

PSG10 MEASUREMENT AND PAYMENT (Clause 8)

PSG10.1 Measurement and Rates (Sub-Clause 8.1)

PSG10.1.1 Formwork (Sub-Clause 8.1.1)

Delete "or splays over 20 mm x 20 mm" from the first line of paragraph 8.1.1.2.
Add the following to paragraph 8.1.1.2:

"Splays up to and including 25 mm x 25 mm will not be measured separately and will be deemed to be included in the formwork costs."

Add the following paragraphs:

"8.1.1.7 For construction joints at kickers, all additional costs for formwork to edges up to 300 mm high will be deemed to be included in the rates tendered for vertical formwork to sides of walls and will not be measured separately in narrow widths.

8.1.1.8 No formwork will be measured to edges of blinding layers under structures, and the cost thereof (if needed) will be deemed to be included in the rates tendered for concrete in blinding layers.

8.1.1.9 Back-shuttering or formwork to top revealed surfaces of sloping or conical formwork will only be measured to surfaces of over 40° and up to 85° to the horizontal.

8.1.1.10 Formwork to horizontal surfaces in pump stations, valve chambers, manholes or sumps can either be removed through the manhole cover opening or the Contractor may use permanent formwork at his own cost as no claims in this regard will be considered."

PSG10.2 Scheduled Concrete Items

PSG10.2.1 Strength concrete, Grade (Sub-Clause 8.4.3)

Add the following after the last sentence:

"In the case of structural floor screeds, the unit of measurement shall be the square meter and the average thickness and proportions will be stated."

Replace "Unit: m³" With "Unit: m³, m²"

PSG10.2.2 Unformed surface finishes (Sub-Clause 8.4.4)

(b) Steel-floated finishes

Add the following sub-item:

"(i) Extra over subitem (b) for special finishing tolerances to top of outside ringwalls as specified Unit: m²

The quoted rate shall include full compensation for the additional cost of finishing the ringwalls to closer tolerances as specified on the Drawings and in clause PSG 7.1."

PSG10.3 Joints (Sub-Clause 8.5)

Replace "Unit: m" with "Unit: m or m²".

ADD THE FOLLOWING ITEMS:

PSG10.4 PSG8.9 Miscellaneous work other than metalwork Unit: as scheduled

Separate items will be scheduled for each type of miscellaneous work.

The tendered rates shall include full compensation for providing all labour, materials and equipment required to carry out the work, for all preparatory work, for constructing the work scheduled in a workmanlike manner and for finishing off and cleaning up when the work has been completed.

PSG10.5 PSG8.10 Testing for watertightness:

(a) (Structure stated) Unit: sum

The unit of measurement shall be the number of each structure successfully passing the specified watertightness tests to the satisfaction of the Engineer.

The sums tendered shall include full compensation for the provision of all labour, plant and materials necessary for carrying out the test for watertightness as specified.

PSG10.6 PSG8.11 Screeds

Floor screeds (1:3) with falls including V-joints to form panels and a smooth steel-trowelled fish/power float finish to top:

Description of application and thickness.....Unit: m²

Etc for other applications and thickness

The unit of measurement shall be the square meter of screed constructed.

The tendered rate shall include full compensation for constructing the screeds as specified including supplying of all materials, preparing the concrete surface to receive the screeds and for all else that may be necessary to complete the work

PSG10.7 PSG8.12 Casting in pipes with or without puddle flanges

Up to 300 mm nominal bore:

- (i) Through (description and thickness of structural elements) Unit: number
- (b) Over 300 mm up to 600 mm nominal bore:
 - (i) Through (description and thickness of structural elements) Unit: number
 - (c) Etc for other nominal bores in increments of 300 mm

The unit of measurement shall be the number of each size of pipe installed.

The tendered rates shall include full compensation for installing the pipe where new pipes are used (with or without a puddle flange) in the exact position as shown on the Drawings, for splitting or cutting the formwork where required, supply and installation of suitable non-shrink grout and for ensuring watertightness where required and for all additional costs required to install the pipes specified or shown on the Drawings.

Pipe items to be cast in shall be measured elsewhere.

PSG10.8 Corrosion protection by

- (a) Vinyl anti-fouling paint and undercoats to form an algae- resistant coating on:
 - (i) (Description of structural element stated) Unit: m²
- (b) Solvent-free abrasion-resistant coating and primer to a minimum thickness of 3 mm on:
 - (i) (Description of structural element stated) Unit: m²

The unit of measurement shall be the square meter of surface protected against corrosion.

The tendered rates shall include full compensation for surface preparation for supplying and applying the materials as specified, for all labour, equipment and appurtenant materials necessary to carry out the work and for all waste and cleaning up after the work has been completed."

PSG10.9 PSG 8.13 Emergency site reinforcement and equipment.....Unit: ton

The Contractor must bring onto site the following site reinforcement that is to be used for emergency situations at the sole discretion of the Engineer:

- 10 straight lengths of 10 m of Y10 reinforcement, plus
- 10 straight lengths of 10 m of Y12 reinforcement, plus
- 10 straight lengths of 10 m of Y16 reinforcement, plus
- 10 straight lengths of 10 m of Y20 reinforcement

In addition to the above, the Contractor must keep on site manual tools for cutting and bending the above reinforcement in emergency situations as per Engineers' instructions.

All the above reinforcement and equipment must be kept dry, clean and available for use at very short notice. Any of the above reinforcement that is used, must be replaced as soon as practically possible.

Payment will be as follows:

80 % of the tendered amount will be paid when the above material and equipment is brought to site and stored in a manner that is acceptable to the Engineer.
Reinforcement used will be paid for under the "normal" reinforcement items.
The remaining 20 % of the tendered amount will be paid when all material and equipment is removed from site, after being instructed to do so by the Engineer.

PSHA STRUCTURAL STEELWORK (SMALL WORKS)

PSHA1 CONSTRUCTION (Clause 5)

PSHA1.1 Contractor to provide details (Sub-Clause 5.1.2)

Replace the first sentence of this clause with:

"The Engineer's drawings issued for construction purposes are preliminary with regards to structural steel items and the Contractor shall prepare shop drawings of all structural steel items for the Engineers approval."

Add the following sentence to the end of this clause:

"No payment shall be considered for any structural steel item without shop details being provided and approved by the Engineer in writing."

PSHA2.1 Fabrication and Assembly (Sub-Clause 5.2)

PSHA2.1.1 Protective Treatment

This clause shall be replaced with the requirements of Particular Specification PTV (Corrosion Protection).

PSHA3 MEASUREMENT AND PAYMENT (Clause 8)

PSHA3.1 Scheduled Items (Sub-Clause 8.3)

PSHA3.1.1 "PSHA 8.3.2 Handrails:

Replace sub-item c(3) with the following:

"(c)(3) Extra over rails for bends, end closures and accessories:

- (i) (Description of item stated)..... Unit: number

PSME SUBBASE

PSME1 MATERIALS

PSME1.1 Physical Properties

PSME1.1.1 Subbase material (Sub-Clause 3.2.1)

Replace the contents of paragraph (a) with the following:

"(a) The maximum particle dimension of the gravel shall not exceed 63 mm."

Replace the contents of paragraph (d) with the following:

"(d) The CBR at specified density shall be 45 for unstabilized material as well as for stabilized material prior to stabilization."

Delete paragraph (e).

PSME1.1.2 Gravel shoulder and gravel wearing course material (Sub-Clause 3.2.2)

Replace the contents of this sub-clause with the following:

"The material used for gravel shoulders and gravel wearing course shall comply with the following:

- (a) The PI shall not be less than 6 and not more than $(3 \times GM) + 10$.
- (b) The maximum particle dimension of the gravel shall not exceed 40 mm.
- (c) The CBR shall be greater than 15 at 93% of modified AASHTO density."

PSME2 CONSTRUCTION

PSME3 MEASUREMENT AND PAYMENT

PSME3.1 Basic Principles

Insert a semicolon in the first line of paragraph (b) after the words "will be paid for once only" and delete the rest of the paragraph.

Amend paragraph (d) as follows:

"(d) that, in the case of material from a commercial source or from borrow pits selected by the Contractor, no additional payment will be made for the class of excavation, method of processing (except stabilizing), or overhaul."

PSME3.2 Scheduled Items

PSME3.2.1 Construct the subbase course/shoulders/gravel wearing course with material from designated excavations (Sub-Clause 8.3.2)

Replace the contents of sub-item (a) with the following:

"The rate for (a) shall include full compensation for excavating and selecting subbase material, for loading and transporting the material within the free-haul distance, and for either placing the material on the road or stockpiling the material for later use. When material is stockpiled, the rate shall include compensation for shaping and grading the stockpile so that it is free-draining."

PSME3.2.2 Construct the subbase course/shoulders/gravel wearing course with material from commercial sources or designated borrow areas (Sub-Clause 8.3.3)

Replace the heading of this item with the following:

"PSME 8.3.3 Construct the subbase course/shoulders/gravel wearing course with material from commercial sources"

Add the following paragraph:

"This item shall also apply to the construction of subbase course/shoulders/gravel wearing course with material from borrow pits selected by the Contractor."

PSMF BASE

PSMF1 MATERIALS

PSMF1.1 Physical and Chemical properties

PSMF1.1.1 Natural gravel (stabilized or unstabilized) (Sub-Clause 3.3.1)

Replace the contents of paragraph (a) with the following:

"(a) The maximum particle dimension of the gravel shall not exceed 63 mm."

PSMF2 CONSTRUCTION

PSMF2.2 Transport

Replace the contents of this subclause with the following:

"All movement of material will be considered as free-haul. No haulage cost will be paid."

PSMF3 MEASUREMENT AND PAYMENT

PSMF3.1 Scheduled Items

PSMF3.1.1 Construct base with material from commercial sources (Sub-Clause 8.3.3)

Replace the title of item 8.3.3 with the following:

"PSMF 8.3.3 Construct base course with material from commercial sources and compact to 86% of apparent density"

PSMF3.1.2 Process base material by the following processes, as relevant, and use in base (applicable to 8.3.1 or 8.3.2 or both):

Add the following sub item:

"(e) Process base material by chemical modification
(applicable to item 8.3.1) Unit: m³

The tendered rate shall include full compensation for the chemical modification as specified, including all labour, transport, etc. The modifying agent will be paid for under item PSMF 8.3.8."

PSMJ SEGMENTED PAVING

PSMJ1 MEASUREMENT AND PAYMENT

PSMJ1.1 Scheduled Items

PSMJ1.1.1 Construction of paving complete (Sub-Clause 8.2.2)

Add the following:

"The tendered rate shall also include full compensation for cutting units to fit edge restraints and for the removal of waste material from the Site."

PSL MEDIUM PRESSURE PIPELINES

PSLB BEDDING (PIPES)

PSLB1 MATERIALS

PSLB 1.1 Selected granular material (Sub-Clause 3.1)

Selected granular material shall have a plasticity index (PI) of less than 10 and 100% of the material shall pass a 9.5mm opening sieve. It shall have a minimum modulus of soil reaction ('E') value of 7 MPa at 85% Mod AASHTO maximum dry density and shall be one of the following soil types in accordance with the Unified Soil Classification System:

SM, SP, GP, GW, SW, GM

PSLB 1.2 Selected fill material (Sub-Clause 3.2)

Selected fill material shall be material that has a PI less than 10 and does not contain vegetation or stones exceeding 30mm.

PSLB1.3 Bedding (Sub-Clauses 3.3 & 5.1.2)

Rigid Pipes

All clay and concrete pipes shall be laid on a Class C bedding as shown on drawing LB-1 of SABS 1200LB.

Flexible Pipes

Steel, uPVC, mPVC, GRP, Ductile iron and polyethylene pipes will be regarded as being flexible and shall be bedded as per drawing LB-2 of SABS LB.

PSLB2 OVERHAUL (Sub-Clause 3.4.1 and 8.2.1)

All the haulage of bedding material shall be considered as freehaul and no payment will be made for haul.

PSLB3 SELECTION

PSLB3.1 Suitable material not available from trench excavations (Sub-Clause 3.4.2)

Material for the bedding shall be obtained from a commercial source or approved borrow pit designated by the Contractor.

END OF SECTION

C4. CONSTRUCTION PROGRAMME

C4.1 COMMENCEMENT DATE

The commencement date for the Contract programming purpose is 20 July 2026.

C4.2 FORMAT AND DETAIL

The construction programme shall be in the format of a bar chart (Gantt Chart) and shall in addition to normal activities and items include the following detail;

- i) cash flow on a monthly basis, ii) production rates for all activities, iii) dependencies between various activities or items, and iv) critical path for the execution of the works.

The format and detail of the programme shall be to the Engineer's approval.

C4.3 QUALITY CONTROL PLAN

In addition to the normal construction programme the Contractor shall submit a quality control plan in accordance with SABS 0157 prior to commencement of any permanent work for approval by the Engineer. The Quality Control Plan shall make provision for regular reporting and reports shall be submitted to the Engineer on a monthly basis or more frequently if required.

C4.4 PROVISIONAL PROGRAMME

A provisional programme which complies with the above mentioned requirements shall be submitted at tender stage. The provisional programme shall be based on an anticipated commencement date for the Contract.

C4.5 FEATURES REQUIRING SPECIAL ATTENTION

The sequence of execution of activities should accommodate the continued operation of the existing water supply services for all areas.

C4.6 CONFORMITY WITH EXPANDED PUBLIC WORKS PROGRAMME (EPWP) REQUIREMENTS

The project is funded by a government agency and is subsequently destined to conform with EPWP requirements of employment, training and capacity building in as great an extent as can efficiently be achieved.

Tenderers are required to submit details of their proposed conformance with EPWP requirements of employment, training and capacity building with their tenders. This should include details of;

- i) the extent to which labour intensive construction methods are applicable and will be employed and the number of employment opportunities which will subsequently be created for local labourers, ii) the extent to which local sub-contractors will be employed with specific reference to conventional sub-contractors, sub-contractors employed on a management contractor basis and sub-contractors employed on a labour only basis where the main contractor will be responsible for logistics (eg materials and transport) and quality control and the sub-contractor will be responsible for the manpower component.
- iii) the extent to which support staff (clerks, messengers, typists, security personnel, drivers and labourers for general maintenance) will be employed from the local community, and iv) details of proposed education, training

and capacity building programmes including the number of candidates to participate in the various programmes and the various institutions which will be contracted to present the training programmes.

The **conformity with EPWP requirements** will together with **Contract Price** be an important criteria for the evaluation and adjudication of the tender. In evaluating the tenders, any additional offer in regard to capacity building will be to the advantage of the tenderer.

The proposed conformance with EPWP requirements of employment, training and capacity building as submitted with the tender will become binding on the Contractor in terms of the Contract if his tender is accepted.

C5 APPLICABLE STANDARDIZED AND PARTICULAR SPECIFICATIONS

C5.1 STANDARDIZED SPECIFICATIONS

Civil Engineering

Codes of Practice are as follows:

SABS 1200 All sections where relevant
SABS 0252 Part 1 and 2
Guidelines for Human Settlement Planning and Design (CSIR - Red Book)
Urban Transport Guidelines Series (UTG)
Technical Methods for Highways (TMH)
COLTO Specifications

Structural Engineering

Codes of Practice are as follows:

SASS 0160: 1989 Loading, deflections, and Stability Requirements
SANS 0100-1 Structural use of concrete
SASS O 162: 1983 Structural Steel Design
SABS 0144 Detailing reinforcement
SABS 0140 Masonry design
SANS 10100-Part 1 The structural use of concrete - Design
SANS 10100-Part 2 The structural use of concrete - Materials and workmanship
SANS 2001-CC1:2007 Concrete works (Structural)
SANS 10144 Detailing of steel reinforcement for concrete
SABS 920 Steel bars for concrete reinforcement
SANS 10160-Parts 1 to 8 Basis of structural design and actions for buildings and industrial structures
SABS 920 Steel bars for concrete reinforcement
South African Steel Construction Handbook

Building Design

Codes of Practice are as follows:

SANS 10160-Parts 1 to 8 Basis of structural design and actions for buildings and industrial structures
SANS 10100-Part 1 The structural use of concrete - Design
SANS 10100-Part 2 The structural use of concrete - Materials and workmanship
SANS 2001-CC1 Concrete works (Structural)
SANS 10144 Detailing of steel reinforcement for concrete
SABS 920 Steel bars for concrete reinforcement
SANS 10162-Part 1 The structural use of steel -Design (Hot rolled steelwork)
SANS 10164-Part 1 The structural use of masonry (Unreinforced) Material Properties and Design Data

Electrical Engineering

Codes of Practice are as follows:

SANS 10142	All sections where relevant
SANS 60947-3	LV Switches
SANS 61008-1	Earth Leakage devices
SANS 60947-2	Circuit breakers
SANS 1765	Distribution boards
SANS 950	PVC Conduit
SANS 60669-2-1	Switches
SANS 1085	Wall boxes

Mechanical Engineering

Codes of Practice are as follows:

SABS 1125-1977	Room air conditioners
SABS 0140-1978	Identification color marking
SABS 0139-1981	The prevention, automatic detection and extinguishing of fire in buildings.
SABS 0147-1992	Refrigerating systems including plants associated with air conditioning systems.
SABS 0173-1980	The installation, testing and balancing of air- conditioning duct work.
SABS 193-1972	Fire dampers
SABS 1238-1979	Air-conditioning ductwork
SABS 1424-1987	Filters for air-conditioning and general ventilation

The term "Project Specification" must be replaced by "Scope of Works" wherever it appears in these standardized specifications.

C5.2 PARTICULAR SPECIFICATION

In addition, the following particular specifications that are formed in the document shall apply:

Specification PA.	: MINIATURE SUBSTATIONS
Specification PSQ	: Borrow Pits and Borrow Materials
Specification PSW	: Building Work

VARIATIONS ON STANDARDISED SPECIFICATIONS

Should any requirement of the Project Specification conflict with any requirement of the Standardized or Particular Specification, the requirement of the Project Specification shall prevail.

C5.3 Variations and Additions to the SABS 1200 Standardized Specifications

PART C6: SITE INFORMATION

C6.1 SITE INFORMATION

C6.1.1 Site of Works and Access

The general layout of the project site and the extent of the works is shown on the tender drawings. Access to the site will be obtained through the access roads and internal streets of the water services areas.

Any additional temporary access routes, which the Contractor DWA require will be his responsibility and no separate payment other than that provided for in the Schedule of Quantities will be made for the construction, maintenance or removal of temporary access routes. The Contractor will remove all temporary access routes prior to completion of the Contract and rehabilitate the areas to their original state.

C6.1.2 Soil Conditions

No trial holes have been excavated. The perspective contractors may make arrangements to have trial holes dug in the area on their own accord.

C6.1.3 Existing Services

All existing services shall be indicated to the contractor where after he will assume full responsibility for maintaining these in good running order. It shall be understood that the production of the existing plant shall in no way be impaired during the contract.

C6.1.4 Surveying and Cadastral Beacons

The Contractor shall be held responsible for the cost incurred in replacing or repositioning of any cadastral beacons, which may have been disturbed by his actions.

Under no circumstances shall unauthorized persons replace cadastral beacons and the Engineer shall be informed immediately of any disturbed beacons. The Engineer shall arrange for the replacement of any beacons by a competent Land Surveyor.

C6.1.5 Facilities available on site

C6.1.5.1 Electricity

The Contractor shall make his own arrangements with the Maluti-a-Phofung Municipality for electricity supply.

C6.1.5.2 Water

The Contractor shall make his own arrangements with the Maluti-a-Phofung Municipality for water supply.

C6.1.6 Site Facilities Required

C6.1.6.1 Temporary Offices, Furniture and Equipment for the Resident Engineers The

facilities that has to be provided for the Resident Engineer consist of the following:

- i) one office, fully equipped and furnished, for the use of the Engineer and the Client.
- ii) Office equipment such as printer, laptop and access to mobile communication
- iii) two carports,
- iv) survey assistants, materials and instruments, for his use whenever required.

C6.1.6.2 Temporary Housing, Sheds, Etc. for the Contractor

The Contractor shall provide at his own cost all housing and sheds of a temporary nature necessary for the convenience of his workmen and for storage of tools, plant and materials in positions to be approved by the Engineer. As soon as they are no longer required, the housing and sheds shall be removed and the site shall be restored to a clean and tidy condition. The Contractor shall also limit the movement of his equipment and personnel to the areas on site which have been pointed out by the Engineer.

C6.1.6.3 Sanitary Facilities

The Contractor must provide adequate sanitary facilities and sewerage disposal in accordance with the Malutia-Phofung health regulations.

ANNEXURE A
PRO FORMA DOCUMENTS

FORM OF GUARANTEE

BID NO: SCM/BID33/2025/2026

WHEREAS **The MALUTI-A-PHOFUNG MUNICIPALITY**

(hereinafter referred to as "the Employer") entered into, a Contract with

.....
(hereinafter called "the Contactor") on the day of 20..... for the

**PROCUREMENT OF A SERVICE PROVIDER: THE REPAIR AND REFURBISHMENT OF TSHIAME
WASTEWATER TREATMENT WORKS**

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

AND WHEREAS

has/have at the request of the Contractor, agreed to give such guarantee;

NOW THEREFORE WE, do

hereby guarantee and bind ourselves jointly and severally as Guarantor and Co-principal Debtors to the Employer under renunciation of the benefits of division and excussion for the due and faithful performance by the Contractor of all the terms and conditions of the said Contract, subject to the following conditions:

1. The Employer shall, without reference and/or notice to us, have complete liberty of action to act in any manner authorized and/or contemplated by the terms of the said Contract, and/or to agree to any modifications, variations, alterations, directions or extensions of the Completion Date of the Works under the said Contract, and that its rights under this guarantee shall in no way be prejudiced nor our liability hereunder be affected by reason of any steps which the Employer may take under such Contract, or of any modification, variation, alterations of the Completion Date which the Employer may make, give, concede or agree to under the said Contract.
2. This guarantee shall be limited to the payment of a sum of money.
3. The Employer shall be entitled, without reference to us, to release any guarantee held by it, and to give time to or compound or make any other arrangement with the Contractor.
4. This guarantee shall remain in full force and effect until the issue of the Certificate of Completion in terms of the Contract, unless we are advised in writing by the Employer before the issue of the said Certificate of his intention to institute claims, and the particulars thereof, in which event this guarantee shall remain in full force and effect until all such claims have been paid or liquidated.
5. Our total liability hereunder shall not exceed the sum of
..... (R).
6. The Guarantor reserves the right to withdraw from this guarantee by depositing the Guaranteed Sum with the beneficiary, whereupon the Guarantor's liability hereunder shall cease.
7. We hereby choose our address for the serving of all notices for all purposes arising here from as

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

on this day of 20.....

As witnesses:

1. Signature

2.

Duly authorized to sign on behalf of

Address :

RETENTION MONEY GUARANTEE

ISSUED TO: **THE MALUTI-A-PHOFUNG MUNICIPALITY** (hereinafter referred to as "the Employer")

ON BEHALF OF : (hereinafter referred to as "the Contractor") In

connection with

CONTRACT NO: SCM/BID32/2025/2026

WHEREAS the Employer and the Contractor have agreed that the Contractor may provide a guarantee in lieu of the whole or portion of the retention monies provided for under the Contract;

NOW THEREFORE we, the undersigned, undertake, in accordance with the following provisions, to pay to the Employer such amounts as the Employer may, from time to time, demand from us.

1. Each demand by the Employer shall be in writing signed by the Employer and delivered to us at
..... or such other address
be in as we shall in writing notify to the Employer and shall be accompanied
by a certificate complying with Clause 2, signed by the Engineer in office as such in terms of the Contract.
2. The Engineer's certificate referred to in Clause 1 shall certify
 - a) that he is the Engineer in office as such in terms of the Contract,
 - b) that the Contractor is in breach of his obligations under the Contract, and
 - c) that the amount demanded, which amount the certificate shall specify,
 - i) does not exceed the amount of retention monies which, but for this guarantee, would have been retained by the Employer in terms of the Contract at the date of the certificate, less the aggregate of the amounts of retention money actually retained by the Employer and the amounts previously paid by us to the Employer in terms hereof, and
 - ii) does not exceed a genuine estimate of the cost to the Employer of having the breach referred to in paragraph (b) remedied less the aggregate of any amounts withheld by the Employer from payments due to the Contractor in terms of the Contract by reason of the breach referred to, and any amount of retention money actually held by the Employer save to the extent that the same had been deducted from any previous demand in terms hereof.
3. We shall within days after our receipt of a demand complying with the provisions of Clauses 1 and 2 ... make
payment to the Employer of the amount demanded at or at such
other address in as the Employer shall in writing notify to
us.
4. Subject to compliance with the provisions hereof, our liability to make the payments herein referred to shall be unconditional and shall not be affected or diminished by any disputes, claims or counterclaims between the Employer and the Contractor.
5. Our aggregate liability under this guarantee is limited to R
6. This guarantee shall expire on the date on which the last of the retention monies, which but for this guarantee would have been retained by the Employer, becomes payable to the Contractor.
7. This guarantee is not transferable and must be produced for endorsement if any part payment is made and must be returned to us against final payment of our aggregate liability or on the date of the expiry of the guarantee in terms of Clause 6, whichever is the earlier.

Signed in the presence of the subscribing witnesses:

At for and on behalf of

..... on this day of 19

Signature :

Capacity :

Address :

As witnesses :

1.....

2.....

BID NO: SCM/BID33/2025/2026

FORM OF BOND FOR UNUSED MATERIALS ON SITE

EMPLOYER : THE MALUTI-A-PHOFUNG MUNICIPALITY

CONTRACTOR.....

DESCRIPTION OF CONTRACT

We the (Bank or Company) hereby bind ourselves as surety in solidum and co-principal debtors to recompense the Employer in the event of his not acquiring ownership of materials for whatever reason, or in the event of his lawfully being required to make payment of any sum of money to any third party in order to obtain or retain ownership or full and free possession of the said materials, in circumstances where the Employer has paid the Contractor for the said materials on Site in terms of Clause 62(1)(b) of the General conditions of Contract, and for all losses, damages and expenses that may be suffered or incurred by the Employer as a result of such payment for the said materials on Site, renouncing all benefits from the legal exceptions ordinisueuexcussionis et divisionis "No value received" and all other exceptions which DWA or could be pleaded against the validity of this guarantee, with the meaning effect of which exceptions we declare ourselves to be fully acquainted; provided that the liability of the undersigned under this guarantee is limited to and shall not exceed

(R) will lapse after issue of the Completion Certificate in terms of the Contract, unless the surety is advised in writing by the Employer before issue of the said Certificate of his intention to institute claims and the particulars thereof, in which event this guarantee shall remain in force until all such claims are paid or settled.

FOR AND ON BEHALF OF THE SURETY:

SIGNATURE : **AT**

.....

1.

2.

NAME OF SURETY :

ADDRESS :

.....

.....

APPOINTMENT – GSR 11(1)

BUILDING WORK SUPERVISOR

The Occupational Health and Safety Act 85/1993.

GENERAL SAFETY REGULATION 11(1)

Every employer who performs building work shall charge a full-time employee, designated in writing by the employer, with the duty of supervising the performance of such building work. Provided that if such employer himself has the experience contemplated in sub regulation (2) and supervises the work himself, such charging and designation need not be done.

GENERAL SAFETY REGULATION 11(2)

An employee contemplated in sub regulation (1) shall be a person who has had at least 2 years' experience in the type of building work for which he is to be designated.

GENERAL ADMINISTRATION REGULATION 1

“Building work” means any work in connection with:

- (a) the erection, maintenance, alteration, renovation, repair, demolition or dismantling or addition to a building;
- (b) the installation, erection or dismantling of machinery;
- (c) the construction, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, street, runway, sewer or water reticulation system or work on any similar project; or
- (d) the moving of earth, clearing of land or making of an excavation or work on any similar project.

DESIGNATION

Therefore in accordance with General Safety Regulation 11(1) and (2) and General Administrative Regulation (1) referred to above:

I, DESIGNATED OFFICIAL FOR do hereby designate as a Building Work Supervisor over his demarcated areas of responsibility (state demarcation e.g. structure, finishes, etc) for the

SITE / WORKPLACE: **CONTRACT**

.....

SITUATED AT:

DATE: SIGNATURE:.....

ACCEPTANCE OF DESIGNATION

I, hereby accept this appointment as a BUILDING WORK SUPERVISOR and confirm that I am conversant with the relevant statutory provisions and regulations of the relevant Act in regard to the carrying out of building work.

SIGNATURE:

DESIGNATION:

DATE:

DISTRIBUTION

- 1. Original displayed at plant division / on site.
- 2. Copy to central files.

OCCUPATIONAL HEALTH AND SAFETY ACT 9/96/1993

MANAGEMENT

DESIGNATION

Chief Executive Officer with certain duties,

- (1) every chief executive officer as far as is reasonably practicable ensure that the duties of his employer as contemplated in this Act, are properly discharged.
- (2) With derogating from his responsibility or liability in terms of subsection (1), a chief executive officer may assign any duty contemplated in the said subsection, to any person under his control, which person shall act subject to the control and directions of the chief executive officer.
- (3) The provisions of subsection (1) shall not, subject to the provisions of section 37, relieve an employer of any responsibility or liability under this Act.

I, CIVIL ENGINEER for do hereby assign my duties to to ensure that the duties of the employer are carried out.

DATE:.....

SIGNATURE:..... DESIGNATION:

ACCEPTANCE OF DESIGNATION

I, hereby accept this and confirm that I am conversant with the requirements of the OH&S Act and agree to carry out the duties as set out for the employer.

DATE:

SIGNATURE:..... DESIGNATION:

DISTRIBUTION

1. Original displayed on site.
2. Copy to central files.

ANNEXURE B
STANDARDISED / PARTICULAR SPECIFICATIONS

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

PROCUREMENT OF A SERVICE PROVIDER: THE REPAIR AND REFURBISHMENT OF TSHIAME WASTEWATER TREATMENT WORKS

STANDARDISED / PARTICULAR SPECIFICATIONS

SABS 1200 A: GENERAL

PSA 1 MATERIAL (Subclause 3.1)

All material required for this contract shall bear the official standardization mark.

PSA 1.1. Restrictions on Employee Accommodation

No housing is available for the Contractor's employees, and the Contractor shall make his own arrangements to house his employees and transport them to site.

The Employer will place at the disposal of the Contractor an area to enable him to erect his site offices, workshops, stores, and any temporary housing the Contractor may wish to erect for his personnel. The temporary housing and ablution facilities shall comply with the requirements of the local Authority.

PSA 2 CAPACITY OF PLANT AND EQUIPMENT (Clause 4)

Add as Clause 4.3:

The Contractor shall supply plant and equipment in sound working condition and of adequate capacity to complete the Works well within the period or periods specified or stated in the appendix to the tender.

In addition, he shall have available on the Site adequate standby plant to ensure that operations designed to be executed continuously are not disrupted because of breakdown of any plant provided for such operations.

PSA 3 CONSTRUCTION

PSA 3.1 DETAILED SETTING OUT (Subclause 5.1.1)

The Contractor shall be solely responsible for the execution of the works to the correct line and level.

The Contractor shall carefully set out the works, employing a capable surveyor to the lines and levels gleaned from information provided.

The tolerance allowed in setting out shall be 30mm either way.

Work set out by the Contractor shall be checked by the Engineer where after any errors be rectified by the Contractor.

The Contractor shall provide at least three days' notice of such a check to the Engineer. The Contractor shall supply any material and labour required for the control survey work by the Engineer including the supply of and placing the necessary pegs, sight rails, etc. Any assistance, including checking, rendered to the Contractor by the Engineer shall not be held as relieving the Contractor of his responsibility in this respect. Should any portion of these works be constructed incorrectly, the Contractor shall at his own expense rectify the work to the satisfaction of the Engineer.

The Contractor shall be held solely responsible for the protection of all benchmarks, reference pegs and level pegs.

The Contractor shall establish at least three benchmarks at selected points.

PSA 3.2 WATCHING, BARRICADING, LIGHTING AND TRAFFIC CROSSINGS

(Subclause 5.2)

Add the following to this subclause:

The Contractor shall ensure that he complies with all the requirements of the authorities concerned with respect to the safety of the works and labourers, including the provision and wearing of protective clothing. Any negligence or non-compliance of any of these requirements shall be viewed in a serious light and shall be sufficient reason for the Engineer to order the immediate suspension of the total extent of the Works.

The Contractor shall provide for artificial lighting for any part of the Works that may be required for the proper execution of the work.

PSA 3.3 PROTECTION OF OVERHEAD AND UNDERGROUND SERVICES (Subclause 5.4)

Add the following to the subclause:

Before commencing any excavation, the Contractor shall verify the position of all known or suspected obstacles by inspection of the site, examination of drawings or, where necessary by the excavation of trial holes. Any damage caused to existing services and works shall be repaired as expeditiously as possible by the Contractor at his own expense, and shall be reported immediately to the Engineer.

Where permanent protective works are ordered by the Engineer, such works shall be valued as a variation. The Engineer will supply the Contractor with such information as may be available concerning obstructions and services, but whilst such information is given in good faith, it shall not relieve the Contractor of any of his liabilities, obligations and risks under the Contract.

The Contractor shall be responsible for any damage to such public services and existing works in the execution of this Contract and shall reimburse the Public Authority or the Owner concerned for any repairs required or compensation for damage awarded.

Any alteration to public services shall be carried out by the Authority concerned.

The Contractor shall provide the necessary assistance during any operations necessary in connection with the removal, alteration or safeguarding of any public service.

The relevant authority and Engineer shall be informed of any damages without delay.

PSA 3.4 DEALING WITH WATER ON WORKS (Subclause 5.5)

Add the following to the subclause:

The Contractor shall be responsible for the dewatering of excavations and the full and adequate protection of the works against damage by storm or water from any source whatever. He shall construct all necessary diversion works and drains to deal adequately with and bypass all water and carry out any necessary pumping of water and supply all tarpaulins or other covers which may be required to protect any section of the work during heavy rain or storm together with any other labour work and material which, in the opinion of the Engineer is necessary to keep the work dry and safe at all times.

Full risk and cost of dealing with water shall be borne by the Contractor.

PSA 3.5 POLLUTION (Subclause 5.6)

Add the following to the subclause:

The Contractor shall maintain all access roads and the area where the offices, stores and workshops are situated to the satisfaction of the Engineer. It shall be kept damp to limit dust and inconvenience or disturbance to the residents in the neighbourhood of the Works to a minimum.

PSA 3.6 DEGREE OF ACCURACY (Subclause 6.2)

Delete this subclause and replace with the following:

The Contractor shall construct each of the various parts of the Works to the degree of accuracy specified in the relevant standardized specification.

PSA 4 TESTING

No laboratory facilities are required on site. The Contractor shall use an independent laboratory for the necessary tests.

The cost of all testing to be carried out by the Contractor in terms of the requirement of the relevant SABS 1200 standards shall be included in the rates for the various work items listed in the Schedule of Quantities. No separate payments shall be made in this regard.

The Engineer may order the Contractor to arrange special check tests to be carried out by an approved independent laboratory. The results of these tests shall be made available to the Contractor.

The cost of special check tests ordered by the Engineer shall be borne by the Employer if the test results indicate compliance with the specification and by the Contractor if the results indicate noncompliance with the specification.

PSA 5 MEASUREMENT AND PAYMENT

PSA 5.1 MEASUREMENT (Subclause 8.1.1)

Add the following to this subclause:

In no case will any dimensions be allowed or any quantities be included in the measurement for payment which shall exceed the dimensions required by the contract, or as ordered in writing by the Engineer in the case of extra work.

PSA 5.2 PAYMENT (Subclause 8.2)

Add the following to this subclause:

The quantities as shown in the Bill of Quantities are estimated quantities and are used for comparing tenders and awarding of the contract. It shall be noted that only the actual work executed or materials supplied will be measured and paid for, therefore billed quantities may be increased or decreased as allowed for in the General Conditions of Contract.

The entire works shall be measured on completion by the Engineer and paid for at the relevant rates, according to the actual quantity of each item of work executed.

The Contractor shall have no claim for loss of profit on unexecuted works.

PSA 5.3 MEASUREMENT AND PAYMENT FOR SCHEDULED FIXED-CHARGE AND VALUE RELATED ITEMS (Subclause 8.3.1)

Add the following to this subclause:

The tendered amount shall include the costs for the premiums of the surety for unused materials on site.

SABS 1200 AB: ENGINEER'S OFFICE PSAB: ENGINEER'S OFFICE PSAB 1 MATERIALS

PSAB 1.1 NAMEBOARDS (Subclause 3.1)

Add the following to the subclause:

Notwithstanding the provisions of Subclause 3.1 of SABS 1200 AB, the standard name-boards complying with the recommendations of the South African Association of Consulting Engineers shall be provided. Details of the name-board will be available from the Engineers.

PSAB 1.2 OFFICE BUILDINGS (Subclause 3.2)

Delete this subclause and replace with the following:

The Contractor shall provide the following furnished offices for the use of the Engineer and the Client. The office shall consist of one room with the following floor area:

Engineers office - 20m²

The clear height of the office between floor and ceiling shall be 2,5m minimum. All windows shall be of the type than can be open over the full window area.

The office shall be weatherproof, shall have a concrete floor and shall be provided with a ceiling and a lining to the walls, or equivalent insulation, with an acceptable type of door with a secure lock, and two opening windows of glazed area at least 3m². The office shall be well ventilated and shall be so insulated as to provide comfortable working conditions. The internal furnishings shall include:

- a) one trestle table, 2m long x 1m wide x 0,9m high, with a smooth top;
- b) one table or desk having a top of size at least 1,5m x 0,9m and at least one lockable drawer;
- c) one high stool;
- d) two chairs;
- e) a lockable upright steel cabinet with three shelves or a steel filing cabinet with four drawers;
- f) shelving of total length 3m and of nominal width 300mm;
- g) an acceptable blind on each window,
- h) a wash-hand basin;
- i) acceptable lighting;
- j) provision for heating in winter and cooling in summer;
- k) one conference type steel table with folding legs of size at least 4,0m x 0,9m.
- l) The Contractor shall also supply a toilet for the exclusive use of the Engineer.

PSAB 1.3 CAR PORTS (New Subclause 3.2 (k))

The Contractor shall provide two permanent car ports for the use of the Engineer. The car ports shall be so constructed that the vehicles parked under them will at all times be shaded from direct sunlight. The car ports shall be at least 20m² in area and shall have a hard stand of crushed stone.

PSAB 2 SURVEY EQUIPMENT (Subclause 5.5)

The Contractor shall provide the following survey equipment on the site from the commencement to the completion of the Works:

1. 1 GPS full set
2. 1 automatic level set
3. 1 measuring wheel

The tachometer may be shared by arrangement between the Contractor and the Engineer's Representative, but the remaining instruments shall be provided for the exclusive use of the Engineer's Representative. The Contractor shall keep the equipment continuously insured against any loss, damage, or breakage and he shall indemnify the Engineer and the Employer against any claims in this regard. Upon completion of the whole of the Works, the ownership of the equipment shall revert to the Contractor.

The Contractor shall maintain the equipment in good working order and keep it clean throughout the contract period.

PSAB 3 SURVEY ASSISTANTS (Subclause 5.5)

The Contractor shall make available to the Engineer two suitably trained survey assistants for use on and about the SITE at all reasonable times for the duration of the Contract.

SABS 1200 C: SITE CLEARANCE PSC 1 MATERIALS (Clause 3)

PSC 1.1 DISPOSAL OF MATERIAL (Subclause 3.1)

Add to this subclause:

Material obtained from clearing and grubbing and from the demolition of structures shall be disposed of in a borrow pit indicated by the Engineer and shall be finished to the satisfaction of the Engineer.

PSC 2 CONSTRUCTION (Clause 5)

PSC 2.1 INDIVIDUAL TREES (Subclause 5.2.3.2)

Add to this subclause:

Should the Contractor remove or damage any tree marked to be preserved, a penalty of R200,00 per tree shall be payable.

SABS 1200 DA: EARTHWORKS (SMALL WORKS) PSDA 1 CLASSIFICATION OF EXCAVATED MATERIAL (Subclause 3.1.2)

Delete this subclause and replace with the following:

Distinction shall be drawn, for payment purposes, between excavation in hard and soft material. All excavation for the foundations of structures shall be classified in accordance with the following classification.

Hard Material

Boulders of 0,5 cubic metres or more in volume; or

Material which cannot be excavated except by drilling and blasting, or by the use of pneumatic tools, or mechanical breakers. (see PSDB 1 below)

Soft Material

All material not classified as hard material shall be classified as soft material.

The Engineer shall rule under which one of the above categories any excavation shall be classified and paid for.

PSDA 2 FREEHAUL (Subclause 5.2.6.1)

The freehaul distance within which the Contractor will be required to move material without separate compensation shall be 10.0 km. Overhaul will be paid for the moving of material beyond that distance.

PSDA 3 MEASUREMENT AND PAYMENT (Subclause 8)

PSDA 3.1 BASIC PRINCIPLES (Subclause 8.1.1) Change

the following in this subclause:

The freehaul distance will be 10,0 km and not 0,5 km.

SABS 1200 DB: EARTHWORKS (PIPE TRENCHES) PSDB 1 CLASSIFICATION OF EXCAVATED MATERIAL (Subclause 3.1)

Distinction shall be drawn, for payment purposes, between excavation in hard and soft material. All excavation for pipe trenches shall be classified in accordance with the following classification.

PSDB 1.1 SOFT EXCAVATION

Soft excavation shall be excavation in all existing fill material as well as excavation in material which can be efficiently removed by any of the following plant: A bulldozer having a mass, including the mass of the ripper if fitted of 35 ton and having a flywheel power of approximately 220 kW.

PSDB 1.2 HARD EXCAVATION

Hard excavation shall be excavation in material, which cannot be efficiently ripped by plant as described in PSDB 1.1.1. This excavation generally includes material such as formation of unweathered rock which can only be removed after blasting or boulders of 0,5 m³ or larger in volume.

The Contractor shall be at liberty to use any method he wishes to excavate any class of material, but the method of excavation shall, however, not dictate the classification of the excavation.

The Engineer shall decide under which one of the above classes any excavation shall be classified and paid for. In the first instance the classification shall be based on inspection of the material to be excavated and the method of excavation proposed by the Contractor. In the event of disagreement between the Contractor and the Engineer, the Contractor shall, if required, make available such mechanical equipment as specified in order to test the reasonable removability or otherwise of the material. The decision of the Engineer as to the classification shall thereafter be final and binding.

The Contractor shall immediately inform the Engineer as and when the nature of the material being excavated changes to the extent that a new classification for further excavation is warranted. Failure on the part of the Contractor to timeously advise the Engineer shall entitle the Engineer to classify, in his sole discretion, such excavation as may have been executed in material of a different nature.

PSDB 1.3 SOILCRETE

The tendered rate shall include payment for the construction of the soilcrete complete and according to specifications including Portland Cement used at a rate of 7% of the dry density of the soil used and the placing of rocks to support the soilcrete at the end of the trenches.

PSDB 2 CLASSIFICATION OF EXCAVATION BY HAND (New Subclause 3.8)

PSDB 2.1 SOFT EXCAVATION

Soft excavation shall be excavation in material that can be efficiently removed from the trench using a pick and shovel but not requiring prior breaking using mechanical equipment such as pavement breakers.

PSDB 2.2 INTERMEDIATE EXCAVATION

Intermediate excavation shall be excavation in material that requires prior breaking using mechanical equipment, such as pavement breakers with clay spades, before being removed from the trench.

PSDB 2.3 HARD ROCK EXCAVATION

Hard rock excavation shall be excavation in material other than 3.8.1 and 3.8.2 above which by nature of the material requires prior breaking using mechanical equipment, such as pavement breakers with moil points, before being removed from the trench.

PSDB 3 FREEHAUL (Subclause 5.6.8)

The freehaul distance within which the Contractor will be required to move material without separate compensation shall be 10,0km. Overhaul will be paid for the moving of material beyond that distance.

PSDB 4 MEASUREMENT AND PAYMENT (Subclause 9)

The freehaul distance will be 10,0km and not 0,5km.

PSDK: GABIONS & PITCHING

NO VARIATIONS TO STANDARD SPECIFICATION.

PSDM EARTHWORKS (Roads, Subgrade) PSDM 1 MATERIALS (Subclause 3)

PSDM 1.1 CLASSIFICATION OF EXCAVATED MATERIAL (Subclause 3.1.2)

Delete this subclause and replace with the following:

Distinction shall be drawn, for payment purposes, between excavation in hard and soft material. All roadbed excavation shall be classified in accordance with the following classification.

PSDM 1.1.1 Soft excavation

Soft excavation shall be excavation in all existing fill material as well as excavation in material which can be efficiently removed by any of the following plant.

A bulldozer having a mass, including the mass of the ripper if fitted of 35 tonnes and having a flywheel power of approximately 220 kW.

PSDM 1.1.2 Hard excavation

Hard excavation shall be excavation in material which cannot be efficiently ripped by plant as described in PSDM 1.1.1. This excavation generally includes material such as formation of unweathered rock which can only be removed after blasting or boulders of 0,5 m³ or larger in volume.

The Contractor shall be at liberty to use any method he wishes to excavate any class of material, but the method of excavation shall, however, not dictate the classification of the excavation.

The Engineer shall decide under which one of the above classes any excavation shall be classified and paid for. In the first instance the classification shall be based on inspection of the material to be excavated and the method of excavation proposed by the Contractor. In the event of disagreement between the Contractor and the Engineer, the Contractor shall, if required, make available such mechanical equipment as specified in order to test the reasonable removability or otherwise of the material. The decision of the Engineer as to the classification shall thereafter be final and binding.

The Contractor shall immediately inform the Engineer as and when the nature of the material being excavated changes to the extent that a new classification for further excavation is warranted. Failure on the part of the Contractor to timeously advise the Engineer shall entitle the Engineer to classify, in his sole discretion, such excavation as may have been executed in material of a different nature.

PSDM 2 PLANT (Clause 4)

Add the following to this clause.

The following plant is necessary for roadbed preparation:

a) Vibrator roller

The vibrator roller must be able to apply a combined static and dynamic load of not less than 120 kN/m at a working frequency of 1500 r.p.m. maximum.

b) Impact roller

The impact roller shall be a single multi surface roller with a maximum of five flat or nearly flat surfaces and a roller mass of 8 to 10 tons. The roller and tow mechanism, which shall be of the free fall type, shall be designed to make all the energy necessary to take the roller onto the ridge between two flat surfaces available for distribution at impact when the roller falls. The roller shall be towed at a speed of between 8 and 10 kilometres per hour.

PSDM 3 METHODS AND PROCEDURES

PSDM 3.1 STRIPPING OF TOPSOIL (Subclause 5.2.1)

Add the following to this subclause.

Before the Contractor does any roadbed preparation, he shall get instructions from the Engineer on any stripping of topsoil or clearing and grubbing that may be required. This work shall be carried out according to SABS 1200 C "Site Clearance".

During the compaction of the roadbed with an impact roller if required by the Engineer the roadbed shall be graded before each pass if, according to the Engineer, the surface is uneven and prevents the flat surface of the impact roller to fall uneven.

PSDM 3.2 PREPARATION OF THE ROADBED (Subclause 5.2.3)

Add the following as subclause 5.2.3.4.

PSDM 3.2.1 Removal of unsuitable material

Any roadbed material that will, according to the judgement of the Engineer, have a detrimental effect on the quality of the finished street, shall be removed to the depth and width as instructed by the Engineer, and will be disposed of according to specification. It shall then be backfilled with approved imported material and compacted to the specified compaction.

The Engineer may instruct the Contractor to remove over wet material which cannot form a solid layer or platform, and replace it with approved dry material. The Contractor will be paid for this operation if the Engineer is convinced that the material will not dry out in a reasonable time in spite of adequate temporary drainage and that the condition may not have been prevented by reasonable preplanning to build the work during the dry season.

SABS 1200 L: MEDIUM PRESSURE PIPELINES PSL 1 MATERIALS

PSL 1.1 VALVES (Subclause 3.10)

Delete this clause and replace with the following:

Valves shall comply with the requirements of SABS 664. All valves shall be tested hydraulically to the specified pressure. During testing the valves shall meet two conditions: firstly with the pressure applied with the valve completely open and thereafter to either side of the gate with the valve completely closed.

All valves shall be coated with a protective layer of paint or solution applied in an approved manner. All valves shall close in an anticlockwise direction when viewed from above on the spindle. All cap tops supplied on the range of valves, shall be of the same size in order that one size valve key may be used.

PSL 2 CONSTRUCTION

PSL 2.1 DEPTH AND COVERING (Subclause 5.1.4)

Delete this clause and replace with the following:

PSL 2.1.1 Except where permitted in PSL 2.1.2 hereafter, water pipes shall be positioned in such a way as to maintain a minimum cover of 1500mm from the finished surface to the top of the pipe.

Where stormwater pipes and/or sewer pipes cross the water pipe, the minimum free distance between the outside of any of the pipes and the outside of the coupling of the water pipe shall be 150mm. Should, at the specified minimum cover, the free distance be less than 150mm, the water pipe will be lowered to the required level ensuring the free distance for a minimum distance of 1,0m, either side of the centre line of the stormwater- or sewer pipe, beyond which the pipe will be sloped back to the required level according to PSL 2.1.1 as detailed in subclause 5.1.4.2 of SABS 1200 L.

PSL 2.2 CONNECTION AT EXISTING PIPES

Add the following to this clause as subclause 5.11:

All the consumers concerned as well as the Engineer and the Statutory Authority shall be notified in writing at least one week before the existing water supply is interrupted. Arrangements for the interruption of the water supply shall be made in advance with the Statutory Authority and the Contractor shall not be entitled to lodge any claims as a result of problems caused by non-compliance. Under no circumstances shall employees of the Contractor be allowed to interrupt the water supply at any time.

All activities during the interruption of the water supply shall be planned and co-ordinated beforehand and all the preparations possible shall be completed before the interruption to minimize the inconvenience to the consumers. The Engineer has the authority to stop or to postpone the interruption and the Contractor will not be entitled to any claims in this regard, should the Engineer be of the opinion that the interruption was prolonged more than necessary as a result of bad planning by the Contractor.

PSL 3 STANDARD HYDRAULIC PIPE PRESSURES

PSL 3.1 TEST PRESSURES AND TIME OF TESTING (Subclause 7.3.1)

Add the following to subclause 7.3.1.2:

Test pressures on all pipes shall be 1,5 times its working pressure and the following test pressure shall be applied:

Class 9 : 1 350 kPa.

PSL 4 MEASUREMENT AND PAYMENT

PSL 4.1 SUPPLY, LAY AND BED PIPES COMPLETE WITH JOINTS (Subclause 8.2.1)

Add the following to this subclause :

Rates for pipes and fittings shall include all joints and couplings that may be required. Additional payment will be made for class to class joints.

SABS 1200 LB: BEDDING (PIPES)

PSLB 1 MATERIALS (Clause 3)

PSLB 1.1 BEDDING (Subclause 3.3)

Delete this subclause and replace with the following:

Bedding for rigid pipes shall be as for Class C (see Drawing LB-1) and bedding for flexible pipes shall be selected granular material and selected fill material (see Drawing LB-2) except where shown otherwise on the drawings.

Bedding cradle for Class C bedding shall be of selected granular material (see 3.1)

The material for the selected fill blanket shall in all cases comply with the requirements of 3.2.

PSLB 1.2 SUITABLE MATERIAL NOT AVAILABLE FROM TRENCH EXCAVATIONS (Subclause 3.4.2)

Change the freehaul distance in this subclause from 0,5 km to 10,0 km.

PSLB 2 MEASUREMENT AND PAYMENT

PSLB 2.1 FREEHAUL (Subclause 8.1.6)

Change this subclause to the following:

The freehaul distance is 10,0 km.

PSLD: SEWERS

PSLD 1 MATERIALS

PSLD 1.1 mPVC PIPES

Change this subclause to the following :

mPVC pipes and fittings shall comply with the relevant requirements of SABS 559 with the use of suitable approved flexible joints, and shall bear the standardization mark of the SABS. All rubber joint rings shall comply with the relevant requirements of SABS 974.

PSLD 2 TESTS AND ACCEPTANCE / REJECTION CRITERIA

PSLD 2.1 TESTING OF PIPES (Subclause 7.1.6)

Delete this subclause and replace with the following.

Pipes shall only be tested by means of the standard air test.

PSLD 2.2 WATER TIGHTNESS OF MANHOLES (Subclause 7.2.6) Amend

Subclause 7.2.6 to read:

Where ordered by the Engineer, the Contractor shall arrange for the manholes to be tested in the following manner in the presence of the Engineer:

All sewer inlets and outlets to and from the manhole shall be closed with expanding plugs or other apparatus. Water shall then be introduced into the manhole up to a level approximately 50mm below the underside of the roof slab and left standing for a minimum of 2 hours.

The water level shall then be accurately measured at the end of each of four 15 minute intervals and the rate of leakage computed. In the event of the rate of leakage, if any, exceeding 5,0 l/hr/metre depth of manhole, or in the event of any weakness, defect or fracture or visible signs of leakage occurring in the manhole under test, the test shall be discontinued and the Contractor shall search for and rectify any weakness or defect in the manhole under test, such work or rectification to consist of repair or replacement or both. The manhole shall thereafter be retested in the manner specified. This process shall be repeated until satisfactory results are obtained.

The Contractor will be paid for the testing of the water tightness of manholes at the rate per manhole quoted by him in the Schedule of Quantities. The rate for the testing of manholes shall cover the cost of all plant, labour and material required for compliance with the above. The cost of rectification work and retesting of manholes that have failed the test shall be to the Contractor's account.

PSQ BORROW PITS AND BORROW MATERIALS

PSQ 1 SCOPE

Note that all imported material can be obtained from the allocated stockpile without any cost involved for the purchase of the material. This stockpile is situated next to the site and therefore a freehaul distance of 10 km will be set.

PSQ 2 NEGOTIATIONS WITH OWNERS AND AUTHORITIES

The Contractor shall, before entering private property for the purpose of opening borrow pits, constructing access roads, temporarily occupying certain land or inspecting the areas concerned, settle all claims with respect to royalties, or other matters to which the owner may be entitled to.

PSQ 3 PROCURING BORROW MATERIALS

a) General

The Contractor shall make his own arrangements for obtaining borrow materials which shall comply with the requirements of the specification for whichever purpose the material is intended.

b) Borrow pit

Should, at any time during construction, it appear that the quality or quantity of material available in a borrow pit be insufficient, the Contractor shall utilize other borrow areas obtained by him.

c) Use of borrow materials

The decision as to which source of supply the Contractor shall operate from at any time shall rest with the Engineer, and the Contractor shall at any stage of the work operate from the source most suitable, having regard to the quality and quantities of the materials available, and the ultimate cost to the Employer. No payment will be made for moving the Contractor's plant from one location to another.

The Contractor shall submit test results to the Engineer, 14 days before the start of the operations, in sufficient detail to satisfy him that the quality and quantity of the material available in the proposed borrow area is acceptable for the intended use, all at the Contractor's own expense.

Approval of borrow pits or borrow areas shall apply only to those portions of the pit or area from which acceptable material may be obtained or produced. The Contractor shall conduct his operations in any approved pit or borrow area or portions thereof so as to produce acceptable material.

The Contractor shall plan the exploitation of the borrow pits in such a manner that the various materials excavated may be selected and either loaded directly for use or stockpiled in the borrow area for later loading.

PSQ 4 FINISHING-OFF BORROW AREAS

On completion of his operations in a borrow area the Contractor shall reinstate the entire area so as to blend in with the surrounding area and to permit the re-establishment of vegetation. For this purpose the borrow area shall be shaped to even contours with no slopes steeper than 1 in 3, except where this may be done, with the Engineer's permission, in rocky material.

All material in and around the borrow area, whether spoil from road building operations, excess stockpiled material, oversize material left in the borrow pit, material resulting from clearing and grubbing operations and excess overburden, shall be used or disposed of as directed by the Engineer. Material not capable of supporting vegetation shall be buried and used in shaping the borrow area and be subsequently covered with soft material. All available soft material shall be spread evenly to the thickness directed and where sufficient material is not available for this purpose to cover the entire area, the remaining portions shall be scarified along the contours so as to avoid undue erosion.

All haul roads shall be obliterated and the surface scarified, earth banks constructed to prevent erosion and all damaged fences and other structures reinstated.

The shaping and finishing-off of the borrow pit shall be done in such a way that the borrow pit is properly drained whenever practicable and, where required, the Contractor shall place earth banks to divert any surface water away from the borrow area.

The finishing-off of any borrow pit shall be to the entire satisfaction of the Engineer and the Contractor shall submit to the Engineer a signed certificate from the landowner stating that he is fully satisfied with the finishing off of any borrow area.

PSQ 5 MEASUREMENT AND PAYMENT

a) Borrow material

The rates tendered for the obtaining, procuring and furnishing borrow material shall not be payable directly, but shall be considered as a subsidiary obligation of the Contractor covered under the contract prices paid for the various items of work in which the materials are used, as provided in these Specifications.

Obtaining procuring and furnishing borrow material shall include full compensation for all obligations, expenses, operations as well as all investigations, supervision, labour, plant, equipment, tools and incidentals necessary thereto, including all such expenses as may be necessary to control test all materials, to drain and protect borrow areas and to complete all negotiations with and payment to landowners as specified as well as the final shaping and finishing-off of the borrow pit.

PSW: BUILDING WORK PSW 1 SCOPE

This specification covers the supply of material and the construction of brickwork, waterproofing, carpentry and joinery, floor coverings, ironmongery metalwork, plastering, tiling, plumbing and drainage, glazing and painting as required and described on the drawings and in the bill of quantities.

PSW 1.1 GENERAL

PSW 1.1.1 SABS Specifications and codes of practice

Reference in this document to South African Bureau of Standards specifications and codes of practice shall be deemed to be references to the latest issues of such specifications and codes, as may be amended from time to time. Where possible, all articles, materials or items described as conforming to the SABS specifications must bear the SABS mark.

PSW 1.2 MANUFACTURERS' INSTRUCTIONS

Unless the Engineer otherwise directs, all materials shall be used, mixed, applied, fixed, etc. strictly in accordance with their manufacturers' printed instructions.

PSW 1.3 MATERIALS AND WORKMANSHIP

Materials shall be of the best quality and all work shall be done well and to the entire satisfaction of the Engineer who shall inspect the works.

The terms "approved" and "directed" shall mean the approval and direction of or by the Engineer.

PSW 1.4 SAMPLES

The contractor shall furnish without delay such samples as may be called for by the Engineer, who may reject all materials and workmanship not corresponding with the approved samples.

PSW 1.5 HANDING OVER

Rates shall include for protecting finishing's, facing materials, components, fittings, equipment, etc., from staining or damage, and for handing over the works including any existing structures etc., affected by the works, in a clean and perfect state to the satisfaction of the Engineer.

PA. : MINIATURE SUBSTATIONS

PA.1 SCOPE

This section provides for the supply, delivery, installation, connection and commissioning of miniature substations as specified.

PA.2 INTERPRETATION

The specification describes in detail the requirements for miniature substations and is supplementary to the relevant requirements of SABS 1029 and SABS 1030.

Any variation to the particular specification in this contract, will be discussed in the variation to specification in Section 2 of the project specification and shall meet the requirements of the data sheets in Part 6 of the document.

PA.3 MATERIALS

The substation shall be manufactured of sheet-metal with welded joints. The unit shall be vermin-proof. The substation shall be of the following finish:

- a) Sheet-metal of minimum wall thickness of 2,0 mm shall be used for the manufacture of the enclosure or 3CR12 where specified.
- b) Welding materials shall be of the same quality or better as the base metal.
- c) After machining and before painting, all fat and grease shall be removed by using a suitable solvent.

- d) The surfaces shall be treated and painted according to SABS 780 clause 3.25 with final colour as per specification.

Alternative finishes and colours will be considered provided a full description of the process accompanies the tender.

PA.4 CONSTRUCTION EQUIPMENT

PA.4.1 HIGH VOLTAGE COMPARTMENT

Access to the high voltage compartment shall be through doors on all three sides.

PA.4.1.1 High Voltage Switchgear

The equipment shall consist of an oil submerged ring main unit with a fused switch protecting the transformer.

The ring main unit shall be rated for 350 MVA, 400 A load break/fault make capacity or higher, while the fused switch shall be suitable for 350 MVA at 11 kV with a continuous current rating of 85 A. The unit shall comply with specification BEBS S16 of 1968.

The operation of the three switches shall be similar except for the trip facility on the fused unit.

PA.4.1.2 Ring Main Isolators

- a) Switching : Lockable ON/OFF/EARTH positions
b) Mechanism : Spring operated hand control

The removable operating handle shall be used in separate positions for ON/OFF or OFF/EARTH switching. Access to these positions shall be controlled by spring operated lockable covers. c) Interlocking : The unit shall be interlocked as follows:

- i) in the ON position to render the EARTH position inactive; ii) in the EARTH position until the TEST cover is locked;

d) Current transformers : Nil

e) Fault indication : Nil

f) Cable end box : Two end boxes with solid brass connecting terminals, complete with compound and suitable for the cables in accordance with the project specification

PA.4.1.3 Fused Switch

a) Purpose : Transformer supply

b) Identification : Transformer with kVA capacity as specified

c) Tripping : Any blown fuse shall trip all three phases

d) Interlocking

i) to allow replacement of a fuse in the OFF position only;

ii) automatic lock out of the ON/OFF positions until a blown fuse has been replaced; e)

Switching : Lockable ON/OFF/EARTH positions

f) Mechanism : Hand controlled with ON/OFF/EARTH mechanism interlocking and tripping as per (c) and (d) above. When operating from OFF to ON the switch shall fully engage under fault switching whereafter the fuse shall be completely blown before the switch trips and isolates

g) Fuses : HRC fuses shall be fitted in compliance with the manufacturer's recommendation for the protection of the transformer specified

PA.4.2 TRANSFORMER

The following applies to the transformer to be fitted to the unit:

- a) Specification : Shall carry the mark in accordance with SABS 780/1966

- b) Type : Free air above 200 kVA. Hermetically sealed for 200 kVA and smaller
- c) Primary voltage : As specified
- d) No-load secondary voltage : As specified
- e) Phases and frequency : 3 - 50 Hz
- f) Vector Group : Dyn 11
- g) HV tapings : 0 % ± 2,5 % ± 5 %
- h) Tap setting : External no-load selector
- i) LV neutral : For solid earthing
- j) Efficiency : Low loss type
- k) Oil level indicator : To be fitted
- l) Cooling : ONAN

PA.4.3 LOW VOLTAGE COMPARTMENT

This compartment shall be capable of accommodating the following equipment. Circuit breaker and current transformer ratings shall be in accordance with the project specification.

Item Description

Main circuit breaker : Triple pole, 25 kA moulded case with thermal overload and magnetic instantaneous protection

Street-lighting :3 x HRC fuse holders complete with bases, similar to English electric type T red spot, with 30 A HRC fuses

: One 3-phase, 4 wire kWh energy meter suitable for 380/220 V and 0 - 50 A operation

: One contactor with coil suitable for 220 volt continuous operation and equipped with triple pole contacts suitable for switching 30 A per phase

: One HRC fuse holder complete with base and 4 amp HRC fuse similar to above

: The photo-electric switch is not provided as part of the substation. The terminals only shall be provided for connection of the unit. The panel shall be equipped with a single pole test switch

: Three 20 A 5 kA single pole moulded case circuit breakers with thermal overload and instantaneous magnetic fault protection

Low voltage feeders :Triple pole 25 kA moulded case circuit breakers with thermal overload and instantaneous magnetic fault protection. The wiring terminals must accommodate up to 120 mm² conductors. Provision must be made for spare feeders.

Metering : Three current transformers with three maximum demand ammeters

: 1 x 0-500 volt voltmeter complete with seven position selector switch and 4 A fused protection

PA.4.4 IDENTIFICATION

Labels of black trafilite engraved with white letters shall be fitted to suitable frames. The labels shall be as described below.

Item	Equipment Title	Letter Size
(i)	Transformer breaker	MAIN CIRCUIT BREAKER 12 mm
(ii)	3 x ammeters	R, W, B 6 mm
	0 - 500 voltmeter	VOLTAGE 6 mm
	Selector switch	VOLTAGE SELECTOR SWITCH 6 mm
	3 x 4 A fuses	R, W, B 6 mm
(iii)	3 x 30 A fuses	STREET-LIGHT MAINS 12 mm

	kWh meter ENERGY METER	6 mm	
4 HRC fuses	CONTROL CIRCUIT MAINS	6 mm	
	Test switch STREET-LIGHT TEST	6 mm	
	20 A circuit breaker STREET-LIGHTS 1, 2 AND 3	6 mm	
(iv)	Sets of LV reticulation FEEDER NAME AS PER DRAWINGS	12 mm	feeder breakers

PA.4.5 SPARE FUSES

Two spare fuses of each size and type shall be provided with the substation.

PA.4.6 EARTHING

A continuous copper bar measuring 25 x 6 mm shall be fitted to run from the HV compartment through the transformer section to the LV compartment.

PA.4.7 SUBSTATION ANCILLARIES

The following ancillaries shall be provided and installed.

- i) Danger signs type WS7 to SABS 1186/1978 manufactured from sheet aluminium of 150 x 150 mm size. Mounting shall be in clearly visible positions on the front and back of the substation.
- ii) All control handles and operating cranks shall be mounted in a safe firm position in the respective compartments.
- iii) A plastic envelope with single line diagrams and operating instructions shall be provided in each compartment in a safe position.
- iv) The gland plate in the low voltage compartment shall be manufactured of 4 mm thick hot dipped galvanised mild steel plate.

The appropriate number and sizes of holes shall be provided to accommodate the cables as specified. All holes shall be pre-drilled prior to galvanising.

- v) Substation name shall be fitted in a prominent position with letter size not less than 30 mm.

PA.4.8 LOCKS

All doors shall be fitted with approved locks.

Locks shall be of the 40 mm type with hardened brass hasps and corrosion resistant mechanisms. The locks shall be keyed to a reserved number to be provided by the owners.

PA.5 INSTALLATION

PA.5.1 GENERAL

Substations shall be erected generally in the positions indicated on the drawings. The exact positioning shall be determined on site by the Engineer or his representative after consideration of other services.

PA.5.2 MOUNTING

A concrete plinth with measurements as per the drawing on PA.8 shall be cast in such a manner that a 75 mm skirt is obtained with respect to the substation base. The plinth shall protrude 150 mm above ground.

The concrete shall be of a 1:3:5 mix and the plinth shall be neatly finished. A hardening period of at least seven (7) days must be allowed for.

After installation of all cables and compacting of the backfill, the plinth must be extended on both ends with a brick built wall 114 mm wide and form at least 200 mm below ground level on a small foundation.

Alternative plinth structures will be considered provided a full description and detailed drawing accompany the tender.

PA.5.3 CONNECTIONS

HV cables shall be rising through the plinth opening from below into the HV compartment where they shall be made off onto the end boxes.

LV cables shall similarly rise from below and shall be mounted in cable glands. Lugs shall be used for connection to equipment.

PA.5.4 EARTHING

The main trench earth shall consist of three 20 m lengths of 70 sq.mm bare stranded copper conductor installed radially with a separation of 120 degrees. Lugs shall be sweated onto the earth conductors and connected to the substation earth bar using brass bolts and nuts.

A 70 sq.mm bare stranded copper conductor shall be installed at a depth of 450 mm in a ring 1 m from the substation to serve as a potential earth. Termination of the two ends on the substation earth bar shall be as for the main earth.

All earth conductors shall rise through the plinth opening as for cables. Internally the HV switchgear, cable boxes, transformer tank, transformer neutral, LV framework, HV and LV enclosures shall be separately connected to the earth bar using 70 sq.mm bare stranded copper conductor with sweated lugs and brass bolts and nuts.

PA.6 TOLERANCES

Not applicable.

PA.7 TESTS

The following tests shall be performed and witnessed by the Engineer or his representative before the substation is energised and commissioned.

- i) Checking of primary and secondary circuits against wiring diagrams.
- ii) Megger testing of primary and secondary wiring including for protection and metering equipment.

The original copy of the manufacturer's factory test certificate shall be submitted to the Engineer.

PA.8 MEASURING AND PAYMENT

In accordance with the bill of materials as measured on site.

PS_C_001 – Security Fencing

SCOPE OF WORKS

The scope of works include the complete supply, refurbishment & repair, deliver, install, commission and up-holding during the operational and retention period, of the fencing of the facility (pump stations and waste water treatment works) as per the specified requirements below.

EXISTING SECURITY FENCING

Where the facilities have existing security fencing, the contractor will ensure that the existing fencing will be refurbished to comply with the following;

The Inner Fencing

- The existing fence will feature as the inside fence.
- The existing fence will be refurbished and repaired to the original as-new condition, as per the supplier's specification, including the main posts, panel sections and existing access gates.
- Each panel section will have a vertical under-dig section, consisting of typically 500mm FLATWRAP.
- The existing panel will be cladded (properly secured) to the existing, total perimeter, bottom to top, on the inside, with minimum 50x50(2.0mm) Fence Diamond Mesh.
- The existing fence, along the total perimeter, must be fitted with minimum, 730mmΦ RIPPER COIL, properly secured and supported between each post, on top of the panels.
- The existing access gates shall conform to the above mentioned specification.

The Outer Fencing

- The outer fencing will include all the posts, panels and access gates.
- The outer fence will be installed 1500mm, parallel to the existing fence, on the outside of the existing fence.
- Each panel section will have a vertical under-dig section, consisting of typically 500mm FLATWRAP.
- The panel sections will be minimum, 100mm x 100mm galvanized steel welded razor wire, over-laid (cladded & properly secured) with 75x75(2.0mm) Fence Diamond Mesh, for the total perimeter, from bottom to top.
- Minimum panel height, 2400mm.
- Minimum 730mmΦ RIPPER COIL, fitted (properly secured and supported) on top of the panels and in-between the posts, for the total perimeter.
- The outer fence must be fitted with an alarm system to trigger, 1) any attempt to enter the outer fence or, 2) the cutting or damage to the outer fence. The alarm system must be remotely activated to activate a security response team to attend to the outer fence access or damage.

The Inner Barrier

- The inner barrier will be installed between the inner and outer fence.
- The inner barrier will be fixed and secured to the inner fence.
- The inner barrier will consist of minimum, four (4x) 730mmΦ RIPPER COILS, stacked vertically on-top of each other, against the inner fence (properly secured and supported).
- This will allow inspection access width, in-between the inner and outer fence, of 750mm.

NEW SECURITY FENCING

Where the facilities have no existing security fencing, the contractor will ensure that the security fencing comply with the following;

The Inner Fencing

- The inner fencing will include all the posts, panels and access gates.
- Each panel section will have a vertical under-dig section, consisting of typically 500mm FLATWRAP.
- The panel sections will be minimum, 100mm x 100mm galvanized steel welded razor wire, over-laid (cladded & properly secured) with 75x75(2.0mm) Fence Diamond Mesh, for the total perimeter, from bottom to top.
- Minimum panel height, 2400mm.
- Minimum 730mmΦ RIPPER COIL, fitted (properly secured and supported) on top of the panels and in-between the posts, for the total perimeter.

The Outer Fencing

- The outer fencing will include all the posts, panels and access gates.
- The outer fence will be installed 1500mm, parallel to the existing fence, on the outside of the existing fence.
- Each panel section will have a vertical under-dig section, consisting of typically 500mm FLATWRAP.
- The panel sections will be minimum, 100mm x 100mm galvanized steel welded razor wire, over-laid (cladded & properly secured) with 75x75(2.0mm) Fence Diamond Mesh, for the total perimeter, from bottom to top.
- Minimum panel height, 2400mm.
- Minimum 730mmΦ RIPPER COIL, fitted (properly secured and supported) on top of the panels and in-between the posts, for the total perimeter.
- The outer fence must be fitted with an alarm system to trigger, 1) any attempt to enter the outer fence or, 2) the cutting or damage to the outer fence. The alarm system must be remotely activated to activate a security response team to attend to the outer fence access or damage.

The Inner Barrier

- The inner barrier will be installed between the inner and outer fence.
- The inner barrier will be fixed and secured to the inner fence.
- The inner barrier will consist of minimum, four (4x) 730mmΦ RIPPER COILS, stacked vertically on-top of each other, against the inner fence (properly secured and supported).
- This will allow inspection access width, in-between the inner and outer fence, of 750mm.

PS_C_002 – Drain, Cleaning & Dredging of Water Holding & Other Structures

SCOPE OF WORKS

The scope of works include the draining, cleaning and dredging of any civil water holding or other structure, part of the pump stations and waste water treatment works, as per the specified requirements below.

DRAINING

Draining will typically entail the following actions;

- Isolating the structure. This entail stopping, preventing or by-passing any hydraulic flow (raw sewage, partially treated waste water or storm), entering into the structure being drained. Draining the structure. This entail removing, scooping or pumping out any liquids from the structure being drained.
- Removal and disposal of the drained liquid. This entail the collection, storage of the liquid, transporting to the WWTW and the disposal at the WWTW, at an approved disposal point. No disposal, or pollution into the adjacent or any other natural or environment area will be allowed!

CLEANING

Cleaning will typically entail the following actions;

- Remove foreign matter and settlement from the structure. This entail the removing, scooping, conveying, or any other means deemed necessary, to empty the structure completely, leaving it without any foreign matter or settlement. Foreign matter and settlement may consist of screenings, grit, sand or any other solid matter not supposed to gather or settle inside the structure.
- Remove and dispose of the foreign matter and settlement. This entail the collection, storage of the foreign matter and settlement, transporting to, and disposal at the WWTW, at an approved disposal point. No disposal, or pollution into the adjacent or any other natural or environment area will be allowed!
- Clean the inside surfaces of the structure. This entail the washing, jetting or scrubbing of the internal surfaces, to enable the thorough inspection for water tightness and structural integrity.

DREDGING

Dredging will typically entail the following;

- Dredging typically entail the removal of foreign matter and settlement from the structure, whilst the structure is hydraulically filled and in operation.
- The equipment used to dredge, must remove foreign matter and settlement from the structure. Dredging equipment can typically be a floating pump, a fixed pump, a submersible pump, bottom surface traveling suction, boom/jib controlled, etc.
- The removed foreign matter and settlement must also be collected, stored, transported and disposed at the WWTW, at an approved disposal point. No disposal, or pollution into the adjacent or any other natural or environment area will be allowed!
- The contractor must prove, by means of a practical on site test, sample analysis or real-time instrument monitoring, that the structure are free of any foreign matter or settlement.

PS_C_003 – Provisional Sum for Access and Safety Equipment

SCOPE OF WORKS

The scope of works include the complete supply, refurbishment & repair, deliver, install, commission and up-holding during for the 12 month defects liability period, of the access and safety equipment for the particular structure and/or building, part of the pump stations and waste water treatment works, as per the specified requirements below.

WORKS

Typical work entail the following;

- Refurbishment, entail mainly reusing the existing equipment, with acceptable repair work or partially replacement.
- Replacement, not using any of the existing equipment but full replacement, because of equipment being missing, very poor condition due to vandalism or wear & tear.

EQUIPMENT

Typical equipment forming part of this scope of works, entail the following;

- Steps, structural steel or concrete.
- Ladders.
- Walkways.
- Grating.
- Covers.
- Handrails.

REQUIREMENTS

Typical access and safety equipment requirements, entail the following;

- All existing access and safety equipment must be refurbished.
- Additional access and safety equipment, where necessary must be supplied and installed.
- Equipment and application must comply with the OHS Act.
- Equipment must structurally comply with all SANS regulations.
- As far as possible, all access and safety equipment must be refurbished, repaired or replaced with fibre, synthetic, or synthetic recycled materials.

PROVISIONAL SUM MANAGEMENT

The provisional sum to cover the cost for the refurbishment of the equipment and structures must be managed.

This is not a quantified sum, therefore the management of the provisional sum will be addressed as follows;

- The contractor will prepare a quotation, covering the applicable equipment, after thoroughly inspecting and assessing the equipment and structures condition. The contractors quoted price will include for all equipment, supply, manufacturing, and the delivery, installation, commissioning and up-holding during the 12 month defects liability period.
- The quotation will be evaluated and approved by the engineer and the client, before the contractor may continue to procure or install any equipment.
- The approved cost for the contractor will be the quote plus mark-up.
- The mark-up will be pre-approved during the tender evaluation procedure.

PS_C_004 – Provisional Sum for Interconnecting Pipe Work

SCOPE OF WORKS

The scope of works include the complete draining, cleaning, dredging, un-blocking, refurbishment & repair, commission and up-holding during for the 12 month defects liability period, of all “sub-soil” pipe lines, connecting main structures for the handling of the hydraulic flow, part of the pump stations and waste water treatment works, as per the specified requirements below.

WORKS

Typical work entail the following;

- Draining, cleaning and dredging of the interconnecting pipe work. The contractor must ensure that the pipe line is clear and open for a thorough investigation, to determine the condition of the pipe line and if the pipe line is damaged. The inspection will determine the scope of refurbishment, repair or replacement work required.
- Refurbishment, entail mainly reusing the existing equipment, with acceptable repair work or partially replacement.
- Replacement, not using any of the existing equipment but full replacement, because of equipment being missing, very poor condition due to vandalism or wear & tear.

EQUIPMENT

Typical equipment forming part of this scope of works, entail the following;

- Gravity pipe lines.
- Hydraulic pressure pipe lines.
- Pressure pump lines.
- Pipe material expected, AC, Concrete, PVC, Mild Steel or Stainless Steel.

REQUIREMENTS

Typical interconnecting pipe line equipment requirements, entail the following;

- All pipe lines receiving and conveying flow away from the particular structure, must be drained, cleaned and dredged.
- All pipe lines receiving and conveying flow away from the particular structure, must be thoroughly inspected. From the inspection, the condition and the refurbishment, repair and replacement scope must be reported.
- The contractor must quote the required refurbishment, repair and replacement scope of works. The engineer and client must approve and accept the quote, before the contractor may commence with the work.
- All work on the pipe lines must comply with the applicable sections of the OHS Act and the SANS 1200 regulations.

PROVISIONAL SUM MANAGEMENT

The provisional sum to cover the cost for the refurbishment of the equipment and structures must be managed.

This is not a quantified sum, therefore the management of the provisional sum will be addressed as follows;

- The contractor will prepare a quotation, covering the applicable equipment, after thoroughly inspecting and assessing the equipment and structures condition. The contractors quoted price will include for all equipment, supply, manufacturing, and the delivery, installation, commissioning and up-holding during the 12 month defects liability period.
- The quotation will be evaluated and approved by the engineer and the client, before the contractor may continue to procure or install any equipment.
- The approved cost for the contractor will be the quote plus mark-up.
- The mark-up will be pre-approved during the tender evaluation procedure.

PS_C_005 – Provisional Sum for Repairs to Civil Structures

SCOPE OF WORKS

The scope of works include the refurbishment, repair, replacement, commission and up-holding during for the 12 month defects liability period, of the civil structures, handling or treating the hydraulic flow, part of the pump stations and waste water treatment works, as per the specified requirements below.

WORKS

The contractor must price the drain, clean and dredging of the structures under the bill of quantities. This will enable the inspection and determining the refurbishment, repair and/or replacement scope of works for the particular structure. The typical scope of works can entail the following;

- Minor repair work to the structure which does not include work to ensure the water tightness or the structural integrity of the structure.
- Sealing of the structure which will ensure the structure will be water tight.
- Repair work to ensure the structural integrity of the particular structure.
- Replacement, thus de-commissioning or demolishing the existing structure and replacing it with a new structure.

EQUIPMENT (STRUCTURES)

Typical equipment forming part of this scope of works, entail the following;

- Hydraulic conveyance channels.
- Hydraulic collection and division chambers.
- Process structures, for example settling tanks, biological reactors and contact structures.
- Storage structures, for example pump station storage sumps, ponds etc.
- Manholes, valve and meter chambers.
- Structural steel installations.
- Any other reinforced concrete or steel structure part of the pump stations and the waste water treatment works.

REQUIREMENTS

Typical structure requirements, entail the following;

- Any particular structure must perform their original intended design function.
- Any particular structure must be structurally sound.
- Any particular structure must be water tight.
- Any structure must contain their hydraulic liquid, house their mechanical equipment or any other feature required by the pump station or treatment process.
- The structure must comply with all applicable SANS 1200 requirements.
- The structure must comply with the OHS Act.
- Special requirements by the engineer and/or the client will be specified during the inspection and the determination of the scope or works for the particular structure.

PROVISIONAL SUM MANAGEMENT

The provisional sum to cover the cost for the refurbishment of the equipment and structures must be managed.

This is not a quantified sum, therefore the management of the provisional sum will be addressed as follows;

- The contractor will prepare a quotation, covering the applicable equipment, after thoroughly inspecting and assessing the equipment and structures condition. The contractors quoted price will include for all equipment, supply, manufacturing, and the delivery, installation, commissioning and up-holding during the 12 month defects liability period.
- The quotation will be evaluated and approved by the engineer and the client, before the contractor may continue to procure or install any equipment.
- The approved cost for the contractor will be the quote plus mark-up.
- The mark-up will be pre-approved during the tender evaluation procedure.

PS_C_006 – Provisional Sum for Building Maintenance and Repairs

SCOPE OF WORKS

The scope of works include the supply, deliver, repair maintenance and up-holding during for the 12 month defects liability period, of the buildings (Top Structures), part of the pump stations and waste water treatment works, as per the specified requirements below.

WORKS

The contractor must thoroughly inspect the buildings, determine the scope of maintenance repair work and quote for the work. The maintenance repair work will entail the following;

- The work will include for the supply, deliver and install of all the material and labour required as per the requirement.
- The repair of the complete roof, including the covering (sheeting and/or tiles), support structure (Trusses, beams and purlins), gutters and down pipes, or any other accessories to ensure the 100% function-ability of the roof.
- The repair of the walls, including the main structure, doors (including proper security gates where necessary), windows (including proper burglar bars), vents, paint, plastering or any other accessories to ensure the 100% function-ability of the walls.
- The repair of the floors, including the slab, floor finishing, covers, steps or any other accessories to ensure the 100% function-ability of the floor.
- The repair of the access and safety equipment might overlap with some requirements specified under PS_C_003.

EQUIPMENT (BUILDING STRUCTURES)

Typical equipment forming part of this scope of works, entail the following;

- Main Office Building.
- Under-cover roof structures for infrastructure protection and operational purposes.
- Pump Station buildings.
- MCC Buildings.
- Storage and Staff Buildings.
- Chlorination Buildings.
- Any other civil infrastructure, not part of the Civil Concrete structures or as mentioned above.

REQUIREMENTS

Typical building structure requirements, entail the following;

- Any particular building structure must perform their original intended design function.
- Any particular building structure must be structurally sound.
- Any particular building must comply with the National Building Regulation.
- Any particular building must comply with all applicable SANS 1200 requirements
- The structure must comply with the OHS Act.
- Special requirements by the engineer and/or the client will be specified during the inspection and the determination of the scope or works for the particular building structure.

PROVISIONAL SUM MANAGEMENT

The provisional sum to cover the cost for the refurbishment of the equipment and structures must be managed.

This is not a quantified sum, therefore the management of the provisional sum will be addressed as follows;

- The contractor will prepare a quotation, covering the applicable equipment, after thoroughly inspecting and assessing the equipment and structures condition. The contractors quoted price will include for all equipment, supply, manufacturing, and the delivery, installation, commissioning and up-holding during the 12 month defects liability period.
- The quotation will be evaluated and approved by the engineer and the client, before the contractor may continue to procure or install any equipment.
- The approved cost for the contractor will be the quote plus mark-up.
- The mark-up will be pre-approved during the tender evaluation procedure.

PS_C_007 – General OHS Act Compliance

SCOPE OF WORKS

The scope of works include the supply, deliver, install, implementation and up-holding during for the 12 month defects liability period, of the equipment and facilities required to comply with the OHS Act, with regards to the execution of the scope of works specified under this contract, part of the pump stations and waste water treatment works, as per the specified requirements below.

EQUIPMENT

Typical equipment forming part of this scope of works, entail the following;

- PPE, specialized safety equipment and facilities, consumables etc., required for the equipment supplied under the scope of works.
- PPE, specialized safety equipment and facilities, consumables etc., required for the delivery, on and off-loading and transportation of equipment under the scope of works.
- PPE, specialized safety equipment and facilities, consumables etc., required for the installation and construction work executed under the scope of works.
- PPE, specialized safety equipment and facilities, consumables etc., required for the commissioning of equipment and infrastructure under the scope of works.
- PPE, specialized safety equipment and facilities, consumables etc., required for the operation and maintenance services under the scope of works.

REQUIREMENTS

The requirements for the General OHS Act Compliance entails the following;

- All the work executed under this contract, must comply with the OHS Act.
- The contractor must provide all equipment and facilities to comply with the above mentioned specified requirements.

PS_C_008 – Temporary Office Facility

SCOPE OF WORKS

The scope of works include the supply, deliver, install and up-holding during for the 12 month defects liability period, of the temporary office facility for the particular pump stations.

EQUIPMENT (OFFICE FACILITY)

The equipment forming part of this scope of works, entail the following;

- A pre-fabricated, self-contained, office facility, transported to site, and off-loaded in the approved allocated position.
- The office must be installed onto elevated supports, minimum 300mm above the provided terrace area.
- The office must be minimum 3m x 6m in size, open plan, manufactured from SANS approved and certified materials.
- The facility must have adequate access, natural lighting and ventilation, as per the National Building Regulation requirements.
- The office facility must be equipped with small power equipment, including, lights (in and out-side), power connection sockets and a 100L geyser (electrical-solar optional).
- The office facility must have air-condition facility.
- The office must be equipped with the following furniture, 1) 2x tables, b) 6x chairs, c) 2x steel cupboard and d) a single sink kitchen knock-down unit.

REQUIREMENTS

The office facility must comply with the following;

- The above mentioned equipment requirement.
- The National Building Regulation.
- The applicable SANS 1200 requirements
- The OHS Act.

PS_C_009 – Temporary Sanitation Facility

SCOPE OF WORKS

The scope of works include the supply, deliver, install and up-holding during for the 12 month defects liability period, of the temporary sanitation facility for the particular pump stations.

EQUIPMENT (OFFICE FACILITY)

The equipment forming part of this scope of works, entail the following;

- A pre-fabricated, self-contained, sanitation facility, transported to site, and off-loaded in the approved allocated position.
- The sanitation facility must be installed onto elevated supports, minimum 300mm above the provided terrace area.
- The sanitation facility must be minimum 3m x 3m in size, with internal panels and doors to facilitate the specified features, manufactured from SANS approved and certified materials.
- The facility must have adequate access, natural lighting and ventilation, as per the National Building Regulation requirements.
- The office facility must be equipped with small power equipment, including, lights (in and out-side), power connection sockets and share the office facilities' 100L geyser (electrical-solar optional).
- The office must be equipped with the following features, 1) 2x separate toilets, b)1x shower and c) a single sink bathroom knock-down unit.

REQUIREMENTS

The sanitation facility must comply with the following;

- The above mentioned equipment requirement.
- The National Building Regulation.
- The applicable SANS 1200 requirements
- The OHS Act.

PS_C_010 – Water & Drain Connections

SCOPE OF WORKS

The scope of works include the supply, deliver, install and up-holding during for the 12 month defects liability period, of the water and drain connections for the particular pump stations.

WATER CONNECTION

The equipment forming part of this scope of works, entail the following;

- A metered water connection to the local municipality water supply network.
- An isolation-able connection to the temporary office and sanitation facilities.
- Interconnecting pipe work between the local municipality connection and the temporary site facilities connection(s).

DRAINAGE CONNECTION

The equipment forming part of this scope of works, entail the following;

- Connections for all draining points from the temporary site facilities.
- Discharge connection at the active storage sump, used for the pump station.
- Interconnecting sewer gravitation pipe work between the temporary site facilities drainage connection and the pump station storage sump connection.

REQUIREMENTS

The water and drainage connection scope of works must comply with the following;

- The above mentioned equipment requirement.
- The National Building Regulation.
- The applicable SANS 1200 requirements
- The OHS Act.

PS_C_011 – Payment & Measurement

The scope of works will be certified for payment as follows;

- Material on site will be certified for payment, as and when the material can be inspected for acceptance, on-site or an approved extended site. 80% of the material cost, less 10% retention (up to a maximum of 5% of the contract value), will be certified for payment.
- 100% of the supply, deliver and installation cost, less 10% retention (up to a maximum of 5% of the contract value), will be certified for payment, if and when the material have been installed, inspected and approved. Labour only items will be certified for payment, 100% of the labour cost, less 10% retention (up to a maximum of 5% of the contract value), if and when the work has been completed, inspected and approved.
- 2.5% of the maximum 5% retention money will be certified for payment, if the practical completion has been issued.
- The last 2.5% of the maximum 5% retention money will be certified for payment, after the 12 month defects liability period has elapsed.

PS_C_012 – Execution of Works Method Statement

The contractor must submit as part of his tender bid, method statements for the following;

- A method statement for each different type of installation and construction action.
- The method statement must indicate which bill of quantity sections and items are abdicable.
- The method statement must give a clear description of the type of action.
- The method statement must clearly describe and list the minimum labour requirement for the specific action.
- The method statement must clearly describe and list the minimum equipment and tools required for the specific action.
- The method statement must clearly describe the step by step chronological execution of the action.
- The method statement must clearly describe the risks involved with the specific action, and the contractor's precautionary provisions to eliminate and address the risks.
- The method statement must clearly indicate the specification and regulations considered to compile the method statement.
- The method statement must clearly indicate compliance with the OHS Act.

PS_M_001 – Mechanical Screening

SCOPE OF WORKS

The scope of works include the disconnection, removal, loading, transportation to the workshop, dismantling, inspection and quote for refurbishment and repair, transport back to site, off-loading, installation, commissioning and up-holding during the 12 month defects liability period, of the mechanical screening equipment, part of the pump stations and waste water treatment works, as per the specified requirements below.

WORKS

The refurbishment scope of works for the mechanical screen will typically entail the following;

- Isolate, drain and clean the civil structure where the mechanical screen is installed.
- Completely disconnect the mechanical screen from the existing infrastructure where it is installed.
- Remove the mechanical screen from the installed position, onto proper transportation and transport to the contractors (or sub-contractor's) workshop.
- Dismantle and strip the mechanical screen completely. Properly clean all parts to enable inspection and measurement of wear and damaged parts.
- From inspection and measurement compile a comprehensive quote to refurbish the mechanical screen to the specified requirements herein.
- The quote will be evaluated, together with the dismantled and stripped equipment. On acceptance and approval of the quote by the engineer and the client, the contractor may proceed with the refurbishment as per the approved quotation.
- The engineer and client will be notified timeously of the completion of the refurbishment and repair work on the mechanical screen, to arrange for a factory acceptance test. On acceptance of the refurbished equipment, the contractor can deliver the mechanical screen to site.
- The refurbished mechanical screen may now be installed.
- The mechanical screen must undergo a full dry and wet commissioning procedure.
- The contractor must uphold the mechanical screen for the 12 month defect liability period.

REQUIREMENTS

Requirements during the refurbishment process and the final performance of the mechanical screen, entail the following;

- The contractor will at all times ensure that the existing operation of the pump station and WWTW are not implicated during the refurbishment process.
- The contractor will at all times ensure, to the best of his ability, that there is not additional damage to the mechanical screen during the refurbishment process.
- The contractor will ensure minimum repair time to ensure the approved completion target date are met.
- The mechanical screen must provide adequate hydraulic treatment capacity as per the original design specification, making provision for peak flows.
- The mechanical screen will be refurbished to its as-new condition. If the existing equipment and parts cannot ensure the maximum expected operational life, the equipment must be replaced with new improved technology equipment.
- Material used to refurbish the mechanical screen must be similar or better than the original design.
- Coarse screen aperture must be between 10 to 8mm, and fine screen aperture between 6 to 4mm.
- Traveling perforated plate screenings field will be preferred.
- The mechanical screen must facilitate automating screen field cleaning, by means of mechanical scrubbing and high pressure wash water.
- The mechanical screen must be protected against damage, by means of drive torque monitoring.
- The mechanical screen must discharge the removed screening into the screenings conveyor. The discharge chute, into the conveyor must be totally enclosed to eliminate water spray. The chute enclosure must be accessible for inspection and removable for maintenance and cleaning.
- The mechanical screen's refurbishment must ensure that it is robust and ensure maximum treatment performance and minimal operation and maintenance requirements.
- The refurbished mechanical screen must ideally suit the existing civil structural housing.
- The refurbished mechanical screen must properly and efficiently interact with the adjacent and accompanying equipment.
- The mechanical screen adjacent equipment will be refurbished to totally eliminate any water spray or water spillage.
- The mechanical screen, as the complete assembly and as the individual assemblies must comply with the relevant Particular Specifications, SANS and OHS Act regulations.

PS_M_002 – Screenings Conveyor, Screw Press & Waste Bin Storage

SCOPE OF WORKS

The scope of works include the disconnection, removal, loading, transportation to the workshop, dismantling, inspection and quote for refurbishment and repair, transport back to site, off-loading, installation, commissioning and up-holding during the 12 month defects liability period, of the screening conveyance, de-watering and waste bin storage (screenings handling) equipment, part of the pump stations and waste water treatment works, as per the specified requirements below.

WORKS

The refurbishment scope of works for the screenings handling equipment will typically entail the following;

- Isolate, drain and clean the civil structure where the screenings handling equipment are installed.
- Completely disconnect the screenings handling equipment from the existing infrastructure where it is installed.
- Remove the screenings handling equipment from the installed position, onto proper transportation and transport to the contractors (or sub-contractor's) workshop.
- Dismantle and strip the screenings handling equipment completely. Properly clean all parts to enable inspection and measurement of wear and damaged parts.
- From inspection and measurement compile a comprehensive quote to refurbish the screenings handling equipment to the specified requirements herein.
- The quote will be evaluated, together with the dismantled and stripped equipment. On acceptance and approval of the quote by the engineer and the client, the contractor may proceed with the refurbishment as per the approved quotation.
- The engineer and client will be notified timeously of the completion of the refurbishment and repair work on the screenings handling equipment, to arrange for a factory acceptance test. On acceptance of the refurbished equipment, the contractor can deliver the screenings handling equipment to site.
- The refurbished screenings handling equipment may now be installed.
- The screenings handling equipment must undergo a full dry and wet commissioning procedure.
- The contractor must uphold the screenings handling equipment for the 12 month defect liability period.

REQUIREMENTS

Requirements during the refurbishment process and the final performance of the screenings handling equipment, entail the following;

- The contractor will at all times ensure that the existing operation of the pump station and WWTW are not implicated during the refurbishment process.
- The contractor will at all times ensure, to the best of his ability, that there is not additional damage to the screenings handling equipment during the refurbishment process.
- The contractor will ensure minimum repair time to ensure the approved completion target date are met.
- The screenings handling equipment must provide adequate solids handling capacity as per the original design specification, making provision for peak flows.
- The screenings handling equipment will be refurbished to its as-new condition. If the existing equipment and parts cannot ensure the maximum expected operational life, the equipment must be replaced with new improved technology equipment.
- Material used to refurbish the screenings handling equipment must be similar or better than the original design.
- The screenings handling equipment must receive the removed screening from the mechanical screen.
- The screenings handling equipment may consist of screenings conveyors, screenings screw presses and a duty/stand-by waste bin system.
- The Screenings conveyor must receive the screenings from the mechanical screen. The receiving chute and conveyor must be totally enclosed to eliminate water spray. The chute and conveyor must be accessible for inspection, and removable for maintenance and cleaning.
- The conveyor must convey all received screenings to the screw press, without screenings left behind in the conveyor.
- A hydro-conveyor will be preferred.
- The conveyor must collect screenings from all the mechanical screens and the hand screens.
- The Screw press must receive the screenings from the conveyor. The receiving chute and press must be totally enclosed to eliminate water spray. The chute and press must be accessible for inspection, and removable for maintenance and cleaning.
- The press must wash and de-water all received screenings from the conveyor, without screenings left behind in the press.

- A screw wash press will be preferred, utilising high pressure wash water for efficient screenings wash and de-watering.
- The press must receive all screenings from all the mechanical screens and the hand screens, via the conveyor.
- The screw press must ensure maximum screenings wash and de-watering to enable the return of all organic matter removed with the screenings.
- The screw press must ensure maximum wash and de-watering of the screenings to also ensure a clean and dry screenings discharge, to eliminate fly and insect attraction and odour reduction.
- The screw press must discharge the washed and de-watered screenings into the duty waste bin.
- The screenings handling equipment must include the wash water supply system, providing all water for the mechanical screens, conveyors and the screw press. The wash water system must have for a minimum 1x duty wash water supply pump and 1x stand-by. High pressure instead of high water volumes, with regards to wash water use, is preferred, to limit the water volumes to be supplied for wash water and to be returned to the main raw sewage stream.
- The waste bin system will comprise of, three waste bins (1x duty, 2x standby), each with a dolly, on a rail system (manually movable when bins are filled) and one trailer, operate-able by the hydraulic system of a 65kW (4x4) tractor.
- The waste bin system layout must compliment the access for the removal and return of the waste bins, but must inter act with the integrated screening system, from the screen, to the screw press, via the conveyor.
- The screenings handling equipment refurbishment must ensure that it is robust and ensure maximum treatment performance and minimal operation and maintenance requirements.
- The refurbished screenings handling equipment must ideally suit the existing civil structural housing.
- The refurbished screenings handling equipment must properly and efficiently interact with the adjacent and accompanying equipment.
- The screenings handling equipment will be refurbished to totally eliminate any water spray or water spillage.
- The screenings handling equipment, as the complete system and as the individual equipment and assemblies must comply with the relevant Particular Specifications, SANS and OHS Act regulations.

PS_M_003 – Hand Screening

SCOPE OF WORKS

The scope of works include the disconnection, removal, loading, transportation to the workshop, dismantling, inspection and quote for refurbishment and repair, transport back to site, off-loading, installation, commissioning and up-holding during the 12 month defects liability period, of the hand screening equipment, part of the pump stations and waste water treatment works, as per the specified requirements below.

WORKS

The refurbishment scope of works for the mechanical screen will typically entail the following;

- Isolate, drain and clean the civil structure where the hand screen is installed.
- Completely disconnect the hand screen from the existing infrastructure where it is installed.
- Remove the hand screen from the installed position, onto proper transportation and transport to the contractors (or sub-contractor's) workshop.
- Dismantle and strip the hand screen completely. Properly clean all parts to enable inspection and measurement of wear and damaged parts.
- From inspection and measurement compile a comprehensive quote to refurbish the hand screen to the specified requirements herein.
- The quote will be evaluated, together with the dismantled and stripped equipment. On acceptance and approval of the quote by the engineer and the client, the contractor may proceed with the refurbishment as per the approved quotation.
- The engineer and client will be notified timeously of the completion of the refurbishment and repair work on the hand screen, to arrange for a factory acceptance test. On acceptance of the refurbished equipment, the contractor can deliver the hand screen to site.
- The refurbished hand screen may now be installed.
- The hand screen must undergo a full dry and wet commissioning procedure.
- The contractor must uphold the hand screen for the 12 month defect liability period.

REQUIREMENTS

Requirements during the refurbishment process and the final performance of the hand screen, entail the following;

- The contractor will at all times ensure that the existing operation of the pump station and WWTW are not implicated during the refurbishment process.
- The contractor will at all times ensure, to the best of his ability, that there is not additional damage to the hand screen during the refurbishment process.
- The contractor will ensure minimum repair time to ensure the approved completion target date are met.
- The hand screen must provide adequate hydraulic treatment capacity as per the original design specification, making provision for peak flows.
- The hand screen will be refurbished to its as-new condition. If the existing equipment and parts cannot ensure the maximum expected operational life, the equipment must be replaced with new improved technology equipment.
- Material used to refurbish the mechanical screen must be similar or better than the original design.
- Coarse screen aperture must be between 25 to 15mm, and fine screen aperture between 8 to 6mm.
- Static, 45° inclined bar screen field will be preferred.
- The hand screened screenings must be dumped into the screenings conveyor. The discharge chute, into the conveyor must be totally enclosed to eliminate water spray.
- The hand screen's refurbishment must ensure that it is robust and ensure maximum treatment performance and minimal operation and maintenance requirements.
- The refurbished hand screen must ideally suit the existing civil structural housing.
- The refurbished hand screen must properly and efficiently interact with the adjacent and accompanying equipment.
- The hand screen, as the complete assembly and as the individual assemblies must comply with the relevant Particular Specifications, SANS and OHS Act regulations.

PS_M_004 – Mechanical De-Gritting, Classification & Waste Bin Storage

SCOPE OF WORKS

The scope of works include the disconnection, removal, loading, transportation to the workshop, dismantling, inspection and quote for refurbishment and repair, transport back to site, off-loading, installation, commissioning and up-holding during the 12 month defects liability period, of the de-gritting, classification and waste bin storage equipment (de-gritting equipment), part of the pump stations and waste water treatment works, as per the specified requirements below.

WORKS

The refurbishment scope of works for the de-gritting equipment will typically entail the following;

- Isolate, drain and clean the civil structure where the de-gritting equipment are installed.
- Completely disconnect the de-gritting equipment from the existing infrastructure where it is installed.
- Remove the de-gritting equipment from the installed position, onto proper transportation and transport to the contractors (or sub-contractor's) workshop.
- Dismantle and strip the de-gritting equipment completely. Properly clean all parts to enable inspection and measurement of wear and damaged parts.
- From inspection and measurement compile a comprehensive quote to refurbish the de-gritting equipment to the specified requirements herein.
- The quote will be evaluated, together with the dismantled and stripped equipment. On acceptance and approval of the quote by the engineer and the client, the contractor may proceed with the refurbishment as per the approved quotation.
- The engineer and client will be notified timeously of the completion of the refurbishment and repair work on the de-gritting equipment, to arrange for a factory acceptance test. On acceptance of the refurbished equipment, the contractor can deliver the de-gritting equipment to site.
- The refurbished de-gritting equipment may now be installed.
- The de-gritting equipment must undergo a full dry and wet commissioning procedure.
- The contractor must uphold the de-gritting equipment for the 12 month defect liability period.

REQUIREMENTS

Requirements during the refurbishment process and the final performance of the de-gritting equipment, entail the following;

- The contractor will at all times ensure that the existing operation of the pump station and WWTW are not implicated during the refurbishment process.
- The contractor will at all times ensure, to the best of his ability, that there is not additional damage to the de-gritting equipment during the refurbishment process.
- The contractor will ensure minimum repair time to ensure the approved completion target date are met.
- The de-gritting equipment must provide adequate solids handling capacity as per the original design specification, making provision for peak flows.
- The de-gritting equipment will be refurbished to its as-new condition. If the existing equipment and parts cannot ensure the maximum expected operational life, the equipment must be replaced with new improved technology equipment.
- Material used to refurbish the de-gritting equipment must be similar or better than the original design.
- The de-gritting equipment must consist of the grit removal equipment, the grit classification equipment and a duty/stand-by waste bin system.
- The grit removal equipment must periodically, continuously over a 24 hour period, remove the vortex settled grit from the bottom of the Pista Trap, and convey the grit-water solution to the classifier.
- A Pista Trap paddler, self-priming de-gritting pump and pipe work will be preferred.
- The paddler must be optimally sized to maintain a minimum velocity flow through the Pista, to ensure the non-settlement of the organic material. The paddler will run 24 hour per day.
- The de-gritting pump will be hydraulically sized to pump the ideal flow to the grit classifier.
- The pump will be selected to optimally suit the duty point, with the suction lift conditions.
- The pump will feature special materials to increase life expectancy under the conditions it will perform in, thus handling grit and sand.
- The suction and delivery pipe work and valves will be selected to suit the hydraulic system requirements.
- The pipe work and valves will be manufactured from 304 Stainless Steel material.
- The grit pump will suck from the bottom of the Pista Trap, to the inlet connection of the classifier.
- The layout of the de-gritting equipment will be such to ensure minimum distances between the equipment.

- Pipe work and equipment will be retro-fitted to the existing civil structure and layout.
- The suction pipe will run vertically down to the bottom of the Pista Trap, through the hollow shaft of the paddler.
- The de-gritting pump will feature a by-pass flow, from the delivery, to the suction pipe work at the bottom of the Pista Trap, for settled grit flotation. The by-pass flotation pipe work must also feature the connection for compressed air, for un-clogging of the suction pipe work.
- The grit classifier will receive the removed grit from the de-gritting pump(s).
- The classifier must be optimally sized to receive the hydraulic and solids load from the Pista Trap.
- The classifier must be totally enclosed, to eliminate any spray of spillages.
- The enclosed classifier must allow access for inspection, operation and maintenance.
- The stilling volute of the classifier must be specially designed to optimally settle the grit and sand particle, but not the organic material to be returned.
- The classified (settled) flow from the Pista Trap must be returned to the main sewage stream, up-stream from the Pista Trap inflow.
- The settled grit, must be continuously be augured from the bottom of the stilling volute, to the discharge chute of the classifier.
- The design of the wearing-liner of the screw or spiral auger must ensure maximum operational life, ease of maintenance and most importantly, maximum grit de-watering.
- The classifier discharge must discharge into the duty waste bin.
- The main manufacturing material of the classifier will be 304 Stainless Steel, excluding the auger and its wearing liner.
- The discharge from the classifier into the duty waste bin will feature a down feed chute to eliminate any spillage outside the bin.
- The waste bin system will comprise of, three waste bins (1x duty, 2x standby), each with a dolly, on a rail system (manually movable when bins are filled) and one trailer, operate-able by the hydraulic system of a 65kW (4x4) tractor.
- The waste bin system layout must compliment the access for the removal and return of the waste bins, but must inter act with the integrated de-gritting equipment system, from the Pista Trap to the classifier. The de-gritting equipment refurbishment must ensure that it is robust and ensure maximum treatment performance and minimal operation and maintenance requirements.
- The refurbished de-gritting equipment must ideally suit the existing civil structural housing.
- The refurbished de-gritting equipment must properly and efficiently interact with the adjacent and accompanying equipment.
- The de-gritting equipment will be refurbished to totally eliminate any water spray or water spillage.
- The de-gritting equipment, as the complete system and as the individual equipment and assemblies must comply with the relevant Particular Specifications, SANS and OHS Act regulations.

PS_M_005 – Sluice Gates, Penstocks, Hand stops & Flow Control Devices

SCOPE OF WORKS

The scope of works include the disconnection, removal, loading, transportation to the workshop, dismantling, inspection and quote for refurbishment and repair, transport back to site, off-loading, installation, commissioning and up-holding during the 12 month defects liability period, of the sluice gates, penstock, hand stops and flow control devices (flow control equipment) part of the pump stations and waste water treatment works, as per the specified requirements below.

WORKS

The refurbishment scope of works for the flow control equipment will typically entail the following;

- Isolate, drain and clean the civil structure where the flow control equipment are installed.
- Completely disconnect the flow control equipment from the existing infrastructure where it is installed.
- Remove the flow control equipment from the installed position, onto proper transportation and transport to the contractors (or sub-contractor's) workshop.
- Dismantle and strip the flow control equipment completely. Properly clean all parts to enable inspection and measurement of wear and damaged parts.
- From inspection and measurement compile a comprehensive quote to refurbish the flow control equipment to the specified requirements herein.
- The quote will be evaluated, together with the dismantled and stripped equipment. On acceptance and approval of the quote by the engineer and the client, the contractor may proceed with the refurbishment as per the approved quotation.
- The engineer and client will be notified timeously of the completion of the refurbishment and repair work on the flow control equipment, to arrange for a factory acceptance test. On acceptance of the refurbished equipment, the contractor can deliver the flow control equipment to site.
- The refurbished flow control equipment may now be installed.
- The flow control equipment must undergo a full dry and wet commissioning procedure.
- The contractor must uphold the flow control equipment for the 12 month defect liability period.

REQUIREMENTS

Requirements during the refurbishment process and the final performance of the flow control equipment, entail the following;

- The contractor will at all times ensure that the existing operation of the pump station and WWTW are not implicated during the refurbishment process.
- The contractor will at all times ensure, to the best of his ability, that there is not additional damage to the flow control equipment during the refurbishment process.
- The contractor will ensure minimum repair time to ensure the approved completion target date are met.
- The existing flow control equipment must be refurbished, especially where the frame has been grouted into the concrete.
- The flow control equipment will be refurbished to its as-new condition. If the existing equipment and parts cannot ensure the maximum expected operational life, the equipment must be replaced with new improved technology equipment.
- Material used to refurbish the flow control equipment must be similar or better than the original design.
- The flow control equipment may consist of sluice gates, penstocks, hand stops, tilting weirs and other flow divide/control devices.
- Any equipment, especially the guide frames, cast and grout into the concrete that has be damaged beyond repair, the equipment must be replaced.
- If the grouted and cast fixed parts and equipment are intact and will ensure maximum life expectancy, the equipment can be refurbished.
- All gates must be removed and check for alignment and damage.
- All seals must be replaces.
- If the spindles are intact and will ensure maximum life expectancy, the equipment can be refurbished.
- Head gear, including the hand wheel, bearing, head gear nut, spacer lock and spindle cover can be refurbished if intact and the maximum life expectance can be ensured, otherwise it must be replaced.
- The refurbishment of the flow control equipment must ensure proper flow isolation and control.
- The flow control equipment refurbishment must ensure that it is robust and ensure maximum treatment performance and minimal operation and maintenance requirements.
- The refurbished flow control equipment must ideally suit the existing civil structural housing.
- The refurbished flow control equipment must properly and efficiently interact with the adjacent and accompanying equipment.
- The flow control equipment, as the complete system and as the individual equipment and assemblies must comply with the relevant Particular Specifications, SANS and OHS Act regulations.

PS_M_006 – Provisional Sum for Mechanical Equipment

SCOPE OF WORKS

The scope of works include the cost to cover the refurbishment and repair and up-holding during the 12 month defects liability period, of all the mechanical equipment part of the pump stations and waste water treatment works, as per the specified requirements below.

EQUIPMENT PART OF THE SCOPE OF WORKS

The contractor must thoroughly inspect, measure and quote, including for all material, manufacturing, labour or any necessary work, for the refurbishment, repair and or replacement of the particular mechanical equipment. The scope of work cover all and any mechanical related equipment, infrastructure and facilities, which entails typically the following;

- Mechanical screen, screenings conveyors, screenings screw presses and waste bin systems.
- Hand screens. Screening baskets and rag-catchers.
- Grit removal equipment, grit classifiers and waste bin systems.
- Sluice gates, penstocks, hand stops, tilting weirs and flow control devices.
- Pumps; centrifugal, self-priming, end-suction, submersible, screw, etc.
- Steel pipe work.
- Valves, non-return valves, control valves, actuators, air release etc.
- Bridge scraper mechanisms.
- Mixers; vertical shaft, submersible, pumps-mixing.
- Aerators: vertical shaft surface.
- Chemical dosing equipment.
- Material handling and lifting.
- Bio-filter rotating distribution arm-mechanism.

REQUIREMENTS

Typical mechanical requirements, entail the following;

- Mechanical equipment must perform their original intended design function.
- Mechanical equipment must be structurally sound.
- Mechanical equipment must comply with all applicable SANS requirements.
- Mechanical equipment must comply with the OHS Act.
- Special requirements by the engineer and/or the client will be specified during the inspection and the determination of the scope or works for the particular mechanical equipment.

PROVISIONAL SUM MANAGEMENT

The provisional sum to cover the cost for the refurbishment of the equipment and structures must be managed.

This is not a quantified sum, therefore the management of the provisional sum will be addressed as follows;

- The contractor will prepare a quotation, covering the applicable equipment, after thoroughly inspecting and assessing the equipment and structures condition. The contractors quoted price will include for all equipment, supply, manufacturing, and the delivery, installation, commissioning and up-holding during the 12 month defects liability period.
- The quotation will be evaluated and approved by the engineer and the client, before the contractor may continue to procure or install any equipment.
- The approved cost for the contractor will be the quote plus mark-up.
- The mark-up will be pre-approved during the tender evaluation procedure.

PS_M_007 – Pump Sets

SCOPE OF WORKS

The scope of works include the disconnection, removal, loading, transportation to the workshop, dismantling, inspection and quote for refurbishment and repair, transport back to site, off-loading, installation, commissioning and up-holding during the 12 month defects liability period, of the pump sets part of the pump stations and waste water treatment works, as per the specified requirements below.

WORKS

The refurbishment scope of works for the pump sets will typically entail the following;

- Isolate, drain and clean the civil structure where the pump set are installed.
- Completely disconnect the pump set from the existing infrastructure where it is installed.
- Remove the pump set from the installed position, onto proper transportation and transport to the contractors (or sub-contractor's) workshop.
- Dismantle and strip the pump set completely. Properly clean all parts to enable inspection and measurement of wear and damaged parts.
- From inspection and measurement compile a comprehensive quote to refurbish the pump set to the specified requirements herein.
- The quote will be evaluated, together with the dismantled and stripped equipment. On acceptance and approval of the quote by the engineer and the client, the contractor may proceed with the refurbishment as per the approved quotation.
- The engineer and client will be notified timeously of the completion of the refurbishment and repair work on the pump set, to arrange for a factory acceptance test. On acceptance of the refurbished equipment, the contractor can deliver the pump set to site.
- The refurbished pump set may now be installed.
- The pump set must undergo a full dry and wet commissioning procedure.
- The contractor must uphold the pump set for the 12 month defect liability period.

REQUIREMENTS

Requirements during the refurbishment process and the final performance of the pump sets, entail the following;

- The contractor will at all times ensure that the existing operation of the pump station and WWTW are not implicated during the refurbishment process.
- The contractor will at all times ensure, to the best of his ability, that there is not additional damage to the pump sets during the refurbishment process.
- The contractor will ensure minimum repair time to ensure the approved completion target date are met.
- The pump sets will be refurbished to its as-new condition. If the existing equipment and parts cannot ensure the maximum expected operational life, the equipment must be replaced with new improved technology equipment.
- Material used to refurbish the pump sets must be similar or better than the original design.
- The materials and parts used for the refurbishment of the pump sets shall at all times be original manufactured material and parts. No second grade, no-name branded replacement material or parts will be acceptable. The contractor and the supplier of the material and parts must provide proof of the material quality and origin.
- The pump sets include the pump, coupling/drive connection, electrical motor and the base plate (frame).
- The pump types include, centrifugal, end-suction, self-priming, submersible, screw pumps, fixed installations and mobile units.
- The existing pump sets, to be refurbished, will perform according to their original design requirements. During the pump inspection stage, the contractor will confirm with the engineer whether the existing pump duty are sufficient for the application.
- During the pump inspection stage, the contractor will confirm with the engineer whether the existing type of pump and rest of the assembly sufficient for the application.
- During the pump inspection stage, the contractor will confirm with the engineer whether the existing installation configuration and layout is sufficient for the application.
- The pump set refurbishment must ensure that it is robust and ensure maximum handling performance and minimal operation and maintenance requirements.
- The pump set must ideally suit the existing civil structural housing.
- The pump set must properly and efficiently interact with the adjacent and accompanying equipment.
- The pump set, as the complete system and as the individual equipment and assemblies must comply with the relevant Particular Specifications, SANS and OHS Act regulations.

MOBILE PUMP SET UNITS

Requirements for the supply, manufacture, deliver, installation, commissioning, operation and upholding during the 12 month defects liability period of new mobile pump sets entail the following;

- The pump selected for the particular duty, will feature the ideal characteristic for the application.
- The pump selected for the mobile unit, will be manufactured of the best available material and the best manufacturing processes. The contractor and supplier must provide proof the quality control and origin of the material used.
- The pump will be a centrifugal, self-priming pump unit, adequately selected to accommodate the priming conditions of the system.
- The contractor and supplier must provide proof, assurance and guarantees of the pump's performance, as per the design, application and their internal testing.
- The pump will be driven by a premium efficiency electrical motor, sized for the maximum delivery of the pump, not only the required duty required.
- The motor will at least 20% spare capacity.
- The motor will suit the main (Eskom) electrical and standby power supply.
- The motor-pump coupling will be direct, with the best available quality and technology type coupling.
- The motor-pump assembly will be mounted onto a skid-type base frame.
- The base frame must be designed to handle and absorb all static and dynamic loads from the operational conditions of the pump set, including suction and delivery pipe work.
- The skid frame must be designed to handle movement, skidding, on the installed area (paving, concrete slab, natural ground and prepared terraces).
- The mobile pump set unit must be completely stand alone, only requiring an electrical supply cable connection.
- The mobile pump set unit must facilitate its own motor control switch gear, mounted onto the skid base frame. The switch gear control panel must provide VSD motor control, with the best available technology equipment. The control gear must provide the best protection against power surges, power stability and motor-pump malfunction.
- The mobile pump set unit must be designed for outside weather conditions, without any cover or additional protection against the environmental conditions.
- The mobile pump set unit must be designed to be lifted via crane or high-up, from the transport, onto the place of installation.
- The required pump duties for the two applications;

APPLICATION	QNTY	FLOW	HEAD
Pump Station #	?	? L/s	? m

PS_M_008 – Pipe Work, Valves & Accessories

SCOPE OF WORKS

The scope of works include the disconnection, removal, loading, transportation to the workshop, dismantling, inspection and quote for refurbishment and repair, transport back to site, off-loading, installation, commissioning and up-holding during the 12 month defects liability period, of all steel pipe work, valves, jointing sets and accessories (pipe work), part of the pump stations and waste water treatment works, as per the specified requirements below.

WORKS

The refurbishment scope of works for the pipe work will typically entail the following;

- Isolate, drain and clean the civil structure where the pipe work are installed.
- Completely disconnect the pipe work from the existing infrastructure where it is installed.
- Remove the pipe work from the installed position, onto proper transportation and transport to the contractors (or sub-contractor's) workshop.
- Dismantle and strip the pipe work completely. Properly clean all parts to enable inspection and measurement of wear and damaged parts.
- From inspection and measurement compile a comprehensive quote to refurbish the pipe work to the specified requirements herein.
- The quote will be evaluated, together with the dismantled and stripped equipment. On acceptance and approval of the quote by the engineer and the client, the contractor may proceed with the refurbishment as per the approved quotation.
- The engineer and client will be notified timeously of the completion of the refurbishment and repair work on the pipe work, to arrange for a factory acceptance test. On acceptance of the refurbished equipment, the contractor can deliver the pipe work to site.
- The refurbished pipe work may now be installed.
- The pipe work must undergo a full dry and wet commissioning procedure.
- The contractor must uphold the pipe work for the 12 month defect liability period.

REQUIREMENTS

Requirements during the refurbishment process and the final performance of the pipe work, entail the following;

- The contractor will at all times ensure that the existing operation of the pump station and WWTW are not implicated during the refurbishment process.
- The contractor will at all times ensure, to the best of his ability, that there is not additional damage to the pipe work during the refurbishment process.
- The contractor will ensure minimum repair time to ensure the approved completion target date are met.
- The pipe work will be refurbished to its as-new condition. If the existing equipment and parts cannot ensure the maximum expected operational life, the equipment must be replaced with new improved technology equipment.
- Material used to refurbish the pipe work must be similar or better than the original design.
- The materials and parts used for the refurbishment of the pipe work shall at all times be original manufactured material and parts. No second grade, no-name branded replacement material or parts will be acceptable. The contractor and the supplier of the material and parts must provide proof of the material quality and origin.
- The pipe work include the steel pipe work, special pipe pieces, isolation valves, non-return valves, air-release valves, adaptors, jointing sets, flexible couplings, pipe supports, pressure gauges and other instrumentation sockets.
- Pipe work must be minimum class PN16.
- During the pipe work inspection stage, the contractor will confirm with the engineer whether the existing installation configuration and layout is sufficient for the application.
- The pipe work refurbishment must ensure that it is robust and ensure maximum handling performance and minimal operation and maintenance requirements.
- The pipe work must ideally suit the existing civil structural housing.
- The pipe work must properly and efficiently interact with the adjacent and accompanying equipment.
- The pipe work, as the complete system and as the individual equipment and assemblies must comply with the relevant Particular Specifications, SANS and OHS Act regulations.

MOBILE PUMP SET UNIT's PIPE WORK

Requirements for the supply, manufacture, deliver, installation, commissioning, operation and upholding during the 12 month defects liability period of new pipe work for the mobile pump set units entail the following;

- The pipe work for the mobile pump sets must comply with the above regulations.
- Each mobile pump set must have its own suction pipe, from the storage sump to the pump suction.
- The pump deliveries will both discharge into a jointing manifold, running to the delivery connection chamber.
- Each suction will facilitate a bell-mouth suction entrance, with minimum one isolation valve.
- Each pump delivery will have minimum one isolation and one non-return valve.
- The single delivery line will also have an isolation valve.
- The pipe work installation configuration will be semi-permanent, thus although mobile and easily removable, it must be properly secured and supported from the suction point, surface running to the pump, at the pump suction and delivery connection, running to the delivery connection and at the connection chamber.
- The pipe work must be high quality flexible hose, reinforced to endure the working pressures and the handling during setup and removal actions.
- The pipe routes and layout must be minimum distances and the suction must be kept especially short.
- The pipe work must not be covered and must not be laid across general access ways.

PS_M_009 – Settling Tank Scraper Bridge Mechanism

SCOPE OF WORKS

The scope of works include the disconnection, removal, loading, transportation to the workshop, dismantling, inspection and quote for refurbishment and repair, transport back to site, off-loading, installation, commissioning and up-holding during the 12 month defects liability period, of the bridge scraper mechanism, part of the pump stations and waste water treatment works, as per the specified requirements below.

WORKS

The refurbishment scope of works for the bridge scraper mechanism will typically entail the following;

- Isolate, drain and clean the civil structure where the bridge scraper mechanism are installed.
- Completely disconnect the bridge scraper mechanism from the existing infrastructure where it is installed.
- Remove the bridge scraper mechanism from the installed position, onto proper transportation and transport to the contractors (or sub-contractor's) workshop.
- Dismantle and strip the bridge scraper mechanism completely. Properly clean all parts to enable inspection and measurement of wear and damaged parts.
- From inspection and measurement compile a comprehensive quote to refurbish the bridge scraper mechanism to the specified requirements herein.
- The quote will be evaluated, together with the dismantled and stripped equipment. On acceptance and approval of the quote by the engineer and the client, the contractor may proceed with the refurbishment as per the approved quotation.
- The engineer and client will be notified timeously of the completion of the refurbishment and repair work on the bridge scraper mechanism, to arrange for a factory acceptance test. On acceptance of the refurbished equipment, the contractor can deliver the bridge scraper mechanism to site.
- The refurbished bridge scraper mechanism may now be installed.
- The bridge scraper mechanism must undergo a full dry and wet commissioning procedure.
- The contractor must uphold the bridge scraper mechanism for the 12 month defect liability period.

REQUIREMENTS

Requirements during the refurbishment process and the final performance of the bridge scraper mechanism, entail the following;

- The contractor will at all times ensure that the existing operation of the pump station and WWTW are not implicated during the refurbishment process.
- The contractor will at all times ensure, to the best of his ability, that there is not additional damage to the bridge scraper mechanism during the refurbishment process.
- The contractor will ensure minimum repair time to ensure the approved completion target date are met.
- The bridge scraper mechanism will be refurbished to its as-new condition. If the existing equipment and parts cannot ensure the maximum expected operational life, the equipment must be replaced with new improved technology equipment.
- Material used to refurbish the bridge scraper mechanism must be similar or better than the original design.
- The materials and parts used for the refurbishment of the bridge scraper mechanism shall at all times be original manufactured material and parts. No second grade, no-name branded replacement material or parts will be acceptable. The contractor and the supplier of the material and parts must provide proof of the material quality and origin.
- The bridge scraper mechanism include the bridge structure, central pivot and bearing assembly, walkway grating and handrails, end-carriage and drive assembly, scrapers, blades and hangers, scum collection and discharge mechanism, baffles and weirs and the inlet stilling box.
- The bridge structure, if structurally sound and not damaged, must be refurbished.
- Handrails and walk way grating must be replaced with fibre or alternative synthetic material.
- Replace the centre bearing, if it cannot be refurbished for maximum expected operational life.
- Replace the end-carriage wheels, refurbish the end-carriage structure, including the motor-gearbox to maximum expected operational life, if not possible, replace.
- Scraper hangers, and scrapers must be 304 Stainless steel, if not replace.
- Replace scraper blades with new natural rubber material, or similar material with equivalent quality.
- Stilling box, baffle plates, scum scraper and removal mechanism, and weirs must be 304 stainless steel, if not, replace.
- During the inspection stage, the contractor will confirm with the engineer whether the existing installation configuration and layout is sufficient for the application.

- The scraper mechanism refurbishment must ensure that it is robust and ensure maximum handling performance and minimal operation and maintenance requirements.
- The scraper mechanism must ideally suit the existing civil structural housing.
- The scraper mechanism must properly and efficiently interact with the adjacent and accompanying equipment.
- The scraper mechanism, as the complete system and as the individual equipment and assemblies must comply with the relevant Particular Specifications, SANS and OHS Act regulations.

PS_M_010 – Mixer Equipment

SCOPE OF WORKS

The scope of works include the disconnection, removal, loading, transportation to the workshop, dismantling, inspection and quote for refurbishment and repair, transport back to site, off-loading, installation, commissioning and up-holding during the 12 month defects liability period, of the mixing equipment, part of the pump stations and waste water treatment works, as per the specified requirements below.

WORKS

The refurbishment scope of works for the mixing equipment will typically entail the following;

- Isolate, drain and clean the civil structure where the mixing equipment are installed.
- Completely disconnect the mixing equipment from the existing infrastructure where it is installed.
- Remove the mixing equipment from the installed position, onto proper transportation and transport to the contractors (or sub-contractor's) workshop.
- Dismantle and strip the mixing equipment completely. Properly clean all parts to enable inspection and measurement of wear and damaged parts.
- From inspection and measurement compile a comprehensive quote to refurbish the mixing equipment to the specified requirements herein.
- The quote will be evaluated, together with the dismantled and stripped equipment. On acceptance and approval of the quote by the engineer and the client, the contractor may proceed with the refurbishment as per the approved quotation.
- The engineer and client will be notified timeously of the completion of the refurbishment and repair work on the mixing equipment, to arrange for a factory acceptance test. On acceptance of the refurbished equipment, the contractor can deliver the mixing equipment to site.
- The refurbished mixing equipment may now be installed.
- The mixing equipment must undergo a full dry and wet commissioning procedure.
- The contractor must uphold the mixing equipment for the 12 month defect liability period.

REQUIREMENTS

Requirements during the refurbishment process and the final performance of the mixing equipment, entail the following;

- The contractor will at all times ensure that the existing operation of the pump station and WWTW are not implicated during the refurbishment process.
- The contractor will at all times ensure, to the best of his ability, that there is not additional damage to the mixing equipment during the refurbishment process.
- The contractor will ensure minimum repair time to ensure the approved completion target date are met.
- The mixing equipment will be refurbished to its as-new condition. If the existing equipment and parts cannot ensure the maximum expected operational life, the equipment must be replaced with new improved technology equipment.
- Material used to refurbish the mixing equipment must be similar or better than the original design.
- The materials and parts used for the refurbishment of the mixing equipment shall at all times be original manufactured material and parts. No second grade, no-name branded replacement material or parts will be acceptable. The contractor and the supplier of the material and parts must provide proof of the material quality and origin.
- The mixing equipment include the vertical shaft mixers and submersible mixers. The vertical shaft mixers consist of the motor-gearbox drive unit, the platform base plate, the shaft and the mixing impellor. The submersible mixer consist of a direct coupled impellor with a submersible motor and vertical guiderails and lifting equipment.
- During the inspection stage, the contractor will confirm with the engineer the mixing energy per volume of each mixer, to ensure the efficient mixing capacity of the equipment.

- During the inspection stage, the contractor will confirm with the engineer whether the existing installation configuration and layout is sufficient for the application.
- The mixing equipment refurbishment must ensure that it is robust and ensure maximum handling performance and minimal operation and maintenance requirements.
- The mixing equipment must ideally suit the existing civil structural housing.
- The mixing equipment must properly and efficiently interact with the adjacent and accompanying equipment.
- The mixing equipment, as the complete system and as the individual equipment and assemblies must comply with the relevant Particular Specifications, SANS and OHS Act regulations.

PS_M_011 – Surface Aerators

SCOPE OF WORKS

The scope of works include the disconnection, removal, loading, transportation to the workshop, dismantling, inspection and quote for refurbishment and repair, transport back to site, off-loading, installation, commissioning and up-holding during the 12 month defects liability period, of the aeration equipment, part of the pump stations and waste water treatment works, as per the specified requirements below.

WORKS

The refurbishment scope of works for the aeration equipment will typically entail the following;

- Isolate, drain and clean the civil structure where the aeration equipment are installed.
- Completely disconnect the aeration equipment from the existing infrastructure where it is installed.
- Remove the aeration equipment from the installed position, onto proper transportation and transport to the contractors (or sub-contractor's) workshop.
- Dismantle and strip the aeration equipment completely. Properly clean all parts to enable inspection and measurement of wear and damaged parts.
- From inspection and measurement compile a comprehensive quote to refurbish the aeration equipment to the specified requirements herein.
- The quote will be evaluated, together with the dismantled and stripped equipment. On acceptance and approval of the quote by the engineer and the client, the contractor may proceed with the refurbishment as per the approved quotation.
- The engineer and client will be notified timeously of the completion of the refurbishment and repair work on the aeration equipment, to arrange for a factory acceptance test. On acceptance of the refurbished equipment, the contractor can deliver the aeration equipment to site.
- The refurbished aeration equipment may now be installed.
- The aeration equipment must undergo a full dry and wet commissioning procedure.
- The contractor must uphold the aeration equipment for the 12 month defect liability period.

REQUIREMENTS

Requirements during the refurbishment process and the final performance of the aeration equipment, entail the following;

- The contractor will at all times ensure that the existing operation of the pump station and WWTW are not implicated during the refurbishment process.
- The contractor will at all times ensure, to the best of his ability, that there is not additional damage to the aeration equipment during the refurbishment process.
- The contractor will ensure minimum repair time to ensure the approved completion target date are met.
- The aeration equipment will be refurbished to its as-new condition. If the existing equipment and parts cannot ensure the maximum expected operational life, the equipment must be replaced with new improved technology equipment.
- Material used to refurbish the aeration equipment must be similar or better than the original design.
- The materials and parts used for the refurbishment of the aeration equipment shall at all times be original manufactured material and parts. No second grade, no-name branded replacement material or parts will be acceptable. The contractor and the supplier of the material and parts must provide proof of the material quality and origin.
- The aeration equipment include the motor-gearbox drive unit, the platform base plate, the shaft and the aerator impellor.
- During the inspection stage, the contractor will confirm with the engineer the aeration capacity of each aerator, to ensure the efficient aeration and mixing capacity of the equipment.
- During the inspection stage, the contractor will confirm with the engineer whether the existing installation configuration and layout is sufficient for the application.
- The aeration equipment refurbishment must ensure that it is robust and ensure maximum handling performance and minimal operation and maintenance requirements.
- The aeration equipment must ideally suit the existing civil structural housing.
- The aeration equipment must properly and efficiently interact with the adjacent and accompanying equipment.
- The aeration equipment, as the complete system and as the individual equipment and assemblies must comply with the relevant Particular Specifications, SANS and OHS Act regulations.

PS_M_012 – Chlorine Gas Disinfection Equipment

SCOPE OF WORKS

The scope of works include the disconnection, removal, loading, transportation to the workshop, dismantling, inspection and quote for refurbishment and repair, transport back to site, off-loading, installation, commissioning and up-holding during the 12 month defects liability period, of the chlorine dosing equipment, part of the pump stations and waste water treatment works, as per the specified requirements below.

WORKS

The refurbishment scope of works for the chlorine dosing equipment will typically entail the following;

- Isolate, drain and clean the civil structure where the chlorine dosing equipment are installed.
- Completely disconnect the chlorine dosing equipment from the existing infrastructure where it is installed.
- Remove the chlorine dosing equipment from the installed position, onto proper transportation and transport to the contractors (or sub-contractor's) workshop.
- Dismantle and strip the chlorine dosing equipment completely. Properly clean all parts to enable inspection and measurement of wear and damaged parts.
- From inspection and measurement compile a comprehensive quote to refurbish the chlorine dosing equipment to the specified requirements herein.
- The quote will be evaluated, together with the dismantled and stripped equipment. On acceptance and approval of the quote by the engineer and the client, the contractor may proceed with the refurbishment as per the approved quotation.
- The engineer and client will be notified timeously of the completion of the refurbishment and repair work on the chlorine dosing equipment, to arrange for a factory acceptance test. On acceptance of the refurbished equipment, the contractor can deliver the chlorine dosing equipment to site.
- The refurbished chlorine dosing equipment may now be installed.
- The chlorine dosing equipment must undergo a full dry and wet commissioning procedure.
- The contractor must uphold the chlorine dosing equipment for the 12 month defect liability period.

REQUIREMENTS

Requirements during the refurbishment process and the final performance of the chlorine dosing equipment, entail the following;

- The contractor will at all times ensure that the existing operation of the pump station and WWTW are not implicated during the refurbishment process.
- The contractor will at all times ensure, to the best of his ability, that there is not additional damage to the chlorine dosing equipment during the refurbishment process.
- The contractor will ensure minimum repair time to ensure the approved completion target date are met.
- The chlorine dosing equipment will be refurbished to its as-new condition. If the existing equipment and parts cannot ensure the maximum expected operational life, the equipment must be replaced with new improved technology equipment.
- Material used to refurbish the chlorine dosing equipment must be similar or better than the original design.
- The materials and parts used for the refurbishment of the chlorine dosing equipment shall at all times be original manufactured material and parts. No second grade, no-name branded replacement material or parts will be acceptable. The contractor and the supplier of the material and parts must provide proof of the material quality and origin.
- The chlorine dosing equipment include the duty and standby 1 Ton cylinder storage, lifting and handling equipment, duty and standby cylinder mass scales and displays, gas regulators, catch pods, pigtails, auto-change over, gas flow meter, injector, heaters, tubing, pipe work regulators gauges, isolating valves, motive water booster, duty/standby pump system, auto shut-off equipment, gas leak detection and alarm equipment, PPE, emergency safety equipment and signage.
- During the inspection stage, the contractor will confirm with the engineer the aeration capacity of each aerator, to ensure the efficient aeration and mixing capacity of the equipment.
- During the inspection stage, the contractor will confirm with the engineer whether the existing installation configuration and layout is sufficient for the application.
- The chlorine dosing equipment refurbishment must ensure that it is robust and ensure maximum handling performance and minimal operation and maintenance requirements.
- The chlorine dosing equipment must ideally suit the existing civil structural housing.

- The chlorine dosing equipment must properly and efficiently interact with the adjacent and accompanying equipment.
- The chlorine dosing equipment, as the complete system and as the individual equipment and assemblies must comply with the relevant Particular Specifications, SANS and OHS Act regulations.
- The chlorine dosing equipment, as the complete system and as the individual equipment and assemblies must comply with SANS 102298:2009.

PS_M_013 – Material Lifting Equipment

SCOPE OF WORKS

The scope of works include the disconnection, removal, loading, transportation to the workshop, dismantling, inspection and quote for refurbishment and repair, transport back to site, off-loading, installation, commissioning and up-holding during the 12 month defects liability period, of the material lifting equipment, part of the pump stations and waste water treatment works, as per the specified requirements below.

WORKS

The refurbishment scope of works for the material lifting equipment will typically entail the following;

- Isolate, drain and clean the civil structure where the material lifting equipment are installed.
- Completely disconnect the material lifting equipment from the existing infrastructure where it is installed.
- Remove the material lifting equipment from the installed position, onto proper transportation and transport to the contractors (or sub-contractor's) workshop.
- Dismantle and strip the material lifting equipment completely. Properly clean all parts to enable inspection and measurement of wear and damaged parts.
- From inspection and measurement compile a comprehensive quote to refurbish the material lifting equipment to the specified requirements herein.
- The quote will be evaluated, together with the dismantled and stripped equipment. On acceptance and approval of the quote by the engineer and the client, the contractor may proceed with the refurbishment as per the approved quotation.
- The engineer and client will be notified timeously of the completion of the refurbishment and repair work on the material lifting equipment, to arrange for a factory acceptance test. On acceptance of the refurbished equipment, the contractor can deliver the material lifting equipment to site.
- The refurbished material lifting equipment may now be installed.
- The material lifting equipment must undergo a full dry and wet commissioning procedure.
- The contractor must uphold the material lifting equipment for the 12 month defect liability period.

REQUIREMENTS

Requirements during the refurbishment process and the final performance of the material lifting equipment, entail the following;

- The contractor will at all times ensure that the existing operation of the pump station and WWTW are not implicated during the refurbishment process.
- The contractor will at all times ensure, to the best of his ability, that there is not additional damage to the material lifting equipment during the refurbishment process.
- The contractor will ensure minimum repair time to ensure the approved completion target date are met.
- The material lifting equipment will be refurbished to its as-new condition. If the existing equipment and parts cannot ensure the maximum expected operational life, the equipment must be replaced with new improved technology equipment.
- Material used to refurbish the material lifting equipment must be similar or better than the original design.
- The materials and parts used for the refurbishment of the material lifting equipment shall at all times be original manufactured material and parts. No second grade, no-name branded replacement material or parts will be acceptable. The contractor and the supplier of the material and parts must provide proof of the material quality and origin.
- The material lifting equipment include electrical hoists, manual hoists, hoist trollies, trolley drives (electrical and manual), remote control, trailing cables and rails, specialised lifting clamps and equipment, beams and booms.
- During the inspection stage, the contractor will confirm with the engineer the SWL capacities of all the material lifting equipment, to ensure the capacity of the equipment are sufficient.
- During the inspection stage, the contractor will confirm with the engineer whether the existing installation configuration and layout is sufficient for the application.
- The material lifting equipment refurbishment must ensure that it is robust and ensure maximum handling performance and minimal operation and maintenance requirements.
- The material lifting equipment must ideally suit the existing civil structural housing.
- The material lifting equipment must properly and efficiently interact with the adjacent and accompanying equipment.
- The material lifting equipment, as the complete system and as the individual equipment and

assemblies must comply with the relevant Particular Specifications, SANS and OHS Act regulations.

PS_M_014 – Bio-Filter Distribution Arm-Mechanism

SCOPE OF WORKS

The scope of works include the disconnection, removal, loading, transportation to the workshop, dismantling, inspection and quote for refurbishment and repair, transport back to site, off-loading, installation, commissioning and up-holding during the 12 month defects liability period, of the bio-filter distributor arms, part of the pump stations and waste water treatment works, as per the specified requirements below.

WORKS

The refurbishment scope of works for the bio-filter distributor arms will typically entail the following;

- Isolate, drain and clean the civil structure where the bio-filter distributor arms are installed.
- Completely disconnect the bio-filter distributor arms from the existing infrastructure where it is installed.
- Remove the bio-filter distributor arms from the installed position, onto proper transportation and transport to the contractors (or sub-contractor's) workshop.
- Dismantle and strip the bio-filter distributor arms completely. Properly clean all parts to enable inspection and measurement of wear and damaged parts.
- From inspection and measurement compile a comprehensive quote to refurbish the bio-filter distributor arms to the specified requirements herein.
- The quote will be evaluated, together with the dismantled and stripped equipment. On acceptance and approval of the quote by the engineer and the client, the contractor may proceed with the refurbishment as per the approved quotation.
- The engineer and client will be notified timeously of the completion of the refurbishment and repair work on the bio-filter distributor arms, to arrange for a factory acceptance test. On acceptance of the refurbished equipment, the contractor can deliver the bio-filter distributor arms to site.
- The refurbished bio-filter distributor arms may now be installed.
- The bio-filter distributor arms must undergo a full dry and wet commissioning procedure.
- The contractor must uphold the bio-filter distributor arms for the 12 month defect liability period.

REQUIREMENTS

Requirements during the refurbishment process and the final performance of the bio-filter distributor arms, entail the following;

- The contractor will at all times ensure that the existing operation of the pump station and WWTW are not implicated during the refurbishment process.
- The contractor will at all times ensure, to the best of his ability, that there is not additional damage to the bio-filter distributor arms during the refurbishment process.
- The contractor will ensure minimum repair time to ensure the approved completion target date are met.
- The bio-filter distributor arms will be refurbished to its as-new condition. If the existing equipment and parts cannot ensure the maximum expected operational life, the equipment must be replaced with new improved technology equipment.
- Material used to refurbish the bio-filter distributor arms must be similar or better than the original design.
- The materials and parts used for the refurbishment of the bio-filter distributor arms shall at all times be original manufactured material and parts. No second grade, no-name branded replacement material or parts will be acceptable. The contractor and the supplier of the material and parts must provide proof of the material quality and origin.
- The refurbished distributor arms will have a maximum hydraulic and distribution capacity.
- The bio-filter distributor arms include centre feed and division chamber support, four distribution arms with supporting cables, jet guides and baffles.
- During the inspection stage, the contractor will confirm with the engineer the hydraulic capacities of all the bio-filter distributor arms, to ensure the capacity of the equipment are sufficient.
- During the inspection stage, the contractor will confirm with the engineer whether the existing installation configuration and layout is sufficient for the application.
- The bio-filter distributor arms refurbishment must ensure that it is robust and ensure maximum handling performance and minimal operation and maintenance requirements.
- The bio-filter distributor arms must ideally suit the existing civil structural housing.
- The bio-filter distributor arms must properly and efficiently interact with the adjacent and accompanying equipment.
- The bio-filter distributor arms, as the complete system and as the individual equipment and assemblies must comply with the relevant Particular Specifications, SANS and OHS Act regulations

PS_OM_001 – Operation

SCOPE OF WORKS

The scope of works include the assistance, execution of necessary actions and insurance that operational tasks and actions being performed to operate the facility, falling under the contract scope of works.

WORKS

The operation scope of works will typically entail the following;

- 24 hour facility monitoring to ensure that the facility performs its function.
- 24 hour assistance from the contractor to the service delivery entity.
- Accommodating the service delivery entity to cope with the refurbishment and construction work hampering the normal operations of the facility.
- Any other actions, tasks, assistance to ensure that the facility deliver its intended service.
- The operation service must last the full duration of the contract period.

REQUIREMENTS

Requirements during the operational service, entail the following;

- The existing operation of the pump station and WWTW are not implicated during the refurbishment process.
- The contractor will at all times ensure, that the service delivery entity are assisted where ongoing refurbishment work takes place.
- The contractor will ensure minimum repair time to ensure the approved completion target date are met.
- Service means any form of action, work, support, material, equipment to ensure the operation of the facility.
- The service must at all times comply with the relevant Particular Specifications, SANS and OHS Act regulations.

PS_OM_002 – Maintenance

SCOPE OF WORKS

The scope of works include the assistance, execution of necessary actions and insurance that equipment are maintained and kept operation to ensure the operation of the facility, falling under the contract scope of works.

WORKS

The maintenance scope of works will typically entail the following;

- 24 hour facility monitoring to ensure that the facility's equipment performs its function.
- 24 hour assistance from the contractor to the service delivery entity.
- Routine equipment monitoring.
- Scheduled equipment lubrication and performance checks.
- Scheduled maintenance work.
- Breakdown maintenance work.
- Emergency replacement work on critical essential equipment.

REQUIREMENTS

- The existing operation of the pump station and WWTW are not implicated during the refurbishment process.
- The contractor will at all times ensure, that the service delivery entity are assisted where ongoing refurbishment work takes place.
- The contractor will ensure minimum repair time to ensure the approved completion target date are met.
- Service means any form of action, work, support, material, equipment to ensure the operation of the facility.
- The service must at all times comply with the relevant Particular Specifications, SANS and OHS Act regulations.

PS_OM_003 – Site Keeping

SCOPE OF WORKS

The scope of works include the assistance, execution of necessary actions and insurance that site keeping is done during the ongoing contract duration.

WORKS

The site keeping scope of works will typically entail the following;

- Keeping the site clean of overgrown vegetation, cutting grass and trimming bushes and trees.
- Keeping the structures open for operation and maintenance access.
- Keeping the site clean of screenings, grit and other foreign material.
- Keeping the perimeter fence clean, 3m on the outside of the fence.

REQUIREMENTS

Requirements during the maintenance service, entail the following;

- The existing operation of the pump station and WWTW are not implicated during the refurbishment process.
- The contractor will at all times ensure, that the service delivery entity are assisted where ongoing refurbishment work takes place.
- The contractor will ensure minimum repair time to ensure the approved completion target date are met.
- Service means any form of action, work, support, material, equipment to ensure the operation of the facility.
- The service must at all times comply with the relevant Particular Specifications, SANS and OHS Act regulations.

PS_OM_004 – Site Clearance

SCOPE OF WORKS

The scope of works include the collection, removal, loading, transportation and disposal or off-loading of any scrap, rubbish or foreign material from the facility, during the ongoing contract duration.

The site clearance scope of works will typically entail the following;

- Collecting any scrap, rubbish or foreign material on the site.
- Removing, loading and transportation, any scrap, rubbish or foreign material, from the site to a designated site for disposal or storage.

REQUIREMENTS

Requirements during the maintenance service, entail the following;

- The existing operation of the pump station and WWTW are not implicated during the refurbishment process.
- The contractor will at all times ensure, that the service delivery entity are assisted where ongoing refurbishment work takes place.
- The contractor will ensure minimum repair time to ensure the approved completion target date are met.
- Service means any form of action, work, support, material, equipment to ensure the operation of the facility.
- The contractor must get approval for the storage and disposal sites before removing the scrap, rubbish or foreign material from the site.
- The service must at all times comply with the relevant Particular Specifications, SANS and OHS Act regulations.

PS_OM_005 – Uphold During the 12-Month Defects Liability Period

SCOPE OF WORKS

The scope of works include the monitoring, operational and maintenance service, on all the equipment and infrastructure, forming part of the contractual scope of works, during a 12 month defects liability period.

ANNEXURE C
OCCUPATIONAL HEALTH AND SAFETY

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

PROCUREMENT OF A SERVICE PROVIDER: THE REPAIR AND REFURBISHMENT OF TSHIAME WASTEWATER TREATMENT WORKS

BID NO: SCM/BID33/2025/2026

OHS OCCUPATIONAL, HEALTH AND SAFETY

SECTION A: INTRODUCTION

1.1 Introduction to the Health and Safety Specification

The Construction Regulations (7 February 2014, R.84) places the responsibility on the Client to prepare a baseline risk assessment and a suitable, sufficiently documented and coherent site specific Health & Safety Specification, which informs the appointed contractor of all the health & safety requirements pertaining to the associated works on the construction site as well as risks not successfully eliminated during design.

1.2 Purpose of the Risk Assessment

The purpose of the risk assessment is to identify risks and hazards to which persons may be exposed. Base line risk assessment prepared by Agent of the Client

1.3 Purpose of the Health and Safety Specification

The purpose of the Health and Safety Specification is to assist in achieving compliance with the Occupational Health & Safety Act 85/1993 and the promulgated Construction Regulations (7 February 2014, R.84) in order to manage health and safety risks and to reduce incidents and injuries. This specification shall act as the basis for the drafting of the construction Health & Safety Plan by the Principal Contractor and all subsequent Health & Safety Plans by Contractors.

The Health and Safety Specification sets out the intention of the Client and Designer. It also includes arrangements made by the Client, Health and Safety Agent or consulting Project Manager to ensure that the parties involved in the project cooperate and co-ordinate their activities, to remove or minimize the risks to health and safety of those who are involved in the construction project, or who may be affected by the work activities.

This document sets out the requirements, under a number of sections of Health and Safety Legislation, for the successful health and safety management of the project by the Principal Contractor in accordance with the requirements set out in this Health and Safety Specification. The Principal Contractor will be expected to integrate his own health and safety policy and arrangement documents into their Health & Safety Plan.

The format is in line with the requirements of Regulation 5. of the Construction Regulations (7 February 2014, R.84), for a Health and Safety Plan to be developed before the commencement of construction.

1.4 Implementation of the Health and Safety Specification

The Construction Health and Safety Plan must be handed to the appointed Health and Safety Agent prior to the commencement of works. The Principle Contractor must submit the signed "Acknowledgement of receipt" of this Health and Safety Specification on the date of issue or return to the Client or their representative with tenders. No Principle Contractor may commence with construction work until their Health and Safety Plan has been reviewed and approved by the appointed Health and Safety Agent.

1.5 Health and Safety Targets

The following health and safety targets have been set for achievement during the period of this project.

- The achievement, by the Principal Contractor, of an incident-free project, as far as possible, with the prevention of all incidents, and the achievement of a nil "lost time injury" rate.
- The workforce's co-operation in ensuring that health and safety is everybody's responsibility.
- A proactive approach to health and safety by the construction management team.
- That safe working will be a condition of employment in all contractors' organizations.

1.6 DEFINITIONS

"CLIENT"	Shall mean Maluti-a-Phofung Municipality
"H&S"	Health, Safety & Environment
"Contractor"	Refer to the Mandatory who is employed on the Project and includes his own subcontractors who he further employs.
"Employer"	Means any person who is employed by or works for an employer and who receives or is entitled to receive any remuneration or who works under the direction or supervision of that employer.
"Mandatory"	Includes an agent, a Contractor or a subcontractor for work, but without derogating from his status in his own right as an employer or a user.
"Principal Contractor"	Is the main Contractor, joint venture partners or consortium who employs or provides work on the Project.
"Project"	Refers to the contract and has reference to the premises or any part thereof where the work which has been contracted for is to be performed.

1.7 Reference Documents, Standards and Related Procedures Health and Safety

- The Occupational Health and Safety Act (No. 85 of 1993) and Regulations there under
- The Construction Regulations (7 February 2014)
- All other relevant Health and Safety Legislation
- Method statements supplied by consultant or designer
- National Building Regulations
- SANS 10089-2 & 3, SANS 10085, SANS 10108, SANS 10400, SANS 1200, SANS 10142
- JBCC

1.8. Costing Health and Safety

It is the responsibility of the Principle Contractor to make sufficient provision for OHS requirements and the following should be taken into consideration:

- Training:
 - First Aid
 - Safety Rep
 - Scaffold Erectors
 - All Operators
 - Safety Officer
- Equipment and PPE: Clothing
 - Safety Shoes
 - Gloves
 - Respiratory masks
 - Goggles/safety glasses
 - Road signs
 - Symbolic Safety Signs
 - First Aid equipment, kit and box.
 - Fire extinguishing equipment
 - Safety Harnesses
- Medical fitness certificates for all employees – Const. Reg. (7 February 2014)

SECTION B: HEALTH AND SAFETY PROJECT SPECIFIC SPECIFICATIONS

1. OBJECTIVE

This agreement is entered into by the parties in order to identify and stipulate the arrangements and procedures between the Client and Contractor in order to ensure that the Contractor and their subcontractors comply with all the H&S requirements along with all applicable legislation on the Project.

1.1 INSURANCE

1.1.1 The Contractor and its subcontractors warrant that they have the following insurance cover which shall remain in force whilst on the Project, or which shall remain in force for the duration of the contractual relationship between the Client and Principal Contractor, whichever period is the longest;

- a) Compensation Registration covering all occupational injuries and diseases and the cover must be paid up for the duration of the Project. Proof of this cover must be provided to the Principal Contractor in the form of a Letter of Good Standing from either the Compensation Commissioner or relevant insurance fund managers.
- b) Adequate Public Liability insurance cover in relation to the work undertaken.
- c) Any other insurance cover that will adequately make provision for any losses and/or claims arising from its subcontractors and/or their respective employees and/or omissions whilst on the Project.

1.2 ADMINISTRATION

1.2.1 The Contractor shall ensure that it has an updated copy of the applicable legislation on the Project at all times and that this copy is accessible to all employees. The Principal Contractor will also keep an updated copy on the Project for viewing by any Contractor.

1.2.2 The Contractor and its subcontractors shall ensure that a H&S File is implemented and maintained for the duration of the Project. This file must contain all relevant documentation pertaining to H&S related issues such as, appointments, risk assessments, accident procedures, incident investigations, training records, registers, check lists, safety meeting minutes and other H&S related documentation.

1.2.3 All comments contained in this section require specific measures to be incorporated into the construction Health and Safety Plan. The Principal Contractor may not allow work to commence on site before an adequate construction Health and Safety Plan is developed. The plan must contain the method statements, procedures and scope of works for the project. Further risk assessments and method statements must be carried out where the works may change, due to design changes. The construction phase Health and Safety Plan, developed by the Principal Contractor must also take into account current health and safety legislation and associated codes of practice.

1.2.4 The Contractor and its subcontractors shall also permit a representative from the Principal Contractor to view and inspect the file from time to time as determined by the Project requirements.

1.3 SUPERVISION / APPOINTMENTS

1.3.1 The Contractor and its subcontractors shall ensure that all work performed is done under the supervision of trained and competent persons.

1.3.2 The Contractor and its subcontractor shall appoint a Construction Manager in terms of the applicable legislation. This appointed person will be responsible to ensure that all H&S requirements are implemented and adhered to on the Project.

1.3.3 Attached to this agreement is a blank copy of a standard Construction Manager appointment form, which must be completed and submitted with this agreement.

1.3.4 The Contractor's appointed Construction Manager will also be required to attend all scheduled H&S meetings of the Project.

- 1.3.5 The Contractor and its subcontractors shall further ensure that all other legislative appointments are implemented and maintained for the duration of the Project and that those employees appointed have the necessary training and experience to meet those requirements.

TRAINING

- 1.3.6 The Contractor and its subcontractors shall ensure that all its employees are adequately trained and experienced to perform their work. Where semi-skilled employees are employed, adequate supervision must be available to maintain standards of work and to ensure compliance with H&S standards on the Project.
- 1.3.7 The Contractor and its subcontractors shall ensure that all employees undergo a formal H&S Induction prior to commencing on the Project. Proof of this induction must be submitted along with this agreement.
- 1.3.8 The Contractor and its subcontractors shall ensure that all its employees are in possession of valid licences and / or certificates of the correct code where machinery or plant is utilised. Proof of these licences and / or certificates will be kept in the Contractors H&S File.

1.4 ACCIDENT PROCEDURES

- 1.4.1 The Contractor and its subcontractors shall ensure that a sufficient number of trained first aiders are available on site for the duration of the Project. The number and Level of training will be determined by legislative and Project requirements. A guideline however may be a Level 1 trained first aider at all times on site during construction work.
- 1.4.2 The Contractor and its subcontractors shall ensure that suitable first aid facilities are provided for the work to be performed. The number of first aid facilities and type of equipment will also be determined by the legislative and Project requirements.
- 1.4.3 Should the Contractor or its subcontractors utilize the Principal Contractors first aid facilities then this needs to be agreed upon in writing. Cost of first aid equipment will then be charged to the Contractor at the discretion of the Principal Contractor.
- 1.4.4 The Contractor and its subcontractors shall ensure that a suitable Accident Procedure is drawn up for the duration of the Project. This Accident Procedure must be submitted to the Principal Contractor and must contain the names of all emergency contact persons and contact numbers.
- 1.4.5 The Contractor will be responsible to inform the (relevant authorities i.e. Department of Labour, etc) of any Serious or Reportable Incidents which may occur in terms of the applicable legislation. All correspondence to the (Relevant Authorities) regarding these incidents must be copied and submitted to the Principal Contractor.
- 1.4.6 The Contractor shall ensure that a monthly report is submitted to the Principal Contractor and shall contain the following:
- a) Man-hours worked for the relevant month (including subcontractors)
 - b) No of work-related injuries for the relevant month.

1.5 HEALTH & SAFETY REPRESENTATIVES

- 1.5.1 The Contractor and its subcontractors shall ensure that an adequate number of health and safety representatives are appointed and trained, as per the requirements of the applicable legislation and / or Project H&S requirements. As a guideline one Health and Safety Representative should be appointed for every 20 employees.
- 1.5.2 The Contractor and its subcontractors shall ensure that regular internal H&S meetings are conducted and attended by the appointed Health & Safety Representative. The frequency of these meetings must

be determined by the work activities performed along with the duration of the Project, however at least once a month.

1.5.3 The Contractor and its subcontractors shall keep record of these meetings in the H&S File along with the attendance records.

1.5.4 The Contractor Supervisor or his Health and Safety Representative will attend the main Project H&S meetings.

1.6 MEDICAL FITNESS CERTIFICATES

1.6.1 The Contractor must ensure that all his or her employees have valid medical certificates of fitness specific to the construction work to be performed and issued by an occupational health practitioner.

1.7 MACHINERY

1.7.1 The Contractor and its subcontractors shall ensure that all the plant, machinery and equipment they wish to utilize on the Project is of sound order and fit for the purpose for which it is intended and that it complies with all applicable legislative requirements.

The Contractor and its subcontractor shall ensure that all plant, machinery or equipment is suitably guarded by means of insulation, fence, screening, or guarding. Further to this, all safety equipment in relation to plant, machinery or equipment is in a suitable and working condition.

1.7.3 The Contractor and its subcontractor shall ensure that all employees operating or utilising such plant, machinery or equipment are suitably trained, experienced and are aware of the dangers involved.

1.7.4 The Contractor and its subcontractors shall not permit uncertified employees from working on moving or electrically alive machinery. Isolation Procedures shall be adhered to by all.

1.7.5 Devices to start and stop machinery must be clearly labelled and in working order on all plant, machinery and equipment. Warning signs of relevant dangers must also be clearly visible.

1.8 HOUSEKEEPING / CLEANLINESS

1.8.1 The Contractor and its subcontractor shall ensure that the area where the work is performed is at all times maintained to reasonably practicable levels of cleanliness. Further to this the following must be addressed:

- a) adequate care is taken to ensure correct storage and stacking of articles and material,
- b) regular refuse removal is maintained,
- c) the working area around machinery is clean and demarcated.
- d) no articles or material are disposed from any height without the necessary precautions taken.

1.8.2 The Principal Contractor reserves the right to clean up after any Contractor who fails to adhere to these housekeeping requirements and to charge the Contractor accordingly.

1.9 GENERAL H&S REQUIREMENTS

The Contractor and its subcontractors shall ensure that:

1.9.1 All employees are issued with the appropriate PPE and that they are trained in the correct use thereof.

1.9.2 Employees are medically certified to work on height and to operate Plant and Machinery.

1.9.3 All security measures implemented on the Project are adhered to and that random searching may be carried out.

1.9.4 All signs and notices implemented on the Project are adhered to and not damaged in any way.

1.9.5 Suitable firefighting equipment is made available and employees are trained in the safe use thereof.

1.9.6 No large volumes of flammable substances are stored and suitable precautions are taken to store those that are.

- 1.9.7 Suitable measures are in place with regards to sanitation, changing facilities, eating facilities, and drinking water.
- 1.9.8 Measures are taken to reduce any environmental impairment with regards to noise, ground, air and water pollution.
- 1.9.9 Suitable lighting is provided in all darkened working areas.
- 1.9.10 No employees are permitted to enter / work on the Project while under the influence of any intoxicating substances.
- 1.9.11 No machinery, article, substance, plant or PPE belonging to the Principal Contractor is used without permission.
- 1.9.12 No illegal immigrants are employed by the Contractor or subcontractor while on the Project. Without derogating from the generality of the above requirements and notwithstanding the applicable legislation the Contractor and its subcontractors shall ensure the following:
 - a) The provision of a safe and healthy working environment,
 - b) The provision of safe and healthy systems of work, plant and machinery,
 - c) The identification of the prevalent hazards to health and safety and the precautionary measures to be taken,
 - d) The provision of the necessary information, instructions and training,
 - e) The enforcement of the established precautionary measures,
 - f) Informing employees on their scope of authority,
 - g) Informing employees on their scope of authority,
 - h) Making employees conversant with the identified hazards and precautionary measures,
 - i) Ensuring that no employee is victimized as a result of adhering to these requirements.

The Client reserves the right to request immediate correction of any non-compliance identified in terms of this agreement by any Contractor and its subcontractors during the performance of the work on the Project. The Client further reserves the right to stop any work that does not comply with the H&S standards and without the cost to the Client. This agreement places the onus on the Principal Contractor to contact the Client/Agent in the event of the inability to perform as per this agreement.

1.10 ADDITIONAL REQUIREMENTS

Compliance to the Occupational Health and Safety Act 85 of 1993 or other applicable Legislative Requirements, is a legal requirement and all Contractors and subcontractors are required to adhere with the Legislation and its regulations to avoid prosecution by the Authorities. Over and above the Legal requirements, Contractors will be required to comply with the specific requirements of this document and client H&S requirements.

Contractors will provide to the Principal Contractor, before work commences, a written Health, Safety and Environmental Plan, which is to be approved by the Principal Contractor. The Contractor shall ensure the implementation and adherence to the Health, Safety and Environmental Plan by its Employees and subcontractors.

The Principal Contractor will ensure that all subcontractors employed on the Project maintain H&S files and submit such documentation to the Contractor on completion of their contract. Subcontractor H&S files will be handed over to the Principal Contractor by the Contractor on the completion of the contract work performed by the Contractor.

The Client/Agent reserves the right to stop any Contractor or his subcontractor from performing his activities if the Contractor or his subcontractors is found not adhering to the specified H&S Plan, contravening any Legal requirements, or not adhering to the Clients H&S Specifications for Contractors, or if the Contractor or his subcontractor is found performing his work activities unsafely.

1.10.1 Requirements

Contractors are responsible to comply with the Legislation and Contractual Requirements of the Principal Contractor and Client. However various systems will be implemented to ensure compliance by all Contractors on the Project. Contractors will be included in all H&S meetings and will receive copies of all H&S related documentation pertaining to their operations. Routine inspections and monthly audits will include Contractor operations. Formal action will be taken against Contractors failing to comply with the

Project H&S requirements. The formal action could lead to financial implications and / or permanent removal from the Project.

1.10.2 Mandatory Agreement / Contractor Specification – Section 37(2)

This document is deemed to be accepted once it has been issued unless written response is received within 5 (five) working days of issue. Contractors are required to sign this Contractor Safety Specification, which includes the Mandatory Agreement (OHS Act 85 of 1993 – Section 37(2) Agreement) with the Principal Contractor. This Agreement covers various aspects such as Insurance, Administration, Supervision, Training, Accident procedures, H&S Representatives, First Aid, Housekeeping and General H&S requirements. Contractors will not be allowed to commence work, unless both Parties have signed this Agreement and all required documentation is on site.

1.10.3. Contractor Supervisor Appointment & Functions

Attached to this Mandatory Agreement is a blank Construction Manager (– CR8(1)] Appointment Form. The Contractor shall appoint a trained and competent person in writing to oversee their respective operations. As with this Mandatory Agreement no work will commence until the Appointment form is received and the appointed person is qualified to be the Construction Manager for the Contractor on the Project.

1.11 GENERAL ADMINISTRATION

1.11.1 Letter of Good Standing – Compensation Commissioner (COID Act 130 of 1993).

The Contractor will supply an updated copy of their Letter of good Standing with either WCA or FEMA to the Client before work commences on the Project. Therefore, all employees who may be injured or suffer any disease associated with the work activities, will be covered in terms of the COID Act 130 of 1993.

1.11.2 Notification of Construction Work

As standard procedure, formal written Notification of all new Projects in the Republic of South Africa are submitted to the Department of Labour. Copies of the notification are kept on the Project H&S file. Additional copies are available on request. The Principal Contractor will do this notification.

1.11.3 Monthly Project Man-hour & Injury Report

The Contractor is required to submit a formal Monthly Report of the Hours worked and Injuries sustained to the Clients Agent.

1.11.4 Safety File

The Contractor will have and maintain a H&S file where all Administrative requirements will be kept. At the end of the Contractor's contract the Contractor will hand over his completed H&S file to the Principal Contractor who will submit all documentation to the client.

The Construction Health and Safety Plan should include details of the following:

- The positioning of the site access and egress points to ensure that any nuisance or risk to the occupants of the building and adjacent properties is minimised and controlled. This should be away from the adjacent occupied and sensitive premises.
- The location of temporary site accommodation to ensure that adjacent sensitive properties are not subjected to any nuisance arising from the use of the facilities.
- The location of unloading, layout and storage areas to reduce and minimise excessive manual handling of construction materials, damage to building and adjacent property and the security of the plant, equipment and materials.
- Requirements to maintain access for emergency service vehicles during works are necessary as well as the temporary relocation of existing firefighting equipment.
- The planning of traffic and pedestrian routes to ensure adequate protection for members of the public and site employees and operations.

- The use of suitable barriers, signs and the appointment of a flag person should be adopted to provide the required level of protection.
- The arrangements for the reception of prospective visitors.
- The site emergency plan should be taken into consideration when developing the Principle Contractor's own emergency plan.

The following should be contained in the Contractors H&S File:

- Copy of the Occupational Health and Safety Act (85 of 1993)
- Updated Letter of Good Standing with WCA or FEM - Const. Reg. 7(1)(c)(iv) • Clients Safety Specification
- Risk Assessments
- Fall Protection Plan
- Environmental Management Plan
- All Policy's
- All notices issued by DoL.

Records specific to the Project:

- Risk Assessments - Const Reg. 9
- Fall Protection plan - Const Reg. 10
- Mandatory Agreement - Sect. 37
- Safety Inductions of Employees - Const Reg. 7(7)
- Incident Recording & Investigation - GAR 9(1)
- Incident Reports - GAR 8(1)
- Health and Safety Rep. Inspections - Sect. 18
- Issue of PPE - GSR 2
- Safety Meeting Minutes - Sect. 19
- Letter of Good Standing from FEM or WCA - Const. Reg. 7(1)(c)(iv)
- Safety Toolbox Talks - Sect. 8, Const Reg.9(3)
- First Aid Box Contents - GSR 3(3)(a)
- First Aid Treatments - GSR 3(1)
- Training certificates of employees and Medical fitness certificates for employees working at heights.
- Training certificates and Operator Medical certificates for Operators of Plant, Machinery and Vehicles
- Medical fitness certificates issued by an Occupational Health Practitioner- Const. Reg. 7(8)
- Registers (as per list under section for Registers)

Appointments

- Appointment of Manager - Sect 16(2)
- Construction Manager - Const Reg. 8(1)
- Assistant Construction Manager - Const Reg. 8(2)
- Risk Assessor - Const Reg. 9(1)
- Fall Protection Supervisor / Planner - Const Reg. 10(1)(a)
- First Aider - GSR 3(4)
- Incident Investigator - GAR 9(2)
- Health and Safety Representative - Sect. 17(1)
- Electrical Machinery Operator/Inspector - Const Reg. 24(e)
- Scaffold Supervisor - Const Reg. 16(1)
- Formwork Supervisor - Const Reg. 10(a)
- Fire Equipment Inspector - Const Reg. 27(h)
- Construction Vehicle Operator / Inspector - Const. Reg. 23(1)(d),(k)
- Stacking Supervisor - Const. Reg. 28(a)
- Lifting Tackle Inspector - DMR 18
- Material Hoist Inspector - Const Reg. 19(8)
- Lifting Machine Inspector - DMR 18
-

- Demolition Supervisor - Const Reg. 14(1)

1.11.5 Registers & Checklists.

In order to ensure that all plant, equipment, systems and procedures are maintained in accordance to Legislative requirements, formal inspection Registers and Checklists have to be compiled. These Registers and Checklists are then complete by the appointed persons, who are designated in writing.

The completed forms are kept on the Contractors H&S file and then archived after Project completion. The following is a list of Registers and Checklists required to be completed for the applicable activities and at intervals as per the requirements of the Occupational Health and Safety Act 85 of 1993:

- Portable Electrical Equipment
- Hand Tools
- Construction Vehicle
- Scaffolding
- Form & Support work.
- Fire Extinguishers
- Construction Vehicles and Mobile Plant Equipment
- Explosive Power Tools
- Hazardous Chemical Substances
- Cranes
- Slings, Chains & Hooks (Lifting Tackle)
- Compressors
- Ladders
- Hoists
- Gas Welding / Flame Cutting
- Safety Belt / Safety Harnesses
- Distribution Boards
- First Aid Boxes
- Contact details with certified ID copies of all workers on site
- List of all subcontractors on site with contact details CEO and Construction Manager on site.

1.12 SAFETY INDUCTION AND IDENTIFICATION

1.12.1 The Contractor will ensure that all his employees and visitors will first go to the Principal Contractors Project Safety Officer or Site Agent for a Site Safety Induction or will explain and have the General H&S Induction form signed by all employees / Visitors, before the persons will be allowed onto the Construction Site. The Contractor will keep a copy of all the signed General H&S Induction forms on his H&S file and will issue the Principal Contractor with copies of all signed forms within 24 hours of new employees or visitors arriving on site. Failure to comply will result in a fine imposed onto the Contractor.

1.12.2 The Contractor will first take new employees to the Principal Contractor Project Safety Officer or Site Agent for a Site Safety Induction or will explain and have the form signed by the new employee, before the employee will be allowed to start work.

1.12.3 The Contractor will ensure that his employees are issued with some sort of identification i.e. Contractor name on Overalls, Hardhats or ID cards will be acceptable

1.13 RISK ASSESSMENTS AND SAFETY TALKS (TOOLBOX TALKS)

1.13.1. Base line Risk Assessment compiled by Client Agent attached. Contractor must compile and document the necessary Work Procedures and Method Statements that would control the activities to a degree that would be compliant with legislation and the requirements of this specification.

1.13.2 The Contractor must perform Risk Assessments of hazards and risks associated with the scope of work relevant to the Contractors appointment, shall be assessed, safe methods of work identified; safe working

conditions and a healthy work environment will be provided. The following risk assessments by the Principle Contractor are to be considered:

- All task oriented risks – particularly working from height, services decommissioning and/or modification, etc.
- Equipment risks
- Physical risks
- Chemical risks
- Ergonomic risks

The following method statements and/or procedures must be available before work starts on site:

- Establishment of site welfare, first aid and emergency procedures (fire and security, etc).
- Welfare facilities to take into account demolition and/or contaminated soil removal if required.
- Noise and dust control during construction process.
- Arrangements for emergency fire, security and first aid facilities.
- Arrangements for emergency service vehicles access to the premises.
- Traffic management arrangements to protect site staff, public and road traffic from construction works and when loading and offloading of materials and equipment.
- Protection to overhead and underground services.
- Arrangements for dealing with emergency situations, particularly during demolition, deep excavations, overhead and underground services.
- Public protection arrangements.
- Method statement for demolition of structures including fall protection and/or asbestos handling plans.
- Contaminated waste materials handling (health and environmental issues) and records of waste removal.
- Selection and maintenance of plant and equipment.
- Selection of competent contractors.

Following a high-level risk assessment done in terms of risks posed by construction activities to the Client, customers or staff, and 3rd party assets, members of the public and the environment, the recommendations therein need to be included in the Principle Contractor's Health and Safety Plan as follows:

- Proper hoarding of demolition and construction area (sound construction, height & safety distance from works)
- Danger tape around all excavations
- Visible signage (e.g. "No unauthorised entry", "Warning construction in progress") and access control for demolition and construction area.
- All construction vehicles and plant to be properly maintained with daily inspections/checks done
- Safe routes established for pedestrian and vehicular traffic
- Use of competent contractors with competent supervisors
- No night work by contractors
- All employees to wear reflective vests when working close to public roads or where plant and vehicle movement take place
- Hard hat area declared with visible signage
- Structures adequately supported during demolition and construction
- Induction training of all contractors and visitors
- Lifting equipment to be of suitable design to carry load and offloading operations supervised
- All scaffolding erected as per SANS 10085
- Emergency response measures to be adapted to accommodate construction works
- Certificate of safe installation issued by electrical contractor before demolition and after commissioning
- Traffic control for construction area. Person controlling traffic or working close to traffic to wear hi-visibility jacket/vest

- Underground services to be identified within area of excavation works and necessary precautions established prior to commencement of works
- Hand excavation done in the event that underground services cannot be determined
- Permit to work system to be used with supervision by safety officer, when required
- Contaminated soil stockpiled on prepared surface as per Environmental Management Plan
- Segregation and disposal of contaminated soil to be done under controlled conditions as per Environmental Management Plan
- Asbestos removed and disposed of by an accredited contractor
- Machinery maintained as per OHS Act and manufacturer's spec
- All machinery and vehicles to be isolated at the end of each day and located within the hoarding if not removed from site

1.13.3 All Risk assessments shall be communicated to the employees of the Contractor by the Contractor before work starts.

1.13.4 When activities change the Contractor will be required to revise the risk assessment to suit the changed conditions and re communicate the revised risk assessment with the employees;

1.13.5 Copies of all risk assessments will be issued to the Principal Contractors Project Safety Officer or Site Agent for review and these will include copies where the Contractor's employees have signed confirmation of receiving the risk assessment information.

1.13.6 The Contractor is required to have a Weekly Safety Talk (Toolbox Talk) with his employees to inform them of safety issues related to their scope of work. The employees of the Contractor will sign acknowledgement of receiving the training and copies of the documents shall be kept on the Contractor H&S File and copies will be issued to the Principal Contractor Project Safety Officer or Site Agent.

1.13.7 Risk Assessor Appointment & Functions. The risk assessment process will be co-ordinated by a Contractor Appointed Risk Assessor. This person will oversee all risk assessments. Further to the above, the Contractor will ensure that all Appointed Contractor Supervisors convey the information on the risk assessment to the respective work crews and the contractor employees sign an Attendance Register.

1.14 APPOINTMENTS – SUPERVISORY

1.14.1 All legal and client requirements regarding appointments will be adhered to on the Project. In all cases the person being appointed will have the necessary training and / or experience for the appointed position.

1.14.2 The Contractor will have an H&S Appointment Structure in place. The CEO will delegate certain responsibilities down to appointed employees; however, he will remain ultimately responsible.

1.14.3 Delegation of Duties – Section 16(2). The Contractor CEO will appoint his Managing Director and Contracts Director who will oversee that all legal, client and company H&S requirements are implemented, adhered to, and enforced.

1.14.4 Construction Work Manager CR8 (1). The Contractor will appoint a Construction Manager for the contract to supervise the construction process and thus ensuring that all legal, client and company H&S requirements are implemented, adhered to, and enforced. The appointed person will have the authority to appoint all other persons as may be required on the Project.

1.14.5 Assistant Construction Managers CR8 (2). Assistant Construction Managers may be appointed to assist the Construction Manager. Although their duties will be the same as the Construction Work Supervisor, the Construction Manager will remain accountable for any supervisory duty which the Assistants fails to conduct.

1.15 PROJECT H&S OFFICER

- 1.15.1 Requirements CR8 (5). Contractors shall co-operate with such an appointed Principal Contractor Project Safety Officer and will adhere to his / her requests and recommendations.
- 1.15.2 Appointment & Functions. The function of the Project Safety Officer is to assist advice and enforce all H&S issues related to the Project. The duties of the Project Safety Officer will include but will not be limited to stop any Contractor who in his / her opinion works unsafely or poses a threat to any other person.
- 1.15.3 Monthly Inspection Report. The appointed Principal Contractor Project Safety Officer will be required to formally inspect the Project on a monthly basis and all findings will be recorded and distributed to the all appointed supervisors, client and or client agents, contracting companies and relevant Divisional H&S Departments. The Principal Contractor Safety Officer will also be required to do monthly audits on the Contractor Safety files and H&S Plans.

1.16 H&S REPRESENTATIVES & COMMITTEE MEMBERS

- 1.16.1 OHS Act 85 of 1993 – Sect 17 & 19. As per the legal requirements, the Contractor will appoint H&S Representatives & H&S Committee Members on the Project. These persons will be nominated by the Contractor workforce and will thus represent the workforce in all H&S related issues. A minimum of one H&S Representative will be appointed for every 20 employees. All H&S Representatives will be members of the Project H&S Committee and will meet on a monthly basis with the Project management to discuss H&S related issues.
- 1.16.2 Appointments & Functions. The appointed H&S Representatives and Committee Members shall be formally trained in their functions and responsibilities. These will also be clearly defined on their appointment forms.
- 1.16.3 Monthly Inspection Report. Each H&S Representative is required to complete a formal inspection report for their respective work areas. These reports are then tabled at the monthly safety meetings for review, however should the need arise a H&S Representative may at any time complete an inspection report and forward it directly onto the appointed Construction Manager. These monthly reports are kept in the Contractor Safety File and then archived after the completion of the Project.

1.17 H&S MEETINGS

- 1.17.1 Monthly H&S meetings with all H&S Representatives and other committee members will be conducted for the contract. Depending on the scope of work, monthly H&S Contractor meetings will also be conducted to discuss H&S related matters.
- 1.17.2 The Project H&S meetings are formalised with a standard agenda; however, each Project may adapt the standard agenda to meet either client requirements or joint venture requirements.
Minutes must be kept for each meeting and distributed to each member. As will all H&S documentation these are filed on the Principal Contractor Safety files for viewing by either client or officials from the Department of Labour.
- 1.17.3 All persons attending H&S meetings are required to sign a standard attendance register as proof of attendance.
- 1.17.4 Contractor Supervisor Meetings. It might be required by the Client/ Agent to have a safety meeting with the supervisors of the Contractors when the need arises or if the Client/Agent sees fit to have meetings.

1.18 ACCIDENT PROCEDURES

- 1.18.1 Standard Accident Procedure. Fully equipped first aid boxes along with applicable signage must be placed in prominent areas on the Project. All accident investigations will be conducted by either the Project Contractor Safety Officer, appointed investigator or appointed Contractor H&S Representative.
- 1.18.2 First Aider Appointment & Functions. The Contractor will appoint a trained Level 1 First Aider. A minimum of one trained First Aider with his First Aid Box must be available for every 50 employees. Each trained First Aider must be appointed in writing and responsibilities should be in writing on the appointment form.
- 1.18.3 Name List of First Aiders. To promote the awareness of the trained First Aiders, their names and work areas shall be displayed in all prominent areas.
- 1.18.4 Emergency Evacuation Procedure. A Standard Emergency Evacuation Procedure must be developed by the Contractor in accordance with the Emergency Evacuation Procedure of the Principal Contractor. A Client's specific Evacuation Procedure will take preference over the standard evacuation procedure. Details of the Emergency Evacuation Procedure will be displayed in all prominent work areas.
- 1.18.5 To promote the awareness of the emergency numbers the lists will also be displayed in all prominent areas.
- 1.18.6 Employees Report of Accident Forms. In the unfortunate case of a person being injured and requiring medical attention the standard "Employers Report of Accident" form will be completed accordingly. Sufficient blank copies will be kept at the Contractors offices. As per the accident procedures copies will be sent to the medical practitioner and relevant company Head Office. A copy will also be kept on the Contractor Safety file
- 1.18.7 Investigation Form (Annexure 1). Each incident involving medical attention from either a doctor or hospital will be fully investigated on an Annexure 1 form. This form entails input from all parties namely the investigator, H&S Committee and Project management. Each investigation will be reviewed at the monthly H&S meeting. Once actioned the Annexure 1 form will be kept on the Contractor H&S file. If required the client will be notified immediately and a copy handed over.
- 1.18.8 Serious & Reportable Incidents. The Contractor will immediately inform the Client/Agent and the Principal Contractor of any serious or fatal accidents which occur. In the case of Fatality, the Contractor will also inform the Authorities (Department of Labour and SAPS) for their investigation.

2. CONSTRUCTION ACTIVITIES

- 2.1 Portable Electric Tools
No Contractor will allow any employee to work with unsafe or damaged portable electric tools. All tools will be inspected before it is issued to employees. Any Contractor who does not conform to this requirement will be fined and the tool confiscated until it is made safe to use by the Contractor. All rotating parts will be sufficiently guarded to protect employees. Tools may only be used by competent / trained persons.
- 2.2 Scaffolding
No Contractor will allow any employee to work on unsafe or damaged scaffolding. Scaffolding will be inspected daily and after inclement weather by a competent appointed person.
No work will be allowed on scaffolds during inclement weather conditions. Scaffolds will be fitted with a sign at the access to the Scaffold to indicate if it is safe or unsafe to use. Scaffolds will be constructed to SANS 10085 standards and OHS Act 85 of 1993 regulations.

2.3 Ladders

No Contractor will allow any employee to work on unsafe or damaged ladders. No person will be allowed to stand and work on the last 2 rungs of any ladder. When the ladder is longer than 3 m then another person will hold the ladder in place at the bottom and the ladder will also be tied to a solid structure at the top where possible. Ladders will be inspected visually before shifts starts and monthly on a register.

2.4 PPE (Personal Protective Equipment)

Compulsory PPE is Hardhats, Safety boots and overalls. Any other PPE required will be determined by the Risk Assessment. PPE will be issued to employees free of charge and a signed register will be kept by the Contractor to prove that PPE has been issued to the employee. Only full body harnesses will be allowed to be used by employees who are working on any unprotected heights. These harnesses must carry the SABS stamp of approval. PPE will comply with relevant SABS and OHS Act 85 of 1993 regulations.

2.5 Fall Protection Plan

A detailed fall protection plan will be submitted by the Contractor to the Client for approval. A competent person will be appointed in writing to control and oversee all work being conducted by the Contractor. All employees working on heights will be required to undergo a Medical Fitness test with an Occupational Health Practitioner, every 12 months as per the OHS Act 85 of 1993, Construction Regulations. Contractors working on heights will take precautions to prevent tool and equipment from accidentally falling from heights onto persons below. Where it can be prevented no person will work above other employees unless there is sufficient guarding protecting the employees below.

2.6 Housekeeping

Housekeeping of the Contractors work area will be the responsibility of the Contractor. Housekeeping will be done throughout the day to prevent any material or tool obstructing the walkways of the employees.

Cleaning of the work area will be done throughout the day and a final clean-up near the end of the shift. If the contractor does not comply with the daily cleaning of this area, the Clients Agent reserves the right to hire a cleaning team and to charge the Contractor for the cost of the cleaning team.

2.7 Stacking and Storage

Lay down areas will be kept neat and tidy. Areas will be barricaded and all equipment, material or tools will be stored neatly inside this area. Stacking of equipment or material will be one on level solid surfaces. Overhanging of material will not be allowed.

Flammable liquids will be stored in a well ventilated store room with a Fire extinguisher placed on the outside of the store. Gas cylinders will be secured in a trolley while work is being done on the site and will remain upright at all times. Gas cylinders will be stored upright inside a well ventilated area, empty and full cylinders will be stored apart from one another. The Torch, pipes and regulators will be stored detached from the cylinders and will be kept in a storage box.

2.8 Operators of Machinery

Operators of machinery will be required to complete a daily pre-start checklist before work commences. Operators must be in possession of a valid Medical Certificate issued by an Occupational Health Practitioner and the operator will be in possession of a Competency Certificate for the machine he / she operates. Drivers of trucks or any other Vehicle or Plant travelling on Public Roads must also be in possession of a valid PDP licence. It will remain the responsibility of the Operator of a Vehicle / Plant /Machine to report all oil leaks to the supervisor and to have the Vehicle / Plant / Machine fixed as soon as possible. Where there are Life Threatening Faults the Vehicle / Plant / Machine will not be used until it has been sufficiently repaired.

2. 9 Cranes and Lifting equipment

Cranes and Lifting equipment will comply with OHS Act 85 of 1993, Driven Machinery Regulations (DMR)18. Operators of mobile cranes must be in the possession of a valid PDP licence, medical certificate and training certificate. Mobile cranes must have a valid load test certificate and must be inspected monthly by a competent person on register. All lifting equipment / tackle must have a valid load test certificate and will be inspected monthly by a competent person on register. At no stage will gas cylinders be lifted by a crane unless the cylinders are in a cradle designed to carry equipment. Cranes will be directed by a Banks man / Supervisor with sufficient communication with the crane. It will remain the responsibility of the operator to ensure that the loads are not slewed over other employees and that the mobile crane slew is barricaded with tape while the crane is in operation. Where there is a Life-Threatening Fault, the Crane Operations will not start until the faults have been sufficiently repaired and the Crane was issued with a certificate to prove the crane has been fixed and where applicable, a new load test was conducted.

2. 10 Flame cutting and welding

Gas cylinders will be in a trolley while work is being done on site and will remain upright at all times. Gas cylinders will be stored upright inside a well-ventilated area, empty and full cylinders will be stored apart from another. The Torch, pipes and regulators will be stored detached from the cylinders and will be kept in a storage box. Electric welders will have insulated electrical cables, electrodes and an effective earth system. Areas where welding is taking place must be barricaded with welding screens and sufficient warning signs have to be erected to protect other employees from the glare and sparks. Operator will be trained and experienced in welding. A Fire extinguisher will be in the area of work where any spark producing activity takes place. Contractors who fail to comply with legal regulations and the stipulations of this document will face legal action which can be instituted by the Principal Contractor or the Client.

2. 11 Eating facilities and storage

Every Contractor will be required to have a sheltered eating facility with storage space for food.

2. 12 Edge Protection

The Principal Contractor must ensure that all exposed edges and openings are guarded and demarcated at all times until permanent protection has been erected. The Principal Contractor's risk assessment must include these items: protection of decking edges, finished floor slab or platform edges, stairways, floor penetrations, roof work and all other openings and areas where a person may fall. No exposed edges and other openings will be tolerated.

2. 13 Demolition Work

Demolition work will be done under supervision of a competent person. No floor or part thereof will be overloaded with debris or material in such way to make it unsafe. Adequate shoring or extra support will be used to prevent any accidental collapse of the structure being demolished. Safe means of access shall be provided by the Contractor. All waste and debris will be removed from site as soon as possible. The demolition area shall be well barricaded with relevant warning signs displayed on the barricading to prevent any unauthorised person to enter the demolition area. Dust will be minimized to an acceptable standard. When working with Compressors and Jack Hammers, the Contractor will ensure that all couplings are safeguarded with safety chains to the couplings. All service lines will be detected before the work starts and all service lines will be secured by competent persons before work commences.

2.14 Form- & Support Work

Work will be done under supervision of a competent supervisor who has been appointed in writing. Before work commences drawings will be issued to the Principal Contractor. Decks will be erected in a systematic way and will at no time endanger any persons working on the deck. Handrails will be placed around the edges of the temporary or permanent decks. Safe access will be provided and fall protection will be used as per the Contractor's Risk assessment / Fall protection plan. No material will be thrown from any height.

2.15 Steel Assembling & Placing

Area where assembly takes place must be demarcated. When working at heights employees must be issued with safety harnesses and other PPE required as per the risk assessment. The correct tools must be used for the work to be done. When handling steel, beware of the cutting edges of steel and be aware of other people. When lifting steel with a crane the load must be well balanced.

2.1.16 Explosive actuated fastening devices and powered tools.

All operators will be trained by a competent company and will be appointed in writing. The operator will receive a training certificate which has to be forwarded to the Client/Agent. The "Gun" and the Cartridges will be stored in a lockable storage facility and will be stored separately.

2.17 OHS Act 85 of 1993

This document does not replace any regulations or any part of the OHS (Occupational Health and Safety Act) Act 85 of 1993, but does conform to the requirements of the OHS Act 85 of 1993 Construction Regulations. The Client shall provide a Health and Safety Specification to the Principal Contractor and the Principal Contractor will issue such information to the employed Contractors on the construction Project. As an Employer, the Contractor remains responsible to ensure compliance with the OHS Act 85 of 1993 and its regulations.

2.18 Non-Conformances

Any Contractor employee who is found not adhering to the Client H&S procedures, Contractor H&S Plan or OHS Act 85 of 1993 or who is observed doing unsafe acts or contributing to creating unsafe conditions will be issued with Site Instruction. Contractor employees will also be reprimanded as per the Company HR procedures, a first transgression constitutes a verbal warning, a second transgression constitutes a written warning and a third transgression constitutes a full disciplinary hearing as per the Company HR Procedures. Any Life-threatening unsafe act or condition must be treated as Gross Neglect of Company Safe Rules and Procedures and a Disciplinary Hearing shall be conducted to determine the root cause of the incident and the appropriate action which must be taken to rectify the unsafe situation or prevent future incidents from occurring. Copies of the NonConformance Report and disciplinary procedures must be kept on record.

Copies of all Non-Conformance Reports must be kept in the Project H&S File for references.

3. **Organisational Arrangements**

3.1. Site Rules The Principal Contractor's organisational arrangements for health and safety on the project must include that of other contractors and sub-contractors involved. Site rules must be developed by the Principal Contractor to ensure that the restrictions, outlined in this Health and Safety Specification, are met.

In particular, arrangements and site rules must be developed to ensure that construction works do not put at risk the health and safety of any person.

The Principal Contractor must demonstrate a management structure for ensuring health and safety cooperation and coordination between all parties to the contract. This will include the development of a communications strategy between the appointed Principal Contractor, Contractors, Client, Health and Safety Agent, Design Team and consulting Project Manager. The Principal Contractor must ensure that an effective chain of communication exists, clearly showing that all levels of employees engaged on the contract participate in the communication process for health and safety concerns. Regular meetings will be established between the parties where health and safety performance will be discussed. Minutes must be kept and distributed for action following the conclusion of each meeting. Emergency and incident procedures must be developed and clearly co-ordinated between parties involved.

A security strategy must be developed by the Principal Contractor who must then communicate and coordinate the strategy to all parties to the contract.

3.2. Continuing Liaison

Procedures for liaison to continue between all parties throughout the project should include the particular points listed below. All unforeseen eventualities which may occur during construction and which affect previously recognized health and safety issues or resources should be reported to the Client's Health and Safety Agent and consulting Project Manager. The Principal Contractor's appointed Construction Manager, Health and Safety Representative and/or Construction Safety Officer will consult with the workforce on health, safety and environmental matters through committee meetings, site meetings, contractor meetings, toolbox talks or verbally if so required. The Client or Designer will inform the Principal Contractor and Health and Safety Agent of all new designs, which may affect health and safety. Information which will be relevant for inclusion in the health and safety file, should be collated, and should include information from Contractors. Arrangements should be made by the Principal Contractor with other contractors to ensure any information required for the health and safety file, which is generated by the contractors' work, is stored and passed to the Principal Contractor prior to completion of the project. The basic information, which will be relevant for inclusion in the health and safety file, should be passed to the Client. This should include but is not limited to the following:

- General details of the materials used in the construction process
- Details of the plant and equipment supplied and fitted
- Service details – gas, water, electricity, communications (telephone, cable, TV, etc)
- Specific maintenance details or requirements (plant, equipment, fixtures and fittings – where applicable)
- Suppliers' brochures for health and safety information (use, maintenance and repairs) • All Agreements, Safety Committee minutes and nominated competent individuals, etc.
- All training records – i.e. special training needs, induction and visitor inductions.
- Construction Health and Safety Plan
- All inspections and audits conducted
- Medical fitness certificates for all workers issued by an Occupational Health Practitioner

3.3. Responsibilities

3.3.1. The Client

The Client will ensure adequate information is available to all parties, to ensure they can perform their duties under the requirements of this document and relevant statutory legislation. The Client will appoint a competent Design Team, Project Manager, and after tender submittance, a competent Principal Contractor. The Client may also appoint a Health and Safety Agent who will carry the responsibilities of the said client. The Client may amend, vary or terminate these appointments as appropriate.

1.3.2. Design Team

The Design Team will be represented by consultant contact person, who will also be appointed Project Manager on this project. The Design Team is responsible for ensuring that the design is, as far as is reasonably possible, risk-free to persons constructing, maintaining or removing the structure. They are also responsible to make available all relevant risk information about the design and loading of structures, including suspended platforms, anticipated hazards or dangers and all method and sequencing of processes (with special conditions), to the Principle Contractor. The designer must also conduct a final inspection and issue a certificate.

3.3.3. Client's H&S Agent

The Client may appoint a Health and Safety Agent for the Project who will, on behalf of the Client, be responsible for implementing the Client's requirements for health and safety on the project. The Health and Safety Agent is also responsible for co-coordinating the Design Team, with reference to the design risk assessment process.

3.3.4. Principal Contractor

The Principle Contractor will develop and deliver the construction phase Health and Safety Plan and will further develop the plan prior to any construction work being undertaken and during the construction phase itself. The detailed Health and Safety Plan will set out clearly the Principal Contractor's management systems for managing health and safety on the contract in accordance with the Client's health and safety requirements set out in this document, the designer's risk information and any relevant health and safety legislation.

The Health and Safety Plan will be kept up to date by the Principal Contractor to include other contractors' and sub-contractors' risk control management information. The Principal Contractor will co-operate with the Client, Health and Safety Agent or Project Manager in all aspects of complying with the duties laid upon them by the OHS Act, its Regulations and specifically the Construction Regulations (7 February 2014).

Generally, the Health and Safety Policy and construction Health and Safety Plan will be to specify site rules such as the wearing of personal protective equipment and no alcohol or drugs, etc on site.

3.3.5. Contractors and Sub-Contractors

Each contractor and sub-contractor will be required to co-operate with the Principal Contractor and provide information on risk assessments, method statements, etc. for inclusion in the Health and Safety Plan prepared by the Principal Contractor. In addition, each contractor and sub-contractor will comply with the site rules and any reasonable instructions formulated by the Principal Contractor, in accordance with current relevant health and safety legislation. Contractors and sub-contractors will provide adequate information to the Principal Contractor, who in turn will collate this information for inclusion in the health and safety file documentation.

Sample Baseline Risk Assessment.

Project: ROAD / WATER /SEWER

Ref.	ACTIVITY	HAZARD	RISK	MEASURES REQUIRED
	Site establishment	Heavy lifting	Injuries and strains	Procedures Equipment Training PPE
		Traffic and moving vehicles	Injuries crushing, strains, death.	Traffic Management Training
		Dust	Inhalation	Procedures PPE
		Snakes and spiders	Poisonous bites can cause death	Procedures Emergency plan
2.	Offloading equipment and materials	Heavy lifting	Injuries strains	Procedures Equipment Training PPE
		Collapsing loads	Injuries crushing, strains, death.	Procedures Training PPE
		Traffic and moving vehicles	Injuries crushing, strains, death.	Traffic Management Training
3.	Excavations	Traffic and moving vehicles	Injuries crushing, strains, death.	Traffic Management Training
		Collapsing side walls	Injuries crushing, strains, death.	Procedures Training PPE
		Dust	Inhalation	Procedures PPE
		Noise	Hearing impairment	Procedures PPE
		Open edges	Falling into or from causing injuries and death.	Procedures Equipment Training PPE
		Moving Plant	Injuries crushing, strains, death.	Traffic Management Procedures Training
4.	Back Filling and Layer work	Traffic and moving vehicles	Injuries crushing, strains, death.	Traffic Management Training

Ref.	ACTIVITY	HAZARD	RISK	MEASURES REQUIRED
		Dust	Inhalation	Procedures
				PPE
		Noise	Hearing impairment	Procedures PPE
		Moving Plant	Injuries crushing, strains, death.	Traffic Management Procedures Training
		Pedestrians and children	Injuries crushing, strains, death.	Traffic Management Procedures Training
5.	Pipes packing/stacking	Ergonomic constrains	Injuries and pain	Procedures and training
		Sun and Heatstroke	Dehydration and death	Procedures PPE Providing Drinking Water
		Traffic and moving vehicles	Injuries crushing, strains, death.	Traffic Management Training
6.	Compacting	Traffic and moving vehicles	Injuries crushing, strains, death.	Traffic Management Training
		Dust	Inhalation	Procedures PPE
		Noise	Hearing impairment	Procedures PPE
		Moving Plant	Injuries crushing, strains, death.	Traffic Management Procedures Training
		Traffic and moving vehicles	Injuries crushing, strains, death.	Traffic Management Training
7.	Presence of visitors and members the public	Moving plant and equipment	Injuries crushing, strains, death	Procedures Traffic Management Training
		Falling equipment	Injuries and death.	Procedures
				Equipment Training PPE
		Dust	Inhalation	Procedures PPE
		Noise	Hearing impairment	Procedures PPE

Ref.	ACTIVITY	HAZARD	RISK	MEASURES REQUIRED
		Collapsing structures and support	Injuries crushing, strains, death.	Procedures Equipment Training PPE
8.	Brickwork	Heavy lifting	Injuries and strains	Procedures Training PPE
		Ergonomic and posture	Strains and injuries	Procedures Training PPE
		Collapsing structures	Injuries crushing, strains, death.	Procedures Equipment Training PPE
9.	Plumbing and Pipe installation	Cutting grinding	Cuts, bruises and injuries	Procedures Equipment Training PPE
		Dust	Inhalation	Procedures PPE
		Noise	Hearing impairment	Procedures PPE
10.	Moving Vehicles and plant	Traffic accidents	Injuries crushing, strains, death.	Traffic Management Procedures Training

ANNEXURE 2

ACKNOWLEDGEMENT OF RECEIPT

This document must be completed by the bidding Principal Contractor and all Contractors pricing work on this Project.

Acknowledgement of receipt:

I, _____ representing _____
Principal Contractor / Contractor / Employer have satisfied myself with the content of the Health and Safety Specification and shall ensure that the Principal Contractor / Contractor and its personnel comply with all obligations / requirements in respect thereof.

Signature _____

Date _____

Principal Contractor / Sub Contractor

Signature _____

Date _____

Client/Agent _____

Signature _____

Date _____

**ANNEXURE 3
PRINCIPAL CONTRACTOR CONSTRUCTION MANAGER FORM**

I, _____, of (company name) _____,
do hereby appoint _____ being a full-time employee on the
_____ project, with the duty of CONSTRUCTION MANAGER.

You are appointed in terms of the, OHS Act 85 of 1993 – CR 8(1), your area of responsibility is as follows;

Your duties will include but no be limited to:

- Ensuring that all company safety, health and environmental procedures along with any specific client requirements are implemented and adhered to.
- Ensuring that all applicable legislative requirements are implemented and complied with.
- Ensuring that only authorised persons gain access to the construction premises and associated areas.
- Ensuring that all persons are made aware of the hazards associated with their work and that all reasonable measures are implemented to reduce these risks.
- Ensuring that all construction activities are carried out under the control and supervision of competent supervisors.
- Ensuring that all plant and machinery is in a safe working condition and that only trained and authorised persons utilize such items.
- Ensuring that the necessary personal protective equipment made available and used by the appropriate persons.
- Ensuring that all contractors adhere to the health and safety requirements of the contract.
- Ensuring that all injuries and incidents are reported and investigated in the appropriate manner and that suitable measures are implemented to prevent re-occurrences.
- Ensuring that all reasonable steps are taken to ensure the health and safety of all persons employed on the contract and of those who are affected by the construction operations.
- You are to take all reasonable steps to ensure the health and safety of all persons associated with this designation.
- This appointment also entrusts you to assist and advise all employees in ensuring adherence to company and statutory health, safety and environmental requirements. Please familiarise yourself with these requirements and report all deviations and areas of non-compliance, which you cannot rectify to me directly.

SIGNATURE _____

DESIGNATION _____

DATE _____

ACCEPTANCE OF DESIGNATION _____

ANNEXURE 4

AGREEMENT WITH MANDATORY

In terms of Section 37 (1) and (2)
WRITTEN AGREEMENT ENTERED INTO AND BETWEEN

(Herein after referred to as the "CLIENT")

AND

(Herein after referred to as the Contractor)

Each page as well as each change made to be initialled.

DEFINITION OF MANDATORY:

Includes an agent, a Contractor or Sub-Contractor for work, but without derogating from his status in his own right as an Employer or User.

SECTION 37 (1)

Whenever an employee does or omits to do any act which it would be an offence in terms of this Act for the employer or such employee or a user to do or omit to do, then, unless it is provided that: -

- (a) in doing or omitting to do that act the employee was acting without the connivance of permission of the employer or any such user;
- (b) it was not under any condition or in any circumstances within the scope of the authority of the employee to do or omit to do an act, whether lawful or unlawful, of the character of the act or omissions charged, and
- (c) all reasonable steps were taken by the Employer or any such user to prevent any act or omission of the kind in question.

The employer or any such user himself shall be presumed to have done or omitted to do that Act, and shall be liable to be convicted and sentenced in respect thereof; and the fact that he issued instructions forbidding any act or omissions of the kind in question shall not, in itself, be accepted as sufficient proof that he took all reasonable steps to prevent the act or omission.

SECTION 37 (2)

The provision of subsection (1) shall *mutates mutandis* apply in the case of a mandatory of employer or user, except if the parties have agreed in writing to the arrangements and procedures between them to ensure compliance by the mandatory with the provisions of this Act.

ACCEPTANCE BY MANDATORY

In terms of Section 37 (2) of the OHS Act 85 of 1993,

I _____
Representing (Contractor Company Name) _____
responsible for carrying out (describe activity) _____ at
the (contract/site name) _____
undertake to ensure that the requirements and provisions of the OHS Act and Construction Regulations are complied with.

Section 16 (2) for Sub-Contractor

Date

Clients Agent

Date

Annexure 5

**APPOINTMENT
CONSTRUCTION REGULATION 5 (1) (k)**

In terms of the above-mentioned regulation:

The Contractor shall submit the following for approval before commencement of any construction work and shall commence with activities only after approval:

1. Letter of Good Standing.CR. 7(1)(c)(iv)
2. Health and Safety file with Health and Safety plan.CR 7.(1)
3. Required appointment letters of relevant responsible persons with proof of competency.CR 8
4. Risk assessment of anticipated activities to be performed on this project. CR 9

I, _____ representing

_____ (Client), appoint:

(Contractors company name) to
carry out the work of

(describe activity)

By this appointment:

- Your company must ensure that all relevant documentation as required by _____ (The Client) Projects Fall protection plan is included.

CONSTRUCTION PROJECT: _____

Appointment period:

From _____ Until _____

ACCEPTANCE

I, _____ representing _____ (Contractors company name) accept this appointment. I am familiar with Occupational Health and safety Act and Construction Regulations as well as the associated duties and responsibilities of this appointment.

SIGNATURE: _____

Subcontractor representative

DATE: _____

SIGNATURE: _____

Section 16 (2)

OHS 5 Covid-19

OHS 5.1 Introduction

This specification is developed with the objective to Manage Health and Safety on the construction site with the emphasis on Health and preventing the spread and infection of and with the Corona virus.

This Specification is additional to the site-specific H&S Specification and do not reduce or change the contractor's responsibility regarding Health and Safety management on site.

Due to the rapid changing situation this Specification shall be updated and amended as more information and other more conclusive measures are identified and verified.

This specification is subject to all relevant legislative notices regarding the COVID 19 Pandemic and the regulations issued by the South African Government.

OHS 5.2 Objective

This specification is aimed at maintaining the health and wellbeing of all employed/working on the construction site and related activities as well as all people who might be affected by the construction process where the contractor have any influence or authority.

OHS 5.3 Purpose of this specification:

This specification is a direct response to the current challenges in the work place in regard to the COVID 19 Pandemic and measures to be implemented in order to resume and continue work in an as safe manner as possible and to prevent the spread of infections associated with COVID 19.

OHS 5.4 Covid-19 Risk Assessments:

COVID 19 Risk Assessments have been developed and are attached for reference see Addendum 1C19.

The Risk Assessments are based on current knowledge and available information.

General best practices in line with Government and WHO (World Health Organisation) guidelines propagated as control and mitigation.

OHS 5.5 Management Plan and Protocols for Managing Construction operations during COVID 19 Pandemic:

The Client shall provide a plan with protocols and measures to be implemented. This plan shall cover all aspects that needs to be addressed with instructions, checklists and procedures/protocols to be followed and managed in order to be compliant with current Government notices and regulations issued.

The Contractor shall inform the client of any shortcoming or other issues rendering the plan inefficient or non-compliant.

OHS 5.6 Implementation of Specification and record keeping:

The Principal contractor shall implement this plan and keep records of all: •

Communications and awareness

- Training done.
- Inspections
- Protocols implemented and managed.

OHS 5.7 Management and Responsibility

The Principal Contractors Construction Manager CR.8 (1) shall manage this plan with the assistance of his Safety Officer and a dedicated "COVID 19 Coordinator"

OHS 5.8 Management in relation to construction activities

In addition to providing PPE as per Risk assessments for H&S Management the contractor shall provide sanitation and wash facilities with soap and water.

Supervisors shall manage work in with social distancing in mind. When work need to be done that require close proximity between workers, the number of workers shall be limited at that activity and appropriate PPE shall be issued to prevent the spreading and possible contamination of infection.

The contractor shall provide additional overalls in order for workers to wash their overalls on a daily basis.

Contractor to implement a cleaning routine for all surfaces that can be contaminated.

All work areas, offices to be cleaned daily and all waste to be removed. Registers to be kept of all cleaning and disinfecting on site.

OHS 5.9 Compliance Monitoring

The Clients H&S Agent shall monitor and audit all measures and implemented protocols as required by Government Notices and the relevant Regulations.

Failure to abide by these standards and the guidelines set by Government shall result in the shutdown of the site or parts of it. Non-conformance can also lead to prosecution.

The Client have a duty under the Disaster Management Act to report any contraventions to the relevant Authorities.

Risk Assessment for Coronavirus (COVID-19):

Site:		Contractor Sec 16(2)/Project Manager	
Project:		Done by:	
Contractor:		Date:	
Team:			

Risk Rating		SEVERITY / CONSEQUENCE				
		1. Negligible	2. Minor	3. Moderate	4. Serious	5. Major
LIKELIHOOD	1. Very Unlikely	1	2	3	4	5
	2. Unlikely	2	4	6	8	10
	3. Possible	3	6	9	12	15
	4. Likely	4	8	12	16	20
	5. Probable	5	10	15	20	25

1-6 LOW	May be acceptable. Due care to be employed and situation reviewed to see if risk can be reduced further.
7-14 Medium	Possible Precarious situation only allowed to proceed with proper supervision. All available measures employed to reduce Raw Risk.
15-25 High	Situation Critical and cannot be allowed to proceed. Reassess situation continuously to determine best implementable measures for Risk mitigation.

SITUATIONS:

1.	Someone entering the workplace already infected with CV19
2.	Someone becomes ill within the workplace
3.	Contaminated workplace
4.	Proximity, workplace gatherings (social distancing)
5.	General Ignorance
6.	Self-isolation
7.	Transport and Travel (Travelling across district borders)
8.	Symptomatic or exposed employee(s)
9.	Presenteeism
10.	First Aid Training / CPR Manikin
11.	Lack of accurate information / a failure to disseminate information
12.	Accommodation
13.	Welfare facilities
14.	Plant and Equipment
15.	Consequence Management

Nr	HAZARD			INITIAL RISK			CONTROLS	RESIDUAL RISK		
	Hazard Description	Risk	Health/Safety Influenced	Hazard Severity	Likelihood	Risk Rating	List Controls Required	Hazard Severity	Likelihood	Risk Rating
1.	Someone entering the workplace with CV19	Passing the virus on to other employees, causing illness and possible death	Health Safety	5	3	15	<ul style="list-style-type: none"> • Symptomatic individuals will not be allowed entry. • Hygiene requirements (handwashing etc.) and symptoms of CV19 included with Induction. • CV19 Information posters placed in accessible locations in the workplace 	3	1	3
2.	Someone becomes ill within the workplace	Workers contracting CV19 by any means, causing illness and possible death	Health Safety	5	3	15	<ul style="list-style-type: none"> • Worker removed to a designated area at least 2 metres away from other people. • The individual will be sent home and advised to follow Governmental guidance. • Workplace decontaminated following accepted standards. • Relevant PPE to be issued 	5	1	5

3.	Contaminated workplace	Workers catching CV19 due to contaminated surfaces, causing illness and possible death	Health Safety	5	2	10	<ul style="list-style-type: none"> Formal cleaning regime introduced (Employees cleaning equipment and facilities more often). Hand sanitisers to be placed in readily accessible locations. Extra hygiene requirements enforced. Multi-use handtowels not allowed for drying hands. Relevant PPE to be issued 	5	1	5
4.	Physical Proximity during workplace gatherings	Workers catching CV19 due to working closely with infected colleagues, causing illness and possible death	Health Safety	5	3	15	<ul style="list-style-type: none"> Social Distancing policy implemented. All work areas and activities been evaluated for the possibility of implementing social distancing (no handshaking, deferring large meetings etc.) Provision of suitable and sufficient PPE; Demarcation and spacing of queueing areas; 	5	1	5
5.	General Ignorance	Workers unaware of risks from CV19 and become infected, causing illness and possible death	Health Safety	5	3	15	<ul style="list-style-type: none"> A formal training program implemented to cover risks, symptoms and control measures. Attendance to all sessions mandatory with attendance registers kept on file as proof. 	5	1	5

Nr	HAZARD	INITIAL RISK	CONTROLS	RESIDUAL RISK	Nr	HAZARD	INITIAL RISK	CONTROLS	RESIDUAL RISK	Nr
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6.	Self-isolation of workers	Workers unaware of the need to (or how to) selfisolate, causing further spread of disease and possible death	Health Safety	5	3	15	<ul style="list-style-type: none"> • A formal training program implemented educate workers on control measures, including selfisolation. Attendance to all sessions mandatory with attendance registers kept on file as proof. 	4	1	4
7.	Transport and Travel (Travelling across District borders)	Travelling across district borders and afterwards returning "Maximum allowed capacity exceeded; No facilities for sanitising vehicles and passengers; No additional protective measures available, e.g. face masks;	Health Safety	5	2	10	<ul style="list-style-type: none"> • Adhere to general travel ban by SA Government. • Implement alternatives to travel - postpone trips or hold meetings via video conferencing. • Selection and provision of transport services compliant with gazetted requirements; • Policy and procedures and rules for travel, where possible to limit the use of public transport, or to arrange selective methods of transport, • ongoing toolbox talks and supply of cloth masks to be worn when travelling or moving on and off site. • Vehicles maintained at 70% capacity or less; • Vehicles sanitised between trips; hand sanitiser provided for passengers. 	5	1	5

Nr	HAZARD	INITIAL RISK	CONTROLS	RESIDUAL RISK	Nr	HAZARD	INITIAL RISK	CONTROLS	RESIDUAL RISK	Nr
8.	Symptomatic or exposed employee(s)	Workers are symptomatic of CV19 or has been in close contact with someone with CV19, causing further spread of disease and possible death	Health Safety	5	3	15	<ul style="list-style-type: none"> If worker is unfit for work, they will be booked off sick as per normal policy. Symptomatic employees will be sent home. Colleagues who came in contact with symptomatic workers will be informed of symptoms and advised to contact a doctor for guidance. Working from home will be considered. Relevant PPE to be issued 	5	1	5
9.	Presenteeism	A worker catches CV19 because a colleague continues working despite being unwell, causing further spread of disease and possible death	Health Safety	5	3	15	<ul style="list-style-type: none"> Workers coming in contact with symptomatic ones will be informed of symptoms and advised to contact a doctor for guidance. Workplace will be decontaminated following Governmental guidance: Relevant PPE to be issued 	5	1	5

Nr	HAZARD			INITIAL RISK			CONTROLS	RESIDUAL RISK		
	Hazard Description	Risk	Health/Safety Influenced	Hazard Severity	Likelihood	Risk Rating	List Controls Required	Hazard Severity	Likelihood	Risk Rating
10.	First Aid Training / CPR Manikin	Workers exposed to CV19 due to providing First Aid in the workplace or during CPR Training on Mannequin, causing further spread of disease and possible death	Health Safety	5	2	10	<ul style="list-style-type: none"> Proper training of First Aid staff Use of correct equipment while giving First Aid Maintaining proper mannequin hygiene Relevant PPE to be issued 	5	1	5
11.	Lack of accurate information / a failure to disseminate information	Employees unaware of risks from CV19 get infected due to lack of awareness of control measures, causing further spread of disease and possible death	Health Safety	5	3	15	<ul style="list-style-type: none"> A designated person will be appointed to monitor CV19 by signing up for immediate news updates and monitoring relevant Websites and News outlets. A risk communication plan will be implemented, ensuring timely updating/ sharing of information with all internal & external stakeholders 	5	1	5

							<p>anyone display symptoms, and safe removal for testing.</p> <ul style="list-style-type: none"> Food to be served wrapped and available individually. 			
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12.	Accommodation	Social density - inability to maintain social distancing, Cross contamination from the lack of social distancing, shared utilities and belongings, shared ablutions , cross infection among inhabitants and cleaning, catering staff					<ul style="list-style-type: none"> • Policy and method statement for accommodation and to be reviewed • Sleeping and dining quarters to allow for minimum 1.5m space between persons; • Dedicated bedding, towels, utensils, soaps etc.; • Individual facilities for safe keeping; • Individual, segregated facilities for storage of laundry; • Procedures and rules of occupancy and cleaning; • Induction and primary health promotion to be done regularly. • Isolation area to be available should 			
13.	Welfare facilities	Social density - inability to maintain social distancing in, Cross contamination from the lack of social distancing, shared utilities and belongings, shared ablutions , cross infection among inhabitants and cleaning staff					<ul style="list-style-type: none"> • Updating of policy, method statements • limiting of personnel on site to minimum number required to maintain control and management. • Implement and maintain cleaning and disinfecting programme. • Site rules for social distancing to 1.5m. • Use technology to avoid close proximity between individuals where possible 			

14.	Plant and Equipment	No facilities for sanitising vehicle/plant and operators /drivers; No additional protective measures available, e.g. face masks;					<ul style="list-style-type: none"> • Only operator/driver allowed in cab • ongoing toolbox talks and supply of cloth masks to be worn when travelling or moving on and off site. • Vehicles maintained at 70% capacity or less; • Plant/Vehicles sanitised between trips; hand sanitiser provided for passengers. 			
15.	Consequence Management						<ul style="list-style-type: none"> • Revision of policy, method statements and HIRA. • Supervisor/CCO must ensure that workers are updated daily with all the relevant COVID 19 information through DSTIS/Toolbox talks, notices etc.. • Supervisor/CCO must ensure that site is updated daily with all the relevant COVID 19 information. • Workers should be updated with new information daily. • Management must ensure that company disciplinary procedures are in place. • All employees should have knowledge of the company disciplinary procedures. • Work stoppage/site closure where non-compliance exists. 			

C. Acknowledgement and Approval

ANNEXURE D
CONFORMITY WITH EPWP GUIDELINES

MALUTI-A-PHOFUNG MUNICIPALITY

PROCUREMENT OF A SERVICE PROVIDER: THE REPAIR AND REFURBISHMENT OF TSHIAME WASTEWATER TREATMENT WORKS

BID NO: SCM/BID32/2025/2026

EPWP CONFORMITY WITH RDP GUIDELINES

EPWP 1 PROJECT MANAGEMENT

Due to the complexity of the project an established contractor with applicable experience will be contracted for the construction of the works. The contractor will however be required to comply with EPWP objectives and will have to submit proposals in this regard at tender stage. These proposals will become binding on the contractor in terms of the contract once accepted and approved by the Municipality. The proposals should include provision for the employment of local subcontractors on both a conventional subcontract basis and a management contractor basis to create the maximum scope for employment opportunities. In the latter instance the main contractor will be responsible for logistics (e.g. materials and transport) and quality control and the subcontractor will be responsible for the manpower component.

EPWP 2

COMMUNITY PARTICIPATION AND EMPOWERMENT

Community participation in the implementation process will focus on the maximum exploitation of opportunities for employment, training and capacity building presented by the project. The established community structures will form the main communication link between the community and the Municipality and councillors will act as the interface between the Municipality and the community.

The implementation framework for the project, which will be established at Municipality level, will be work shopped with community representatives to ensure interaction with and acceptance by the community at large. Contentious issues will be referred back to the Municipality for consideration and amendment of the implementation framework if required.

EPWP 3

EDUCATION, TRAINING AND CAPACITY BUILDING

Education, training and capacity building will focus on project related courses or activities and preference will be given to accredited training programmes. Typical project related accredited training programmes are presented by the South African Federation of Civil Engineering Contractors (SAFCEC) and other similar (approved) accredited training will be considered.

Tenderers will be required to submit details of their proposed education, training and capacity building programmes in terms of the Project Specification and these details should include particulars of the proposed training institution. The actual programme for education, training and capacity building will be established in co-operation with the successful tenderer to comply with his proposals for employment and these programmes will become binding on the contractor in terms of the contract once accepted and approved by the Municipality.

Candidates for the training programmes will be selected mainly from unemployed members of the community in close co-operation and consultation with the Municipality and the relevant subcommittee.

EPWP 4

LABOUR INTENSITY

The aspects of the project representing activities which is either traditionally labour intensive or which could be executed using labour based methods and for which local labour can be employed must be identified.

Tenderers will be required to submit proposals on training, the optimum use of labour intensive construction methods and the use of SMME's with their tenders. Their proposals will become binding on the main contractor in terms of the contract once accepted and approved by the Municipality.

EPWP 5 EMPLOYMENT POLICY

Details of the employment policy will be established by the Municipality or the relevant subcommittee. The employment policy will form part of the Project Specification and the main contractor will be compelled in terms of the contract to comply with the employment policy. The employment policy will focus on;

- i) maximizing local job creation,
- ii) targeting the most needy (single headed households, unemployed and youth), and iii) ensuring opportunities for women and disabled.

EPWP 6 WAGES AND LABOUR STANDARDS

Wages and labour standards for the project will comply with the Expanded Public Works Programme Framework Agreement and existing statutory requirements applicable to task based labour. All wage and labour standards' variables will be determined by the Municipality or the relevant sub-committee and will be included in the Project Specification. The main contractor will be compelled in terms of the contract to comply with the applicable wages and labour standards.

ANNEXURE E
TENDER DRAWINGS

ANNEXURE F
SCHEDULE OF QUANTITIES