

NKOMAZI MUNICIPALITY



EXTENSION OF LOUIEVILLE WATER: PHASE 2 - STORAGE TANK AND PACKAGE PLANT

TENDER NUMBER: NKO 61/2022

TENDERER:	
TENDER AMOUNT:	
CONSTRUCTION PERIOD:	WEEKS

CLOSING DATE: 20 JANUARY 2023

EMPLOYER	ENGINEER
 NKOMAZI MUNICIPALITY The Municipal Manager Private Bag X101 MALELANE 1320 TEL. 013-790 0245 FAX. 013-790 0886	 TFC ENGINEERS (PTY) LTD PO Box 15110 NELSPRUIT 1200 TEL. 013-752 7475 Email: info@tfce.co.za

NKOMAZI MUNICIPALITY

CONTRACT NO: NKO 61/2022

FOR

**EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND
PACKAGE PLANT**

SUMMARY FOR TENDER OPENING PURPOSES

NAME OF TENDERER : _____

ADDRESS : _____

TELEPHONE NUMBER : _____

FAX NUMBER : _____

E-MAIL ADDRESS : _____

CLOSING DATE : _____

CONTRACT PRICE : R _____
(Amount brought forward from the Form of Offer and Acceptance)*

Signed by authorised representative of the TENDERER: _____

DATE: _____

* Should any discrepancy occur between this figure and that stated in the Form of Offer and Acceptance, the latter shall take precedence and shall apply.

NKOMAZI MUNICIPALITY**CONTRACT NO: NKO 61/2022****FOR****EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND PACKAGE PLANT****CONTENTS**

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NKOMAZI MUNICIPALITY

CONTRACT NO: NKO 61/2022

FOR

**EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND
PACKAGE PLANT**

PART T1 TENDERING PROCEDURES

NKOMAZI MUNICIPALITY

CONTRACT NO: NKO 61/2022

FOR

**EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND
PACKAGE PLANT**

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TENDER NOTICE AND INVITATION TO TENDER

TENDER NO: NKO 61/2022 EXTENSION OF LOUIEVILLE WATER: PHASE 2 - STORAGE TANK AND PACKAGE PLANT

The Nkomazi local Municipality cordially invites interested parties to tender / bid for the: Installation of a new Package Plant, installation of 2 new sectional steel reservoirs and the drilling and equipping of new boreholes, In terms of Section 110 of the Municipal Finance Management Act, 2003 (No. 56 of 2003). Tenders will be evaluated on 80/20 points system in line with Nkomazi Local Municipality Supply Chain Management Policy. Part of the conditions of this tender is that the service provider's attention is drawn towards the requirement of MBD 6.2 (Local Content) as per attached Annexure in the tender document: as such Electrical and Telecom Cables to be supplied must be 90%, Valves 70%, Residential Electricity and Water Meters 70% and Pumps & Medium Voltage Motors 70% respectively locally manufactured. Tenders should have a minimum CIDB Grading of Class 7CE or Higher.

Tender documents with complete details are available upon payment of a non-refundable amount of R1425.73 on each tender or can be downloaded for free from the e-Tender or Nkomazi website. Tender documents will be available from **01/12/2022** and can be obtained at Nkomazi Local Municipality: Budget and Treasury (Old Malalane Taxi Rank) Impala Street from the Cashiers Desk from 07h45 to 15h30 (Monday to Friday).

An optional or non-compulsory tenderer and site briefing session will be held on **9/12/2022** at 10:00 at the Municipal Town Hall Malelane, it is advisable for tenderers to attend the informative briefing session since its clarifiers matters and also afford attendances to ask questions and get more clarity on all matters partnering the tender.

Completed Bid documentation must be deposited in the tender box at office of the Nkomazi Local Municipality, 9 Park Street, Malalane, not later than 12h00 on/before the closing date of **20/01/2023**. Tenders/Bids must be submitted in a sealed envelope or container on which the tender bid number and addressee is clearly marked. No bids transmitted by fax or email will be accepted. It must be noted that the municipality is not bound to accept lowest or any tender.

Tender / bid documentation which is incomplete or filled incorrectly or not filled in on the official bid documentation or which is received after the close of bids will be ignored. It must be noted that the tender submitted in a wrong tender box will not be considered. Nkomazi Local Municipality supports empowerment of the previously disadvantaged and SMMEs.

For Supply Chain enquires contact Miss F. Ndlovu at 013 7900386, and for technical support contact Mrs. DL. Sifunda at 013 7900886


Mr C Lisa
ACTING MUNICIPAL MANAGER

NKOMAZI MUNICIPALITY

Private Bag X101 Malalane 1320

28 NOV 2022

RECORDS
MALALANE

28/11/2022
Date

INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE NKOMAZI LOCAL MUNICIPALITY					
YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE NKOMAZI LOCAL MUNICIPALITY					
BID NUMBER:	NKO: 61/2022	CLOSING DATE:	20 JANUARY 2023	CLOSING TIME:	12H00
THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (MBD7).					
DESCRIPTION					
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 (STREET ADDRESS

MALELANE CIVIC CENTRE					
9 PARK STREET MALELANE, 1320					
SUPPLIER INFORMATION					
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:	
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE [TICK APPLICABLE BOX]	☐ Yes ☐ No		B-BBEE STATUS LEVEL SWORN AFFIDAVIT		☐ Yes ☐ No
[A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE/ SWORN AFFIDAVIT (FOR EMES & QSEs) MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE]					

T1.1-3

ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	☐ Yes ☐ No [IF YES ENCLOSE PROOF]	ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES /WORKS OFFERED?	☐ Yes ☐ 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:	
BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO:		TECHNICAL INFORMATION MAY BE DIRECTED TO:	
DEPARTMENT		CONTACT PERSON	
CONTACT PERSON		TELEPHONE NUMBER	
TELEPHONE NUMBER		FACSIMILE NUMBER	
FACSIMILE NUMBER		E-MAIL ADDRESS	
E-MAIL ADDRESS			

MBD 1 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, 2017, 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)? ☐ YES ☐ NO
- 3.2. DOES THE ENTITY HAVE A BRANCH IN THE RSA? ☐ YES ☐ NO
- 3.3. DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA? ☐ YES ☐ NO
- 3.4. DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA? ☐ YES ☐ NO
- 3.5. IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION? ☐ YES ☐ NO

IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 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:

The following conditions must be complied with:**Failure to comply with the following will render the tenderer liable to rejection:**

- All pages must be completed, and all pages form part of the tender document, therefore no page removal is allowed.
- Scratching out / painting over rates / use of correcting fluid is not allowed.
- Failure to attend compulsory site inspections / compulsory briefing sessions in case is required.
- Failure to submit documents required in this document
- Form of tender not filled and signed and all pages of bid documents not initialed.
- Enterprise particulars not provided.
- The bid has been submitted after the closing date and time.
- Failure to initial or sign all Pages of the Tender documents

Compulsory returnable Documents: failure to return documents below is an automatic disqualification with the exception of the BBBEE Status Certificate

- Attach Copy of SARS Tax Pin or tax clearance certificate
- Copy of Central Supplier Database Registration Report
- Certified copy of Company Registration (CK)
- A certified BBBEE Status certificate that is accredited by South African Accreditation Systems (SANA) or sworn affidavit must be attached for the tenderer to claim the
- Preferential points
- All declarations and authorisations must be duly signed.
- All returnable schedules must be completed
- Attach proof of rates and taxes not later than 3 months/Proof of Residence
- Copy of Authority for signatory (Must be in the company letter head)
- Certified Copy of CIDB grading

Every bid will be scored and awarded points out of a maximum of 100 points.

A fixed 10 points of the maximum of 100 points is allocated to calculate preference in terms of the BBBEE status.

A bidder must not be awarded the points claimed for BBBEE status level of contribution if it is indicated in the bid documents that such a bidder intends sub-contacting more than 25% of the contract value to any other enterprise that does not qualify for a least the same number of points that the bidder qualifies for, unless the intended sub-contractor is an EME that has the capacity and ability to execute the sub-contract.

A contractor is not allowed to sub-contract more than 25% of the contract value to another enterprise that does not have equal or higher B-BBEE status level, unless the intended sub-contractor is an EME that has the capacity and ability to execute the sub-contract

In relation to a designated sector, a contractor must not allow to sub-contract in such a manner that the local production and content of the overall value of the contract is reduced to below the stipulated minimum threshold.

NKOMAZI MUNICIPALITY**CONTRACT NO: NKO 61/2022****FOR****EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND
PACKAGE PLANT****T1.2 TENDER DATA**

Clause Number	Data
	The conditions of tender are the Standard Conditions of Tender as contained in Annex F of the CIDB Standard for Uniformity in Construction Procurement, as printed in the Government Gazette No 33239 Board Notice 86 of May 2010. A copy is attached as Appendix A. The Standard Conditions of Tender for Procurements makes several references to the tender data for details that apply specifically to this tender. The tender data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the standard conditions of tender. Each item of data given below is cross-referenced to the clause in the standard conditions of tender to which it mainly applies.
F.1.1	The Employer is: The Acting Municipal Manager Nkomazi Municipality, Private Bag X101, Malelane 1320
F.1.2	The tender documents issued by the Employer comprise: THE TENDER Part T1 Tendering Procedures Part T1.1 Tender Notice and Invitation to Tender (white) Part T1.2 Tender Data (pink) Part T2 Returnable Documents Part T2.1 List of Returnable Documents (yellow) Part T2.2 Returnable Schedules to be completed by the Contractor (yellow) Part T2.3 Returnable Schedules II (yellow) THE CONTRACT Part C1 Agreement and Contract Data C1.1 Form of Offer and Acceptance (pink) C1.2 Contract Data (yellow) C1.3 Form of Guarantee (white) C1.4 Agreement in terms of Occupational Health and Safety Act, 1993 (white) C1.5 Authority for Signatory in Terms of OH&S Act, 1993 (white) Part C2 Pricing Data C2.1 Pricing Instructions (yellow) C2.2 Bill of Quantities and Information Sheets (yellow) Part C3 Scope of Works C3.1 Scope of Works (blue) C3.2 Engineering (blue) C3.3 Procurement (blue) C3.4 Construction (blue) C3.5 Management (blue) C3.6 Health and Safety (blue) Part C4 Site Information

Clause Number	Data
	C4 Site Information (green) Appendices Appendix A Health and Safety Specification (white) Appendix B Drawings for Tender Purposes (white)
F.1.4	The Employer's agent is: Name: TFC Engineers (Pty) Ltd Address: PO Box 15110 Nelspruit 1200 Tel: 013 752 7475 E-mail: info@tfce.co.za
F.2.1	Only those tenderers who are registered with the CIDB, or are capable of being so registered prior to the evaluation of bids, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tender for a 7CE class of construction work, are eligible to submit bids. Joint Ventures are eligible to submit bids provided that: (1) every member of the joint venture is registered with the CIDB, or are capable of being so registered prior to the evaluation of tenders; (2) the lead partner has a contractor grading designation in the 6CE class of construction work; and (3) the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum bid for a 7CE class of construction work, are eligible to submit tenders.
F.2.7	The arrangements for a compulsory clarification meeting (site inspection) are: Location: Municipal Town Hall Malelane Date: 09 December 2022 Starting time: 10:00
F.2.12	An alternative tender offer will only be considered if a main tender offer, strictly in accordance with all the requirements of the tender document is also submitted. If the tenderer wishes to submit an alternative tender offer, the only criteria permitted for such alternative tender offer is that it demonstrably satisfies the Employer's standards and requirements, the details of which may be obtained from the Employer's Engineer. Calculations, drawings and all other pertinent technical information and characteristics as well as modified or proposed Pricing Data must be submitted with the alternative tender offer to enable the Employer to evaluate the efficacy of the alternative and its principal elements, to take a view on the degree to which the alternative and to evaluate the acceptability of the pricing proposals. Calculations must be set out in a clear and logical sequence and must clearly reflect all design assumptions. Pricing Data must reflect all assumptions in the development of the pricing proposal. Acceptance of an alternative tender offer will mean acceptance in principle of the offer. It will be an obligation of the contract for the tenderer, in the event that the alternative is accepted, to accept full responsibility and liability that the alternative offer complies in all respects with the Employer's standards and requirements. The modified Tender Data must include an amount equal to 5% of the amount bid for the alternative offer to cover the Employer's costs of confirming the acceptability of the detailed design before it is constructed.
F.2.13 F.3.5	A two-envelope procedure will not be followed.
F.2.13.1	Not applicable.
F.2.13.3	The tender offer communicated on paper shall be submitted as an <u>original only</u> .

Clause Number	Data						
F.2.13.5	The Employer's address for delivery of tender offers and identification details to be shown on each tender offer package are: Location of tender box: Malelane. Physical address: 9 Park Street, Malelane Identification details: Acting Municipal Manager, Nkomazi Municipality, Tender NKO 61/2022, EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND PACKAGE PLANT						
F.2.15	The closing time for submission of tender offers is: 12h00 on 20 January 2023						
F.2.15	Telephonic, telegraphic, telex, facsimile or e-mailed tender offers will not be accepted.						
F.2.16	The tender offer validity period is 90 days.						
F.2.18	The tenderer shall submit the names, qualifications and experience of the contract manager, the site agent and the foreman that will be employed to manage, control and supervise the construction of the works in the Returnable Schedules.						
F.2.19	Not applicable.						
F.2.22	Not applicable.						
F.2.23	The tenderer is required to submit with his tender. (1) Certificate of Contractor Registration issued by the Construction Industry Development Board; and (2) an original valid Tax Clearance Certificate issued by the South African Revenue Services.						
F.3.4	The time and location for opening of the tender offers are: Time 12h00 on 20 January 2023 Location: 9 Park Street, Malelane						
NM	Functionality Scores = 25 points. Minimum score for functionality is (60%) 15 points of the maximum points for functionality and a bidder who scores below this minimum shall not be considered for further evaluation in terms of price and contract participation goals. Scoring of Functionality: <table><tr><th>CRITERIA</th><th>WEIGHT</th><th>SCORES</th></tr><tr><td>Company/Entity's experience and references</td><td>11</td><td> 0 = No Reference letter or detailed company profile with contact details of reference attached 4 = 1 original or certified copy of reference letter on letterhead or detailed company profile with contact details of references attached 8 = 2 original or certified copies of reference letters on letterhead or detailed company profile with contact details of references attached 11 = 3 original or certified copies of reference letters on letterhead or detailed company profile with contact details of references attached </td></tr></table>	CRITERIA	WEIGHT	SCORES	Company/Entity's experience and references	11	0 = No Reference letter or detailed company profile with contact details of reference attached 4 = 1 original or certified copy of reference letter on letterhead or detailed company profile with contact details of references attached 8 = 2 original or certified copies of reference letters on letterhead or detailed company profile with contact details of references attached 11 = 3 original or certified copies of reference letters on letterhead or detailed company profile with contact details of references attached
CRITERIA	WEIGHT	SCORES					
Company/Entity's experience and references	11	0 = No Reference letter or detailed company profile with contact details of reference attached 4 = 1 original or certified copy of reference letter on letterhead or detailed company profile with contact details of references attached 8 = 2 original or certified copies of reference letters on letterhead or detailed company profile with contact details of references attached 11 = 3 original or certified copies of reference letters on letterhead or detailed company profile with contact details of references attached					

Clause Number	Data																							
	Experience and qualification of Construction team key personnel	7	0 = No CV or qualification attached 2 = CV of Safety Officer and certified copies of qualifications 5 = CV of Site Agent with NQF 5 qualification or National “Diploma in civil Engineering (5 or more years experience in water reticulation projects) 3 = CV of Site Agent with NQF 5 qualification or National Diploma in civil Engineering (3-4 years experience in water reticulation projects) 4 = CV of Site Agent with NQF 5 qualification or National Diploma in civil Engineering (1-2 years experience in water reticulation projects.																					
	Financial references	3	3 = Bank rating C or higher 2 = Bank rating D 1 = Bank rating E 0 = Bank rating F 0 = No submission																					
	Plant and Equipment necessary for construction <i>See table below for list of required plant</i>	3	4 = Combination of all plant & equipment plus general plant 3 = Combination of 3 plus general plant 2 = Combination 1-2 plus general plant 1 = Tendered listing of general plant & equipment 0 = Tenderer not listing plant & equipment																					
	Total	25																						
	<table><tr><th colspan="2">List of Minimum Required Plant and Equipment</th></tr><tr><th>Quantity</th><th>Description</th></tr><tr><td>1</td><td>20 ton Excavator</td></tr><tr><td>1</td><td>Tipper Truck</td></tr><tr><td>1</td><td>TLB (4 x 4)</td></tr><tr><td>1</td><td>Water Tanker</td></tr><tr><td>1</td><td>Dynamic Compactor</td></tr><tr><th colspan="2">List of General plant</th></tr><tr><td></td><td>Picks</td></tr><tr><td></td><td>Wheelbarrows</td></tr><tr><td></td><td>Shovels</td></tr></table>			List of Minimum Required Plant and Equipment		Quantity	Description	1	20 ton Excavator	1	Tipper Truck	1	TLB (4 x 4)	1	Water Tanker	1	Dynamic Compactor	List of General plant			Picks		Wheelbarrows	
List of Minimum Required Plant and Equipment																								
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1	Dynamic Compactor																							
List of General plant																								
	Picks																							
	Wheelbarrows																							
	Shovels																							
F.3.11	The procedure for the evaluation of responsive tenders is Method 2: Financial Offer and Preferences.																							

Clause Number	Data												
F.3.11.1	Method 2 Financial Offer and Preferences is scored as follows: a) Score each tender in respect of the financial offer made and preferences claimed, if any. b) Calculate the total number of tender evaluation points (T_{EV}) in accordance with the following formula: $T_{EV} = N_{FO} + N_P$ where: N_{FO} is the number of tender evaluation points awarded for the financial offer made in accordance with F.3.11.2; N_P is the number of tender evaluation points awarded for preferences claimed in accordance with F.3.11.3. c) Rank tender offers from the highest number of tender evaluation points to the lowest. d) Recommend the tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so. e) Re-score and re-rank all tenderers should there be compelling and justifiable reasons not to recommend the tenderer with the highest number of tender evaluation points, and recommend the tenderer with the highest number of tender evaluation points, unless there are compelling and justifiable reasons not to do so and the process set out in this subclause is repeated. f) Compelling and justifiable reasons not to recommend a tenderer are inter alia tenderers who: - do not meet the minimum requirements listed in Part T2.1, List of Returnable Documents and/or - failed to complete the tender document comprehensively with all the required information.												
F.3.11.2	The financial offer will be scored using the following formula: $N_{FO} = W_1 \times A$ Where: N_{FO} = the number of evaluation points awarded for the financial offer W_1 = the maximum possible number of bid evaluation points awarded for the financial offer and will be: (i) 90 where the financial value inclusive of VAT of all responsive tenders received have a value in excess of R 1,000,000; or (ii) 80 where the financial value inclusive of VAT of one or more responsive tender offers equals or is less than R 1,000,000. A = the number calculated using Formula 2 (Option 1) Table F.1: Formulae for calculating the value of A <table><tr><th>Formula</th><th>Comparison aimed at achieving</th><th>Option 1^a</th><th>Option 2^a</th></tr><tr><td>1</td><td>Highest price or discount</td><td>$A = (1 + \frac{P - P_m}{P_m})$</td><td>$A = P / P_m$</td></tr><tr><td>2</td><td>Lowest price or percentage commission /fee '</td><td>$A = (1 - \frac{P - P_m}{P_m})$</td><td>$A = P_m / P$</td></tr></table> ^a P_m is the comparative offer of the most favourable comparative offer. P is the comparative offer of the tender offer under consideration.	Formula	Comparison aimed at achieving	Option 1 ^a	Option 2 ^a	1	Highest price or discount	$A = (1 + \frac{P - P_m}{P_m})$	$A = P / P_m$	2	Lowest price or percentage commission /fee '	$A = (1 - \frac{P - P_m}{P_m})$	$A = P_m / P$
Formula	Comparison aimed at achieving	Option 1 ^a	Option 2 ^a										
1	Highest price or discount	$A = (1 + \frac{P - P_m}{P_m})$	$A = P / P_m$										
2	Lowest price or percentage commission /fee '	$A = (1 - \frac{P - P_m}{P_m})$	$A = P_m / P$										

Clause Number	Data																																
F.3.11.3	Up to 100 minus W_1 tender evaluation points will be awarded to tenderers who furnish SANAS accredited B-BBEE certificates. Failure on the part of a bidder to fill in and/or to sign this from and submit a B-BBEE Verification Certificate from a Verification Agency accredited by the South African Accreditation System (SANAS) or a Registered Auditor approved by the Independent Regulatory Board of Auditors (IRBA) or and Accounting Officer as contemplated in the Close Corporation Act (CCA) together with the bid, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed. Definitions: 1. "SANAS" means South African Accreditation System; 2. "IRBA" means Independent Regulatory Board of Auditors; 3. "B-BBEE" means broad-based black economic empowerment as defined in Section 1 of the Broad-Based Black Economic Empowerment Act; 4. "B-BBEE status level of contributor" means the B-BBEE status received by a measured entity based on its overall performance using the relevant scorecard contained in the Codes of Good Practice on Black Economic Empowerment, issued in terms of Section 9(1) of the Broad-Based Black Economic Empowerment Act; 5. "CCA" means Close Corporation Act; 6. "Broad-Based Black Economic Empowerment Act" means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003); 7. "EME" means any enterprise with annual total revenue of R 5 million or less.																																
F.3.11.3	1. Scoring of points for Preferences (N_F) will be done in terms of Regulation 5(2) and 6(2) of the Preferential Procurement Regulations whereby preference points must be awarded to a bidder for attaining B-BBEE status level of contribution in accordance with the table below:<table><tr><th rowspan="2">B-BBEE Status Level of Contributor</th><th colspan="2">Points</th></tr><tr><th>90/10</th><th>80/20</th></tr><tr><td>1</td><td>10</td><td>20</td></tr><tr><td>2</td><td>9</td><td>18</td></tr><tr><td>3</td><td>8</td><td>16</td></tr><tr><td>4</td><td>5</td><td>12</td></tr><tr><td>5</td><td>4</td><td>8</td></tr><tr><td>6</td><td>3</td><td>6</td></tr><tr><td>7</td><td>2</td><td>4</td></tr><tr><td>8</td><td>1</td><td>2</td></tr><tr><td>Non-compliant</td><td>0</td><td>0</td></tr></table> 2. Bidders who qualify as EME's in terms of the B-BBEE Act must submit a certificate issued by an Accounting Officer as contemplated in the CCA or a Verification Agency accredited by SANAS or a Registered Auditor. Registered auditors do not need to meet the prerequisite for IRBA's approval for the purpose of conducting verification and issuing EMEs with B-BBEE Status Level Certificates.	B-BBEE Status Level of Contributor	Points		90/10	80/20	1	10	20	2	9	18	3	8	16	4	5	12	5	4	8	6	3	6	7	2	4	8	1	2	Non-compliant	0	0
B-BBEE Status Level of Contributor	Points																																
	90/10	80/20																															
1	10	20																															
2	9	18																															
3	8	16																															
4	5	12																															
5	4	8																															
6	3	6																															
7	2	4																															
8	1	2																															
Non-compliant	0	0																															

Clause Number	Data
	3. Bidders other than EME's must submit their original and valid B-BBEE status level verification certificate or a certified copy thereof, substantiating their B-BBEE rating issued by a Registered Auditor approved by IRBA or a Verification Agency accredited by SANAS. 4. A trust, consortium or joint venture, will qualify for points for their B-BBEE status level as a legal entity, provided that the entity submits their B-BBEE status level certificate. 5. A trust, consortium or joint venture will qualify for points for their B-BBEE status level as an unincorporated entity, provided that the entity submits their consolidated B-BBEE scorecard as if they were a group structure and that such a consolidated B-BBEE scorecard is prepared for every separate bid. 6. Tertiary institutions and public entities will be required to submit their B-BBEE status level certificates in terms of the specialized scorecard contained in the B-BBEE Codes of Good Practice. 7. A person will not be awarded points for B-BBEE status level if it is indicated in the bid documents that such a bidder intends sub-contracting more than 25% of the value of the contract to any other enterprise that does not qualify for at least the points that such a bidder qualifies for, unless the intended sub-contractor is an EME that has the capability and ability to execute the sub-contract. A person awarded a contract may not sub-contract more than 25% of the value of the contract to any other enterprise that does not have an equal or higher B-BBEE status level than the person concerned, unless the contract is sub-contracted to an EME that has the capability and ability to execute the sub-contract.
F.3.13.1	Tender offers will only be accepted if the tenderer submits proof that: (a) the tenderer has submitted an original valid Tax Clearance Certificate issued by the South African Revenue Services; (b) the tenderer is registered with the Construction Industry Development Board in an appropriate contractor grading designation; (c) the tenderer is not in arrears for more than 30 days with municipal rates and taxes and municipal service charges; (d) the tenderer or any of its directors is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector; and (e) the tenderer has not: (i) abused the Employer's Supply Chain Management System or (ii) failed to perform on any previous contract.
F.3.13.2	The additional conditions of tender are: 1 The Employer/Engineer may request that the tenderer provide written evidence that his financial, labour and other resources are adequate for carrying out the contract. 2 The Employer reserves the right to appoint a firm of chartered accountants and auditors and/or execute any other financial investigations on the financial resources of any tenderer. The tenderer shall provide all reasonable assistance in such investigations. 3 The Employer reserves the right to reduce the scope of work to within the available budget. 4 In addition the Employer may appoint more than one Contractor for the project.
F.3.18	The number of paper copies of the signed contract to be provided by the Employer is one.

NKOMAZI MUNICIPALITY

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FOR

**EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND PACKAGE
PLANT**

PART T2 LIST OF RETURNABLE DOCUMENTS

NKOMAZI MUNICIPALITY

CONTRACT NO: NKO 61/2022

FOR

EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND PACKAGE PLANT

The tenderer must complete the following returnable documents.

- T2.1 RETURNABLE SCHEDULES REQUIRED FOR TENDER EVALUATION PURPOSES
- T2.2 OTHER DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES
- T2.3 RETURNABLE SCHEDULES THAT WILL BE INCORPORATED IN THE CONTRACT

NKOMAZI MUNICIPALITY

CONTRACT NO: NKO 61/2022

FOR

**EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND PACKAGE
PLANT**

**T2.1 RETURNABLE SCHEDULES REQUIRED FOR TENDER EVALUATION
PURPOSES**

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FORM 2.1.1 AUTHORITY FOR SIGNATORY

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

An example for a company is shown below:

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

Mr/Ms

has been duly authorised to sign all documents in connection with the Tender for Contract No

..... 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

FORM 2.1.2 SCHEDULE OF WORK CARRIED OUT BY TENDERER

The Tenderer shall list below the last two or more **water reticulation work** contracts of a **similar magnitude and nature**, completed successfully by the Tenderer. This information is material to the award of the Contract.

EMPLOYER (Name and tel no)	CONSULTING ENGINEER (Name and tel no)	PROJECT DESCRIPTION (indicate size of works)	VALUE OF WORK	YEAR OF COMPLETION

ATTACH ORIGINAL/CERTIFIED COPIES OF UP TO THREE REFERENCE LETTERS AS PER NKOMAZI MUNICIPALITY FUNCTIONALITY CRITERIA.

SIGNED ON BEHALF OF TENDERER:

FORM 2.1.3 PROPOSED KEY PERSONNEL

The Tenderer shall list below the key personnel (including first nominee and the second choice alternate), whom he/she proposes to employ on the contract should his tender be accepted.

DESIGNATION	NAME AND NATIONALITY OF: (i) NOMINEE (ii) ALTERNATE	SUMMARY OF QUALIFICATIONS, EXPERIENCE AND PRESENT OCCUPATION
Contract Manager		
Site Agent		
Foreman		
Other key staff (give designation)		

ATTACH CV'S OF KEY PERSONNEL AS PER NKOMAZI MUNICIPALITY FUNCTIONALITY CRITERIA.

SIGNED ON BEHALF OF TENDERER:

FORM 2.1.4 SCHEDULE OF CONSTRUCTIONAL PLANT

The Tenderer shall state below what Constructional Plant will be available for the duration of the Works should he/she be awarded the Contract.

DESCRIPTION, SIZE, CAPACITY	NUMBER

ATTACH LIST OF PLANT AS PER NKOMAZI MUNICIPALITY FUNCTIONALITY CRITERIA.

SIGNED ON BEHALF OF TENDERER:

FORM 2.1.5 SCHEDULE OF PROPOSED SUBCONTRACTORS

The Tenderer shall, in accordance with the provisions of Condition of Tender, list below the subcontractors he/she proposes to employ for part(s) of the Works.

The naming of any proposed subcontractor hereunder shall not be deemed to constitute a qualification of the Tender, and acceptance of a Tender shall not be construed as approval of any or all of the listed subcontractors, neither shall it in any way limit or detract from the powers of the Engineer and the obligations of the Contractor pertaining to subcontracting as stated in the Contract, nor shall it prevent the Tenderer from deviating in any way during the Contract from the list of proposed subcontractors hereunder if the Tender is accepted

If any or all of the subcontractors listed hereunder are not approved subsequent to acceptance of the Tender, it shall in no way invalidate the Tender or the Contract, and the tender unit rates for the respective items of work shall remain final and binding even if a subcontractor not listed below is approved by the Employer.

PART OR TYPE OF WORKS	PROPOSED SUBCONTRACTOR & CONTACT NUMBER	WORK RECENTLY EXECUTED BY SUBCONTRACTOR

SIGNED ON BEHALF OF TENDERER:

FORM 2.1.6 FINANCIAL REFERENCES**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 for consideration by the Employer.

BANK DETAILS OF BUSINESS

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'S HEAD OFFICE
Name of bank	
Branch name	
Branch code	
Street address	
Postal address	
Name of manager	
Telephone number	()
Fax number	()
Account number	
Account holder	

TENDERER'S TAX DETAILS

Tenderer's VAT vendor registration number:

Tenderer's SARS tax reference number:

ATTACH AN ORIGINAL BANK STAMPED LETTER OF THE BANK RATING, ISSUED BY THE BANK NOT OLDER THAN THREE MONTHS.

SIGNED ON BEHALF OF TENDERER:

FORM 2.1.7 ESTIMATED MONTHLY EXPENDITURE

The Tenderer shall state below the estimated value of work to be completed every month, based on his/her preliminary programme and his/her tender unit rates.

The amounts for contingencies and Contract Price Adjustment (if applicable) must be excluded.

MONTH	VALUE
1	R
2	R
3	R
4	R
5	R
6	R
7	R
8	R
9	R
10	R
11	R
12	R
13	R
14	R
15	R
16	R
17	R
18	R
	COMPLETION OF CONTRACT
TOTAL	R

SIGNED ON BEHALF OF TENDERER:

FORM 2.1.8 DETAILS OF ALTERNATIVE TENDERS SUBMITTED

See Conditions of Tender.

DESCRIPTION

*If no alternatives, insert “NIL”

SIGNED ON BEHALF OF TENDERER:

FORM 2.1.9 AMENDMENTS AND QUALIFICATIONS BY TENDERER

See Conditions of Tender

PAGE	DESCRIPTION

*If no qualifications and or amendments, insert "NIL"

SIGNED ON BEHALF OF TENDERER:

FORM 2.1.10**COMPULSORY ENTERPRISE QUESTIONNAIRE**

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

Section 1: Name of enterprise:

Section 2: VAT registration number, if any:

Section 3: CIDB registration number, if any:

Section 4: Particulars of sole proprietors and partners in partnerships

Name*	Identity number*	Personal income tax number*

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

Section 5: Particulars of companies and close corporations

Company registration number

Close corporation number

Tax reference number

Section 6: Record of service of the state

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

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

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

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

*insert separate page if necessary

SIGNED ON BEHALF OF TENDERER:

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

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

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

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

*insert separate page if necessary

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

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

SIGNED ON BEHALF OF TENDERER:

NKOMAZI MUNICIPALITY

CONTRACT NO: NKO 61/2022

FOR

**EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND
PACKAGE PLANT**

T2.2 OTHER DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

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FORM 2.2.2 PROOF OF REGISTRATION WITH CONSTRUCTION INDUSTRY DEVELOPMENT BOARD	T2.2-2

**FORM 2.2.1 CERTIFICATE OF TENDERER'S ATTENDANCE AT THE
SITE/CLARIFICATION MEETING**

This is to certify that I,

representative of (Tenderer)

.....

of (address)

.....

.....

Telephone number

Fax number

visited and examined the Site on (date)

in the company of (Engineer/Engineer's Representative)

TENDERER'S REPRESENTATIVE:

ENGINEER'S REPRESENTATIVE:

**FORM 2.2.3 PROOF OF REGISTRATION WITH CONSTRUCTION INDUSTRY
DEVELOPMENT BOARD**

The tenderer is to **affix to this page** either:

- Written proof of his registration with the CIDB as a Category 7CE

Or

- Written proof of his application to the CIDB for registration as a contractor in the category listed above.

Note:

1. Failure to affix such documentation as prescribed to this page shall result in this tender not being further considered for the award of the contract.
2. Should this tender be considered for award of the contract, based on proof of submission of application for registration in the appropriate category with the CIDB, and should proof of such subsequent registration not be forthcoming to the employer by the time of award of the contract, then this tender will no longer be considered for the award of the contract.

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**T2.3 RETURNABLE SCHEDULES THAT WILL BE INCORPORATED IN THE
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**FORM 2.3.1 FORM CONCERNING FULFILMENT OF THE CONSTRUCTION
REGULATIONS, 2003 (OHS)**

In terms of regulation 4(3) of the Construction Regulations, 2003 (hereinafter referred to as the Regulations), promulgated on 18 July 2003 in terms of Section 43 of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) the Employer shall not appoint a contractor to perform construction work unless the Contractor can satisfy the Employer that his/her firm has the necessary competencies and resources to carry out the work safely and has allowed adequately in his/her tender for the due fulfilment of all the applicable requirements of the Act and the Regulations.

- 1 I confirm that I am fully conversant with the Regulations and that my company has (or will acquire/procure) the necessary competencies and resources to timeously, safely and successfully comply with all of the requirements of the Regulations. (Tick)

YES	
NO	

- 2 Proposed approach to achieve compliance with the Regulations (Tick)

Own resources, competent in terms of the Regulations (refer to 3 below)	
Own resources, still to be hired and/or trained (until competency is achieved)	
Specialist subcontract resources (competent) - specify:	

- 3 Provide details of proposed key persons, competent in terms of the Regulations, who will form part of the Contract team as specified in the Regulations (CVs to be attached):

.....

.....

.....

.....

.....

.....

- 4 Provide details of proposed training (if any) that will be undergone:

.....

.....

.....

.....

.....

.....

.....

- 5 Potential key risks identified and measures for addressing risks:

.....

.....

.....

.....

.....

.....

.....

- 6 I have fully included in my tender rates and prices (in the appropriate payment items provided in the Schedule of Quantities) for all resources, actions, training and any other costs required for the due fulfilment of the Regulations for the duration of the construction and defects repair period. (Tick)

YES	
NO	

SIGNATURE OF PERSON(S) AUTHORISED TO SIGN THIS TENDER:

1 ID NO:

2 ID NO:

FORM 2.3.2 RECORD OF ADDENDA TO TENDER DOCUMENTS

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

No	Date	Title or Details
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Attach additional pages if more space is required.

Signed: Date:

Name: Position:

SIGNED ON BEHALF OF TENDERER:

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.

NOTE: PLEASE ATTACH THE TAX CLEARANCE CERTIFICATE TO THIS PAGE

DECLARATION OF INTEREST

1. No bid will be accepted from persons in the service of the state:
2. Any person or having kinship with a person in the service of state, or persons who act on behalf of Nkomazi Local Municipality, including a blood relationship, may make an offer or offers in terms of this bid invitation. In view of possible allegations of favouritism or bias, should the resulting bid, or part thereof, be awarded to persons employed by State, or to persons who act on behalf of Nkomazi Local Municipality, or to persons connected with or related to them, it is required that the bidder or his authorised representative shall declare any interest of whatever nature and/or relationship (including blood relationship) to any employees, or persons who act on behalf of, or persons connected with or related to Nkomazi Local Municipality.
3. In order to give effect to the above, the following questionnaire must be completed and submitted with the bid:

3.1. Full Name of the bidder or his representative:

3.2. Identify Number:

3.3. Position occupied in the Company (director, trustee shareholder):
.....

3.4. Company Reference Number:

3.5. Tax Reference Number:

3.6. VAT Registration Number:

3.7. The names of all directors/trustees/ shareholders members, their individual identity numbers and state employee numbers must be indicated in paragraph 4 below.

3.8. Are you presently in the service of the state?

YES/NO

3.8.1 If yes, furnish particulars:
.....

❖ MSCM Regulations: "in the service of the state" means to be-

(a) A member of-

- (i) Any municipal council
- (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

❖ Shareholder means a person who owns shares in the company and is actively involved in the management of the company or business and exercises control over the company.

3.9. Have you been in the service of the state for the past twelve months?

YES/NO

If yes, furnish particulars:

.....

3.10. Do you, have any relationship (family, friend, other) with a person employed by state/Nkomazi Local municipality, who may be involved in the evaluation and adjudication of this bid?

*YES / NO

3.10.1 If yes, furnish particulars:

.....

.....

3.11. Are you, aware of any relationship (family, friend, other) between the bidder and any person employed by state/Nkomazi Local Municipality, who may be involved in the evaluation and adjudication of this bid?

*YES / NO

3.11.1 If yes, furnish particulars:

.....

.....

3.12. Are any of the company's directors, trustees, managers, principle shareholders or stakeholders in the service of state?

YES/NO

3.12.1 If yes, furnish particulars.

.....

.....

3.13. Are any spouses, child or parent of the company's directors trustees, managers, principle shareholders or stakeholders in service of state?

YES/NO

13.13.1 If yes, furnish particulars.

.....

.....

13.14 Do you or any of the directors, trustees, managers, principle shareholders, or stakeholders of this company have any interest in any other related companies or business whether or not they are bidding for this contract.

13.14.1 If yes, furnish particulars.

YES/NO

.....

.....

4. Full details of directors. Trustees/ members/ shareholders.

Full Name	Position filled in the “ State”	ID number	State number	employee

.....
Signature

.....
Bid Number

.....
Date

.....
Capacity

.....
Name of the Company

PREFERENCE CERTIFICATE**T5****NOTE:**

BEFORE COMPLETING THIS CERTIFICATE, BIDDER(S) MUST STUDY THE STANDARD TERMS AND CONDITIONS OF BID AS WELL AS THE CONDITIONS CONTAINED IN THIS CERTIFICATE.

General conditions:

1. A fixed 80/20-point preference system will apply to all tenders/bids.
2. Nkomazi Local Municipality may require any bidder to provide reasonable proof of any preference claimed.
3. In the event that Nkomazi Local Municipality detects that any information provided, is incorrect or has been provided fraudulently or is in any way unsubstantiated, Nkomazi Local Municipality may declare that bid noncompliant.
4. Nkomazi Local Municipality reserves the right to take appropriate further action against any party involved or implicated in any fraudulent action involving the provision of any fraudulent or unsubstantiated information.
5. A bidder must not be awarded the points claimed for BBBEE status level of contribution if it is indicated in the bid documents that such a bidder intends sub-contracting more than 25% of the contract value to any other enterprise that does not qualify for at least the same number of points that the bidder qualifies for, unless the intended subcontractor is an EME that has the capability and ability to execute the sub-contract
6. A contractor is not allowed to sub-contract more than 25% of the contract value to another enterprise that does not have equal or higher BBBEE status level, unless the intended sub-contractor is an EME that has the capability and ability to execute the sub-contract
7. In relation to a designated sector, a contractor must not be allowed to sub-contract in such a manner that the local production and content of the overall value of the contract is reduced to below the stipulated minimum threshold **General definitions:**

“Consortium or Joint Venture” means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a bid;

“Control” the position and exercise of legal authority and power to manage the assets, goodwill and daily operations of a business and the active and continuous exercise of appropriate managerial authority and power in determining the policies and directing the operations of the business;

“Management” in relation to an enterprise or business, means an activity inclusive of control and performed on a daily basis, by any person who is a principal executive officer of the enterprise or business, by whatever name the person may be designated;

“Owned” the act of owning which has all the customary elements of ownership, including the right of decision-making and sharing all the risks and profits commensurate with the degree of ownership

interest as demonstrated by an examination of the substance, rather than the form of ownership arrangements;

“Small, Medium and Micro Enterprises (SMME’s)” bears the same meaning as assigned to this expression in the Small Business Act 102 of 1996;

“Trust” means the arrangement through which the property of one person is made over or bequeathed to a trustee to administer such property for the benefit of another person;

“Trustee” means any person, including the founder of a trust, to whom property is bequeathed in order for such property to be administered for the benefit of another;

“ACT” means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000)

“All applicable taxes” includes value-added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies,

“BBBEE” means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black economic empowerment Act,

“Broad-Based Black economic empowerment Act” means the Broad-Based Black economic Empowerment Act, 2003 (Act No. 53 of 2003)

“Comparative Price” means the price after the factors of a non-firm price and all unconditional discounts that can be utilized have been taken into consideration,

“Contract” means the agreement that results from the acceptance of a tender by an organ of state,

“Firm Price” means the price that is only subject to adjustments in accordance with the actual increase or decrease resulting from the change, imposition, or abolition of customs or excise duty and any other duty, levy, or tax, which, in terms of the law or regulation, is binding on the contractor and demonstrably has an influence on the price of any supplies, or the rendering costs of any service, for the execution of the contract,

“Designated Sector” means a sector, sub-sector or industry that has been designated by the Department of Trade and Industry in line with national development and industrial policies for local production, where only locally produced services, works or goods or locally manufactured goods meet the stipulated threshold for local production and content, **“Functionality”** means the measurement according to predetermined norms, as set out in the tender documents, of a service or commodity that is designed to be practical and useful, working or operating, taking into account, among other factors, the quality, reliability, viability and durability of a service and the technical capacity and ability of a tenderer,

“Important content” means that portion of the tender price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or its subcontractors) and which costs are inclusive of the costs abroad, plus freight and other direct importation cost, such as landing cost, dock dues, import duty, sales duty or other similar tax or duty at the South African port of entry,

“Local Content” means that portion of the tender price which is not included in the imported content, provided that local manufacture does take place,

“Non-firm prices” means all prices other than “firm” prices,

“Person” includes a juristic person,

“Stipulated minimum threshold” means that portion of local production and contents as determined by the Department of Trade and Industry;

“Rand Value” means the local total estimated value of a contract in South African currency, calculated at the time of tender invitations, and includes all applicable taxes and excise duties,

“Sub-Contract” means the primary contractors assigning, leasing making out work to, or employing, another person to support such primary contractor in the execution of part of a project in terms of the contract,

“Tender” means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of services, works or goods, through price quotations, advertised competitive tendering or proposals.

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

MBD 6.1

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

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

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

1. GENERAL CONDITIONS

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 not exceed R50 000 000 (all applicable taxes included) and therefore the 80/20 preference point system shall be applicable; or
- b) Either the 80/20 or 90/10 preference point system will be applicable to this tender (*delete whichever is not applicable for this tender*).

1.3 Points for this bid shall be awarded for:

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

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

DESCRIPTION	POINTS
PRICE	
B-BBEE STATUS LEVEL OF CONTRIBUTOR	
Total points for Price and B-BBEE must not exceed	100

1.5 Failure on the part of a bidder to submit proof of B-BBEE Status level of contributor together with the bid, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

- 1.6 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

- (a) **“B-BBEE”** means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;
- (b) **“B-BBEE status level of contributor”** means the B-BBEE status of an entity in terms of a code of good practice on black economic empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;
- (c) **“bid”** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of goods or services, through price quotations, advertised competitive bidding processes or proposals;
- (d) **“Broad-Based Black Economic Empowerment Act”** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);
- (e) **“EME”** means an Exempted Micro Enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;
- (f) **“functionality”** means the ability of a tenderer to provide goods or services in accordance with specifications as set out in the tender documents.
- (g) **“prices”** includes all applicable taxes less all unconditional discounts;
- (h) **“proof of B-BBEE status level of contributor”** means:
 - 1.B-BBEE Status level certificate issued by an authorized body or person;
 - 2.A sworn affidavit as prescribed by the B-BBEE Codes of Good Practice;
 - 3.Any other requirement prescribed in terms of the B-BBEE Act;
- (i) **“QSE”** means a qualifying small business enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;
- (j) **“rand value”** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;

3. POINTS AWARDED FOR PRICE

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

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

80/20

or

90/10

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

Where

P_s = Points scored for price of bid under consideration

P_t = Price of bid under consideration

$P_{\min}$ = Price of lowest acceptable bid

4. POINTS AWARDED FOR B-BBEE STATUS LEVEL OF CONTRIBUTOR

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

B-BBEE Status Level of Contributor	Number of points (90/10 system)	Number of points (80/20 system)
1	10	20
2	9	18
3	6	14
4	5	12
5	4	8
6	3	6
7	2	4
8	1	2
Non-compliant contributor	0	0

5. BID DECLARATION

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

6. B-BBEE STATUS LEVEL OF CONTRIBUTOR CLAIMED IN TERMS OF PARAGRAPHS 1.4 AND 4.1

- 6.1 B-BBEE Status Level of Contributor: . =(maximum of 10 or 20 points)

(Points claimed in respect of paragraph 7.1 must be in accordance with the table reflected in paragraph 4.1 and must be substantiated by relevant proof of B-BBEE status level of contributor.

7. SUB-CONTRACTING

7.1 Will any portion of the contract be sub-contracted?

(Tick applicable box)

YES		NO	
-----	--	----	--

7.1.1 If yes, indicate:

- i) What percentage of the contract will be subcontracted.....?.....%
- ii) The name of the sub-contractor.....
- iii) The B-BBEE status level of the sub-contractor.....
- iv) Whether the sub-contractor is an EME or QSE

(Tick applicable box)

YES		NO	
-----	--	----	--

- v) Specify, by ticking the appropriate box, if subcontracting with an enterprise in terms of Preferential Procurement Regulations,2017:

Designated Group: An EME or QSE which is at last 51% owned by:	EME √	QSE √
Black people		
Black people who are youth		
Black people who are women		
Black people with disabilities		
Black people living in rural or underdeveloped areas or townships		
Cooperative owned by black people		
Black people who are military veterans		
OR		
Any EME		
Any QSE		

8. DECLARATION WITH REGARD TO COMPANY/FIRM

8.1 Name of company/firm:.....

8.2 VAT registration number:.....

8.3 Company registration number:.....

8.4 TYPE OF COMPANY/ FIRM

- ☐ Partnership/Joint Venture / Consortium
☐ One person business/sole propriety
☐ Close corporation
☐ Company
☐ (Pty) Limited
 [TICK APPLICABLE BOX]

8.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

.....

.....

8.6 COMPANY CLASSIFICATION

- ☐ Manufacturer
☐ Supplier
☐ Professional service provider
☐ Other service providers, e.g. transporter, etc.
 [TICK APPLICABLE BOX]

8.7 MUNICIPAL INFORMATION

Municipality where business is situated:**Registered Account Number:****Stand Number:**.....

8.8 Total number of years the company/firm has been in business:.....

8.9 I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BBE status level of contributor indicated in paragraphs 1.4 and 6.1 of the foregoing certificates, qualifies the company/ firm for the preference(s) shown and I / we acknowledge that:

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 6.1, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;

iv) If the B-BBEE status level of contributor has been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have –

- (a) disqualify the person from the bidding process;
- (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
- (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
- (d) recommend that the bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted by the National Treasury from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and
- (e) forward the matter for criminal prosecution.

WITNESSES

1.....

2.....

.....
SIGNATURE(S) OF BIDDERS(S)

DATE:.....

ADDRESS

.....

.....

MBD 6.2**DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND
CONTENT FOR DESIGNATED SECTORS**

This Municipal Bidding Document (MBD) must form part of all bids invited. It contains general information and serves as a declaration form for local content (local production and local content are used interchangeably).

Before completing this declaration, bidders must study the General Conditions, Definitions, Directives applicable in respect of Local Content as prescribed in the Preferential Procurement Regulations, 2017, the South African Bureau of Standards (SABS) approved technical specification number SATS 1286:2011 (Edition 1) and the Guidance on the Calculation of Local Content together with the Local Content Declaration Templates [Annex C (Local Content Declaration: Summary Schedule), D (Imported Content Declaration: Supporting Schedule to Annex C) and E (Local Content Declaration: Supporting Schedule to Annex C)].

1. General Conditions

1.1. Preferential Procurement Regulations, 2017 (Regulation 8) make provision for the promotion of local production and content.

1.2. Regulation 8. (2) prescribes that in the case of designated sectors, organs of state must advertise such tenders with the specific bidding condition that only locally produced or manufactured goods, with a stipulated minimum threshold for local production and content will be considered.

1.3. Where necessary, for tenders referred to in paragraph 1.2 above, a two-stage bidding process may be followed, where the first stage involves a minimum threshold for local production and content and the second stage price and B-BBEE.

1.4. A person awarded a contract in relation to a designated sector, may not sub-contract in such a manner that the local production and content of the overall value of the contract is reduced to below the stipulated minimum threshold.

1.5. The local content (LC) expressed as a percentage of the bid price must be calculated in accordance with the SABS approved technical specification number SATS 1286: 2011 as follows:

$$LC = [1 - x / y] * 100$$

Where x is the
imported content in Rand
 y is the bid price in Rand excluding value added tax (VAT)

Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by South African Reserve Bank (SARB) on the date of advertisement of the bid as indicated in paragraph 3.1 below.

The SABS approved technical specification number SATS 1286:2011 is accessible on [http://www.thedti.gov.za/industrial development/ip.jsp](http://www.thedti.gov.za/industrial%20development/ip.jsp) at no cost.

1.6. A bid may be disqualified if this Declaration Certificate and the Annex C (Local Content Declaration: Summary Schedule) are not submitted as part of the bid documentation;

2. The stipulated minimum threshold(s) for local production and content (refer to Annex A of SATS 1286:2011) for this bid is/are as follows:

<u>Description of services, works or goods</u>	<u>Stipulated minimum threshold</u>
Electrical and Telecom Cables	90 %
Valves	70 %
Residential Electricity and Water Meters	70 %
Pumps & Medium Voltage Motors	70 %

3. Does any portion of the goods or services offered have any imported content?
(**Tick applicable box**)

YES		NO	
-----	--	----	--

3.1. If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.5 of the general conditions must be the rate(s) published by SARB for the specific currency on the date of advertisement of the bid.

The relevant rates of exchange information is accessible on www.resbank.co.za

Indicate the rate(s) of exchange against the appropriate currency in the table below (refer to Annex A of SATS 1286:2011):

Currency	Rates of exchange
US Dollar	
Pound Sterling	
Euro	
Yen	
Other	

NB: Bidders must submit proof of the SARB rate (s) of exchange used.

4. Where, after the award of a bid, challenges are experienced in meeting the stipulated minimum threshold for local content the dti must be informed accordingly in order for the dti to verify and in consultation with the AO/AA provide directives in this regard.

LOCAL CONTENT DECLARATION
(REFER TO ANNEX B OF SATS 1286:2011)

LOCAL CONTENT DECLARATION BY CHIEF FINANCIAL OFFICER OR OTHER LEGALLY RESPONSIBLE PERSON NOMINATED IN WRITING BY THE CHIEF EXECUTIVE OR SENIOR MEMBER/PERSON WITH MANAGEMENT RESPONSIBILITY (CLOSE CORPORATION, PARTNERSHIP OR INDIVIDUAL)

IN RESPECT OF BID NO.

ISSUED BY: (Procurement Authority / Name of Institution):

NB

- 1 The obligation to complete, duly sign and submit this declaration cannot be transferred to an external authorized representative, auditor or any other third party acting on behalf of the bidder.
- 2 Guidance on the Calculation of Local Content together with Local Content Declaration Templates (Annex C, D and E) is accessible on http://www.thedti.gov.za/industrial_development/ip.jsp. Bidders should first complete Declaration D. After completing Declaration D, bidders should complete Declaration E and then consolidate the information on Declaration C. **Declaration C should be submitted with the bid documentation at the closing date and time of the bid in order to substantiate the declaration made in paragraph (c) below.** Declarations D and E should be kept by the bidders for verification purposes for a period of at least 5 years. The successful bidder is required to continuously update Declarations C, D and E with the actual values for the duration of the contract.

I, the undersigned, (full names),
 do hereby declare, in my capacity as
 of(name of bidder entity), the
 following:

- (a) The facts contained herein are within my own personal knowledge.
- (b) I have satisfied myself that:
 - (i) the goods/services/works to be delivered in terms of the above-specified bid comply with the minimum local content requirements as specified in the bid, and as measured in terms of SATS 1286:2011; and
- (c) The local content percentage (%) indicated below has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 3.1 above and the information contained in Declaration D and E which has been consolidated in Declaration C:

Bid price, excluding VAT (y)	R
Imported content (x), as calculated in terms of SATS 1286:2011	R
Stipulated minimum threshold for local content (paragraph 3 above)	
Local content %, as calculated in terms of SATS 1286:2011	

If the bid is for more than one product, the local content percentages for each product contained in Declaration C shall be used instead of the table above.

The local content percentages for each product has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 3.1 above and the information contained in Declaration D and E.

- (d) I accept that the Procurement Authority / Institution has the right to request that the local content be verified in terms of the requirements of SATS 1286:2011.
- (e) I understand that the awarding of the bid is dependent on the accuracy of the information furnished in this application. I also understand that the submission of incorrect data, or data that are not verifiable as described in SATS 1286:2011, may result in the Procurement Authority / Institution imposing any or all of the remedies as provided for in Regulation 14 of the Preferential Procurement Regulations, 2017 promulgated under the Preferential Policy Framework Act (PPFA), 2000 (Act No. 5 of 2000).

SIGNATURE: _____

WITNESS No. 1 _____

DATE: _____

WITNESS No. 2 _____

DATE: _____

Note: VAT to be excluded from all calculations

(C1)	Tender No.
(C2)	Tender description:
(C3)	Designated product(s)
(C4)	Tender Authority:
(C5)	Tendering Entity name:
(C6)	Tender Exchange Rate:
(C7)	Specified local content %

Pula EU GBP

Calculation of local content

[illegible]

Tender summary

[illegible]

(C20) Total tender value	R 0
--------------------------	-----

(C21) Total Exempt imported content	R 0
-------------------------------------	-----

(C22) Total Tender value net of exempt imported content	R 0
---	-----

(C23) Total Imported content	R 0
------------------------------	-----

(C24) Total local content	R 0
---------------------------	-----

(C25) Average local content % of tender	
---	--

Signature of tenderer from Annex B

Date: _____

Annex D

Imported Content Declaration - Supporting Schedule to Annex C

(D1) Tender No. _____

(D2) Tender description: _____

(D3) Designated Products: _____

(D4) Tender Authority: _____

(D5) Tendering Entity name: _____

(D6) Tender Exchange Rate: _____ Pula _____

Note: VAT to be excluded
from all calculations

EU R 9.00

GBP R 12.00

A. Exempted imported content

Calculation of imported content										Summary	
Tender item no's	Description of imported content	Local supplier	Overseas Supplier	Foreign currency value as per Commercial Invoice	Tender Exchange Rate	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost exd VAT	Tender Qty	Exempted imported value
(D7)	(D8)	(D9)	(D10)	(D11)	(D12)	(D13)	(D14)	(D15)	(D16)	(D17)	(D18)

(D19) Total exempt imported value R 0

This total must correspond with
Annex C - C 21

B. Imported directly by the Tenderer

Calculation of imported content										Summary	
Tender item no's	Description of imported content	Unit of measure	Overseas Supplier	Foreign currency value as per Commercial Invoice	Tender Rate of Exchange	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost exd VAT	Tender Qty	Total imported value
(D20)	(D21)	(D22)	(D23)	(D24)	(D25)	(D26)	(D27)	(D28)	(D29)	(D30)	(D31)

(D32) Total imported value by tenderer R 0

C. Imported by a 3rd party and supplied to the Tenderer

Calculation of imported content										Summary	
Description of imported content	Unit of measure	Local supplier	Overseas Supplier	Foreign currency value as per Commercial Invoice	Tender Rate of Exchange	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost exd VAT	Quantity imported	Total imported value
(D33)	(D34)	(D35)	(D36)	(D37)	(D38)	(D39)	(D40)	(D41)	(D42)	(D43)	(D44)

(D45) Total imported value by 3rd party R 0

D. Other foreign currency payments

Calculation of foreign currency payments				
Type of payment	Local supplier making the payment	Overseas beneficiary	Foreign currency value paid	Tender Rate of Exchange
(D46)	(D47)	(D48)	(D49)	(D50)

(D52) Total of foreign currency payments declared by tenderer and/or 3rd party

Signature of tenderer from Annex B

(D53) Total of imported content & foreign currency payments - (D32), (D45) & (D52) above R 0

Date: _____

This total must correspond with
Annex C - C 23

Annex E

Local Content Declaration - Supporting Schedule to Annex C

(E1)	Tender No.	
(E2)	Tender description:	
(E3)	Designated products:	
(E4)	Tender Authority:	
(E5)	Tendering Entity name:	

Note: VAT to be excluded from all calculations

Local Products (Goods, Services and Works)	Description of items purchased	Local suppliers	Value
	(E6)	(E7)	(E8)
(E9) Total local products (Goods, Services and Works)			R 0

(E10) **Manpower costs** (Tenderer's manpower cost) R 0

(E11) **Factory overheads** (Rental, depreciation & amortisation, utility costs, consumables etc.) R 0

(E12) **Administration overheads and mark-up** (Marketing, insurance, financing, interest etc.) R 0

(E13) Total local content R 0

This total must correspond with Annex C - C24

Signature of tenderer from Annex B

Date: _____

CONTRACT FORM - PURCHASE OF GOODS/WORKS

THIS FORM MUST BE FILLED IN DUPLICATE BY BOTH THE SUCCESSFUL BIDDER (PART 1) AND THE PURCHASER (PART 2). BOTH FORMS MUST BE SIGNED IN THE ORIGINAL SO THAT THE SUCCESSFUL BIDDER AND THE PURCHASER WOULD BE IN POSSESSION OF ORIGINALLY SIGNED CONTRACTS FOR THEIR RESPECTIVE RECORDS.

PART 1 (TO BE FILLED IN BY THE BIDDER)

1. I hereby undertake to supply all or any of the goods and/or works described in the attached bidding documents to (name of institution) in accordance with the requirements and specifications stipulated in bid number..... at the price/s quoted. My offer/s remain binding upon me and open for acceptance by the purchaser during the validity period indicated and calculated from the closing time of bid.
2. The following documents shall be deemed to form and be read and construed as part of this agreement:
 - (i) Bidding documents, viz
 - Invitation to bid;
 - Tax clearance certificate;
 - Pricing schedule(s);
 - Technical Specification(s);
 - Preference claims for Broad Based Black Economic Empowerment Status Level of Contribution in terms of the Preferential Procurement Regulations 2011;
 - Declaration of interest;
 - Declaration of bidder's past SCM practices;
 - Certificate of Independent Bid Determination;
 - Special Conditions of Contract;
 - (ii) General Conditions of Contract; and
 - (iii) Other (specify)
3. I confirm that I have satisfied myself as to the correctness and validity of my bid; that the price(s) and rate(s) quoted cover all the goods and/or works specified in the bidding documents; that the price(s) and rate(s) cover all my obligations and I accept that any mistakes regarding price(s) and rate(s) and calculations will be at my own risk.
4. I accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on me under this agreement as the principal liable for the due fulfillment of this contract.
5. I declare that I have no participation in any collusive practices with any bidder or any other person regarding this or any other bid.

6. I confirm that I am duly authorised to sign this contract.

NAME (PRINT)
CAPACITY
SIGNATURE
NAME OF FIRM
DATE

WITNESSES	
1	
2.	
DATE:	
.....	

CONTRACT FORM - PURCHASE OF GOODS/WORKS**PART 2 (TO BE FILLED IN BY THE PURCHASER)**

1. I..... in my capacity as accept your bid under reference number dated for the supply of goods/works indicated hereunder and/or further specified in the annexure(s).
2. An official order indicating delivery instructions is forthcoming.
3. I undertake to make payment for the goods/works delivered in accordance with the terms and conditions of the contract, within 30 (thirty) days after receipt of an invoice accompanied by the delivery note.

ITEM NO.	PRICE (ALL APPLICABLE TAXES INCLUDED)	.1 BRAND	DELIVERY PERIOD	B-BBEE STATUS OF CONTRIBUTION	MINIMUM THRESHOLD FOR LOCAL PRODUCTION AND CONTENT (if applicable)

4. I confirm that I am duly authorized to sign this contract.

SIGNED ATON.....

NAME (PRINT)

SIGNATURE

OFFICIAL STAMP

WITNESSES

1.

2.

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	<i>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?</i> <u>(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).</u> <u>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.</u>	Yes ☐	No ☐
4.1.1	If so, furnish particulars:		
4.2	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)? 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.	Yes ☐	No ☐
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 ☐	No ☐
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 ☐	No ☐
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 ☐	No ☐
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

.....

Position

.....

Date

.....

Name of Bidder

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 bid-rigging.
- 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

MBD 9

6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium³ will not be construed as collusive bidding.
7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
 - (a) prices;
 - (b) geographical area where product or service will be rendered (market allocation)
 - (c) methods, factors or formulas used to calculate prices;
 - (d) the intention or decision to submit or not to submit, a bid;
 - (e) the submission of a bid which does not meet the specifications and conditions of the bid; or
 - (f) bidding with the intention not to win the bid.
8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.
9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.

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

MBD 9

10. I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

Js9141w

THE NATIONAL TREASURY

Republic of South Africa



GOVERNMENT PROCUREMENT: GENERAL CONDITIONS OF CONTRACT

July 2010

GOVERNMENT PROCUREMENT

GENERAL CONDITIONS OF CONTRACT

July 2010

NOTES

The purpose of this document is to:

- (i) Draw special attention to certain general conditions applicable to government bids, contracts and orders; and
- (ii) To ensure that clients be familiar with regard to the rights and obligations of all parties involved in doing business with government.

In this document words in the singular also mean in the plural and vice versa and words in the masculine also mean in the feminine and neuter.

- The General Conditions of Contract will form part of all bid documents and may not be amended.
- Special Conditions of Contract (SCC) relevant to a specific bid, should be compiled separately for every bid (if applicable) and will supplement the General Conditions of Contract. Whenever there is a conflict, the provisions in the SCC shall prevail.

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General Conditions of Contract

1. Definitions

1. The following terms shall be interpreted as indicated:
 - 1.1 "Closing time" means the date and hour specified in the bidding documents for the receipt of bids.
 - 1.2 "Contract" means the written agreement entered into between the purchaser and the supplier, as recorded in the contract form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.
 - 1.3 "Contract price" means the price payable to the supplier under the contract for the full and proper performance of his contractual obligations.
 - 1.4 "Corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value to influence the action of a public official in the procurement process or in contract execution.
 - 1.5 "Countervailing duties" are imposed in cases where an enterprise abroad is subsidized by its government and encouraged to market its products internationally.
 - 1.6 "Country of origin" means the place where the goods were mined, grown or produced or from which the services are supplied. Goods are produced when, through manufacturing, processing or substantial and major assembly of components, a commercially recognized new product results that is substantially different in basic characteristics or in purpose or utility from its components.
 - 1.7 "Day" means calendar day.
 - 1.8 "Delivery" means delivery in compliance of the conditions of the contract or order.
 - 1.9 "Delivery ex stock" means immediate delivery directly from stock actually on hand.
 - 1.10 "Delivery into consignees store or to his site" means delivered and unloaded in the specified store or depot or on the specified site in compliance with the conditions of the contract or order, the supplier bearing all risks and charges involved until the supplies are so delivered and a valid receipt is obtained.
 - 1.11 "Dumping" occurs when a private enterprise abroad market its goods on own initiative in the RSA at lower prices than that of the country of origin and which have the potential to harm the local industries in the RSA.

- 1.12 "Force majeure" means an event beyond the control of the supplier and not involving the supplier's fault or negligence and not foreseeable. Such events may include, but is not restricted to, acts of the purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.
- 1.13 "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of any bidder, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the bidder of the benefits of free and open competition.
- 1.14 "GCC" means the General Conditions of Contract.
- 1.15 "Goods" means all of the equipment, machinery, and/or other materials that the supplier is required to supply to the purchaser under the contract.
- 1.16 "Imported content" means that portion of the bidding price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or his subcontractors) and which costs are inclusive of the costs abroad, plus freight and other direct importation costs such as landing costs, dock dues, import duty, sales duty or other similar tax or duty at the South African place of entry as well as transportation and handling charges to the factory in the Republic where the supplies covered by the bid will be manufactured.
- 1.17 "Local content" means that portion of the bidding price which is not included in the imported content provided that local manufacture does take place.
- 1.18 "Manufacture" means the production of products in a factory using labour, materials, components and machinery and includes other related value-adding activities.
- 1.19 "Order" means an official written order issued for the supply of goods or works or the rendering of a service.
- 1.20 "Project site," where applicable, means the place indicated in bidding documents.
- 1.21 "Purchaser" means the organization purchasing the goods.
- 1.22 "Republic" means the Republic of South Africa.
- 1.23 "SCC" means the Special Conditions of Contract.
- 1.24 "Services" means those functional services ancillary to the supply of the goods, such as transportation and any other incidental services, such as installation, commissioning, provision of technical assistance, training, catering, gardening, security, maintenance and other such

obligations of the supplier covered under the contract.

- 1.25 "Written" or "in writing" means handwritten in ink or any form of electronic or mechanical writing.

2. Application

- 2.1 These general conditions are applicable to all bids, contracts and orders including bids for functional and professional services, sales, hiring, letting and the granting or acquiring of rights, but excluding immovable property, unless otherwise indicated in the bidding documents.

- 2.2 Where applicable, special conditions of contract are also laid down to cover specific supplies, services or works.

- 2.3 Where such special conditions of contract are in conflict with these general conditions, the special conditions shall apply.

3. General

- 3.1 Unless otherwise indicated in the bidding documents, the purchaser shall not be liable for any expense incurred in the preparation and submission of a bid. Where applicable a non-refundable fee for documents may be charged.

- 3.2 With certain exceptions, invitations to bid are only published in the Government Tender Bulletin. The Government Tender Bulletin may be obtained directly from the Government Printer, Private Bag X85, Pretoria 0001, or accessed electronically from www.treasury.gov.za

4. Standards

- 4.1 The goods supplied shall conform to the standards mentioned in the bidding documents and specifications.

5. Use of contract documents and information; inspection.

- 5.1 The supplier shall not, without the purchaser's prior written consent, disclose the contract, or any provision thereof, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of the purchaser in connection therewith, to any person other than a person employed by the supplier in the performance of the contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.

- 5.2 The supplier shall not, without the purchaser's prior written consent, make use of any document or information mentioned in GCC clause 5.1 except for purposes of performing the contract.

- 5.3 Any document, other than the contract itself mentioned in GCC clause 5.1 shall remain the property of the purchaser and shall be returned (all copies) to the purchaser on completion of the supplier's performance under the contract if so required by the purchaser.

- 5.4 The supplier shall permit the purchaser to inspect the supplier's records relating to the performance of the supplier and to have them audited by auditors appointed by the purchaser, if so required by the purchaser.

6. Patent

- 6.1 The supplier shall indemnify the purchaser against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the goods or any part thereof by the purchaser.

7. Performance security

- 7.1 Within thirty (30) days of receipt of the notification of contract award, the successful bidder shall furnish to the purchaser the performance security of the amount specified in SCC.
- 7.2 The proceeds of the performance security shall be payable to the purchaser as compensation for any loss resulting from the supplier's failure to complete his obligations under the contract.
- 7.3 The performance security shall be denominated in the currency of the contract, or in a freely convertible currency acceptable to the purchaser and shall be in one of the following forms:
 - (a) a bank guarantee or an irrevocable letter of credit issued by a reputable bank located in the purchaser's country or abroad, acceptable to the purchaser, in the form provided in the bidding documents or another form acceptable to the purchaser; or
 - (b) a cashier's or certified cheque
- 7.4 The performance security will be discharged by the purchaser and returned to the supplier not later than thirty (30) days following the date of completion of the supplier's performance obligations under the contract, including any warranty obligations, unless otherwise specified in SCC.

8. Inspections, tests and analyses

- 8.1 All pre-bidding testing will be for the account of the bidder.
- 8.2 If it is a bid condition that supplies to be produced or services to be rendered should at any stage during production or execution or on completion be subject to inspection, the premises of the bidder or contractor shall be open, at all reasonable hours, for inspection by a representative of the Department or an organization acting on behalf of the Department.
- 8.3 If there are no inspection requirements indicated in the bidding documents and no mention is made in the contract, but during the contract period it is decided that inspections shall be carried out, the purchaser shall itself make the necessary arrangements, including payment arrangements with the testing authority concerned.
- 8.4 If the inspections, tests and analyses referred to in clauses 8.2 and 8.3 show the supplies to be in accordance with the contract requirements, the cost of the inspections, tests and analyses shall be defrayed by the purchaser.
- 8.5 Where the supplies or services referred to in clauses 8.2 and 8.3 do not comply with the contract requirements, irrespective of whether such supplies or services are accepted or not, the cost in connection with these inspections, tests or analyses shall be defrayed by the supplier.
- 8.6 Supplies and services which are referred to in clauses 8.2 and 8.3 and
- 8.7 Any contract supplies may on or after delivery be inspected, tested or

analyzed and may be rejected if found not to comply with the requirements of the contract. Such rejected supplies shall be held at the cost and risk of the supplier who shall, when called upon, remove them immediately at his own cost and forthwith substitute them with supplies which do comply with the requirements of the contract. Failing such removal the rejected supplies shall be returned at the suppliers cost and risk. Should the supplier fail to provide the substitute supplies forthwith, the purchaser may, without giving the supplier further opportunity to substitute the rejected supplies, purchase such supplies as may be necessary at the expense of the supplier.

- 8.8 The provisions of clauses 8.4 to 8.7 shall not prejudice the right of the purchaser to cancel the contract on account of a breach of the conditions thereof, or to act in terms of Clause 23 of GCC.

9. Packing

- 9.1 The supplier shall provide such packing of the goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packing, case size and weights shall take into consideration, where appropriate, the remoteness of the goods' final destination and the absence of heavy handling facilities at all points in transit.
- 9.2 The packing, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the contract, including additional requirements, if any, specified in SCC, and in any subsequent instructions ordered by the purchaser.

10. Delivery and documents

- 10.1 Delivery of the goods shall be made by the supplier in accordance with the terms specified in the contract. The details of shipping and/or other documents to be furnished by the supplier are specified in SCC.
- 10.2 Documents to be submitted by the supplier are specified in SCC.

11. Insurance

- 11.1 The goods supplied under the contract shall be fully insured in a freely convertible currency against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner specified in the SCC.

12. Transportation

- 12.1 Should a price other than an all-inclusive delivered price be required, this shall be specified in the SCC.

13. Incidental service

- 13.1 The supplier may be required to provide any or all of the following services, including additional services, if any, specified in SCC:
- (a) performance or supervision of on-site assembly and/or commissioning of the supplied goods;
 - (b) furnishing of tools required for assembly and/or maintenance of the supplied goods;
 - (c) furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied goods;

- (d) performance or supervision or maintenance and/or repair of the supplied goods, for a period of time agreed by the parties, provided that this service shall not relieve the supplier of any warranty obligations under this contract; and
- (e) training of the purchaser's personnel, at the supplier's plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied goods.

13.2 Prices charged by the supplier for incidental services, if not included in the contract price for the goods, shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the supplier for similar services.

14. Spare parts

14.1 As specified in SCC, the supplier may be required to provide any or all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the supplier:

- (a) such spare parts as the purchaser may elect to purchase from the supplier, provided that this election shall not relieve the supplier of any warranty obligations under the contract; and
- (b) in the event of termination of production of the spare parts:
 - (i) Advance notification to the purchaser of the pending termination, in sufficient time to permit the purchaser to procure needed requirements; and
 - (ii) following such termination, furnishing at no cost to the purchaser, the blueprints, drawings, and specifications of the spare parts, if requested.

15. Warranty

15.1 The supplier warrants that the goods supplied under the contract are new, unused, of the most recent or current models, and that they incorporate all recent improvements in design and materials unless provided otherwise in the contract. The supplier further warrants that all goods supplied under this contract shall have no defect, arising from design, materials, or workmanship (except when the design and/or material is required by the purchaser's specifications) or from any act or omission of the supplier, that may develop under normal use of the supplied goods in the conditions prevailing in the country of final destination.

15.2 This warranty shall remain valid for twelve (12) months after the goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the contract, or for eighteen (18) months after the date of shipment from the port or place of loading in the source country, whichever period concludes earlier, unless specified otherwise in SCC.

15.3 The purchaser shall promptly notify the supplier in writing of any claims arising under this warranty.

15.4 Upon receipt of such notice, the supplier shall, within the period specified in SCC and with all reasonable speed, repair or replace the defective goods or parts thereof, without costs to the purchaser.

15.5 If the supplier, having been notified, fails to remedy the defect(s) within the period specified in SCC, the purchaser may proceed to take

such remedial action as may be necessary, at the supplier's risk and expense and without prejudice to any other rights which the purchaser may have against the supplier under the contract.

16. Payment

- 16.1 The method and conditions of payment to be made to the supplier under this contract shall be specified in SCC.
- 16.2 The supplier shall furnish the purchaser with an invoice accompanied by a copy of the delivery note and upon fulfillment of other obligations stipulated in the contract.
- 16.3 Payments shall be made promptly by the purchaser, but in no case later than thirty (30) days after submission of an invoice or claim by the supplier.
- 16.4 Payment will be made in Rand unless otherwise stipulated in SCC.

17. Prices

- 17.1 Prices charged by the supplier for goods delivered and services performed under the contract shall not vary from the prices quoted by the supplier in his bid, with the exception of any price adjustments authorized in SCC or in the purchaser's request for bid validity extension, as the case may be.

18. Contract amendments

- 18.1 No variation in or modification of the terms of the contract shall be made except by written amendment signed by the parties concerned.

19. Assignment

- 19.1 The supplier shall not assign, in whole or in part, its obligations to perform under the contract, except with the purchaser's prior written consent.

20. Subcontracts

- 20.1 The supplier shall notify the purchaser in writing of all subcontracts awarded under this contracts if not already specified in the bid. Such notification, in the original bid or later, shall not relieve the supplier from any liability or obligation under the contract.

21. Delays in the supplier's performance

- 21.1 Delivery of the goods and performance of services shall be made by the supplier in accordance with the time schedule prescribed by the purchaser in the contract.
- 21.2 If at any time during performance of the contract, the supplier or its subcontractor(s) should encounter conditions impeding timely delivery of the goods and performance of services, the supplier shall promptly notify the purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the supplier's notice, the purchaser shall evaluate the situation and may at his discretion extend the supplier's time for performance, with or without the imposition of penalties, in which case the extension shall be ratified by the parties by amendment of contract.
- 21.3 No provision in a contract shall be deemed to prohibit the obtaining of supplies or services from a national department, provincial department, or a local authority.
- 21.4 The right is reserved to procure outside of the contract small quantities or to have minor essential services executed if an emergency arises,

supplier's point of supply is not situated at or near the place where the supplies are required, or the supplier's services are not readily available.

21.5 Except as provided under GCC Clause 25, a delay by the supplier in the performance of its delivery obligations shall render the supplier liable to the imposition of penalties, pursuant to GCC Clause 22, unless an extension of time is agreed upon pursuant to GCC Clause 21.2 without the application of penalties.

21.6 Upon any delay beyond the delivery period in the case of a supplies contract, the purchaser shall, without cancelling the contract, be entitled to purchase supplies of a similar quality and up to the same quantity in substitution of the goods not supplied in conformity with the contract and to return any goods delivered later at the supplier's expense and risk, or to cancel the contract and buy such goods as may be required to complete the contract and without prejudice to his other rights, be entitled to claim damages from the supplier.

22. Penalties

22.1 Subject to GCC Clause 25, if the supplier fails to deliver any or all of the goods or to perform the services within the period(s) specified in the contract, the purchaser shall, without prejudice to its other remedies under the contract, deduct from the contract price, as a penalty, a sum calculated on the delivered price of the delayed goods or unperformed services using the current prime interest rate calculated for each day of the delay until actual delivery or performance. The purchaser may also consider termination of the contract pursuant to GCC Clause 23.

23. Termination for default

23.1 The purchaser, without prejudice to any other remedy for breach of contract, by written notice of default sent to the supplier, may terminate this contract in whole or in part:

- (a) if the supplier fails to deliver any or all of the goods within the period(s) specified in the contract, or within any extension thereof granted by the purchaser pursuant to GCC Clause 21.2;
- (b) if the Supplier fails to perform any other obligation(s) under the contract; or
- (c) if the supplier, in the judgment of the purchaser, has engaged in corrupt or fraudulent practices in competing for or in executing the contract.

23.2 In the event the purchaser terminates the contract in whole or in part, the purchaser may procure, upon such terms and in such manner as it deems appropriate, goods, works or services similar to those undelivered, and the supplier shall be liable to the purchaser for any excess costs for such similar goods, works or services. However, the supplier shall continue performance of the contract to the extent not terminated.

23.3 Where the purchaser terminates the contract in whole or in part, the purchaser may decide to impose a restriction penalty on the supplier by prohibiting such supplier from doing business with the public sector for a period not exceeding 10 years.

23.4 If a purchaser intends imposing a restriction on a supplier or any

person associated with the supplier, the supplier will be allowed a time period of not more than fourteen (14) days to provide reasons why the envisaged restriction should not be imposed. Should the supplier fail to respond within the stipulated fourteen (14) days the purchaser may regard the intended penalty as not objected against and may impose it on the supplier.

23.5 Any restriction imposed on any person by the Accounting Officer / Authority will, at the discretion of the Accounting Officer / Authority, also be applicable to any other enterprise or any partner, manager, director or other person who wholly or partly exercises or exercised or may exercise control over the enterprise of the first-mentioned person, and with which enterprise or person the first-mentioned person, is or was in the opinion of the Accounting Officer / Authority actively associated.

23.6 If a restriction is imposed, the purchaser must, within five (5) working days of such imposition, furnish the National Treasury, with the following information:

- (i) the name and address of the supplier and / or person restricted by the purchaser;
- (ii) the date of commencement of the restriction
- (iii) the period of restriction; and
- (iv) the reasons for the restriction.

These details will be loaded in the National Treasury's central database of suppliers or persons prohibited from doing business with the public sector.

23.7 If a court of law convicts a person of an offence as contemplated in sections 12 or 13 of the Prevention and Combating of Corrupt Activities Act, No. 12 of 2004, the court may also rule that such person's name be endorsed on the Register for Tender Defaulters. When a person's name has been endorsed on the Register, the person will be prohibited from doing business with the public sector for a period not less than five years and not more than 10 years. The National Treasury is empowered to determine the period of restriction and each case will be dealt with on its own merits. According to section 32 of the Act the Register must be open to the public. The Register can be perused on the National Treasury website.

24. Anti-dumping and countervailing duties and rights

24.1 When, after the date of bid, provisional payments are required, or anti-dumping or countervailing duties are imposed, or the amount of a provisional payment or anti-dumping or countervailing right is increased in respect of any dumped or subsidized import, the State is not liable for any amount so required or imposed, or for the amount of any such increase. When, after the said date, such a provisional payment is no longer required or any such anti-dumping or countervailing right is abolished, or where the amount of such provisional payment or any such right is reduced, any such favourable difference shall on demand be paid forthwith by the contractor to the State or the State may deduct such amounts from moneys (if any) which may otherwise be due to the contractor in regard to supplies or services which he delivered or rendered, or is to deliver or render in terms of the contract or any other contract or any other amount which

may be due to him

25. Force Majeure

- 25.1 Notwithstanding the provisions of GCC Clauses 22 and 23, the supplier shall not be liable for forfeiture of its performance security, damages, or termination for default if and to the extent that his delay in performance or other failure to perform his obligations under the contract is the result of an event of force majeure.
- 25.2 If a force majeure situation arises, the supplier shall promptly notify the purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the purchaser in writing, the supplier shall continue to perform its obligations under the contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the force majeure event.

26. Termination for insolvency

- 26.1 The purchaser may at any time terminate the contract by giving written notice to the supplier if the supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the supplier, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the purchaser.

27. Settlement of Disputes

- 27.1 If any dispute or difference of any kind whatsoever arises between the purchaser and the supplier in connection with or arising out of the contract, the parties shall make every effort to resolve amicably such dispute or difference by mutual consultation.
- 27.2 If, after thirty (30) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the purchaser or the supplier may give notice to the other party of his intention to commence with mediation. No mediation in respect of this matter may be commenced unless such notice is given to the other party.
- 27.3 Should it not be possible to settle a dispute by means of mediation, it may be settled in a South African court of law.
- 27.4 Mediation proceedings shall be conducted in accordance with the rules of procedure specified in the SCC.
- 27.5 Notwithstanding any reference to mediation and/or court proceedings herein,
- (a) the parties shall continue to perform their respective obligations under the contract unless they otherwise agree; and
 - (b) the purchaser shall pay the supplier any monies due the supplier.

28. Limitation of liability

- 28.1 Except in cases of criminal negligence or willful misconduct, and in the case of infringement pursuant to Clause 6;
- (a) the supplier shall not be liable to the purchaser, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the supplier to pay penalties and/or damages to the purchaser; and

		(b) the aggregate liability of the supplier to the purchaser, whether under the contract, in tort or otherwise, shall not exceed the total contract price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment.
29. Governing language	29.1	The contract shall be written in English. All correspondence and other documents pertaining to the contract that is exchanged by the parties shall also be written in English.
30. Applicable law	30.1	The contract shall be interpreted in accordance with South African laws, unless otherwise specified in SCC.
31. Notices	31.1	Every written acceptance of a bid shall be posted to the supplier concerned by registered or certified mail and any other notice to him shall be posted by ordinary mail to the address furnished in his bid or to the address notified later by him in writing and such posting shall be deemed to be proper service of such notice
	31.2	The time mentioned in the contract documents for performing any act after such aforesaid notice has been given, shall be reckoned from the date of posting of such notice.
32. Taxes and duties	32.1	A foreign supplier shall be entirely responsible for all taxes, stamp duties, license fees, and other such levies imposed outside the purchaser's country.
	32.2	A local supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted goods to the purchaser.
	32.3	No contract shall be concluded with any bidder whose tax matters are not in order. Prior to the award of a bid the Department must be in possession of a tax clearance certificate, submitted by the bidder. This certificate must be an original issued by the South African Revenue Services.
33. National Industrial Participation (NIP) Programme	33.1	The NIP Programme administered by the Department of Trade and Industry shall be applicable to all contracts that are subject to the NIP obligation.
34 Prohibition of Restrictive	34.1	In terms of section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, an agreement between, or concerted practice by, firms, or a decision by an association of firms, is prohibited if it is between parties in a horizontal relationship and if a bidder (s) is / are or a contractor(s) was / were involved in collusive bidding (or bid rigging).
	34.2	If a bidder(s) or contractor(s), based on reasonable grounds or evidence obtained by the purchaser, has / have engaged in the restrictive practice referred to above, the purchaser may refer the matter to the Competition Commission for investigation and possible imposition of administrative penalties as contemplated in the Competition Act No. 89 of 1998.

- 34.3 If a bidder(s) or contractor(s), has / have been found guilty by the Competition Commission of the restrictive practice referred to above, the purchaser may, in addition and without prejudice to any other remedy provided for, invalidate the bid(s) for such item(s) offered, and / or terminate the contract in whole or part, and / or restrict the bidder(s) or contractor(s) from conducting business with the public sector for a period not exceeding ten (10) years and / or claim damages from the bidder(s) or contractor(s) concerned.

Js General Conditions of Contract (revised July 2010)

NKOMAZI MUNICIPALITY

CONTRACT NO: NKO 61/2022

FOR

**EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND
PACKAGE PLANT**

THE CONTRACT

NKOMAZI MUNICIPALITY

CONTRACT NO: NKO 61/2022

FOR

**EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND
PACKAGE PLANT**

PART C1 AGREEMENT AND CONTRACT DATA

PART C2 PRICING DATA

PART C3 SCOPE OF WORKS

PART C4 SITE INFORMATION

NKOMAZI MUNICIPALITY

CONTRACT NO: NKO 61/2022

FOR

**EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND
PACKAGE PLANT**

PART C1 AGREEMENT AND CONTRACT DATA

NKOMAZI MUNICIPALITY

CONTRACT NO: NKO 61/2022

FOR

**EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND
PACKAGE PLANT**

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C1.2 CONTRACT DATA.....	C1.2-1 to C1.2-6
C1.3 PERFORMANCE GUARANTEE	C1.3-1 to C1.3-3
C1.4 AGREEMENT IN TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO 85 OF 1993).....	C1.4-1 to C1.4-4
C1.5 CERTIFICATE OF AUTHORITY FOR SIGNATORY TO AGREEMENT IN TERMS OF OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO 85 OF 1993).....	C1.5-1 to C1.5-2

NKOMAZI MUNICIPALITY

CONTRACT NO: NKO 61/2022

FOR

**EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND
PACKAGE PLANT**

C1.1 FORM OF OFFER AND ACCEPTANCE

FORM OF OFFER AND ACCEPTANCE**(AGREEMENT)****OFFER**

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

(Name and address of Tenderer)

Name and
signature of
witness

Date

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 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 C1 to C4 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. 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 working days of the date of such receipt notifies the Employer in writing of any reason why he cannot accept the contents of this Agreement, this Agreement shall constitute a binding contract between the parties.

Signature(s)

Name(s)

Capacity

(Name and address of Employer)

Name and
signature of
witness

_____ Date _____

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 Tenderer)

Name and
signature of
witness

_____ Date _____

FOR THE EMPLOYER:

Signature(s)

Name(s)

Capacity

(Name and address of Employer)

Name and
signature of
witness

_____ Date _____

NKOMAZI MUNICIPALITY

CONTRACT NO: NKO 61/2022

FOR

**EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND
PACKAGE PLANT**

C1.2 CONTRACT DATA

CONTRACT DATA**CONDITIONS OF CONTRACT****PART 1: DATA PROVIDED BY THE EMPLOYER****CONDITIONS OF CONTRACT**

The General Conditions of Contract for Construction Works, Third Edition, 2015, published by the South African Institution of Civil Engineering, Private Bag X200, Halfway House, 1685, is applicable to this contract and is obtainable from www.saice.org.za.

CONTRACT SPECIFIC DATA

The following contract specific data, referring to the General Conditions of Contract for Construction Works, Third Edition, 2015, are applicable to this Contract.

PART 1: DATA PROVIDED BY THE EMPLOYER

The following contract specific data are applicable to this Contract:

Clause	Description														
1.1.1.13	The Defects Liability Period is 12 months														
1.1.1.15	The Employer is the Nkomazi Municipality .														
1.1.1.16	The Employer's Agent is Mr L Fourie (Pr Eng), also referred to in the Contract as "TFC Engineers".														
1.1.1.26	The pricing strategy: Re-Measurement Contract														
1.2.1.2	The address of the Employer is: <table> <tr> <td>Physical address:</td><td>Postal address:</td></tr> <tr> <td>9 Park Street</td><td>Private Bag X101</td></tr> <tr> <td>Malelane</td><td>Malelane</td></tr> <tr> <td>1320</td><td>1320</td></tr> <tr> <td>Telephone: 013-790 0245</td><td></td></tr> <tr> <td>Fax: 013-790 0886</td><td></td></tr> <tr> <td>E-mail:</td><td></td></tr> </table>	Physical address:	Postal address:	9 Park Street	Private Bag X101	Malelane	Malelane	1320	1320	Telephone: 013-790 0245		Fax: 013-790 0886		E-mail:	
Physical address:	Postal address:														
9 Park Street	Private Bag X101														
Malelane	Malelane														
1320	1320														
Telephone: 013-790 0245															
Fax: 013-790 0886															
E-mail:															
1.2.1.2	The address of the Employer's Agent is: <table> <tr> <td>Physical address:</td><td>Postal address:</td></tr> <tr> <td>46 Murray Street</td><td>PO Box 15110</td></tr> <tr> <td>Nelspruit</td><td>Nelspruit</td></tr> <tr> <td>1200</td><td>1211</td></tr> <tr> <td>Telephone: 013 752 7475</td><td></td></tr> <tr> <td>E-mail: info@tfce.co.za</td><td></td></tr> </table>	Physical address:	Postal address:	46 Murray Street	PO Box 15110	Nelspruit	Nelspruit	1200	1211	Telephone: 013 752 7475		E-mail: info@tfce.co.za			
Physical address:	Postal address:														
46 Murray Street	PO Box 15110														
Nelspruit	Nelspruit														
1200	1211														
Telephone: 013 752 7475															
E-mail: info@tfce.co.za															
2.4	Variations to the Conditions of Contract are: Add the following at the end of sub clause 2.4.1: " The several documents forming the Contract shall rank in the following order of precedence:														

Clause	Description
	1. Contract Agreement, 2. Form of Offer and Acceptance, 3. Contract Data, 4. Specification Data, 5. Standardized Specifications, 6. Drawings, 7. Bill of Quantities, 8. Statutory Regulations, 9. Other standard specifications. If the contents of any part of the documents contradict any other part, the document in the highest position on the above order of precedence shall have preference and apply."
4.3	Add the following at the end of sub clause 4.3: "4.3.3 The Employer and the Contractor hereby agree, in terms of the provisions of Section 37(2) of the Occupational Health and Safety Amendment Act, 1993 (Act 85 of 1993), hereinafter referred to as 'the Act', that the following arrangements and procedures shall apply between them to ensure compliance by the Contractor with the provisions of the Act: (i) The Contractor undertakes to acquaint the appropriate officials and employees of the Contractor with all relevant provisions of the Act and the Regulations promulgated in terms of the Act. (ii) The Contractor undertakes that all relevant duties, obligations and prohibitions imposed in terms of the Act and Regulations on the Contractor will be fully complied with. (iii) The Contractor 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 from himself being obliged to comply with any of the aforesaid duties, obligations and prohibitions, with the exception of such duties, obligations and prohibitions expressly assigned to the Employer in terms of the Act and its associated Regulations. (iv) The Contractor agrees that any duly authorized officials of the Employer shall be entitled, although not obliged, to take such steps as may be necessary to monitor that the Contractor has conformed to his undertakings as described in paragraphs (i) and (ii) above, which steps may include, but will not be limited to, the right to inspect any appropriate site or premises occupied by the Contractor, or any appropriate records or safety plans held by the Contractor. (v) The Contractor shall be obliged to report forthwith to the Employer and Engineer any investigation, complaint or criminal charge which may arise as a consequence of the provisions of the Act and Regulations, pursuant to work performed in terms of this Contract, and shall, on written demand, provide full details in writing, to the Employer and Engineer, of such investigation, complaint or criminal charge. The Contractor shall furthermore, in compliance with Constructional Regulations 2003 to the Act:

Clause	Description
	(vi) Acquaint himself with the requirements of the Employer's health and safety specification as laid down in regulation 5(1) of the Construction Regulation 2014 and prepare a suitably and sufficiently documented health and safety plan as contemplated in regulation 6(1) of the Construction Regulation 2014 for approval by the Employer or his assigned agent. The Contractor's health and safety plan and risk assessment shall be submitted to the Employer for approval within seven (7) days after acceptance of the bid. and shall be implemented and maintained from the Commencement of the Works. (vii) The Employer, or his assigned agent, reserves the right to conduct periodic audits, as contemplated in the Construction Regulations 2003, to ensure that the Contractor is compliant in respect of his obligations. Failure by the Contractor to comply with the requirements of these Regulations shall entitle the Engineer, at the request of the Employer or his agent, to suspend all or any part of the Works, with no recourse whatsoever by the Contractor for any damages incurred as a result of such suspension, until such time that the Employer or his agents are satisfied that the issues in which the Contractor has been in default have been rectified." The Employer and Contractor agree that the Contractor will comply with the provisions of "The Mine Health and Safety Act, (Act 29 Of 1996) as amended by the Mine Health and Safety Amendment Act (Act 72 of 1997). The following arrangements and procedures will apply: (i) The Contractor shall himself obtain the Mining Authorisation for the sites. (ii) Contractor shall assume responsibility for the Environmental Management Programmes (EMP) in respect of the sites and shall ensure that the sites are rehabilitated at the conclusion of the Contract. (iii) The Contractor shall comply with the provisions of the Act and the requirements of the Director: Mineral Development of the Department of Minerals and Energy in making the necessary financial provisions to mine optimally and safety and to rehabilitate the surface of the land concerned satisfactory and to carry out the EMP. All costs incurred in providing a guarantee or other financial provision shall be borne by the Contract. (iv) This Agreement shall hold good from the date on which the Mining Authorisation is issued until the date on which a Closure Certificate is issued in terms of the Minerals Act, 1991. (v) Nothing in this Agreement shall exonerate the Contractor from compliance with any requirements of the Engineer regarding the rehabilitation of sites prior to the issue of a Final Approval Certificate in terms of clause 5.16.2 of the General Conditions of Contract (2010). (vi) The Contractor shall undertake all the duties and accept all the responsibilities of the owner in compliance with the requirements of the Act as amended. (vii) The Contractor accepts responsibility for compliance with the Act, as amended, by all his sub-contractors whether or not selected and/or approved by the Employer.

C1.2-5

Clause	Description
5.3.1	The documentation required before commencement with Works execution are: Health and Safety Plan (refer to clause 4.3.1) Initial programme (Refer to clause 5.6.1) Security (Refer to clause 6.2.1) Insurance (Refer to Clause 8.6.1)
5.3.2	The time to submit the documentation required, before commencement with Works execution is 14 calendar days .
5.4.2	The access and possession of site shall not be exclusive to the Contractor.
5.8.1	The non working days are public holidays and Sundays. The special non working days are: The year-end break from 12/12/2022 to 16/01/2023
5.13.1	The penalty for failing to complete the Works is: R 3,200-00 per calendar day
5.16.3	The latent defect period is 10 years after date of completion
6.5.1.2.3	The percentage allowances to cover all charges for the Contractor's and subcontractor's profits, timekeeping, clerical work, insurance, establishment, superintendence and the use of hand tools is 15% .
6.8.2	This contract does not include for contract price adjustment
6.8.3	Price adjustments for variations in the costs of special materials are not allowed.
6.10.1.5	The percentage advance on materials not yet built into the Permanent Works is 80%
6.10.3	The limit of retention money is 10%
8.6.1.1.2	The value of plant and materials supplied by the Employer to be included in the insurance sum is zero Rand.
8.6.1.1.3	The amount to cover professional fees for repairing damage and loss to be included in the insurance sum will be calculated at 14% of the claim value.
8.6.1.2	A coupon policy for Special Risks Insurance issued by the South African Special Risks Insurances Association is required.
8.6.1.3	The limit of liability insurance is R 10 million
10.5.2	Dispute resolution shall be ad-hoc adjudication.
10.5.3	The number of Adjudication Board Members to be appointed is one .
10.7.1	The determination of disputes shall be by arbitration .

PART 2: DATA PROVIDED BY THE CONTRACTOR

Clause	Description						
1.1.1.9	The Contractor is						
							
	The Contractor's address for receipt of communications is:						
	Physical address: Postal address:						
							
1.2.1.2							
							
							
							
	Telephone :						
	Fax:						
	E-mail:						
1.1.1.14	The time for achieving Practical Completion of the whole of the Works is weeks after Commencement Date (site handover).						
6.2.1	The security to be provided by the Contractor shall be one of the following <table border="1"> <thead> <tr> <th>Type of Security</th><th>Contractor to choose: Indicate " Yes" or " No"</th></tr> </thead> <tbody> <tr> <td>Cash deposit of 10% of the contract sum</td><td></td></tr> <tr> <td>Performance guarantee of 10% of the contract sum</td><td></td></tr> </tbody> </table>	Type of Security	Contractor to choose: Indicate " Yes" or " No"	Cash deposit of 10% of the contract sum		Performance guarantee of 10% of the contract sum	
Type of Security	Contractor to choose: Indicate " Yes" or " No"						
Cash deposit of 10% of the contract sum							
Performance guarantee of 10% of the contract sum							

NKOMAZI MUNICIPALITY

CONTRACT NO: NKO 61/2022

FOR

**EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND
PACKAGE PLANT**

C1.3 FORM OF GUARANTEE

PRO FORMA**PERFORMANCE GUARANTEE****GUARANTOR DETAILS AND DEFINITIONS**

"Guarantor" means:

Physical address:

"Employer" means:

"Contractor" means:

"Engineer" means:

"Works" means:

"Site" means:

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

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

Amount in words:

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

Amount in words

"Expiry Date" means.....

CONTRACT DETAILS

Engineer issues: Interim Payment Certificates, Final Payment Certificate and the Certificate Completion of the Works as defined in the Contract.

PERFORMANCE GUARANTEE

1. The Guarantor's liability shall be limited to the amount of the Guaranteed Sum.
2. The Guarantor's period of liability shall be from and including the date of issue of this Performance Guarantee and up to and including the Expiry Date or the date of issue by the Engineer of the Certificate of Completion of the Works or the date of payment in full of the Guaranteed Sum, whichever occurs first. The Engineer and/or the Employer shall advise the Guarantor in writing of the date on which the Certificate of Completion of the Works has been issued.
3. The Guarantor hereby acknowledges that:
 - 3.1 any reference in this Performance Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship;
 - 3.2 its obligation under this Performance Guarantee is restricted to the payment of money.
4. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor hereby

C1.3-2

undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:

- 4.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Engineer in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 4.2;
 - 4.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 4.1 and the sum certified has still not been paid;
 - 4.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 4.
5. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:
- 5.1 the Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 5; or
 - 5.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 5; and
 - 5.3 the aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.
6. It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4 and 5 shall not exceed the Guarantor's maximum liability in terms of 1.
7. Where the Guarantor has made payment in terms of 5, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Guarantor showing how all monies received in terms of this Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Performance Guarantee shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.
8. Payment by the Guarantor in terms of 4 or 5 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.
9. Payment by the Guarantor in terms of 5 will only be made against the return of the original Performance Guarantee by the Employer.
10. The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may deem fit and the Guarantor shall not have the right to claim his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.
11. The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.
12. This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 2, where after no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.

C1.3-3

13. This Performance Guarantee, with the required demand notices in terms of 4 or 5, shall be regarded as a liquid document for the purposes of obtaining a court order.
14. Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed

Date

Guarantor's signatory (1)

Capacity

Guarantor's signatory (2)

Capacity

Witness signatory (1)

Witness signatory (2)

NKOMAZI MUNICIPALITY

CONTRACT NO: NKO 61/2022

FOR

**EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND
PACKAGE PLANT**

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

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

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

WHEREAS the Employer is desirous that certain works be constructed, viz NKO 61/2022: EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND PACKAGE PLANT and has accepted a Tender by the Mandatory for the construction, completion and maintenance of such Works and whereas the Employer and the Mandatory have agreed to certain arrangements and procedures to be followed in order to ensure compliance by the Mandatory with the provisions of the Occupational Health and Safety Act, 1993 (Act 85 of 1993);

NOW THEREFORE THIS AGREEMENT WITNESSETH AS FOLLOWS:

- 1 The Mandatory shall execute the work in accordance with the Contract Documents pertaining to this Contract.
- 2 This Agreement shall hold good from its Commencement Date, which shall be the date of a written notice from the Employer or Engineer requiring him to commence the execution of the Works, to either
 - (a) the date of the Final Approval Certificate issued in terms of Clause 5.16.1 of the General Conditions of Contract (hereinafter referred to as "the GCC"),
 - (b) the date of termination of the Contract in terms of Clauses 9.1; 9.2 or 9.3 of the GCC.
- 3 The Mandatory declares himself to be conversant with the following:
 - (a) All the requirements, regulations and standards of the Occupational Health and Safety Act (Act 85 of 1993), hereinafter referred to as "The Act", together with its amendments and with special reference to the following Sections of The Act:
 - (i) Section 8 : General duties of employers to their employees;
 - (ii) Section 9 : General duties of employers and self-employed persons to persons other than employees;

C1.4-3

- (iii) Section 37 : Acts or omissions by employees or Mandatory, and
 - (iv) Subsection 37(2) relating to the purpose and meaning of this Agreement.
- (b) The procedures and safety rules of the Employer as pertaining to the Mandatory and to all his subcontractors.
- 4 In addition to the requirements of Clause 8.4 of the GCC and all relevant requirements of the above-mentioned Volume 3, the Mandatory agrees to execute all the Works forming part of this Contract and to operate and utilise all machinery, plant and equipment in accordance with the Act.
- 5 The Mandatory is responsible for the compliance with the Act by all his subcontractors, whether or not selected and/or approved by the Employer.
- 6 The Mandatory warrants that all his and his subcontractors' workmen are covered in terms of the Compensation for Occupational Injuries and Diseases Act, 1993, which cover, shall remain in force whilst any such workmen are present on site. A letter of good standing from the Compensation Commissioner to this effect must be produced to the Employer upon signature of the agreement.
- 7 The Mandatory undertakes to ensure that he and/or subcontractors and/or their respective employers will at all times comply with the following conditions:
 - (a) The Mandatory shall assume the responsibility in terms of Section 16.1 of the Occupational Health and Safety Act. The Mandatory shall not delegate any duty in terms of Section 16.2 of this Act without the prior written approval of the Employer. If the Mandatory obtains such approval and delegates any duty in terms of section 16.2 a copy of such written delegation shall immediately be forwarded to the Employer.
 - (b) All incidents referred to in the Occupational Health and Safety Act shall be reported by the Mandatory to the Department of Labour as well as to the Employer. The Employer will further be provided with copies of all written documentation relating to any incident.
 - (c) The Employer hereby obtains an interest in the issue of any formal inquiry conducted in terms of section 32 of the Occupational Health and Safety Act into any incident involving the Mandatory and/or his employees and/or his subcontractors.

C1.4-4

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

SIGNED FOR AND ON BEHALF OF THE EMPLOYER: _____

WITNESS 1 _____ 2 _____

NAME 1 _____ 2 _____
(IN CAPITALS)

SIGNED FOR AND ON BEHALF OF THE MANDATORY: _____

WITNESS 1 _____ 2 _____

NAME 1 _____ 2 _____
(IN CAPITALS)

NKOMAZI MUNICIPALITY

CONTRACT NO: NKO 61/2022

FOR

**EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND
PACKAGE PLANT**

**C1.5 CERTIFICATE OF AUTHORITY FOR SIGNATORY TO AGREEMENT IN
TERMS OF OCCUPATIONAL HEALTH AND SAFETY ACT, 1993
(ACT NO 85 OF 1993)**

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

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

An example is given below:

"By resolution of the Board of Directors passed at a meeting held on _____ 20 _____ ,
Mr/Ms _____ whose signature
appears below, has been duly authorised to sign the AGREEMENT in terms of THE
OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT 85 of 1993) on behalf of

SIGNED ON BEHALF OF THE COMPANY : _____

IN HIS/HER CAPACITY AS : _____

DATE : _____

SIGNATURE OF SIGNATORY : _____

WITNESS: 1. _____ 2. _____

NAME (in capitals): 1. _____ 2. _____

NKOMAZI MUNICIPALITY

CONTRACT NO: NKO 61/2022

FOR

**EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND
PACKAGE PLANT**

PART C2 PRICING DATA

NKOMAZI MUNICIPALITY

CONTRACT NO: NKO 61/2022

FOR

**EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND
PACKAGE PLANT**

C2.1 PRICING INSTRUCTIONS

C2.1 PRICING INSTRUCTIONS

- 1 The Tender Data, the Contract Data, the Scope of Work, the Site Information and the Drawings shall be read in conjunction with the Schedule of Quantities.
- 2 The Schedule comprises items covering the Contractor's profit and costs of general liabilities and of the construction of Temporary and Permanent Works.

Although the Tenderer is at liberty to insert a rate of his own choosing for each item in the Schedule, he should note the fact that the Contractor is entitled, under various circumstances, to payment for additional work carried out and that the Engineer is obliged to base his assessment of the rates to be paid for such additional work on the rates the Contractor inserted in the Schedule.

The measurement and payment clauses of each Specification, read together with the relevant clauses of the Specification Data, all set out which ancillary or associated activities are included in the rates for the specified operations.

- 3 Descriptions in the Schedule of Quantities are abbreviated and may differ from those in the Standardized and Specification Data. No consideration will be given to any claim by the Contractor submitted on such a basis. The Schedule has been drawn up generally in accordance with the latest issue of Civil Engineering Quantities¹. Should any requirement of the measurement and payment clause of the appropriate Standardized or Specification Data be contrary to the terms of the Schedule or, when relevant, to the Civil Engineering Quantities, the requirement of the appropriate Standardized Specification or Specification Data as the case may be, shall prevail.
- 4 Unless stated to the contrary, items are measured and paid for net, in accordance with the Drawings, without any allowance having been made for waste.
- 5 The amounts and rates to be inserted in the Schedule of Quantities shall be the full inclusive amounts to the Employer for the work described under the several items. Such amounts shall cover all the costs and expenses that may be required in and for the construction of the work described, and shall cover the costs of all general risks, profits, taxes (but excluding value-added tax), liabilities and obligations set forth or implied in the documents on which the Tender is based.
- 6 An amount or rate shall be entered against each item in the Schedule of Quantities, whether or not quantities are stated. An item against which no amount or rate is entered will be considered to be covered by the other amounts or rates in the Schedule.

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

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

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

¹ The standard system of measurement of civil engineering quantities published by the South African Institution of Civil Engineers.

C2.1-2

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

The ordering of materials shall not be based on the quantities in the Schedule of Quantities. Materials ordered from the Schedule of Quantities without prior confirmation by the Engineer shall be at the risk of the Contractor. No compensation shall be paid for materials ordered erroneously and all costs shall be borne by the Contractor.

- 8 For the purposes of this Schedule of Quantities, the following words shall have the meanings hereby assigned to them:

Unit	:	The unit of measurement for each item of work as defined in the SANS 1200 Standardized Specification for Civil Engineering Construction or the Specification Data.
Quantity	:	The number of units of work for each item
Rate	:	The payment per unit of work at which the Tenderer tenders to do the work
Amount	:	The quantity of an item multiplied by the tender rate of the (same) item
Sum	:	An amount tender for an item, the extent of which is described in the Schedule of Quantities, the Specifications or elsewhere, but of which the quantity of work is not measured in units

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

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

NKOMAZI MUNICIPALITY

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FOR

**EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND
PACKAGE PLANT**

C2.2 SCHEDULE OF QUANTITIES

C2.2 SCHEDULE OF QUANTITIES - CONTENTS

SCHEDULE OF QUANTITIES

C2.2-2 to C2.2-52

SUMMARY OF SCHEDULE OF QUANTITIES

C2.2-53

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2 STORAGE TANK AND PACKAGE PLANT

SANS 1200**PRELIMINARY AND GENERAL**

SECTION A: PRELIMINARY AND GENERAL

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
A	SANS 1200 A & AB	<u>SECTION A : PRELIMINARY AND GENERAL</u>					
A.1	8.3	FIXED-CHARGE ITEMS					
A.1.1	8.3.1	Contractual Requirements	Sum	1			
	8.3.2	Establish Facilities on the Site: Facilities for Engineer (SANS 1200 AB)					
A.1.2	8.4.2.1	Contract nameboard (One only) (Refer to PS AB 5.1)	Sum	1			
	8.3.2.2	Facilities for Contractor					
A.1.3		a) Offices and storage sheds	Sum	1			
A.1.4		b) Workshops	Sum	1			
A.1.5		d) Living accommodation	Sum	1			
A.1.6		e) Ablution and latrine facilities	Sum	1			
A.1.7		f) Tools and equipment	Sum	1			
A.1.8		g) Water supplies, electric power and communications	Sum	1			
A.1.9		h) Dealing with water (Subclause A- 5.5)	Sum	1			
A.1.10		i) Access (Subclause A-5.8)	Sum	1			
	8.3.3	Other fixed-charge obligations					
A.1.11		i) Provision for OH&S requirements as specified, such as, but not limited to: Safety officer payment, safety training, HIV awareness, etc.	Sum	1			
A.1.12		ii) Provision for Environmental Management Plan requirements	Sum	1			
A.1.13	8.3.4	Remove Engineer's and Contractor's Site establishment on completion	Sum	1			
TOTAL CARRIED FORWARD						0	00

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2 STORAGE TANK AND PACKAGE PLANT

SANS 1200**PRELIMINARY AND GENERAL**

SECTION A : PRELIMINARY AND GENERAL

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
BROUGHT FORWARD							
A.2	8.4	TIME-RELATED ITEMS					
A.2.1	8.4.1	Contractual Requirements	Sum	1			
	8.4.2	Operate and maintain facilities on site:					
	8.4.2.1	Facilities for Engineer					
A.2.2	8.4.2.1	Name board (Only one)	Sum	1			
	8.4.2.2	Facilities for Contractor for duration of construction.					
A.2.3		a) Offices and storage sheds	Sum	1			
A.2.4		b) Workshops	Sum	1			
A.2.5		d) Living accommodation	Sum	1			
A.2.6		e) Ablution and latrine facilities	Sum	1			
A.2.7		f) Tools and equipment	Sum	1			
A.2.8		g) Water supplies, electric power and communications	Sum	1			
A.2.9		h) Dealing with water (Subclause 5.5)	Sum	1			
A.2.10		i) Access (Subclause 5.8)	Sum	1			
	8.4.5	Other time-related obligations					
A.2.11		i) Provision for OH&S requirements as specified, such as, but not limited to: Safety officer payment, safety training, HIV awareness, etc.	Sum	1			
A.2.12		ii) Provision for Environmental Management Plan requirements	Sum	1			
TOTAL CARRIED FORWARD							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2 STORAGE TANK AND PACKAGE PLANT

SANS 1200**PRELIMINARY AND GENERAL**

SECTION A : PRELIMINARY AND GENERAL

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
BROUGHT FORWARD							
A.3	PS A 8.5	SUMS STATED PROVISIONALLY BY ENGINEER					
A.3.1		1) Community Liaison Officer monthly remuneration	Prov Sum	1	130,000.00	130,000	00
A.3.2		2) Training Student for NLM	Prov Sum	1	130,000.00	130,000	00
A.3.3		3) Laboratory testing - concrete	Prov Sum	1	100,000.00	100,000	00
A.3.4		4) Topographical Survey	Prov Sum	1	60,000.00	60,000	00
A.3.5		5) Occupational Health and Safety Requirements	Prov Sum	1	600,000.00	600,000	00
A.3.6		6) Environmental Management Requirements Consultant	Prov Sum	1	600,000.00	600,000	00
A.3.7		8) Social Facilitator	Prov Sum	1	130,000.00	300,000	00
A.3.8		9) Provision for New/Upgrade of Eskom Connections for Boreholes and Package Plants	Prov Sum	1	1,093,820.0	1,093,820	00
A.3.9		10) Overheads, charges and profit on item 1 to 8	%	3,013,820			
A.4	PS A 8.7	DAYWORKS					
		a) Labour					
A.4.1		i) Un-skilled	hr	20			
A.4.2		ii) Semi-skilled	hr	20			
A.4.3		iii) Skilled	hr	20			
A.4.4		iv) Foreman	hr	30			
		b) Plant					
A.4.5		i) 5 ton tipper truck with operator	hr	15			
A.4.6		ii) 0.5 m³ excavator with operator	hr	15			
A.4.7	iii) 5000ℓ water truck with operator	hr	15				
A.4.8	iv) Bomag (BW 90) compactor with operator	hr	15				
TOTAL CARRIED FORWARD TO SUMMARY							

CONTRACT NO: NKO 61/2022**EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT****SANS 1200****STEEL TANK RESERVOIR (650 KL)****SECTION B: SITE CLEARANCE AND EARTHWORKS**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
B	SANS 1200 D	<u>SECTION B: SITE CLEARANCE AND EARTHWORKS</u>					
B.1	SANS 1200 C	SITE CLEARANCE					
B.1.1	8.2.1	Clear and grub reservoir site	m ²	100			
	8.2.2	Remove and grub trees and stumps of girth:					
B.1.2		a) over 1 m and up to 2 m	No	5			
B.1.3		b) over 2 m and up to 3 m	No	4			
B.2	SANS 1200 DA	EARTHWORKS					
	8.3.1	Excavation					
B.2.1	8.3.1	(a) Remove topsoil to nominal depth 150 mm, stockpile, and maintain	m ²	100			
B.2.2	8.3.1	(b)(i) Excavate in bulk to bottom of floor level, in all materials and use for backfill, dispose of surplus and / or unsuitable material at designated site (within a free haul of 0,5 km), for structure as indicated on drawings. Backfill in layers of 150 mm thickness and compact to 90% MOD AASHTO density. Excavation depth range from 0 mm to 600 mm	m ³	60			
		(b)(ii) Excavate to stockpile selectively within a free haul of 0,5 km, to a maximum of 600 mm below bottom of floor level, in all materials and use for backfill, for a soil raft foundation as indicated on Drawing NS3234/11. Compaction to be done in 150 mm layers as follows:					
B.2.3		> Compact the bottom 300 mm layer to 93% MOD AASHTO density (G7 material)	m ³	30			
B.2.4		> Compact the top 300 mm layer to 95% MOD AASHTO density (C4 material using 2.5% of 32.5 CEM II with G6 material)	m ³	30			
TOTAL CARRIED FORWARD							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**STEEL TANK RESERVOIR (650 KL)**

SECTION B: SITE CLEARANCE AND EARTHWORKS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
BROUGHT FORWARD							
B.2.5	8.3.1	c) Extra-over payment items 8.3.1(b)(i) & (b)(ii) for excavation in: 2) Hard rock material	m³	10			
	8.3.3	Overhaul (provisional) to dispose and import					
B.2.6		a) Limited	m³	10			
B.2.7		b) Long overhaul	m³km	20			
B.2.8	8.3.4	a) Extra-over item 8.3.1(b)(ii) for importing G6 material from a borrow pit within a free haul of 0,5 km if necessary	m³	10			
		Finishing of Site					
B.2.9	8.3.6	Topsoiling	m²	20			
B.2.10	8.3.7	Grassing or other vegetation cover	m²	20			

SECTION C: CONCRETE

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
C	SANS 1200 G	<u>SECTION G : CONCRETE</u>					
C.1	8.2	FORMWORK					
C.1.1	8.2.1	Rough vertical formwork for outside surface of foundation slab under ground	m²	100			
C.2	8.3	REINFORCEMENT					
C.2.1	8.3.1	a) high tensile reinforcement in foundation slab	t	4			
C.2.2	8.3.2	b) Mesh reference 395 in foundation slab	m²	160			
C.3	8.4	CONCRETE					
	8.4.3	25 MPa concrete					
C.3.1		a) Blinding layer (50 mm) under steel tank slab	m³	10			
		35 MPa concrete					
C.3.2		a) In steel tank slab and plinth walls	m³	150			
C.4	8.4.4	UNFORMED SURFACE FINISHING					
C.4.1		a) Uniform wood float finish on top of steel tank foundation slab	m²	100			
C.5	8.8	MISCELLANEOUS ITEMS					
C.5.1		Anchor bolts/base plate to be provided and cast into concrete slab for frame	Sum	1			
C.5.2	PS G 8.9	Test reservoir for water tightness	Sum	1			
C.5.3	PS G 8.10	Sterilize reservoir structure	Sum	1			
TOTAL CARRIED FORWARD TO SUMMARY							

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
D		<u>SECTION H: PIPELINES</u>					
D.1	SANS 1200 DB	PIPE TRENCES					
	8.3.2	Excavation					
	8.3.2	a) Excavate in all materials for trenches backfill, compact, and dispose of surplus/unsuitable material, for pipes:					
		100 mm up to 300 mm diam, for total trench depths:					
D.1.1		Exceeding 0,0 m but not exceeding 1,5 m	m³	52			
	8.3.2	b) Extra-over item 8.3.2(a) for:					
D.1.2		Hard rock excavation	m³	2			
D.2	SANS LB	PROVISION OF BEDDING					
		Bedding available from trench within 0,5 km (Subclause 3.4.1)					
D.2.1	8.2.1	a) Selected granular material	m³	23			
D.2.2		b) Selected fill material	m³	30			
D.3	SANS 1200 L	PIPES					
	8.2.1	Supply, lay, bed and disinfect pipes complete with couplings:					
		PVC Pipes (Incoming & Outgoing inside Reservoir Boundary)					
		uPVC Class 9					
D.3.1		160 mm diam	m	74			
	8.2.2	Extra over items 8.2.1 for the supply, laying and bedding of specials with couplings:					
D.3.2		a) 160 mm x 90 deg bend uPVC	No	7			
D.3.3		b) 160 mm x 45 deg bend uPVC	No	4			
D.3.4		c) 160 mm flanged adaptor for uPVC	No	6			
TOTAL CARRIED FORWARD							

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EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**STEEL TANK RESERVOIR (650 KL)**

SECTION D: PIPELINES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
BROUGHT FORWARD							
D.3.5	8.2.5	Viking Johnson restrained flanged adaptor for: 80 mm steel pipe inside water meter MH	No	2			
D.4		PIPE WORK Galvanized Mild Steel Pipes (Hot dipped)					
		Supply, install, fit, test, commission and disinfect pipes as per the pipe schedules for all the pipes inside the reservoir complex					
D.5		<u>A) INLET PIPE</u>					
D.5.1		A1) Supply and install 150 diam. flanged Galvanised Steel pipe, 0.35 m long	Sum	2			
D.5.2		A2) Supply and install 90 deg. flanged short radius Galvanised Steel bend, 150 diam.	Sum	2			
D.5.3		A3) Supply and install 150 diam. flanged Galvanised Steel pipe, 4.5 m long (Apply Denso wrapping to section underground)	Sum	2			
D.5.4		A4) Supply and install 90 deg. flanged short radius Galvanised Steel bend, 150 diam. Apply Denso wrapping to protect pipe	Sum	2			
D.5.5		A5) Supply and install 150 diam. flanged Galvanised Steel pipe, 1.0 m long Apply Denso wrapping to protect pipe	Sum	2			
D.5.6		A6) Supply and install 150 diam. flanged RSV gate valve including hand wheel installation	Sum	2			
D.5.7		A7) Supply and install 150 diam, flanged dismantling coupling	Sum	2			
D.5.8		A8) Supply and install 150 diam. flanged Galvanised Steel pipe, 1.1 m long. Apply Denso wrapping to protect pipe	Sum	2			
D.5.9		A9) Supply and install 150 diam, VJ coupling	Sum	2			
TOTAL CARRIED FORWARD							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**STEEL TANK RESERVOIR (650 KL)**

SECTION D: PIPELINES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
BROUGHT FORWARD							
D.6		<u>B) OUTLET PIPE</u>					
D.6.1		B1) Supply and install 90 deg. flanged short radius Galvanised Steel bend, 150 diam.	Sum	2			
D.6.2		B2) Supply and install 150 diam. flanged Galvanised Steel pipe, 1.5 m long	Sum	2			
D.6.3		B3) Supply and install 150 diam. flanged RSV gate valve including hand wheel installation	Sum	2			
D.6.4		B4) Supply and install 150 diam, flanged dismantling coupling	Sum	2			
D.6.5		B5) Supply and install 90 deg. flanged short radius Galvanised Steel bend, 150 diam. Apply Denso wrapping to protect pipe	Sum	2			
D.6.6		B6) Supply and install 150 diam, VJ coupling	Sum	2			
D.7		<u>C) OVERFLOW PIPE</u>					
D.7.1		C1) Supply and install 150 diam. flanged Galvanised Steel pipe, 0.35 m long	Sum	2			
D.7.2		C2) Supply and install 90 deg. flanged short radius Galvanised Steel bend, 150 diam.	Sum	2			
D.7.3		C3) Supply and install 150 diam. flanged Galvanised Steel pipe, 3.25 m long	Sum	2			
D.7.4		C4) Supply and install 150 diam. flanged Galvanised Steel equal tee	Sum	2			
D.7.5		C5) Supply and install 150 diam. flanged Galvanised Steel pipe, 1.5 m long (Apply Denso wrapping to section underground)	Sum	2			
D.7.6		C6) Supply and install 90 deg. flanged short radius Galvanised Steel bend, 150 diam. Apply Denso wrapping to protect pipe	Sum	2			
D.7.7		C7) Supply and install 150 diam, VJ coupling	Sum	2			
TOTAL CARRIED FORWARD							

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EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**STEEL TANK RESERVOIR (650 KL)**

SECTION D: PIPELINES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
BROUGHT FORWARD							
D.8	8.2.5	<u>D) SCOUR PIPE</u>					
D.8.1		D1) Supply and install 150 diam. flanged RSV gate valve including hand wheel installation	Sum	2			
D.8.2		D2) Supply and install 150 diam, flanged dismantling coupling	Sum	2			
D.8.3		D3) Supply and install 90 deg. flanged short radius Galvanised Steel bend, 150 diam.	Sum	2			
D.8.4		D4) Supply and install 150 diam. flanged Galvanised Steel pipe, 1.25 m long	Sum	2			
D.9		OTHER					
		Supply and install the following complete as per drawing					
D.9.1		a) 80 mm diam RSV gate valve with cap top drilled to BS4504, Table 10	No	6			
D.9.2		b) 150 mm diam vertical type liquid level control with s/s-float (Balem Pistek or similar) and flanges drilled BS4504 Table 10	No	2			
D.9.3		c) 80 diam, flanged Elster Kent (H4000 SCADA integrate able), turbine type water flow meter. Flange drilled to table 16	No	4			
D.9.4	d) Elster Kent or similar inline strainer 80 mm diam	No	4				
TOTAL CARRIED FORWARD						0	00

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SANS 1200**STEEL TANK RESERVOIR (650 KL)**

SECTION D: PIPELINES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
BROUGHT FORWARD							
D.9.5	8.2.13	Extra-over: a) Provisional sum for 80 mm diam pipes not specified in water meter chamber	Prov Sum	2			
D.9.6	PS L 8.2.14	b) Supply and Install 1.5 m diam. Concrete Precast Manholes (500 mm lengths) including a precast concrete slab with a lockable lid	No	10			
D.9.7	PS L 8.2.11	c) Concrete used at thrust blocks and water meter chambers Class 19/20 MPa	m³	10			
D.9.8		d) Excavate in all materials for water meter chambers, compact, and dispose of surplus/unsuitable material	m³	8			
D.9.9	PS L 8.2.18	e) Cut and connect into existing pipes (150mm pipes)	No	2			
D.9.10		f) Overheads, charges, and profit on items (a-e)	%	0			
TOTAL CARRIED FORWARD TO SUMMARY						0	00

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**STEEL TANK RESERVOIR (650 KL)**

SECTION E: ELEVATED TANK AND SUPPORT FRAME

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
E		<u>SECTION I: ELEVATED TANK AND SUPPORT FRAME</u> Supply and installation of a sectional steel tank. The tank will have a capacity of 650 kl. The tank to be installed on concrete plinth walls. It will include access ladder and level indicator.					
E.1	PS X 8.1.1	(a) Abeco or similar 650kl steel tank	Prov Sum	2			
E.2		(b) Overheads, charges, and profit on item (a)	%	0			
E.3		Supply and install new steel palisade fencing or similar complete as specified.	m	300			
E.4		Supply and install new 4m wide sliding steel gate complete including vandal proof locking mechanism.	No	3			
E.5		Dismantle, transport 2 km to new location and reinstall 300 kl steel tank complete including replacement of all nuts and bolts, gaskets, CLDPE Liner, bidum underlay and chemical anchors. Relocation of connecting steel pipe work, scaffolding and/or Crane hire to be included.	Sum	1			
TOTAL CARRIED FORWARD TO SUMMARY						0	00

SANS 1200

STEEL TANK RESERVOIR (650 KL)

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
F	PS PME	<u>SECTION J: BOOSTER PUMPS TO STEEL TANK RESERVOIRS</u>					
		Mechanical and Electrical Equipment					
		Supply and installation of the following					
F.1		(a) Supply KSB Movitec VF 15/08 B or similar booster pump set 1 x duty and 1 x standby, with a duty point of 14,12m³/h against a head of 89.38m.	Prov Sum	1			
F.2		(b) Supply KSB Movitec V F060/08 or similar booster pump set 1 x duty and 1 x standby, with a duty point of 49.95m³/h against a head of 190.85m.	Prov Sum	1			
F.3		(c) MCC for KSB pump unit specified in (a) above, including electrical cabling and VSD starters for 7.5kW motors	Prov Sum	2			
F.4		(d) MCC for KSB pump unit specified in (b) above, including electrical cabling and VSD starters for 45kW motors	Prov Sum	2			
F.5		(e) Communication equipment between sectional steel tanks and pump units	Prov Sum	2			
F.6		(f) Overheads, charges, and profit on item (a-e)	%	0			
F.7	(g) Installation, commissioning, acceptance, and maintenance of equipment under F.1 to F.5 during contract period (PS PME 3-6)	Sum	1				
F.8	(h) Supply three sets of operation and maintenance manuals (PS PME 7)	Sum	1				
TOTAL CARRIED FORWARD TO SUMMARY						0	00

SANS 1200

SECTION G: ESTABLISHMENT AND INTER-BOREHOLE MOVES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
G	PA 2.2	<u>SECTION G: ESTABLISHMENT (per project)</u> Provision for Geohydrologist for the sighting of new boreholes					
G.1		a) Geohydrologist	hr	96			
G.2		b) Field Survey Cost	hr	48			
G.3		c) Documentation / Reports for boreholes drilled (max 4 new)	Sum	1.0			
G.4		d) Geophysical Investigation	hr	36			
G.5		e) Traveling Cost and time	Sum				
G.6		Establishment of drilling rig inclusive of provision for all types of drilling techniques for borehole construction	Sum	1			
G.1	PA 2.3	INTER-BOREHOLE MOVES					
		a) Setup					
G.1.1		Air Percussion	No	4			
G.1.2		b) Travel (extra-over the first 7 km travel given for Item PA 2.3 (a))	km	50			
G.2	PA 2.4	WATER HAULAGE	m³	50			
G.3	PA 2.5	TRANSPORT OF SPECIAL ITEMS					
G.3.1		Transport	km	120			
TOTAL CARRIED FORWARD TO SUMMARY							

SANS 1200

BOREHOLES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
H		<u>SECTION H: ROTARY PERCUSSION AIR FLUSH DRILLING</u> (Drilling method used where geological formation comprises consolidated rock with limited overburden)					
	PA 2.6	AIR PERCUSSION DRILLING (abrasive rock) For depths : 0 m up to 100 m for boreholes with a diameter of:					
H.1		a) 165 mm	m	150			
		For depths : 100 m up to 150 m for boreholes with a diameter of :					
H.2		a) 165 mm	m	170			
	PA 2.7	AIR PERCUSSION DRILLING (boulders & alluvium) For depths: 0 m up to 50 m for boreholes with a diameter of :					
H.3		a) 165 mm	m	150			
H.1	PA 2.10	REAMING For depth range: 0 m up to 150 m for a borehole with a diameter of :					
H.1.1		b) 219 mm	m	170			
H.2	PA 2.11	ROTARY MUD DRILLING For depth range: 0 m up to 150 m for a borehole with a diameter of:					
H.2.1		a) 219 mm	m	80			
TOTAL CARRIED FORWARD TO SUMMARY							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**BOREHOLES**

SECTION I: BOREHOLE CONSTRUCTION

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
I		<u>SECTION I: BOREHOLE CONSTRUCTION</u>					
I.1	PA 2.12	Development of Borehole	hr	28			
I.2	PA 2.14	Insertion of casing	m	200			
I.3	PA 2.15	Removal of casing	m	50			
I.4	PA 2.16	Installation of factory perforated casing and/or screens under instruction and supervision of the Engineer.	m	150			
I.5	PA 2.17	Perforation of Casing (on site)	m	80			
I.6	PA 2.18	Formation stabilizer / gravel pack (Grain size as specified by the Engineer)	m ³	12			
I.7	PA 2.19	Filter pack (Grain size as specified by the Engineer and provision for a minimum of 0.5 cubic metres supplied at a time)	m ³	12			
I.8	PA 2.20	Grout backfill / Bentonite seal	m	14			
I.9	PA 2.21	Capping of boreholes	No	4			
TOTAL CARRIED FORWARD TO SUMMARY							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**BOREHOLES**

SECTION J: SUPPLY OF CASING MATERIAL

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
J		<u>SECTION J: SUPPLY OF CASING MATERIAL</u>					
J.1	PA 2.22	SUPPLY MILD STEEL CASINGS					
		a) Plain Casing					
		For OD & Wall Thickness :					
J.1.1		2) 165 x 4 mm	m	220			
TOTAL CARRIED FORWARD TO SUMMARY							

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
K	PA 2.24	<u>SECTION K: TESTING OF BOREHOLES</u> a) Setup, test run, installation, calibration of equipment, borehole disinfection and protection for each borehole tested and drilling supervision by geohydrologist					
K.1		i) For yield up to 7 l/s and 90 m deep	No	4			
K.2		ii) Extra-over PA 2.24(a)(i) per metre deeper than 150 m	m	100			
K.3		b) Travelling for inter-borehole movement	km	150			
K.4		c) Sequential step-draw-down tests of 110 minutes duration	hr	144			
K.5		d) Recovery measurement to 80 % of static water level	hr	144			
K.6		e) Constant discharge test	hr	24			
K.7		f) For yield up to 7 l/s	hr	144			
K.8		g) Recovery measurement to 80 % of static water level	hr	144			
K.9		h) Sampling of water and test for human consumption	No	4			
K.10		l) Tablet Chlorination units for Borehole	Prov Sum	1		135,000	00
K.11		j) Supply 6 x month's supply of chlorination tablets	Prov Sum	1		45,000	00
K.12		k) Overhead charges and profit on items above (I) to (J)	%	180,000			
TOTAL CARRIED FORWARD TO SUMMARY							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**BOREHOLES**

SECTION L: BOREHOLE REHABILITATION

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
L		<u>SECTION L: BOREHOLE REHABILITATION</u>					
L.1		a) With rotary air percussion drilling rig <u>Equipment removal and re-installation</u>	No	4			
L.2		(i) Removal for first 50 m depth	No	4			
L.3		(ii) Removal from depth extra-over 50m	m	75			
L.4		(iii) Re-installation first 50 m depth	No	4			
L.5		(iv) Re-installation extra-over 50 m depth	m	80			
		b) Bore head superstructure					
L.6		(i) Dismantling of superstructure	No	4			
L.7		(ii) Re-assembly of superstructure	No	4			
L.8		c) Travelling expenses	km	120			
TOTAL CARRIED FORWARD TO SUMMARY							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**BOREHOLES**

SECTION M: CONCRETE WORK

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
M		<u>SECTION M: CONCRETE WORK</u>					
M.1		Concrete base plinth for 11 kW and smaller motors. Concrete Base Class 25/19 Including all preparation work as per drawing.(Electrical Installation)	No	4			
M.2		Concrete base slab 3500 x 3500 x 0.150 Class 25/19 as per drawing including reinforcing and all preparation work	No	4			
M.3		Supply and erect Pre-cast concrete pumphouse L 2560 x W 2640 x H 2250 by Approved Supplier	Prov Sum	1		242,000	00
M.4		Overhead charges and profit on items above	%	242,000			
M.5		Stormwater protection for pump house (25 mPa concrete) including preparation and formwork	m ³	40			
M.6		Brickwork 230 mm for Pump floor protection. (Clay Bricks)	m ²	400			
M.7		Demolish and Remove existing Plinth only on instruction by Engineer	No	2			
M.8		Demolish and Remove existing Floor only on instruction by Engineer	No	2			
TOTAL CARRIED FORWARD TO SUMMARY							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**BOREHOLES**

SECTION N: PUMP AND PIPE WORK INSTALLATION

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
N		<u>SECTION N: PUMP AND PIPE WORK INSTALLATION</u> (All pipework and fittings above ground to be 50mm, refer to drawings for specifications)					
N.1		A Rotary pump discharge assembly complete with spacer box and motor mounting brackets. Discharge head to have 2 x 20 DN holes drilled in base. Electrical installations 2 off and diesel installations 1 off 20 mm HD polyethylene type IV class 6 sleeve pipe (from pump unit to discharge head). Strapped to columns at max. 3m centres with heavy duty cable ties. Sleeve Pipe to stand 200 mm proud of discharge head base plate and to be complete with 15 DN nylon insert plug.	set	8			
N.2		Heavy duty galvanised barrel nipple	No	32			
N.3		Wafer type non-return valve suitable for 100 kPa pressure supplied with two heavy duty galvanized screw-on flanges drilled SANS 1123 table 100/4	set	8			
N.4		300 mm Long heavy-duty galvanized pipe piece treaded both ends	No	4			
N.5		700 mm Long heavy-duty galvanized pipe piece threaded both ends (exact length to be determined on site)	No	4			
N.6		Heavy duty galvanised equal tee	No	4			
N.7		Flanged water meter with two heavy duty galvanised screw-on flanges drilled SANS 1123 Table 1000/4	set	4			
N.8		Brass female full way valve suitable for 1000 kPa pressure	No	8			
N.9		Heavy duty reducing tee x 25mm	No	8			
N.10		1.28 m (corrected rh) long heavy-duty galvanised pipe treaded both ends	No	8			
N.11		90 Degree heavy duty galvanised male/female elbow complete with a heavy-duty galvanised screw-on flanges drilled SANS 1123 Table 1000/4	set	8			
TOTAL CARRIED FORWARD							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**BOREHOLES**

SECTION N: PUMP AND PIPE WORK INSTALLATION

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
BROUGHT FORWARD							
N.12		Flanged adaptor for PVC pipes drilled SANS 1123 Table 7	No	8			
N.13		90 Degree heavy duty galvanised female elbow	No	8			
N.14		125 mm Long heavy-duty galvanised pipe threaded both ends	No	16			
N.15		100 mm Dia Glycerine Filled gauge reading from 0 - 1600kPa complete with 2 x 8 x 75mm long mgi pipe threaded both ends and 1 x 8 mm female threaded ball-o-top isolating cock	set	8			
N.16		Heavy duty galvanised tee complete with plug fitted to branch (for pressure switch on electrical installations)	set	8			
N.17		Supply and install 65 mm complete set of Columns including sockets, shafts, bobbin bearings, etc..	m	400			
N.18		Supply and install 80 mm complete set of Columns including sockets, shafts, bobbin bearings, etc..	m	80			
N.19		Supply and install pump element complete. Min Delivery 1l/s and to a max of 3 l/s with a maximum pump head of 120 meters.	No	6			
N.20		Supply and install pump element complete. Min Delivery 1l/s and to a max of 6 l/s with a maximum pump head of 150 meters.	No	2			
N.21		Supply and install V- Belts as per Electrical pump detail	No	24			
N.22		Supply and install Belt Guards as per drawing (Electrical Installation)	No	8			
N.23		Remove all equipment above ground, including removal of pump element and columns. Protect and close open borehole after all equipment was removed.	No	4			
TOTAL CARRIED FORWARD TO SUMMARY							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**BOREHOLES****SECTION O: ELECTRICAL EQUIPMENT INSTALLATIONS**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
O		<u>SECTION O: ELECTRICAL EQUIPMENT INSTALLATION</u>					
		Supply and install WEG electrical motor (Cast Iron Body Construction with full IP55 degree of protection) including one double pully					
O.1		a) 3 kW , Three Phase	No	4			
O.2		b) 5.5 kW, Three Phase	No	2			
O.3		c) 7.5 kW, Three Phase	No	2			
		Supply and install Standard DWS control panel as per drawing					
O.4		DOL Starter	No	8			
O.5		Supply and install electrical cable for borehole installation 16 mm ² 4 core Armoured PVC SWA Cable	m	40			
O.6		Supply and install electrical probe cable	m	200			
O.7		Supply and install Sauter or Allan Bradley Pressure switch with 12 bar max rating.	No	8			
O.8		Commissioning of Borehole	No	8			
O.9		Provision for Eskom Connection for Borehole Connections	Prov Sum	1		385,000	00
O.10		Overhead charges and profit on items above	%	385,000			
O.11		Supply and Install 7-meter length Rocla Concrete Cast Poles for Electrification of Boreholes.	No	30			
O.12		Supply and install electrical cable for borehole installation 25 mm ² 3 phase core + Aluminium Alloy Insulated neutral Aerial Bundle Conductor Cable	m	320.0			
TOTAL CARRIED FORWARD TO SUMMARY							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION P: RAW WATER ABSTRACTION**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
P		<u>SECTION P: RAW WATER ABSTRACTION</u>					
		Supply, Deliver and Install					
P.1		a) 316 SS hand screen in front of inlet pipework as specified 500 x 500 mm	No	4			
P.2		b) Raw water submersible pumps, SS volutes, impellers, double-slide rails, duck feet and chains. Approximate duty point: 104 m ³ /h @ 20 m. To be determined by the Contractor.	No	2			
P.3		c) 40 mm SS sliding rails for pump installation inclusive of 25 mm lifting chains.	No	4			
P.4		d) Manufacture supply and install new 80 mm hot dipped galvanized pipework to replace existing pipework, including all supports, bolts, nuts, and gaskets. All pipework to comply with specifications.	No	4			
P.5		e) Supply and install new 80 mm diameter flanged RSV valves, body to be fusion bonded epoxy coated, valve to comply with SANS 664. All valves shall be PN16.	No	4			
P.6		f) Supply and install new 80 mm diameter flanged Sensus Meimag ultra sonic flow meter, complete with display mounted against wall.	No	4			
P.7		g) Supply and install new 80 mm diameter flanged AVK or similar ball check. All valves shall comply with SANS 664. All valves shall be PN10.	No	4			
P.8		h) New MCC for raw water pumps as per specifications, MCC to be manufactured by approved automation specialist. MCC builder to comply with SANS 1973-1:2007 Certification.	No	4			
P.9		i) Electrical work for raw water pumps and MCC including all cabling, mounting trays and fixtures inclusive of all consumables.	No	1			
P.10		j) Commissioning, acceptance and maintenance obligations of all plant and equipment under items (a) to (i).	Sum	1			
P.1		WELL POINTS					
TOTAL CARRIED FORWARD							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION P: RAW WATER ABSTRACTION**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
BROUGHT FORWARD							
		Provision for 2 x well points for supplying water to PWTP					
P.1.1		a) Cost for Geohydrologist	hr	48			
P.1.2		b) Field Survey Cost	hr	24			
P.1.3		c) Documentation / Reports for boreholes drilled (max 4 new)	Sum				
P.1.4		d) Geophysical Investigation	hr	36			
P.1.5		e) Traveling Cost and time	Sum				
P.2		DRILLING PROVISION					
P.2.1		a) Establishment of drilling rig inclusive of provision for all types of drilling techniques for large diameter borehole drilling	Sum				
		Setup					
P.2.2		b) Air Percussion	No	2			
		(Drilling method used where geological formation comprises consolidated rock with limited overburden)					
		AIR PERCUSSION DRILLING (abrasive rock)					
		For depths: 0 m up to 100 m for boreholes with a diameter of:					
P.2.3		450 mm	m	100			
P.2.4		Development of Borehole	hr	28			
P.2.5		Insertion of casing	m	50			
P.2.6		Installation of factory perforated casing and/or screens under instruction and supervision of the Engineer.	m	50			
P.2.7		Perforation of Casing (on site)	m	10			
P.2.8		Formation stabilizer / gravel pack (Grain size as specified by the Engineer)	m³	20			
P.2.9		Filter pack (Grain size as specified by the Engineer and provision for a minimum of 0.5 cubic metres supplied at a time)	m³	10			
TOTAL CARRIED FORWARD							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION P: RAW WATER ABSTRACTION**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
BROUGHT FORWARD							
P.2.10		Grout backfill / Bentonite seal	m	20			
P.2.11		Capping of boreholes	No	2			
P.3		SUPPLY MILD STEEL CASINGS					
		a) Plain Casing					
		For OD & Wall Thickness :					
P.3.1		b) 400 x 4 mm	m	50			
		b) Factory perforated casing (min. 2 % open area)					
P.3.2		c) 400 x 4 mm	m	50			
P.4		YIELD TESTING					
		a) Setup, test run, installation, calibration of equipment, borehole disinfection and protection for each borehole tested and drilling supervision by geohydrologist					
P.4.1		i) For yield up to 7 l/s and 100 m deep	No	2			
P.4.2		b) Travelling for inter-borehole movement	km	20			
P.4.3		c) Sequential step-draw-down tests of 110 minutes duration	hr	48			
P.4.4		d) Recovery measurement to 80 % of static water level	hr	24			
P.4.5		e) Constant discharge test	hr	24			
P.4.6		f) For yield up to 7 l/s	hr	48			
TOTAL CARRIED FORWARD TO SUMMARY							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION Q: CHEMICAL DOSING**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Q		<u>SECTION U: CHEMICAL DOSING</u>					
		Supply, Deliver and Install					
		Poly Dosing					
Q.1		Bulk storage tank 2,500 litre heavy duty, suitable to handle chemicals, including 40 mm HDPE pipe to dosing room.	Sum	1			
Q.2		Hot dipped galvanised structure 1,000 mm high for bulk tank stand	Sum	1			
Q.3		Polymer dosing systems consisting of duty of standby pumps (15 l/h), able to run via VSD (Grundfos Smart Pumps); including 500 l polymer storage tanks. All dosing piping, pressure relief valves and pulse dampeners to in-line flash mixer; polymer flow rate measuring device to be of high quality allowing operators to measure poly dosing rate at any time. Injectors with non-return valves at injection point.	Sum	1			
Q.4		Dosing piping: 8mm tube / 20mm PVC and braided hose	Sum	1			
Q.5		Calibration Tube	No	1			
		<u>Lime Dosing</u>					
Q.6		Dry feeder cast iron controller unit, vibrator inclusive of heated spout. Unit to be equipped with lime dust extractor Donaldson Vibrashake or equivalent. Complete unit to be manufactured from 304 SS.	Sum	1			
Q.7		Extension hopper unit 500 x 500 mm. Manufactured 304 SS.	Sum	1			
Q.8		Bag Loader. Manufactured 304 SS	Sum	1			
Q.9		SS 304 support for lime feeder	Sum	1			
Q.10		Mixing tank 304 SS with capacity of 10 minutes retention time.	Sum	1			
Q.11		Agitator for mixing unit, incl gear box, stainless steel shaft and impeller	Sum	1			
Q.12		Water supply to tank with constant level ball valve. 20 mm HDPE pipe Class 6, length of 20 meters.	No	1			
TOTAL CARRIED FORWARD							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION Q: CHEMICAL DOSING**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
BROUGHT FORWARD							
		<u>Lab Testing Equipment</u>					
Q.13		Lovibond free chlorine comparator	No	1		Rate Only	
Q.14		Bench top 4-beaker jar test apparatus	No	1		Rate Only	
Q.15		Bench Top Turbidity meter	No	1		Rate Only	
Q.16		pH Meter	No	1		Rate Only	
Q.17		pH Meter service kit and buffers	No	1		Rate Only	
Q.18		Glass ware and peripheral lab items	No	1		Rate Only	
Q.19		Training in-use of equipment	Sum	1		Rate Only	
Q.20		New MCC for chemical dosing as per specifications, MCC to be manufactured by approved automation specialist. MCC builder to comply with SANS 1973-1:2007 certification.	Sum	1			
Q.21		Electrical work for chemical dosing and MCC including all cabling, mounting trays and fixtures inclusive of all consumables.	Sum	1			
Q.22		Commissioning, acceptance and maintenance obligations of all plant and equipment under above two items	Sum	1			
TOTAL CARRIED FORWARD TO SUMMARY							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION R: MIXING AND FLOC FORMATION**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
R		<u>SECTION V: MIXING AND FLOC FORMATION</u>					
		Supply, Deliver and Install					
R.1		Manufacture flash mixer unit for mixing of chemicals in-line. Unit will be manufactured from 316 SS pipework; 300 mm vessel and 4 m long flange on both sides with 4 x 50 mm sockets welded to unit at intervals of 500 mm.	No	1			
R.2		25 mm HDPE up-stream header piping to each flocculating clarifier unit	No	1			
R.3		Chemical resistant flow regulating valves in front of each dosing point at the clarifiers.	No	3			
R.4		Commissioning, acceptance and maintenance obligations of all plant and equipment under above items	Sum	1			
TOTAL CARRIED FORWARD TO SUMMARY							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION S: CLARIFICATION**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
S		<u>SECTION W: CLARIFICATION</u>					
		Supply, Deliver and Install					
S.1		Pre-manufactured integrated high rate flocculant clarifiers, Water Skills type. With a maximum up flow rate of 2.5m/h, inclusive of all valves, pipes, and automated desludging equipment. Each unit will be equipped with a surge system with a retention time of 20 minutes including scour and overflow. The supplier shall guarantee these units for 5 years against any defects.	No	2			
S.2		Access to be provided to each clarifier by means of stairs and walkways across the clarifiers, walkways and stairs to be manufactured out of GRP approved products. Total length required 20 m.	Sum	1			
S.3		Supply and install Settled Water collection piping 200 PVC Class 9 to tanks, inclusive of SS 316 brackets and bolts.	Sum	1			
S.4		Supply and install new 200 mm PVC Class 9 de-sludge piping to be connected to existing sludge line. Inclusive of excavation, installation, backfilling and compaction.	m	60			
S.5		Automatic de-sludge valves, one per clarifier inclusive of density meter.	No	3			
S.6		MCC Controller unit for automatic desludge valves integrated into operations and functionality of plant.	Sum	1			
S.7		Commissioning, acceptance and maintenance obligations of all plant and equipment under above items	Sum	1			
TOTAL CARRIED FORWARD TO SUMMARY							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION T: CLARIFIED WATER ACCUMULATION TANK**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
T		<u>SECTION X: CLARIFIED WATER ACCUMULATION TANK</u>					
		Supply, Deliver and Install					
T.1		10,000 litre heavy duty LDPE tanks with 110 mm flange connections.	No	2			
T.2		Supply pipework from clarified tanks to filter pumps suction manifold 110 mm PVC Class 9	m	20			
TOTAL CARRIED FORWARD TO SUMMARY							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION U: FILTRATION**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
U		<u>SECTION Y: FILTRATION</u>					
		Supply, Deliver and Install					
U.1		Supply 160 mm galvanized suction manifold including bolts, nuts and gaskets.	Sum	1			
U.2		4 x double flanged filter pumps valves and 2 x wafer NRV - all 200 mm.	Sum	1			
U.3		Supply and install 2 x filter pumps, one duty and one standby, with the following duty point: 12 l/s at 15 m head, 1450 rpm. Filter pumps will be supplied by Grundfos, KSB or Wilo.	No	2			
U.4		Supply and install 110 mm flanged galvanized pipes from pumps to the filter units.	Sum	1			
U.5		Supply and install 110 mm flanged galvanized pipework to filter manifolds	Sum	1			
U.6		Pre-manufactured rapid gravity filters or dual media high pressure filters with minimum bed depth of 1200mm. All vessels shall be manufactured to the relevant SANS codes with certification. Minimum pressure rating: 6 Bar. Maximum filtration under any circumstance is limited to 11m/h. The filters shall be supplied with at least 450mm dia cover for easy access during media replacement.	No	4			
U.7		Supply and install filter media for filters for sand filters	Sum	1			
U.8		Supply and install automatic backwash valves electrically actuated complete with all supports and extended SS 316 shafts. Rotork product or similar.	No	9			
U.9		PLC controller for automatic backwash valves, controller to be integrated with MCC	Sum	1			
U.10		Electrical cabling and racking for control valves and communications	Sum	1			
U.11		Supply and install pressure gauges on manifolds, 100 mm diameter dial Stainless Steel bodies with brackets glycerine filled. (0 to 1,000 kPa)	No	2			
TOTAL CARRIED FORWARD							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION U: FILTRATION**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
BROUGHT FORWARD							
U.12		PVC 200 mm CL 9 piping from filter outlet to concrete reservoir.	m	50			
U.13		200 mm galvanized flanged connection pipe mounted to top of reservoir, inclusive of bolts, nuts, gaskets and brackets.	Sum	1			
U.14		Electrical work for filter units and MCC including all cabling, mounting trays and fixtures inclusive of all consumables.	Sum	1			
U.15		Supply and install safety relief valves to cancel build up pressure in high pressure filters, rating 9 bar.	No	4			
U.16		Commissioning, acceptance and maintenance obligations of all plant and equipment under above items	Sum	1			

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EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION V: DISINFECTION**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
V		<u>SECTION Z: DISINFECTION</u>					
		Supply, Deliver and Install					
		<u>Chlorination</u>					
V.1		Supply 0 - 400 g/h chlorine system including two manifold mounted vacuum regulators.	Sum	1		Rate Only	
V.2		Auto change over unit and manifold	Sum	1		Rate Only	
V.3		Gas connector piping	Sum	1		Rate Only	
V.4		Injector	No	2		Rate Only	
V.5		Booster pumps	No	2		Rate Only	
V.6		Motive water supply piping 32mm PVC/HDPE, including 2 x 32 mm SSI valves.	Sum	1		Rate Only	
V.7		All gauges, strainers, valves, etc as specified	Sum	1		Rate Only	
V.8		Flow controller	No	1		Rate Only	
		<u>Safety Equipment</u>					
V.9		Cabinet with 2 x gas masks and 2 x spare cannisters complete.	No	1		Rate Only	
V.10		Instructions and safety chart	Sum	1		Rate Only	
V.11		Tools for cylinders including spare flow tube	Sum	1		Rate Only	
V.12		Extraction Fan	No	1		Rate Only	
V.13		Gas detector and alarm unit	No	1		Rate Only	
V.14		Electrical cabling for disinfection	Sum	1		Rate Only	
V.15		Commissioning, acceptance and maintenance obligations of all plant and equipment under above items	Sum	1		Rate Only	
TOTAL CARRIED FORWARD TO SUMMARY						0	00

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION W: O&M MANUALS & TRAINING**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
W		<u>SECTION AA: O&M MANUALS & TRAINING</u>					
W.1		Provide 3 x O&M manuals for package plant.	Sum	1			
W.2		Provide training for 10 days to operators on new plant.	Days	10			
TOTAL CARRIED FORWARD TO SUMMARY							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION X: CIVIL AND BUILDING WORK**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
X		<u>SECTION AB: CIVIL AND BUILDING WORK</u>					
		Building work					
X.1		Clear and grub site	m ²	900			
X.2		Remove and repair existing fence	m	200			
X.3		Cut and fill to obtain level ground	m ³	30			
X.4		Compaction of 150 mm thick in-situ material using a BOMAG 500/800 compactor - giving 8 passes.	m ²	300			
X.5		Removal of non-suitable material and dispose max 5 km away.	m ³	100			
X.6		Replace with imported G7-grade material and compact 8-passes.	m ³	100			
X.7		Excavate for foundations 600 mm x 400 mm	m	140			
X.8		Concrete 25 MPa for strip foundation 600 mm x 300 mm	m ³	26			
X.9		150 mm thick concrete floor 35 MPa for building	m ³	31			
X.10		200 mm thick concrete slab for clarifiers and plinths 35 MPa	m ³	20			
X.11		Reinforcing for slabs and foundations (46 kg/m ³)	kg	3,400			
X.12		Steel float to top of plinths and floor	m ²	330			
X.13		Wood float finish to sides of slab, max 300 mm	m ²	45			
X.14		Supply and install roller shutter door 2,300 mm wide x 2 m high	No	2			
X.15		Supply and install steel doors; 2.3 m x 2.2 m high	No	3			
X.16		Supply and install louvers std 600 mm x 1,200 mm.	No	3			
X.17		Burnt clay brick walls 230 mm x 3.2 m high	m ²	160			
X.18		Face brick walls 230 mm alternative to K17	m ²	160		Rate Only	
TOTAL CARRIED FORWARD							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION X: CIVIL AND BUILDING WORK**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
BROUGHT FORWARD							
X.19		Roof trusses and roof sheeting installed	m²	216			
X.20		Fascia board as specified	m	60			
X.21		Gutters galvanized 75 mm x 100 mm inclusive of brackets.	m	32			
X.22		Gutters down pipes, galvanized.	No	6			
X.23		Dismantle, transport 4 km to new location and reinstall old plant complete including replacement of all nuts and bolts, gaskets and chemical anchors. Relocation of connecting steel pipe work, scaffolding and/or Crane hire to be included.	Sum	1			
X.24		Restoring area of old plant to green-field state	Sum	1			
X.25		Concrete formwork for floor slabs and faces of walls	m²	90			
X.26		Reinforcing mild steel bars; diameter 12 mm.	t	0.30			

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EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION Y: MECHANICAL & ELECTRICAL**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Y		<u>SECTION Y: MECHANICAL & ELECTRICAL</u>					
		Small Electrical Works					
Y.1		MCC in package plant provide local power circuit	No	1			
Y.2		DB for 220 V internal building lighting and plugs	No	1			
Y.3		Cabling for power supply	Sum	1			
Y.4		Installation and terminations of glands	Sum	1			
Y.5		Supply new domestic lighting and power in building with 4 x flood lights	Prov Sum	1			
Y.6		Provisional sum for Telemetry communication for the complete plant, raw water pump station and reservoirs. Provision for licensing fee payable for two years in advance to service provider.	Prov Sum	1			
Y.7		Commissioning, acceptance and maintenance obligations of all plant and equipment under above items	Sum	1			
TOTAL CARRIED FORWARD TO SUMMARY							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION Z: SECURITY FENCING**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
Z	PF 1	<u>SECTION Z: SECURTIY FENCING</u>					
Z.1		Supply and install new steel palisade fencing or similar complete as specified.	m	300		Rate Only	
Z.2		Supply and install new 4m wide sliding steel gate complete including vandal proof locking mechanism.	No	2		Rate Only	
TOTAL CARRIED FORWARD TO SUMMARY							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION AA: PIPEWORKS: WTW INLET, DOSING, OUTLET & RESERVOIR INLET**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
AA		<u>SECTION AA: PIPEWORKS: WTW INLET, DOSING, OUTLET & RESERVOIR INLET</u> Water Treatment Package plant to be designed and installed by Specialist contractor. All designs to be submitted to engineer for review and approval before any manufacturing may commence. The scheduled items listed below indicate the minimum specification as required by the client / consulting engineer. Tenderers are cautioned to not under quote the process design as specified in the specification below.					
AA.1		PIPEWORKS: WTW INLET, DOSING, OUTLET & RES INLET PIPING, FITTINGS & VALVES Supply, manufacture / procure, deliver & install the following pipes, pipe fittings & valves. All welds to comply with the API 1104 Standard. *Piping in accordance with SANS 62 Part 1-1989: Table 2 - Medium class steel pipes. *All flanges to be as detailed *All metalwork must be cleaned, using a mechanical driven wire brush and hot dipped galvanised in accordance with SANS 763. All piping and fittings shall be hot dipped galvanised to SANS 763 specification. All flanges to be Table 10. Refer to detailed drawing for the following:					
AA.1.1		Item 02: 200mm Ø, 90 deg Bend with T16 Flanges	No	6			
AA.1.2		Item 03: 250mm Ø Straight 1250mm long, T16 flanged.	No	2			
AA.1.3		Item 04: 250mm Ø Straight 2780mm long, T16 flanged.	No	3			
AA.1.4		Item 05: 200mm Ø Globe Isolation with T16 flanges and epoxy coated body.	No	1			
TOTAL CARRIED FORWARD							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION AA: PIPEWORKS: WTW INLET, DOSING, OUTLET & RESERVOIR INLET**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
BROUGHT FORWARD							
AA.1.5		Item 06: 200mm Ø Straight 1100mm long, T16 flanged with 2 x sockets for tap point and no-flow switch.	No	1			
AA.1.6		Item 07: 200mm Ø Magflow meter with 4-20mA output, T16 flanged. (1x Raw Water Inlet Pipework & 1x Filtered water main to Pressure Filters)	No	2			
AA.1.7		Item 08: 200mm Insulating gasket set as per detail.	No	2			
AA.1.8		Item 09: 750mm Ø Straight 1500mm long with 2 x T16 flange and 4 x 1" female threaded sockets for dosing points. Manufactured from Gr. 304 Stainless Steel.	No	1			
AA.1.9		Item 10: 200mm dia Static inline mixer, T16 flanged. (G value > 1 000 @ 20 l/s, Model INSTAMIX IX/200/200/0). Supplied by MIXTEC or similar approved. Manufactured from Gr. 304 Stainless Steel.	No	2			
AA.1.10		Item 11: 200mm Ø Straight 450mm long, T16 flanged, and 2 x 1" female threaded sockets for dosing points. Manufactured from Gr. 304 Stainless Steel.	No	1			
AA.1.11		Item 12: 200mm Ø, 180deg Bend with T16 Flanges	No	1			
AA.1.12		Item 13: Reservoir Inlet Pipe Support Bracket	No	2			
AA.1.13		Pipe Support Bracket: Floor mounted pipe support bracket. Manufactured to suite dimensions on site and pipe diameter. All fully galvanized. Refer to drawing detail.	No	5			
TOTAL CARRIED FORWARD							

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EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION AA: PIPEWORKS: WTW INLET, DOSING, OUTLET & RESERVOIR INLET**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
BROUGHT FORWARD							
AA.1.14		Sundries Allow for galvanized bolts for pipe connections as measured above.	Sum	1			
AA.1.15		Allow for I-Rings, gaskets etc. for pipe connections measured above.	Sum	1			
AA.2		WTW PACKAGE PLANT Package Type Water Purification Works, with Treatment Capacity / Rate of min. 72 kl/hour Using a blended polymeric coagulant with a relatively high inorganic content. The treatment process stages will be: - Pre-chlorination Coagulant dosage (and pH adjustment) Flash Mixing Flocculation Settling (Clarification) Filtration Post -chlorination disinfection DESIGN, FABRICATE & INSTALL the following to the Plant:					
AA.2.1		Raw-water No-flow switch, Installed to Inlet / Dosing Pipework.	No	1			
AA.2.2		Pre-Chlorination, allowance to be made in the supply main for a dosage point and pipework, capable of dosing 2500ml/hour of 15% Sodium Hypo-Chloride solution.	Sum	1			
AA.2.3		Coagulant dosage, to the inlet pipework, before and between the static mixers for a dosage point and pipework, capable of dosing 864ml/hour (12mg/l).	Sum	1			
TOTAL CARRIED FORWARD							

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EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION AA: PIPEWORKS: WTW INLET, DOSING, OUTLET & RESERVOIR INLET**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
BROUGHT FORWARD							
		<u>Flocculation:</u> This shall be incorporated into the first compartment of the steel clarifier (minimum 2 x steel Clarifiers). This should discharge at TWL of the clarifier without entry turbulence. A retention time of 15-20 min at nominal treatment rate is required giving a tank volume of 12.5 - 16.7m3 per clarifier. Flocculation to be achieved mechanically with VSD drives on motors so that the speed can be varied for optimal performance. <u>Clarification:</u> The clarifiers must consist of 2 x Inclined Lamella Sheet Clarifiers. The Clarifier Structures must be robust in their design and fabrication to ensure that strength and rigidity have not been compromised. Each unit must conservatively produce 50kl/h of settled water. The up-flow velocity shall NOT exceed 1.5m/h. These tanks must be fabricated from mild steel and epoxy coated to a minimum DFT of 250 Micron. A final Polyurethane topcoat must be applied to all surfaces for UV protection to prevent the "chalking" of the copon paint. All supporting framework and V-notch weir plates including 550 microns PVC sheets (Lamella Plates) and 8mm rods, brackets and fasteners, must be fabricated all from 304 Stainless steel. The price must include for all pipework in 200NB, valves, gaskets and fasteners, between Settling Tanks and Buffer/Balancing Tanks all from Mild Steel. Automatic Desludge, including electrics and valves have to be allowed for on each of the Settling Tanks.					
TOTAL CARRIED FORWARD							

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EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION AA: PIPEWORKS: WTW INLET, DOSING, OUTLET & RESERVOIR INLET**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
BROUGHT FORWARD							
AA.2.4		Two sludge collection hoppers must be incorporated into the design of the clarifier, with a perforated draw-off pipe at the bottom of each trough. Each draw-off pipe must be automatically or manually controlled by an actuated butterfly or versatrol valve discharging into a sludge channel or pipe. The waste pipe / channel will discharge the sludge into a sludge lagoon. The sizes of the perforations on the draw off pipes have been carefully calculated to allow for the proper and complete removal of sludge along the pipe. If the holes are too big, the troughs will desludge only closer to the draw off point as water takes the path of least resistance. If the holes are too small, you run the risk of blockage and therefore, proper desludging will be severely compromised. The sides of the troughs will be formed at 60 degrees to ensure that the sludge completely settles to the bottom of the hopper and does not accumulate along the sides.					
		The clarified water should discharge by overflow from v-notch weir collector troughs. The clarified water must gravity flow with uPVC pipes to a 10kl buffer tank.					
		Manufacture / Procure, deliver to site and install 2 x 50kl/h (each) rectangular steel clarifiers (inclined Lamella sheet) with a combined capacity of 100kl/h. Clarifiers to have internal flocculation compartment and flocculators. Price to include all inlet, outlet and desludge pipework, pneumatic valves, PLC, etc. for the full automated operation of the clarifiers, access ladders walkways, railings etc.	Sum	1			
AA.2.5		E.O above for elevated Access Platform. 1.2m Wide 'Rectagrid' walkway over clarifiers, complete with access ladder and hand railing. Walkway to give safe access to all clarifiers and length to suit clarifier configuration.	Sum	1			
TOTAL CARRIED FORWARD							

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EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION AA: PIPEWORKS: WTW INLET, DOSING, OUTLET & RESERVOIR INLET**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
BROUGHT FORWARD							
AA.2.6		Manufacture / Procure, deliver to site and install a buffer tank from where the filter pumps will pump from (10 000L). <u>Filter Booster Pumps:</u> Manufacture / Procure, deliver to site and install two filter booster pumps (Duty & Standby), each capable of delivering 22.2 l/s, 80m³/hour, on a manifold such that either pump can be used for all the filters. Pumps to be Vertical Centrifugal type equipped with energy efficient electrical motors, all controlled by Motor Control Centre (Measured elsewhere) with Variable Speed Drives. <u>Pressure Filters:</u> For a plant of this size 3 x pressure filters are preferred for reason of simplicity. Overflow from the clarifier will flow to a buffer tank of at least 10m³ from which it will be pumped to the filters by pumps operating on level probe control. The filters must be sized for a treatment rate of 80 m³/h (10% higher than raw pump rate) to avoid bottlenecking. Filters to be equipped with a removable 'rain plate' and must be manufactured from 10% torospherical dished ends and consist of 8mm 430A boiler plate. A minimum of 55 - 60 nozzles per m². Filters have to be sized at a filtration rate of 6-7 m/h. For reasons of robustness of equipment and ease of repair the filters should be of steel construction with suitable corrosion protection. The filter bed should be dual filter media, 1.2 m deep and space shall be allowed for bed expansion when backwashing so that there is no loss of media. The filter media shall be supported by a suitable base plate with nozzles for collection of filtered water and for backwashing. The backwash rate shall be selected to suit the media such that washing is effective without incurring loss of media. Manual backwashing required. A consecutive air and water backwashing should be used. Air scour to be provided at a rate of 50m³/m²/h filter area by means of an air blower.	Sum	1			
TOTAL CARRIED FORWARD							

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EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION AA: PIPEWORKS: WTW INLET, DOSING, OUTLET & RESERVOIR INLET**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
BROUGHT FORWARD							
AA.2.7		<u>Filter Booster Pumps:</u> Manufacture / Procure, deliver to site and install two filter booster pumps (Duty & Standby), each capable of delivering 22.2 l/s, 80m³/hour, on a manifold such that either pump can be used for all the filters. Pumps to be Vertical Centrifugal type equipped with energy efficient electrical motors, all controlled by Motor Control Centre (Measured elsewhere) with Variable Speed Drives. <u>Pressure Filters:</u> For a plant of this size 3 x pressure filters are preferred for reason of simplicity. Overflow from the clarifier will flow to a buffer tank of at least 10m³ from which it will be pumped to the filters by pumps operating on level probe control. The filters must be sized for a treatment rate of 80 m³/h (10% higher than raw pump rate) to avoid bottlenecking. Filters to be equipped with a removable 'rain plate' and must be manufactured from 10% torospherical dished ends and consist of 8mm 430A boiler plate. A minimum of 55 - 60 nozzles per m². Filters have to be sized at a filtration rate of 6-7 m/h. For reasons of robustness of equipment and ease of repair the filters should be of steel construction with suitable corrosion protection. The filter bed should be dual filter media, 1.2 m deep and space shall be allowed for bed expansion when backwashing so that there is no loss of media. The filter media shall be supported by a suitable base plate with nozzles for collection of filtered water and for backwashing. The backwash rate shall be selected to suit the media such that washing is effective without incurring loss of media. Manual backwashing required. A consecutive air and water backwashing should be used. Air scour to be provided at a rate of 50m³/m²/h filter area by means of an air blower.	Sum	1			
TOTAL CARRIED FORWARD							

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EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION AA: PIPEWORKS: WTW INLET, DOSING, OUTLET & RESERVOIR INLET**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
BROUGHT FORWARD							
AA.2.8		Manufacture / Procure, deliver to site and install a minimum of three, pressure filters, with a combined capacity of, 80 m³/hour and a maximum filtration rate of 6-7m/hour. Price to include all inlet, outlet and backwash pipework, pneumatic valves, PLC, etc. for the semi-automated operation. (Semi-operation meaning that the operator shall manually initiate the backwash cycle for each filter at a time, by selector switch. Backwash water to be supplied by filter booster pumps)	Sum	1			
AA.2.9		<u>Air Blower:</u> Manufacture / Procure, deliver to site and install an air blower at a rate 50m³ per m² filter area. (Duty Only configuration) <u>Dosing:</u> All Dosing Equipment to be interlocked with No-Flow switch on inlet pipework. Design, Supply and Install the following:	Sum	1			
AA.2.10		Manufacture / Procure, deliver to site and install three dosage pumps, each with a 2500ml/hour feed rate capacity, one to supply post-chlorination, one to supply pre-chlorination and the third as standby for both.	Sum	1			
AA.2.11		Manufacture / Procure, deliver to site and install two 100-liter storage tanks (PVC or similar) for 15% Sodium Hypo-chloride solution, one for dosing and one for filling.	Sum	1			
AA.2.12		Manufacture / Procure, deliver to site and install two dosage pumps, each with a 1000 ml/hour feed rate capacity, one operating and one standby	Sum	1			
TOTAL CARRIED FORWARD							

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EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION AA: PIPEWORKS: WTW INLET, DOSING, OUTLET & RESERVOIR INLET**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
BROUGHT FORWARD							
AA.2.13		Manufacture / Procure, deliver to site and install two 100-liter storage tanks (PVC or similar) for coagulant with common manifold for both pumps, one for dosing and one for filling, allowance to be made for a potable water supply for dilution and washing.	Sum	1			
AA.2.14		Allow for full screening tests to identify the best suitable coagulant and at least 200 litres of coagulant after plant have been commissioned.	Sum	1			
AA.2.15		20-litre DKM Floc 555 (Or most suitable, as tested)	ℓ	15			
AA.2.16		20-litre Sodium Hypo-Chloride	ℓ	15			
AA.2.17		Manufacture / Procure, deliver to site and install two dosage pumps on a common manifold for a 5% soda ash solution, each with a 12 litre/hour feed rate capacity, one operating and one standby.	Sum	1			
AA.2.18		Manufacture / Procure, deliver to site and install two 100-liter storage tanks (PVC or similar) for pH correction with common manifold for both pumps, one for dosing and one for filling, allowance to be made for a potable water supply for dilution and washing.	Sum	1			
<u>Interconnecting Pipework</u>							
AA.2.19		Manufacture / Procure, deliver to site and install all interconnecting pipework for package plant (welded PVC with flanges at critical points for ease of removal of filters, pumps etc. for repair or maintenance).	Sum	1			
AA.2.20		Procure, deliver to site and install venturi type flow meter on filtered water, including throttling valves.	Sum	1			
AA.2.21		Manufacture / Procure, deliver to site 6m x 2.4m converted shipping container, fully refurbished, including doors, whirley bird ventilator, to house all dosage equipment, Filter booster pumps, Air Blower, controls, MCC and DB's.	Sum	1			
TOTAL CARRIED FORWARD							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION AA: PIPEWORKS: WTW INLET, DOSING, OUTLET & RESERVOIR INLET**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
BROUGHT FORWARD							
AA.2.22		Allowance for all additional items, probes, valves, electrical cables, pipework, etc. for specific package WTW plant to operate efficiently.	Sum	1			
AA.2.23		<u>Drawings:</u> Allowance to be made to submit detailed layout drawings, construction drawings, line diagrams and As-built drawings.	Sum	1			
AA.2.24		Allowance to be made for plant to switch off automatically when: 1) The No-flow switch on the inlet pipework detects no flow and, 2) The buffer tank where the filters draw water from is on minimum level. Until the operator presses the start button to start plant operation again.	Sum	1			
		<u>Fire Hydrant</u>					
AA.2.25		Supply & Installation of 'Chubb' or similar Fire Hydrant, incl. 30m Hose Reel, with supply from domestic supply, etc.	Sum	1			
AA.2.26		4.5kg Fire Extinguisher	No	1			
AA.3		ELECTRICAL SUPPLY & SWITCH GEAR FOR PACKAGE WTW					
		<u>ELECTRICAL MOTOR CONTROL CENTRES, SWITCHGEAR & CABLES</u> All electrical installations must be done by a certified electrician in accordance with the latest issue of the South African Institute of Electrical Engineer's Standard Regulations.					
		Supply, installation, commissioning and testing of the following:					
AA.3.1		Supply & install new Main Distribution Kiosk, for supply to New Package WTW MCC	No	1			
TOTAL CARRIED FORWARD							

CONTRACT NO: NKO 61/2022

EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION AA: PIPEWORKS: WTW INLET, DOSING, OUTLET & RESERVOIR INLET**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
BROUGHT FORWARD							
AA.3.2		Supply and install Treatment Works MCC panel in container Incl VSD starters to filter booster pumps, Blower, PLC's, Actuators & Automated operation of Dosing and Filtration systems etc.	No	1			
AA.3.3		Allow for Domestic electrical wiring of 6m Container and WTW LED flood lights e.g., Plugs lights etc.	No	1			
AA.3.4		Supply & install new Lockstops	Sum	1			
AA.3.5		Supply & install new Float switch	Sum	1			
AA.3.6		Supply & install new No-Flow Switch	No	2			
AA.3.7		Supply & install new LED 5' Twin Fluorescent Fittings	No	2			
AA.3.8		Supply & install new LED Bulkhead Fittings	No	3			
AA.3.9		Supply & install new Daylight Switch	No	1			
AA.3.10		Supply & install new Light Switches	No	2			
AA.3.11		Supply & install new Socket Outlets	No	4			
AA.3.12		Supply & install new Welding Plug	No	1			
AA.3.13		Supply & install new Lightning Protection for WTW	No	1			
		<u>CABLES (To be confirmed)</u>					
AA.3.14		25mm² x 4 core & ECC (Meter Panel to new DB Kiosk)	m	50			
AA.3.15		25mm² x 4 core & ECC (New DB Kiosk to new Package Plant)	m	60			
AA.4		<u>CABLE ENDS</u>					
AA.4.1		25mm² x 4 core & ECC	No	4			
AA.4.2		Cable Trench & backfilling	m	128			
AA.4.3		Junction Boxes	Sum	1			
TOTAL CARRIED FORWARD							

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EXTENSION OF LOUIEVILLE WATER: PHASE 2: STORAGE TANK AND PACKAGE PLANT

SANS 1200**PACKAGE PLANT****SECTION AA: PIPEWORKS: WTW INLET, DOSING, OUTLET & RESERVOIR INLET**

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
						R	c
BROUGHT FORWARD							
AA.4.4		P2200 Trunking & Conduit 20mm PVC & Fittings	Sum	1			
AA.5		<u>GENERAL</u>					
AA.5.1		Issue an electrical Certificate of Compliance upon completion and testing of installation.	Sum	1			
TOTAL CARRIED FORWARD TO SUMMARY							

NKOMAZI MUNICIPALITY**CONTRACT NO: NKO 61/2022****FOR****EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND
PACKAGE PLANT****SUMMARY OF SCHEDULE OF QUANTITIES**

SECTION	DESCRIPTION	PAGE	AMOUNT
A	PRELIMINARY AND GENERAL	C.2.2-4	
B	SITE CLEARANCE AND EARTHWORKS	C.2.2-6	
C	CONCRETE	C.2.2-7	
D	PIPELINES	C.2.2-12	
E	ELEVATED TANK AND SUPPORT FRAME	C.2.2-13	
F	BOOSTER PUMPS TO ELEVATED STEEL TANK	C.2.2-14	
G	ESTABLISHMENT AND INTER-BOREHOLE MOVES	C.2.2-15	
H	ROTARY PERCUSSION AIR FLUSH DRILLING	C.2.2-16	
I	BOREHOLE CONSTRUCTION	C.2.2-17	
J	SUPPLY OF CASING MATERIAL	C.2.2-18	
K	TESTING OF BOREHOLES	C.2.2-19	
L	BOREHOLE REHABILITATION	C.2.2-20	
M	CONCRETE WORK	C.2.2-21	
N	PUMP AND PIPE WORK INSTALLATION	C.2.2-23	
O	ELECTRICAL EQUIPMENT INSTALLATIONS	C.2.2-24	
P	RAW WATER ABSTRACTION	C.2.2-27	
Q	CHEMICAL DOSING	C.2.2-29	
R	MIXING AND FLOC FORMATION	C.2.2-30	
S	CLARIFICATION	C.2.2-31	
T	CLARIFIED WATER ACCUMULATION TANK	C.2.2-32	
U	FILTRATION	C.2.2-35	
V	DISINFECTION	C.2.2-34	
W	O&M MANUALS & TRAINING	C.2.2-35	

SECTION	DESCRIPTION	PAGE	AMOUNT
X	CIVIL AND BUILDING WORK	C.2.2-38	
Y	MECHANICAL & ELECTRICAL	C.2.2-39	
Z	SECURITY FENCING	C.2.2-40	
AA	PIPEWORKS: WTW INLET, DOSING, OUTLET & RESERVOIR INLET	C.2.2-52	
1	Gross Amount of Tender		
1.1	Allowance for Contingencies (10% of 1)		
2	TOTAL AMOUNT OF TENDER (1 + 1.1)		
2.1	Add 15% VAT (15% of 2)		
TOTAL AMOUNT CARRIED TO <u>FORM OF OFFER</u> (2 + 2.1)			

NKOMAZI MUNICIPALITY

CONTRACT NO: NKO 61/2022

FOR

**EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND
PACKAGE PLANT**

PART C3 SCOPE OF WORKS

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C3.2 ENGINEERING	C3.2-1
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C3.6.2 Protection of the Public	C3.6-1
C3.6.3 Barricades and Lighting	C3.6-1
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C3.6.6 Aids Awareness	C3.6-2

C3.1 DESCRIPTION OF THE WORKS

C3.1.1 EMPLOYER'S OBJECTIVES

The Employer requires that Louieville be supplied with a water reticulation network to ensure each stand receives potable water.

The Employer desires that the work required be of a high standard and be completed in the shortest practical time whilst ensuring a good product.

C3.1.2 OVERVIEW OF THE WORKS

The contract comprises the supply and installation of a water reticulation network with metered house connections with four supply zones. The level of the zones differs and will be fed from sectional steel tank reservoirs at different levels.

One existing 0.5 Ml/d water treatment package plant will be moved to a new location. A new 1 Ml/d water treatment package plant will be erected.

Booster pump stations will be constructed to pump the treated water from the package plants to the reservoirs.

Two new sectional steel tank reservoirs will be erected to supply the new water distribution zones.

Water will be supplied from two existing water withdrawal points in the river and augmented with groundwater from new and existing boreholes. Water will be pumped from the sources to the package plant and from the package plant to the reservoirs.

C3.1.3 EXTENT OF WORKS

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

- (a) civil construction and mechanical and electrical equipping of pump stations;
- (b) erection of sectional steel tank reservoirs;
- (c) construction of reinforced concrete foundations for the sectional steel tank reservoir;
- (d) dismantling and re-erection of a water treatment package plant;
- (e) construction of a new water treatment package plant.
- (f) locating, drilling and equipping of boreholes.

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

Approximate quantities of each type of work are given in the Bill of Quantities.

C3.1.4 LOCATION OF THE WORKS

The work to be done is in Louieville. Louieville is situated on the road between Barberton and Kaapmuiden. The turn-off to Louieville is at Low's Creek. The village is situated in the Nkomazi Municipality.

C3.1.5 TEMPORARY WORKS

No temporary Works will be required contractually.

C3.2 ENGINEERING**C3.2.1 DESIGN**

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

C3.2.2 EMPLOYER'S DESIGN

The Employer's Design is contained in the Tender Documentation and Drawings. Amendments to the design, if necessary, will be issued during the construction phase.

C3.2.3 CONTRACTOR'S DESIGN

Not applicable.

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

C3.2.4 DRAWINGS

The Contractor shall use only the dimensions stated in figures on the Drawings in setting out the Works, and dimensions shall not be scaled from the Drawings, unless instructed by the Engineer. The Engineer will, on the request of the Contractor in accordance with the provisions of the Conditions of Contract, provide such dimensions as may have been omitted from the Drawings.

The Contractor shall ensure that accurate as-built records are kept of all infrastructure installed or relocated during the contract. The position of pipe bends, junction boxes, duct ends and all other underground infrastructure shall be given by either co-ordinates or stake value and offset. Where necessary, levels shall also be given. A marked-up set of drawings shall also be kept and updated by the Contractor. This information shall be supplied to the Engineer's Representative on a regular basis.

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

C3.2-2

The Drawings prepared by the Employer for the permanent Works are listed below and are bound in a separate document or are attached at the back of this volume. The Employer reserves the right to issue and/or amended additional drawings during the Contract.

Drawings	Description
NS3312/01	NAME BOARD
NS3312/02	RETICULATION LAYOUT PLAN
NS3312/09	BH DISCHARGE PIPE WORK
NS3312/10	BH BELT GUARD
NS3312/11	LAYOUT OF STEEL TANK AND VALVE CHAMBER DETAIL
NS3312/12	PIPEWORK AND REDORCEMENT DETAIL
NS3312/13	GUARD HOUSE / OPERATOR FACILITIES BUILDING DETAILS
NS3312/14	PACKAGE PLANT SCHEMATIC PLAN & ELEVATIONS
NS3312/15	PACKAGE PLANT STEEL STRUCTURE DETAILS

C3.2.5 **DESIGN PROCEDURES**

Not applicable.

C3.3 PROCUREMENT

C3.3.1 PREFERENTIAL PROCUREMENT

C3.3.1.1 Requirements

Tenders will be evaluated in terms of the NKOMAZI MUNICIPALITY Preferential Procurement Policy. Points will be awarded for price and specific contract participation goals as contained in the Tender Data.

C3.3.1.2 Resource standard pertaining to targeted procurement

The Preferential Procurement Policy (PPP) of the NKOMAZI MUNICIPALITY is applicable to this project.

C3.3.2 SUBCONTRACTING

C3.3.2.1 Scope of mandatory subcontract works

Not applicable.

However, local subcontractors should be considered provided they are capable.

C3.3.2.2 Preferred subcontractors/suppliers

Not applicable.

However, local suppliers should be considered where possible.

C3.3.2.3 Subcontracting procedures

Not applicable.

C3.3.2.4 Attendance on subcontractors

Not applicable.

C3.4 CONSTRUCTION**C3.4.1 WORKS SPECIFICATIONS****C3.4.1.1 Applicable SANS 1200 Standardized Specifications for Civil Engineering Construction**

- (a) The following SANS 1200 Standardized Specifications for civil engineering construction are applicable:

SANS 1200 A	:	General (1986)
SANS 1200 AB	:	Engineer's office (1986)
SANS 1200 C	:	Site clearance (1982)
SANS 1200 D	:	Earthworks (1988)
SANS 1200 DB	:	Earthworks (pipe trenches) (1989)
SANS 1200 DM	:	Earthworks (roads, subgrade) (1981)
SANS 1200 G	:	Concrete (structural) (1982)
SANS 1200 L	:	Medium-pressure pipelines (1983)
SANS 1200 LB	:	Bedding (pipes) (1983)

- (b) The term "project specification" must be replaced by "scope of works" wherever it appears in these standardized specifications.

C3.4.1.2 National and International Standards

Not applicable.

C3.4.1.3 Particular Specifications

The following Particular Specifications for work not covered by the SANS 1200 Standardized Specifications are also included hereunder:

PB : Building Work
PF : Fencing

PS PME : Mechanical and Electrical Project Specifications
PMA : Mechanical and Electrical Particular Specifications

C3.4.1.4 Variations and Additions to the SANS 1200 Standardized Specifications for Civil Engineering Construction

Variations and additions to the SANS 1200 Standardized Specifications listed in C3.4.1.1

C3.4.2 SITE ESTABLISHMENT**C3.4.2.1 Services and facilities provided by the Employer****(a) Water sources**

Water sources will not be made available by the Employer.

(b) Electricity supply

Electricity will not be supplied by the Employer.

(c) Excrement disposal

Sewage disposal facilities will not be supplied by the Employer.

(d) Area for contractor's site establishment

A specific area in close proximity to or on the Site of the Works will be made available by the Employer to the Contractor for the Contractor's site establishment. The specific area for the Contractor's site establishment will be identified to the Contractor by the Employer and the Contractor shall have sole use of such area for the duration of the Contract. The Contractor shall use this area only for the purposes of erecting his site offices, workshops, stores and other facilities required for the execution of the Contract. The Contractor shall not use the area nor allow it to be used for any purposes not directly associated with the execution of the Contract.

The Contractor shall be responsible for arranging, at his own cost, for the provision of all services he may require in the area, as well as elsewhere on the Site.

Should the Contractor deem the area made available by the Employer to be inadequate or unsuitable for the Contractor's particular needs, then the Contractor shall be at liberty to make his own arrangements with the owners of other sites which he considers are better suited to his needs; provided always that the use by the Contractor of any area other than that made available to him by the Employer shall be subject to the prior written approval of the Engineer, which approval shall not be unreasonably withheld; and provided further that the Contractor shall have no claim against the Employer in respect of any costs incurred by him, either directly or indirectly in consequence of utilising any area other than that made available to him by the Employer, and which costs exceed those costs allowed for by the Contractor in his Tender.

C3.4.2.2 Facilities provided by the Contractor**(a) Facilities for the Engineer**

The Contractor shall provide on the Site, for the duration of the Contract the following facilities for the Engineer:

Refer to applicable specifications in C3.4.1.1.

(b) Water

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

The sources of all water utilised for the purposes of the Contract shall be subject to the prior approval of the Engineer, which approval shall not be unreasonably withheld.

The Contractor shall comply with all prevailing legislation in respect of drawing water from natural and other sources and shall, when required by the Engineer, produce proof of such compliance. The distribution of water shall be carried out by the Contractor strictly in accordance with the applicable laws and regulations.

All water provided by the Contractor for construction purposes shall be clean, free from undesirable concentrations of deleterious salts and other materials and shall comply with any further relevant specifications of the Contract. The Contractor shall, whenever reasonably required by the Engineer, produce test results demonstrating such compliance. Water provided by the Contractor for human consumption shall be healthy and potable to the satisfaction of the health authorities in the area of the Site.

No separate payment will be made to the Contractor for the obtainment, distribution and consumption of water, the costs of which will be deemed to be included in the Contractor's tendered rates.

(c) Electricity

The Contractor shall, at his own expense, be responsible for obtaining and distributing all electricity as he may require for the purposes of executing the Contract, including electricity for both construction purposes and domestic use, as well as for making all arrangements in connection therewith.

The distribution of electricity shall be carried out by the Contractor strictly in accordance with the applicable laws and regulations.

No separate payment will be made to the Contractor for the obtainment, distribution and consumption of electricity, the costs of which will be deemed to be in the Contractor's tendered rates and prices.

(d) Excrement disposal

The Contractor shall, at his own expense, be responsible for safely and hygienically dealing with and disposing of all human excrement and similar matter generated on the Site during the course of the Contract, to the satisfaction of the Engineer and the responsible health authorities in the area of the Site.

The Contractor shall further comply with any other requirements in this regard as may be stated in the Contract.

No separate payment will be made to the Contractor in respect of discharging his obligations in terms of this subclause and the costs thereof shall be deemed to be included within the Contractor's tendered Preliminary and General Items.

C3.4.2.3 Site usage

The Contractor's employees will not be allowed to stay on site except for the duration of a working day. The only person to be allowed on site for the duration of a calendar day will be the site guard(s).

Access to the site will be in a controlled manner. People visiting the site will have to sign in and out on a daily basis.

C3.4.2.4 Permits and way leaves

The Employer shall be responsible to obtain permits and/or way leaves if required for this Contract.

C3.4.2.5 Features requiring special attention**(a) Site maintenance**

During progress of the work and upon completion thereof, the Site of the Works shall be kept and left in a clean and orderly condition. The Contractor shall store materials and equipment for which he is responsible in an orderly manner, and shall keep the Site free from debris and obstructions.

(b) Testing and quality control**(i) Contractor to engage services of an independent laboratory**

Notwithstanding the requirements of the Specifications pertaining to testing and quality control, the Contractor shall engage the services of an approved independent laboratory to undertake all testing of materials, the results of which are specified in, or may reasonably be inferred from, the Contract. These results will be taken into consideration by the Engineer in deciding whether the quality of materials utilised and workmanship achieved by the Contractor comply with the requirements of the Specifications. The foregoing shall apply irrespective of whether the specifications indicate that the said testing is to be carried out by the Engineer or by the Contractor.

The Contractor shall be responsible for arranging with the independent testing laboratory for the timeous carrying out of all such testing specified in the Contract, at not less than the frequencies and in the manner specified. The Contractor shall promptly provide the Engineer with copies of the results of all such testing carried out by the independent laboratory.

(ii) Additional testing required by the Engineer

In addition to the provisions of subclause C3.4.2.5 (b) (i): Contractor to engage services of an independent laboratory, the Engineer shall be entitled at times during the Contract to require that the Contractor arrange with the independent laboratory to carry out any such tests, additional to those described in subclause C3.4.2.5 (b) (i), at such times and at such locations in the Works as the Engineer shall prescribe. The Contractor shall promptly and without delay arrange with the independent laboratory for carrying out all such additional testing as required by the Engineer, and copies of the test results shall be promptly submitted to the Engineer.

(iii) Costs of testing**(a) Tests in terms of subclause C3.4.2.5 (b) (i)**

The costs of all testing carried out by the independent laboratory in accordance with the requirements of subclause C3.4.2.5 (b) (i), above shall be borne by the Contractor and shall be deemed to be included in the tendered rates and prices for the respective items of work as listed in the Schedule of Quantities and which require testing in terms of the Specifications. No separate payments will be made by the Employer to the Contractor in respect of any testing carried out in terms of subclause C3.4.2.5 (b) (i).

Where, as a result of the consistency of the materials varying or as a result of failure to meet the required specifications for the work, it becomes necessary to carry out additional tests (eg re-tests on rectified work and/or replacement materials), the costs of such additional testing shall be for the Contractor's account.

(b) Additional tests required by the Engineer

The costs of any additional tests required by the Engineer in terms of subclause C3.4.2.5(b)(ii): Additional testing required by the Engineer, shall be reimbursed to the Contractor against substitution of the Provisional Sum allowed therefore in the Schedule of Quantities; provided always that the costs of any such additional tests ordered by the Engineer, the results of which indicate that the quality of the materials utilised and/or the standard of workmanship achieved are/is not in accordance with the specifications, shall not be reimbursable to the Contractor.

(c) Subcontractors

All matters pertaining to subcontractors (including Nominated Subcontractors) and the work executed by them shall be dealt with directly between the Engineer and the Contractor in the context of all subcontract work being an integral part of the Works for which the Contractor is responsible.

The Engineer will not liaise directly with any subcontractors, nor will he issue instructions concerning the subcontract works directly to any subcontractor.

All matters arising from the subcontract agreements shall be dealt with directly between the Contractor and the subcontractors and the Engineer will not become involved.

(d) Opening up and closing down of designated borrow pits

Refer to standardized and or projects specifications.

(e) Access to properties

The Contractor shall organise the work to cause the least possible inconvenience to the public and to the property owners adjacent to or affected by the work, and except as hereunder provided, shall at all times provide and allow pedestrian and vehicular access to properties within or adjoining or affected by the area in which he is working. In this respect the Contractor's attention is drawn to Clause 17.1 of the Conditions of Contract.

If, as a result of restricted road reserve widths and the nature of the work, the construction of bypasses is not feasible, construction shall be carried out under traffic conditions to provide access to erven and properties.

Notwithstanding the foregoing, the Contractor may, with the prior approval of the Engineer (which approval shall not be unreasonably withheld), make arrangements with and obtain the acceptance of the occupiers of erven and properties to close off part of a street, road, footpath or entrance temporarily, provided that the Contractor duly notifies the occupiers of the intended closure and its probable duration, and reopens the route as punctually as possible. Where possible, such streets, roads, footpaths and entrances shall be made safe and reopened to traffic overnight.

Such closure shall not absolve the Contractor from his obligations under the Contract to provide access at all times. Barricades, traffic signs, drums and other safety measures appropriate to the circumstances shall be provided by the Contractor to suit the specific conditions.

(f) Existing residential areas

Electricity and water supply interruptions in existing residential areas shall be kept to a minimum. The Engineer's approval shall be obtained prior to such interruptions and residents shall be notified in writing at least 24 hours but not more than 48 hours in advance. Supplies shall be normalised by 16:00 on the same day.

(g) Employment of local labour and CLO

It is the intention that this Contract should make maximum use of the local labour force that is presently unemployed. To this end the Contractor shall limit the utilisation on the Contract of non-local employees to that of key personnel only and to employ and train local labour to the extent necessary for the execution and completion of this Contract.

The Contractor shall fill in the form entitled Key Personnel in the Forms to be completed by the Tenderer. The data stated on the above-mentioned form will be strictly monitored during the Contract period and any deviations therefrom shall be subject to the prior approval of the Engineer, which approval shall not be unreasonably withheld.

The local municipality will identify a community liaison officer (CLO) for the duration of the project. The Contractor shall employ the CLO and remunerate the CLO according to the local authority's guidelines. A Provisional Sum is included in the Contract for payment of the CLO.

The CLO will be responsible for assisting the Contractor with the acquiring and letting-of of labourers. No local labourer shall be employed without the knowledge of the CLO.

(h) Monthly statements and payment certificates

The statement to be submitted by the Contractor in terms of Clause 49 of the General Conditions of Contract shall be prepared by the Contractor at his own cost, strictly in accordance with the standard payment certificate prescribed by the Engineer, in digital electronic computer format. The Contractor shall, together with a copy of the digital electronic computer file of the statement, submit two (2) A4 size paper copies of the statement.

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

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

Any delay by the Contractor in making the said adjustments and submitting to the Engineer the requisite copies of the adjusted statement for the purposes of the Engineer's payment certificate will be added to the times allowed to the Engineer in terms of Subclause 49.4 of the Conditions of Contract to submit the signed payment certificate to the Employer and the Contractor. Any such delay will also be added to the period in which the Employer is required to make payment to the Contractor.

(i) Construction in restricted areas

Working space is sometimes restricted. The construction method used in these restricted areas largely depends on the Contractor's Plant. Notwithstanding, measurement and payment will be strictly according to the specified cross-sections and dimensions irrespective of the method used, and the rates and prices tendered will be deemed to include full compensation for any difficulties encountered by the Contractor while working in restricted areas. No extra payment or any claim for payment due to these difficulties will be considered.

(j) Notices, signs, barricades and advertisements

All notices, signs and barricades, as well as advertisements, may be used only if approved by the Engineer. The Contractor shall be responsible for their supply, erection, maintenance and ultimate removal and shall make provision for this in his tendered rates.

The Engineer shall have the right to instruct the Contractor to move any sign, notice or advertisement to another position, or to remove it from the Site of the Works if in his opinion it is unsatisfactory, inconvenient or dangerous.

(k) Workmanship and quality control

The onus to produce work that conforms in quality and accuracy of detail to the requirements of the Specifications and Drawings rests with the Contractor, and the Contractor shall, at his own expense, institute a quality control system and provide suitably qualified and experienced engineers, foremen, surveyors, materials technicians, other technicians and technical staff, together with all transport, instruments and equipment to ensure adequate supervision and positive control of the Works at all times.

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

The Contractor's attention is drawn to the provisions of the various Standardized Specifications regarding the minimum frequency of testing required. The Contractor shall, at his own discretion, increase this frequency where necessary to ensure adequate control.

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

C3.4.2.6 Extension of time due to abnormal rainfall

- (a) Extension of time in respect of delays resulting from wet climatic conditions on the Site will only be considered in respect of abnormally wet climatic conditions and shall be determined for each calendar month or part thereof, in accordance with the formula given below:

$$V = (Nw - Nn) + (Rw - Rn)/X$$

in which formula the symbols shall have the following meanings:

V = Potential extension of time in calendar days for the calendar month under consideration:

If V is negative and its absolute value exceeds Nn, then V shall be taken as equal to minus Nn.

When the value of V for any month exceeds the number of days in the particular month, V will be the number of days in the month.

Nw = Actual number of days in the calendar month under consideration on which a rainfall of Y mm or more was recorded on the Site

Nn = Average number of days, derived from existing records of rainfall in the region of the Site, on which a rainfall of Y mm or more was recorded for the calendar month

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R_w = Actual rainfall in mm recorded on the Site in an approved rain gauge for the calendar month under consideration

R_n = Average rainfall in mm for the calendar month, derived from existing records of rainfall in the region of the Site

The factor ($N_w - N_n$) shall be deemed to be a fair allowance for variations from the average number of days during which the rainfall exceeds Y mm.

The factor $(R_w - R_n)/X$ shall be deemed to be a fair allowance for variations from the average number of days during which the rainfall did not exceed Y mm but wet conditions prevented or disrupted work.

- (b) The rainfall records Komatipoort (Rainfall station 0557806) for the period 1986 -1995 are reproduced in the accompanying table, and the monthly averages (R_n and N_n) for this period shall, for the purposes of this Contract be taken as normal and as the values to be substituted for R_n and N_n in the formula above. The values of X and Y shall be 20 and 10 respectively.

MONTH	N_n	R_n	MONTH	N_n	R_n
January	2.7	91.8	July	0.2	4.8
February	21.1	79.4	August	0.6	15.6
March	2.5	73.1	September	0.6	16.5
April	1.0	31.2	October	1.8	49.1
May	0.2	5.2	November	2.0	61.0
June	0.5	11.4	December	3.6	122.3

- (c) The Contractor shall, at his own cost, provide and erect on the Site at a location approved by the Engineer, an approved rain gauge, which shall be fenced off in a manner which will prevent any undue interference by workmen and others. The Contractor shall, at his own cost, arrange for the reading of the rain gauge on a daily basis for the duration of the Contract. The gauge readings, as well as the date and time at which the reading was taken shall be recorded in a separate record book provided by the Contractor for this purpose.

All entries in the rainfall record books shall be signed by the person taking the reading and the gauge shall be properly emptied immediately after each reading has been taken. If required by the Engineer, the Engineer shall be entitled to witness the reading of the gauge.

- (d) The Contractor's claims in terms of Subclause 42.2 of the Conditions of Contract for extension of time in respect of delays resulting from wet climatic conditions on the Site during each month, shall be submitted in writing to the Engineer monthly; provided always that
- (i) the period allowed to the Contractor in terms of Clause 48 of the Conditions of Contract in which to submit his claim for each month shall be reduced to seven (7) days, calculated from the last day of the month to which the claim applies; and
 - (ii) the 28-day period allowed to the Engineer in terms of Subclause 42.2 of the Conditions of Contract in which to give his ruling on the claim, shall be reduced to fourteen (14) days.

The Contractor's monthly claim shall be accompanied by a copy of the signed daily rainfall readings for the applicable month.

- (e) The extent of any extension of time which may be granted to the Contractor in respect of wet climatic conditions (whether normal or abnormal) shall be determined as the algebraic sum of the "V" values for each month between the Commencement Date and the Due Completion Date of the Contract, calculated in accordance with subclause C3.4.2.6(a) above; provided always that
 - (i) rainfall occurring within the period of the Contractor's Christmas shut-down period (referred to in Subclause 1.6 of the Conditions of Contract) shall not be taken into account in the calculation of the monthly "V" values;
 - (ii) rainfall occurring during any period during which the Contractor was delayed due to reasons other than wet climatic conditions on the Site, and for which delay an extension of time is granted by the Engineer, shall not be taken into account in the calculation of the monthly "V" values;
 - (iii) if the algebraic sum of the "V" values for each month is negative, the time for completion will not be reduced on account of subnormal rainfall, and
 - (iv) where rainfall is recorded only for part of a month, the "V" value shall be calculated for that part of the month using pro rata values for N_n and R_n .
- (f) The Engineer shall, simultaneous with granting any extension of time in terms of this clause, revise the Due Completion Date of the Contract to reflect an extension of time having been granted in respect of wet climatic conditions, to the extent of the algebraic sum of all the "V" values for all the preceding months of the Contract, less the aggregate of the " N_n " values for the remaining (unexpired) months of the Contract (viz less aggregate of the potential maximum negative "V" values for the remaining Contract Period). Thus, provided that where such period is negative, the Due Completion Date shall not be revised.
- (g) Any extension of time in respect of wet climatic conditions granted in terms of this clause shall not be deemed to take into account delays experienced by the Contractor in repairing or reinstating damage to or physical loss of the Works arising from the occurrence of abnormal climatic conditions. Extension of time in respect of any such repairs or reinstatement regarding damage shall be the subject of a separate application for extension of time in accordance with the provisions of Clause 42 and Clause 48 of the Conditions of Contract.

C3.4.3 PLANT AND MATERIALS

C3.4.3.1 Plant and materials supplied by the Employer

The Employer will not supply any plant or materials.

C3.4.3.2 Materials, samples and shop drawings

(a) Samples

Materials or work which does not conform to the approved samples submitted in terms of Subclause 23.4 of the General Conditions of Contract will be rejected. The Engineer reserves the right to submit samples to tests to ensure that the material represented by the sample meets the specification requirements.

The costs of any such tests conducted by or on behalf of the Engineer, the results of which indicate that the samples provided by the Contractor do not conform to the requirements of the Contract, shall, in accordance with the provisions of Subclause 23.7 of the General Conditions of Contract, be for the Contractor's account.

C3.4.4 CONSTRUCTION EQUIPMENT

C3.4.4.1 Requirements for equipment

Equipment must be such that the work can be executed in an efficient manner.

C3.4.4.2 Equipment provided by the Employer

No equipment will be provided by the Employer.

C3.4.5 EXISTING SERVICES

C3.4.5.1 Known services

All known services are indicated on the drawings. The onus rests on the Contractor to locate the known services before any construction commences.

C3.4.5.2 Treatment of existing services

Existing services shall be relocated or removed as indicated on the drawings only at the instruction of the Engineer.

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

The Contractor shall utilise whatever necessary equipment to locate underground services. No extra payment will be done for this.

C3.4.5.4 Damage to services

Damage that occurs to unknown services during construction will be paid by the Employer.

However, all services that have been located and exposed, and are subsequently damaged by the Contractor or his subcontractor, shall be reinstated to the same state as it was before the damage occurred at the time and cost of the Contractor.

C3.4.5.5 Reinstatement of services and structures damaged during construction

The Contractor shall inform the Engineer immediately when a service or structure is damaged. The extent of the damage and a proposal how to reinstate the service or structure shall be submitted to the Engineer on a sketch with dimensions and time frames.

The Contractor shall not be allowed to reinstate any service or structure unless indicated so by the Engineer. The Contractor shall render all reasonable assistance to the service or structure owner with the reinstatement of the service or the structure if required.

The Contractor shall be liable to reinstate the service or structure to its original state.

C3.4.6 VARIATIONS AND ADDITIONS TO SANS 1200 STANDARDIZED SPECIFICATIONS AND PARTICULAR SPECIFICATIONS (if applicable)

This Clause comprises two sections.

Section 1 entails variations and additions to the Standardized Specifications.

Section 2 entails particular specifications applicable to the project.

In certain clauses, the Standardized Specifications allow a choice to be specified in the Specification Data between alternative material or methods of construction, and for additional requirements to be specified to suit a particular contract. Details of such alternatives or additional requirements applicable to this contract are contained in this part of the Specification Data. It also contains such additional specifications as are required for this particular contract.

The number of each clause and each payment item in this part of the project specifications consists of the prefix "PS" followed by a number corresponding to the number of the relevant clause or payment item in the Standardized Specifications. New clauses and payment items not covered by clauses or payment items in the Standardized Specifications if included here are also designated "PS", followed by a number. The new numbers follow on the last clause or item number used in the relevant section of the Standardized Specifications.

The particular specifications bound in this document have been written to cover all phases of work usually encountered in contracts of this nature and may therefore cover items of work not encountered in this particular Contract. In case of any discrepancy or conflict with any part of the particular specifications, following mechanical and electrical specifications, which forms part of the scope of works, shall apply.

SECTION 1 : PROJECT SPECIFICATION

SABS 1200 A: GENERAL

A 3 MATERIALS

PS A 3.1 QUALITY

Substitute the second sentence of the first paragraph of A 3.1 with the following:

Materials shall bear the official mark of the appropriate standard.

Substitute the second paragraph with the following:

Samples, on which control the Engineer requires testing, shall be delivered free of charge to a recognised commercial laboratory. The Contractor is responsible for the cost of all testing to ascertain that the materials do comply with the relevant minimum requirements and all such costs shall be deemed to be included in the tendered rates. The cost of control tests done by the Engineer and of which the results do not comply with the minimum requirements shall be for the Contractor's account.

The Contractor shall inform the Engineer of any control testing to be done at least 48 hours before such tests are required and must allow in his program for the time necessary for the tests and the processing of the results thereof.

A 5 CONSTRUCTION

A 5.1 SURVEY

PS A 5.1.1 Setting Out of the Works

Substitute the first sentence in A 5.1.1 with the following:

Setting out of the works is the sole responsibility of the Contractor and shall be done from survey pegs and from benchmarks where applicable. Otherwise, existing stand boundaries will be used as reference. The Contractor shall, within two weeks after the site has been handed over to him, ascertain himself of the correctness of all pegs and benchmarks. Any discrepancy shall immediately be reported in writing to the Engineer. Any costs or subsequent costs arising from discrepancies, which had not been reported to the Engineer within the aforementioned period, shall be the sole responsibility of the Contractor.

Add the following:

Setting out of the works will not be measured and paid for directly, and compensation for the work involved in setting out shall be deemed to be covered by the tendered rates for the various items of work included under the contract.

The Contractor will not be allowed to continue with any work until the Engineer has been given the opportunity to inspect the setting out of the Works.

PS A 5.2 WATCHING, BARRICADING, LIGHTING AND TRAFFIC CROSSINGS

Add the following to A 5.2:

The crossing of existing streets with services must be done in half widths.

Road traffic signs shall comply with the requirements of the "South African Road Traffic Signs Manual" and shall be approved by the Engineer before construction commences.

PS A 5.4 PROTECTION OF OVERHEAD AND UNDERGROUND SERVICES

Add the following to A 5.4:

Detected existing services shall also be indicated on the "As Built" drawings.

Where the Contractor is responsible for the cost of repairs carried out by the Employer or others, the costs will be recovered by means of a deduction from the Contractor's monthly payment certificate.

PS A 5.9 COMMUNITY LIAISON OFFICER (CLO)

A Community Liaison Officer shall be appointed for the Contract in consultation with the PSC and Municipality. His/her role will be to liaise between the Contractor, labourers, community and PSC. The Contractor will pay his remuneration and a provisional sum has been provided for this expenditure. The CLO will assist with the appointment of labour, based on recommendation by the PSC. The CLO must submit a written report about the status of the project at every site meeting.

A duty list for the CLO is attached to the document.

A 7 TESTING

PS A 7.4 STATISTICAL ANALYSIS OF CONTROL TESTS

Substitute A 7.4 with the following:

Test results shall not be evaluated by statistical methods. All results shall comply with the specified minimum requirements as specified in the relevant SANS standards.

A 8 MEASUREMENT AND PAYMENT

PS A 8.5 Sum Stated Provisionally by Engineer

- | | | |
|----|--|------------------|
| 1) | CLO monthly remuneration | Unit : Prov. Sum |
| 2) | Training Student for NLM..... | Unit : Prov. Sum |
| 3) | Laboratory testing-concrete..... | Unit : Prov. Sum |
| 4) | Topographical survey | Unit : Prov. Sum |
| 5) | Occupational Health and Safety Requirements..... | Unit : Prov. Sum |
| 6) | Environmental Management Plan Requirements..... | Unit : Prov. Sum |
| 7) | WULA Application Requirements..... | Unit : Prov. Sum |
| 8) | Social Facilitator..... | Unit : Prov. Sum |
| 9) | Overheads, charges and profit payable to contractor. | Unit : % |

The above provision sums are for the use of the Engineer only. The Contractor shall be remunerated according to the percentage tendered. The Contractor shall reimburse the debtors within 7 days after having received his payment from the

Employer. Failing to do so will result in the following payment certificate not being certified by the Engineer for payment until payment has been done.

PS A 8.7

DAYWORK

Replace A 8.7 with the following:

a) Labour

- i) **un-skilled** Unit : hr
- ii) **semi-skilled** Unit : hr
- iii) **skilled** Unit : hr
- iv) **foreman** Unit : hr

b) Plant

- i) **5 ton tipper truck with operator** Unit : hr
- ii) **0.5 m³ excavator with operator** Unit : hr
- iii) **5,000 l water truck with operator** Unit : hr
- iv) **Bomag (BW 90) compactor with operator** Unit : hr

Dayworks shall only be measured for payment by the Engineer if a written instruction was given by the Engineer to the Contractor.

The unit cost will make provision for the cost of the machine, the fuel and the operator, inclusive of all costs except VAT.

SECTION 1: PROJECT SPECIFICATION**SABS 1200 AB: ENGINEER'S OFFICE****AB 3 MATERIALS****PS AB 3.1 NAME BOARDS**

Substitute "South African Institution of Civil Engineers" in the first paragraph of AB 3.1 with "South African Association of Consulting Engineers".

PS AB 3.2 OFFICE BUILDINGS

One office building is required for the Engineer. The office building shall be located on site.

Insulated Office Container to comply with the following requirements:

- Container to be steel with poly rubber sealant on roof to prevent leaks
- Painting – Wire brushed, treated for rust, painted outside
- Insulation – 40mm polystyrene insulation with Chromadek cladding internally
- Ceiling – 40mm white Chromadek insulated ceiling panels
- Windows – 2 x large steel windows (C2H – 950mm x 1000mm) with steel burglar guards
- Door – 1 x external steel door with Chromadek cladding (790mm x 1980mm)
- Electricity – Distribution board, earth leakage, 3 x 15amp plug points, 2 x single fluorescent lights
- Aircon – 1 x 12000btu cooling only air conditioner with dedicated plug point
- Flooring – Marley industrial flooring

Add the following to AB 3.2:

The office must have an adjacent carport with minimum dimensions of 6 m x 3 m with a free draining, wearing course floor. The roof must be built in such a way that a vehicle will always be shielded against the sun throughout the day. An approved shade net may be used for the sides to comply with above-mentioned requirement.

AB 4 PLANT**PS AB 4.1 TELEPHONE**

No telephone is needed for the Engineer. However, the Engineer will make use of the Contractor's telephone from time to time.

AB 5 CONSTRUCTION**PS AB 5.1 NAME BOARDS**

Add the following to AB 5.1:

The name board shall be erected within a month of the commencement date of the contract and shall be placed at the position indicated by the Engineer. Any damage to these boards shall be repaired within fourteen days of a written instruction issued

by the Engineer. No payment shall be made in terms of the contract prior to the erection of the name board.

The Contractor will be permitted to erect a maximum of two of his own name boards, in positions approved by the Engineer. The Engineer reserves the right to order the removal of these boards if they are not kept in good repair.

PS AB 5.5 SURVEY ASSISTANTS

Substitute "two or more suitably educated survey labourers" in the first sentence of AB 5.5 with "two semi-skilled labourers."

PS AB 5.6 SURVEY EQUIPMENT

The Contractor shall provide the following tested and certified survey equipment on site for the duration of the contract and for the use of the Engineer whenever needed:

- a) one tacheometer plus tripod;
- b) one tacheometer staff and one level staff, both graduated metrically; and
- c) one 5 m and one 100 m tape measure.

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. Damaged equipment shall be replaced immediately.

The Contractor shall maintain the equipment in good working order and keep it clean throughout the contract period.

SECTION 1 : PROJECT SPECIFICATION**SABS 1200 C : SITE CLEARANCE****C 3 MATERIAL****PS C 3.1 DISPOSAL OF MATERIAL**

Substitute the first sentence of C 3.1 with the following:

Material obtained from clearing and grubbing and demolition of structures shall be disposed off at the site indicated during the site inspection.

C 5 CONSTRUCTION**PS C 5.1 AREAS TO BE CLEARED AND GRUBBED**

Substitute the first sentence of C 5.1 with the following:

The Engineer will indicate to the Contractor, which areas need to be cleared and grubbed. The Contractor may proceed with clearing and grubbing of pipe routes limited to a 3 m wide strip only after the Engineer has indicated the above-mentioned routes. Measurement and payment for clearing and grubbing shall only occur for areas as instructed in writing by the Engineer.

Substitute the last paragraph with the following:

The Contractor shall program his work in such a manner that re-clearing will not be necessary. The cost of re-clearing shall be borne by the Contractor.

C 5.2 CUTTING OF TREES**C 5.2.3 Preservation of Trees****PS C 5.2.3.2 Individual trees**

Add the following to C 5.2.3.2:

Trees outside street, channel and pipeline routes must be left standing and undamaged, except where otherwise ordered in writing by the Engineer.

A penalty of R 2 000-00 per tree for trees damaged and/or removed will be charged.

PS C 5.9 EXISTING FENCING

The existing fences must be repaired to its original state immediately after damage to it has occurred. No additional payment will be applicable for repair work.

SECTION 1 : PROJECT SPECIFICATION**SANS 1200 D : EARTHWORKS****D 3 MATERIALS****D 3.3 SELECTION****PS D 3.3.1 General**

Substitute the second paragraph of D 3.3.1 with the following:

The Contractor shall deal in such a way with materials from all excavations for structures and pipe trenches to ensure that usable material is not contaminated with unsuitable material. If usable material is contaminated, such contaminated material shall be removed and replaced with material of standard at least equal to the in situ usable material, all at the Contractor's expense. No additional payment shall be made in respect of this, and all relevant costs shall be deemed to be included in the tendered rates.

D 4 PLANT**PS D 4.5 AVOIDING QUAGMIRE CONDITIONS**

In order to prevent quagmire conditions occurring in the excavations, relatively static plant such as back-actors shall be used combined with hand trimming to complete the excavation to final level. Should the Contractor allow quagmire conditions to develop, he shall, at his own expense, take such steps to rectify the conditions as the Engineer may order.

D 5 CONSTRUCTION**D 5.1 PRECAUTIONS****PS D 5.1.2 Existing Services****PS D 5.1.2.2 Detection, location and exposure add the following to D5.1.2.2:**

The requirements of PSA 5.4 shall apply mutatis mutandis.

D 5.2.2 Excavation**PS D 5.2.2.1 Excavations for general earthworks and for structures**

Add the following to D 5.2.2.1:

Materials under foundations and floors of structures that are regarded by the Engineer as unsuitable for the bearing of such structures shall be removed to the depths and widths ordered. The excavated voids shall then be filled with sand compacted to 100 % of MOD AASHTO density, to the underside of such foundation or floors, unless a soil cement mixture in terms of PS D 5.2.3.2 is ordered by the Engineer.

PS D 5.2.2.3 **Disposal**

Substitute the second sentence of D 5.2.2.3 with the following:

All surplus and unsuitable material shall be dumped and neatly finished off, as indicated by the Engineer, in the vicinity of the site.

PS D 5.2.3.2 **Backfilling of trenches and backfilling against structures**

Add the following to D 5.2.3.2:

Backfilling around structures shall be compacted to 95 % (100 % for sand) of MOD AASHTO density.

When specifically ordered by the Engineer the backfilling against structures shall be done using a mixture of soil cement. The mixture shall contain 5% cement and just sufficient water for it to be placed and compacted like ordinary backfilling material.

SECTION 1 : PROJECT SPECIFICATION

SANS 1200 DB : EARTHWORKS (PIPE TRENCHES)

DB 1 SCOPE

Add the following to DB 1.1:

This specification also covers the excavation for cable trenches.

PS DB 2.2 APPLICATION

Substitute "pipe trenches" with "pipe and cable trenches" in DB 2.2.

D 3 MATERIALS

PS DB 3.5 BACKFILL MATERIALS

Add the following to DB 3.5(b):

- a) Substitute "from trenches" in DB 3.5(a) with "from trenches, or excavations for structures".

DB 4 PLANT

PS DB 4.1 EXCAVATION EQUIPMENT

Add the following to DB 4.1:

All excavations exceeding the specified widths shall be backfilled with approved selected material. No payment shall be made for this, and all relevant costs shall be deemed to be included in the tendered rates.

DB 5 CONSTRUCTION

PS DB 5.1.2 Storm Water, Seepage and Dewatering of Excavations

Add the following to DB 5.1.2:

The cost of dealing with all types of water shall be deemed to be included in the tendered rates for excavation and no additional payment shall be made in this respect.

PS DB 5.2 MINIMUM BASE WIDTHS SPECIFIED

Substitute paragraph (b) of DB 5.2 with the following:

The minimum base width for all pipes with a diameter less than 160 mm shall be 600 mm plus the nominal diameter of the pipes, irrespective of the depth at which they are laid.

The minimum base width for electric cable trenches shall be 500 mm. Where more than one cable is installed in the same trench, the base width shall become 300 mm plus the distance specified between cables. The minimum distance between cables shall be 50 mm.

PS DB 5.5 **TRENCH BOTTOM**

Substitute “90 %” in the second paragraph of DB 5.5 with “93 % (100 % for sand)”.

DB 5.6 **BACKFILLING**

PS DB 5.6.2 **Material for backfilling**

In the first paragraph substitute “from trench excavations” with “from excavations for trenches and structures.”

PS DB 5.6.3 **Disposal of Soft Excavation Material**

Add the following to DB 5.6.3:

All surplus and unsuitable material as described in DB 5.6.3 shall be disposed of at the spoil site.

DB 8 **MEASUREMENT AND PAYMENT**

PS DB 8.1 **BASIC PRINCIPLES**

Delete “along the route of the pipeline” in DB 8.1.1.

DB 8.2 **COMPUTATION OF QUANTITIES**

PS DB 8.2.4 **Shoring**

Add the following to DB 8.2.4:

Shoring will only be measured and paid for if the Engineer gives written approval before it is installed.

DB 8.3 **SCHEDULED ITEMS**

SECTION 1 : PROJECT SPECIFICATION

SANS 1200 G : CONCRETE (STRUCTURAL)

G 3 MATERIAL

G 3.2 CEMENT

PS G 3.2.1 Applicable Specifications

Substitute G 3.2.1 with the following:

All cement types shall comply with the requirements of SANS ENX 197-1.

For this contract only CEM I Portland cement shall be used.

PS G 3.2.3 Storage of Cement

Add the following to G 3.2.3:

Consignments of cement shall be used in the same sequence as that in which they are delivered to site. No cement shall be used which has been stored on site for a period longer than 6 (six) weeks. All cement so stored for a period longer than 6 (six) weeks, all cement damaged in any way or re-bagged, and all cement which does not comply with the specification, shall be removed immediately and permanently from the site.

PS G 3.5.2 Air-entraining Agents

Substitute G 3.5.2 with the following:

Air-entraining agents shall not be used in concrete.

G 4 PLANT

PS G 4.5.3 Ties

Add the following to G 4.5.3:

Permanent sacrificial metal ties shall have a minimum concrete cover of 40 mm after formwork has been removed.

Tie holes shall be filled with an approved expansive cementitious grout similar to "SikaGrout - 212" of Sika. The product shall be prepared and applied to the manufacturer's specifications.

G 5 CONSTRUCTION

G 5.1 REINFORCEMENT

PS G 5.1.3 Cover

Substitute G 5.1.3 with the following:

The cover of concrete over reinforcement, unless otherwise indicated on the drawings, shall in no case be less than 40 mm.

PS G 5.2.1 Classification of Finishes

Add the following to G 5.2.1:

The following surface conditions are required on the various portions of the finished concrete:

(a) Rough

Concealed surfaces and surfaces more than 100 mm below final ground level.

(b) Smooth

All surface finishes not classified as "rough" in paragraph (a) shall be classified as "smooth". All exposed arises (i.e. where the angle between adjacent sides is 110° or less) unless otherwise indicated on the drawings, shall be chamfered 20 mm x 20 mm by means of triangular fillets fixed to the formwork.

PS G 5.2.5 Removal of Formwork

In Table 2 of G 5.2.5.2, substitute "Portland cement and Portland cement 15" in columns 2, 3 and 4 with "CEM 1 Portland cement, delete columns 5 to 10.

PS G 5.4 PIPES AND CONDUITS

Add the following to G 5.4:

All pipes and specials that must be installed in the floors and walls of structures shall be embedded in the concrete during the casting of such concrete. No holes shall be left for the later installation of pipes and specials, without the written approval of the Engineer.

Where the Engineer has approved such holes, the Contractor shall be responsible for the grouting-in of such pipes or specials with an approved expansive cementitious grout as specified in PS G 4.5.3, regardless of whether or not these have been supplied by him. The Contractor shall provide a smooth, dense and waterproof finish around the pipes or specials.

The clear space between pipes of any kind embedded in reinforced concrete and the clear space between such pipes and reinforcement shall at any point be not less than -

(a) 40 mm, or

(b) 5 mm plus the maximum size of coarse aggregate,

whichever is the greater.

G 5.5 CONCRETE**PS G 5.5.1.5 Durability**

Substitute G 5.5.1.5 with the following:

Concrete shall be so proportioned to ensure that the water/cement ratio does not exceed 0,5 and, to ensure workability, water-reducing admixtures of approved manufacture shall be used in preference to increasing the cement content.

PS G 5.5.1.7 Strength concrete

Add the following to G 5.5.1.7:

The grade of strength concrete and the maximum nominal size of coarse aggregate for each portion of the works, unless otherwise indicated on the drawings, shall be as follows:

- (a) Mass concrete under floors and foundations 20 MPa/19 mm
- (b) Blinding layers 20 MPa/19 mm
- (c) Encasing of pipes 20 MPa/19 mm
- (d) Strip foundations 25 MPa/19 mm
- (e) Benching and screeds 20 MPa/10 mm
- (f) Reinforced concrete in water retaining structures 35 MPa/19 mm
- (g) All other reinforced concrete 30 MPa/19 mm

PS D 5.5.7 Construction Joints

Add the following to G 5.5.7.1:

Construction joints shall be limited to the minimum and shall only be made in positions as shown on the drawings or in positions as specifically approved by the Engineer. Construction joints between tank bottoms, floors, or wall bases, and the walls standing on them shall not be made flush with the supporting surface, but shall be made in the wall 150 mm above the base. The 150 mm high riser wall shall be cast as an integral part of the bottom; floor or base, i.e. the concrete in the riser shall be deposited simultaneously with the concrete in the bottom, floor or base adjacent to it. Where there is a fillet at the bottom of a wall, the construction joint shall be made 150 mm above the fillet.

A PVC water stop without centre bulb shall be installed at all construction joints in walls of water retaining structures. The size of the water stops shall be 150 mm in walls thinner than 200 mm and 200 mm in walls of 200 mm thickness and more.

Expandable type joint sealing water stops are not permissible.

PS G 5.5.7.4 Expansion joints

Expansion joints shall be formed in positions and in accordance with details as shown on the drawings. All expansion joints shall be formed with an approved closed cell polyethylene fill material similar to "SPV 120" as supplied by Sondor, with a one-part polyurethane sealant similar to Sikaflex Pro-2 HP as supplied by Sika. The curing agent in the sealant shall not contain lead. Rearguard S-type PVC water stops with centre bulbs shall be installed under floors and Hydrofoil PVC water stops with centre bulbs in walls, as shown on the drawings.

All sealants fill material and water stops shall be installed strictly in accordance with the manufacturer's specification and to the satisfaction of the Engineer.

PS G 5.5.9 Adverse Weather Conditions

Add the following to G 5.5.9.1:

No material having a temperature of below 5°C shall be used for concrete, and no concrete shall be deposited when the ground or air temperature is below 2°C. Furthermore, if the air or ground temperature is likely to fall below 2°C within 12 (twelve) hours after depositing of concrete, no concreting shall be done without the written consent of the Engineer. If such consent is given the Contractor shall heat the aggregate stockpiles and mixing water and defrost the formwork and reinforcement.

PS G 5.5.10 Concrete Surfaces

Add the following to G 5.5.10.1:

Concrete surfaces under screeds, granolithic floor finishes or benching and surfaces of strip foundations and footings shall be brought up to a plane, uniform surface with a suitable screed board.

PS G 5.5.10.4 Wood-floated finish

Where wood floating is specified or scheduled, the surface shall first be given a finish as specified in G 5.5.10.1 and after the concrete has hardened sufficiently; it shall be floated to a uniform surface free from trowel marks. The screed surface shall be wood-floated, either by hand or machine, only sufficiently to produce a uniform surface free from screed marks.

PS G 5.5.10.5 Steel-floated finish

Where steel floating is specified or scheduled, the surface shall be treated as specified in PS G 5.5.10.4 except that, when the moisture film has disappeared and the concrete has hardened sufficiently to prevent laitance from being worked to the surface, the screed surface shall be steel-floated under firm pressure to produce a dense, smooth, uniform surface free from trowel marks.

PS G 5.5.11 Watertight Concrete

Add the following to G 5.5.11:

The following sections of the works are required to hold or exclude water and shall be regarded as water retaining structures:

- a) clarifier,
- b) filters and all tanks in the filter building,
- c) channels and sumps.

PS G 5.5.11.2 Requirements and tests for water tightness of structures

The completed structure shall be watertight, and the quality and finish of the work shall be such that no after-treatment of the work such as plastering or cement wash is necessary to ensure compliance with this requirement.

The works will not be certified complete until the structures enumerated in PS G 5.5.11 has been proved by testing to be watertight.

Upon completion of construction and when so agreed by the Engineer, the structure shall be filled by the gradual admission of water until the water level reaches the designed maximum level. The water level shall then be carefully noted and recorded by the Engineer in relation to a fixed benchmark, and the structure shall be allowed to remain filled for a period of 2 (two) weeks or such longer time as may be required to permit complete saturation of the concrete. During this period, the Engineer will take readings and the results so obtained will be available for the information of the Contractor.

At the end of this period more water shall be added, if necessary, to bring the water level back to the designed maximum level and the water shall be left undisturbed for a period of at least 4 (four) days during which time the Engineer shall again record the level at regular intervals. The structure shall be considered to be watertight if the drop in water level does not exceed 6 mm in 96 (ninety-six) hours in the case of a roofed structure and if no leakage is apparent.

The acceptable drop in level in the case of an unroofed structure shall be such that it allows for normal evaporation during the time of the test.

If appreciable leakage is evident at any stage of the filling or testing or if, in the opinion of the Engineer, the degree of water tightness is unsatisfactory, the Contractor shall, when so ordered by the Engineer, discontinue the test immediately and at his own expense take approved steps to rectify the work. The work of rectification shall be continued assiduously until, on repetition of the test procedure, a satisfactory test result is obtained, and the degree of water tightness is acceptable.

Backfilling around structures shall not commence until a satisfactory test result has been obtained.

The Engineer shall have the right to retest the structure before the expiry of the defects liability period and the results of these tests will be made available to the Contractor. If these tests indicate to the Engineer that the degree of water tightness is unsatisfactory, the Engineer (before issuing the final certificate) will be entitled to order the Contractor to rectify the work at his own expense in such a manner as will cause least interruption of the water supply to consumers and will ensure that the degree of water tightness of the structure is satisfactory.

PS G 5.7 JOINING NEW CONCRETE TO EXISTING

Where partial demolition is required for extension work to existing structures, the contact face shall be cut to predetermined line and level, and any loose and fragmented material shall be removed, and projecting steel cleaned and bent as directed by the Engineer. Where partial demolition is not required but extension work only, the contact surface shall be brushed and cleaned of all dirt and loose particles.

If dowels are required, they shall be installed in holes drilled into the existing structure, in accordance with the details shown on the drawings, and secured by means of an approved type of epoxy bonding compound such as Sika AnchorFix-3 of Sika or similar.

Fresh concrete shall be bonded to the old concrete with an approved type of epoxy bonding compound, such as Sikadur-32 ZA of Sika or similar.

G 8 MEASUREMENT AND PAYMENT**G 8.1 MEASUREMENT AND RATES****PS G 8.1.1 Formwork**

Delete the following in G 8.1.1.3(c):

"and for different prop heights for beams and slabs".

Add the following paragraph:

e) No Payment shall be made for formwork to Sloping Sides of the clarifier walls and for the sloping surfaces of the troughs in the clarifier nor for any other surface sloping at up to the end including 5°.

Finishes to these surfaces shall be measured once only under PS G 8.4.4.

PS G 8.1.3 Concrete

Add the following to PS G 8.1.3.1(d):

Strip foundations and encasement of pipes under structure or elsewhere shall be cast directly against the sides and bottoms of excavations. No payment shall be made for additional concrete in over-break.

Delete the full stop at the end of G 8.1.3.3(a) and add the following:

"and special steps necessary before depositing concrete during cold weather, as prescribed in PS G 5.5.9".

G 8.2 SCHEDULED FORMWORK ITEMS**PS G 8.2.5 Narrow Widths Unit : m**

Substitute G 8.2.5 with the following:

Narrow widths of formwork shall not be measured separately, but shall be included in G 8.2.1 and G 8.2.2, as applicable.

PS G 8.2.7 Chamfers Exceeding 20 mm x 20 mm, Grooves and Rebates Unit : m

The size of chamfers, or the width and depth in the case of grooves and rebates, is stated.

G 8.4 SCHEDULED CONCRETE ITEMS**PS G 8.9 TEST STRUCTURE FOR WATER TIGHTNESS Unit : Sum**

The rate shall cover the cost of all equipment and labour necessary to test the structure for water tightness as described in PS G 5.5.11.1, including the supply of water and filling such structure.

No additional payment will be made for retesting the structure for water tightness after the repair of leaks.

PS G 8.10 **STERILISE STRUCTURE Unit : Sum**

The rate shall cover the cost of all equipment, water, chemicals and labour necessary to sterilise the structure.

No additional payment will be made for re-sterilising the structure before retesting for water tightness.

SECTION 1 : PROJECT SPECIFICATION**SANS 1200 L : MEDIUM PRESSURE PIPELINES****L 3 MATERIAL****PS L 3.1 GENERAL**

Substitute the first sentence of L 3.1 with the following:

‘Types and classes of pipes shall be as scheduled.’

PS L 3.4.2 Pipes of Nominal Bore up to 150 mm

Substitute “shall be screwed” in L3.4.2 with ‘shall be plain ended or flanged, as shown on the drawings’.

PS L 3.7.3 STAINLESS STEEL PIPES**PS L 3.7.3.1 General**

Stainless steel pipes shall be plain ended or flanged, as shown on the drawings.

Pipe wall thicknesses shall comply with ASTM Schedule 105.

Flanges shall comply with SANS 1123, Table 1600/3.

PS L 3.7.3.2 Grade and welding procedure

The grade of stainless steel shall be 316L.

Welding procedure shall be only those recommended by the stainless-steel manufacturer or by the South African Institute of Welding. Written confirmation that welding has been carried out by welders coded to ASME IX, 1995, shall be provided prior to manufacturing.

Welds shall be smooth and free from blowholes, undercuts, sharp projections, and similar visual defects.

Stainless steel fabrications shall be carried out in a clean working place where there is no contamination by mild steel. Grinding and polishing equipment shall be dedicated and shall not be contaminated with other metals.

Stainless steel shall be handled in such a way as to avoid scratching of the surface.

PS L 3.7.3.3 Pickling and passivation

Cut edges, welds end heat affected surfaces shall be pickled and passivated to remove all discolouration’s, pickling and passivating pastes shall be used as prescribed by the manufacturer.

Care shall be taken not to exceed the maximum contact time recommended. No heat discolouration shall remain after pickling and passivation. After passivation, surfaces shall be thoroughly washed to remove all traces of acid.

PS L 3.8 JOINTING MATERIALS

PS L 3.8.3 Flanges and accessories

Add the following to L 3.8.3:

Flanges shall be drilled to SANS 1123 Table 2500/3.

Bolts, nuts, and washers shall comply with PS L 3.9.5

PS L 3.8.4 Loose Flanges

Substitute the first sentence of the last paragraph of L 3.8.4 with the following:

‘Bolts and nuts shall comply with the requirements of SANS 135.’

PS L 3.9 CORROSION PROTECTION

PS L 3.9.2.1 Steel pipes of nominal bore up to 150mm

Add the following to L 3.9.2.1:

The requirements of PS L 3.9.2.2 shall apply mutatis mutandis.

PS L 3.9.2.2 Steel pipes of nominal bore over 150mm

Add the following to L 3.9.2.2:

All mild steel pipes under this contract shall be treated in accordance with L 3.9.2(b)(2) on the inside and the outside, including faces of flanges, with a polyamide-cured epoxy system, similar and equal to Copon EP 2300 or Ameron Amercoat 385. The Contractor shall furnish the Engineer with certificates of tests in accordance with L 7.4

Pipes shall be handled not earlier than the hard dry time of the coating recommended by the manufacturer, relevant to the ambient temperature. Coated pipes and fittings shall be handled with broad band slings and transported with suitable packing to minimise damage to coating.

All flanged pipes and fittings with projecting parts shall be stored and transported in such a manner that will prevent such flanges and projecting parts from contacting coated surfaces such as pipe bodies.

All damage caused in handling, transporting and installation shall be repaired in accordance with the requirements of the relevant system and to the satisfaction of the Engineer, at no extra cost.

PS L 3.9.5 Joints, Bolts, Nuts and Washers

Substitute L 3.9.5 with the following:

All joints, bolts, nuts, and washers shall be stainless steel. Stainless steel bolts used on mild steel pipes and fittings shall be provided with nylon sleeves and felt washers to prevent contact between the stainless steel and the mild steel.

PS L 3.10 VALVES**PS L 3.10.1 Gate and Scour Valves**

The gate and scour valves must be flanged ductile iron valves (AVK 21/60 series or similar) in accordance with SANS 664 and SANS 665 and of the water works type suitable for a working pressure of 2,5 MPa. All gate/scour valves must be able to open and close against a differential pressure equal to the work pressure.

All gate valves shall be supplied with hand wheels, unless shown otherwise on the drawings and shall open clockwise. The direction for opening and closing shall be permanently displayed on the valves. Valves shall have non-rising spindles.

Spindles, spindle nuts, gate rings and body rings shall all be of bronze.

All flanged gate valves shall be drilled according to SANS 1123 Table 1600/3.

Pipes shall not be tested against a closed valve. Thrust blocks for test sections shall be approved by the Engineer prior to testing of pipes.

PS L 3.10.2 Butterfly Valves

Butterfly valves must be flanged ductile iron (Uni-Flo or similar) in accordance with SABS 664 and SABS 665 and of the water works type with a gearbox suitable for a working pressure of 2,5 MPa. Valves shall have stainless steel stems and discs.

Flanges shall be drilled to Table 1600/3 of SANS 1123.

Pipes shall not be tested against a closed valve. Thrust blocks for test sections shall be approved by the Engineer prior to testing of pipes.

PS L 3.10.3 Air Valves

The air valves shall have a nominal size of 25 and 50 mm, be suitable for a working pressure of 2,5 MPa and shall be of the 'Vent-O-Mat' series 'RBX' 2511 or 2521.

The branch diameter of the tee on the main pipe shall be minimum (2/3) of the diameter of the main pipe.

Air valve installations shall be supplied with an isolating valve and distance piece between the air valve and the branch of the tee, and other fittings shown complete as on the drawings.

Flanges shall be drilled to Table 1600/3 of SANS 1123.

PS L 3.10.4 Control Valve

The flow control valve shall be suitable for a working pressure of 2,5 MPa. The valves shall be 100 mm diameter modified 'Bermad' Model 770-U. The valves must have large area strainers installed.

Flanges shall be drilled to Table 1600/3 of SANS 1123.

L 4 PLANT**PS L 4.3 TESTING**

Add the following to L 4.3

The Contractor must ensure that the test equipment is in good order and that it is calibrated.

PS L 7 TESTING**PS L 7.3 STANDARD HYDRAULIC PIPE TEST****PS L 7.3.1.2 Test pressure**

Substitute L 7.3.1.2 with the following:

The test pressure for field testing shall be 1,5 times the rated maximum working pressure of the pipe.

PS L 8 MEASUREMENT AND PAYMENT**PS L 8.2 SCHEDULED ITEMS****PS L 8.2.1 Supply, Lay, and Bed Pipes Complete with Couplings Unit : m**

Only half of the rate will be paid until the pipes is successfully pressure tested.

PS L 8.2.3 a) Extra-over 8.2.1 for the supplying, fixing and bedding of Class 16 AVK Gate Valves

i) On newly installed 160mm uPVC pipes Unit : No

ii) On newly installed 110mm uPVC pipes Unit : No

iii) On newly installed 75mm uPVC pipes Unit : No

Add the following to L 8.2.3:

Valves are measured and paid for per item, complete with the inclusion of the cutting of pipes, couplings, extra excavation and all extra material and labour that is required, including tees, fittings, isolating valves (e.g. under air valves), complete as shown on the drawings, for installation on new and/or existing pipes.

PS L 8.2.11 Anchor/Thrust Blocks and Pedestals Unit : m³

Substitute L 8.2.11 with the following:

The concrete will be measured net by volume to the specified width and depth in excess of the external volume of the pipe (i.e. the volume of the pipe will be deducted).

The rate shall cover the cost of formwork and concrete.

PS L 8.2.13 Supply and Install Concrete Valve Boxes (Salberg or similar)..... Unit : No

Valve boxes shall be measured per item for each valve box complete installed according to the drawings. The rate shall include all materials, labour and

additional excavations needed. The rate shall not distinguish between different valve sizes.

PS L 8.2.14 Supply and Install 1.5 m diam. Concrete Precast Manholes (500mm lengths) including a precast concrete slab with a lockable lid Unit : No

Add the following to L 8.2.14:

Manholes shall be measured per manhole ring (in this case lengths of 500mm) for each valve chamber complete installed according to the drawings. The rate shall include all materials, labour, concrete work, lockable vandal proof cover and the installation/construction thereof, paint and painting, and additional excavations needed.

PS L 8.2.16 Fire Hydrant Installation (Woodlands WDT 80 tamper proof type on 75 – 160 mm water line complete. Including excavation of pipe and GMS riser, all pipe work and fittings (flange adaptors measured elsewhere) and flanged fire hydrant tee and hydrant valve Unit : No

Hydrants shall be measured per item completely installed according to the drawings. The rate shall include all materials, labour, concrete work and the installation/construction thereof, paint and painting, and additional excavations needed.

PS L 8.2.17 Pipe/Valve Markers Unit : No

The tendered rate shall include for all materials, labour and arrangements.

PS L 8.2.18 Cut and connect unto existing pipes

a) Onto uPVC pipes Unit : No

b) Onto steel pipes Unit : No

The cutting and connection unto existing pipes shall be measured by the number of each type and diameter of pipe cut into.

The rate shall include full compensation for all arrangements with the relevant authorities, isolating the pipe, cutting into the pipe to accommodate the connecting fitting, dewatering, excavating, taking steps to prevent the ingress of soil, stones and other material into the main, as well as for any liaison with others required and for making good any damages to the existing pipe.

SECTION 1 : PROJECT SPECIFICATION**SANS 1200 LB : BEDDING (PIPES)****LB 1 SCOPE****PS LB 1.1 SCOPE**

Add the following to LB 1.1:

This specification also covers the bedding required for electric cables and cable ducts.

LB 3 MATERIALS**PS LB 3.1 SELECTED GRANULAR MATERIAL**

Substitute LB 3.1 with the following:

Selected granular material shall be an aggregate, sand or granular material, all of a non-cohesive nature and free from any organic material, of which the grading analysis shows 100% passing a 13,2 mm sieve and not more than 5% passing a 0,075 mm sieve.

PS LB 3.2 SELECTED FILL MATERIAL

Substitute LB 3.2 with the following:

The requirements of PS LB 3.1 shall apply mutatis mutandis.

PS LB 3.3 BEDDING

Add the following to LB 3.3:

All pipes shall be classified as rigid pipes and shall be laid on Class C bedding.

The bedding material for cables shall comply with the requirements of PS LB 3.1 and shall be as detailed on Figure 3.

PS LB 3.4.1 Suitable Material Available from Trench Excavations

Substitute LB 3.4.1 with the following:

The provisions of PS D 3.3.1 shall apply mutatis mutandis.

LB 5 CONSTRUCTION**LB 5.1 GENERAL****PS LB 5.1.4 Compacting**

Substitute "90 % of MOD AASHTO" in LB 5.1.4 with "93 % of MOD AASHTO (100 % for sand)".

PS LB 5.5 PLACING AND BEDDING OF CABLES

Bedding and backfilling for cables shall be executed under this contract. The mechanical contractor shall install the cables.

Machine compaction shall not be carried out directly over cables, unless the cables are covered by at least 300 mm of fill material.

LB 8 MEASUREMENT AND PAYMENT

LB 8.1 PRINCIPLES

PS LB 8.1.5 Disposal of Displaced Material

Add the following to LB 8.1.5:

The provisions of PS D 5.2.2.3 shall apply mutatis mutandis.

LB 8.2 SCHEDULED ITEMS

PS LB 8.2.6 Supply and Place Bedding Material for Cables, from

- a) Trench excavations **Unit : m³**
- b) Other excavations **Unit : m³**
- c) Borrow pits **Unit : m³**
- d) Commercial sources **Unit : m³**

Bedding and selected fill for cables shall not be measured separately.

No differentiation shall be made between trenches, bedding and backfilling for cables to be installed by the Contractor or the mechanical contractor.

The rate shall cover the cost of acquiring, regardless of the distance, bedding and selected fill material that complies with the requirement of PS LB 3.3, of delivering it to points alongside the trench spaced to suite the Contractor's methods of working, placing in layers and compacting, as specified, and of disposing of displaced material within a free-haul distance of 0,5 km. No additional payment will be made for co-operating with the mechanical contractor during the laying of cables and the cost related thereto shall be deemed to be included in the rate for supplying and placing the bedding material.

SECTION 1 : PROJECT SPECIFICATION**SPECIAL WORK****PS X1 ERECTION OF ELEVATED SECTIONAL STEEL TANK ON 20 METER STAND**

The Contractor will be responsible to supply, erect and install one 50 kl pressed sectional steel tank on a steel stand with a height of 20 meters. The tank will be an Abeco product.

The tank must be complete with all fastenings, one ventilated manhole cover, 150 mm steel pipe (MS) section, pipe couplings, one secure ladder on the outside and one ladder on the inside, an aviation warning red light on top, a level indicator, overflow outlet pipe, scour pipe with gate valve and outlet pipe with gate valve and a 20 meter high stand. The tank must have a standard all-round protection handrail on top.

An approved structural engineer of the supplier must design the steel stand of 20 meters height. An engineering certificate must be submitted to the Engineer for approval.

PS X 8 MEASUREMENT AND PAYMENT**PS X 8.1 SCHEDULED ITEMS****PS X 8.1.1 Supply and install Abeco or similar 650 kl tank on plinths Unit: Prov Sum**

SECTION 2 : PARTICULAR SPECIFICATIONS

PS PME – MECHANICAL AND ELECTRICAL PROJECT SPECIFICATIONS

PS PME 1 PUMPS

PS PME 1.1 SCOPE

This section of the contract covers the following electrically driven pumps complete with motors mounted behind the pumps with direct drive and all accessories as described:

- (i) Two identical multi-stage pump sets (one duty and one standby pump) for pumping clear water from the Louieville Package Plant pump station to the new 650 kl steel tank
- (ii) The pumps must be KSB Multitec or similar pump sets with a duty point flow of 62.5 m³/h and a 160 metres head.

PS PME 1.2 INSTALLATION

The two new clear water pumps shall be installed in the existing pump station building. The ground level of the pump station building is approximately 470 metres.

The pump sets will be fitted into the existing pump station building as indicated on drawings. Provision should be made to install the pump sets on small concrete plinths. Provision should also be made for the installation of the pipes through the existing pump station buildings walls.

PS PME 1.3 TYPE OF PUMPS

Dry well horizontal multi-single stage pumps are required.

The pump sets are to be supplied complete as plug and pump units.

The pumps will be KSB Multitec pumps and the model will be the CR(I)E 20-2 or 3.

PS PME 1.4 PUMP DUTIES

Each pump shall be capable of delivering clear water at a rate of 62.5 m³/h against a total head of 160 metres.

PS PME 1.5 CONTROL OF PUMPS

The pumps shall be operated both automatically and manually, by means of a three-position selector switch marked AUTO/OFF/MANUAL.

a) Manual mode

The pumps shall be started and stopped by means of start and stop buttons.

b) Automatic mode

The pumps shall be started and stopped by means of pressure switches upstream and downstream of the pumps. The pumps shall start and stop when

the pressure registered upstream and downstream of the pumps fall outside an approved envelope.

A three-position duty selector switch marked ALTERNATE/P1/P2 shall be provided. In the ALTERNATE position the duty pump shall automatically change over after each pumping cycle. In position P1 or P2 only the selected pump shall operate as described above, without cycle change over. Only one pump will operate at any time.

Should the duty pump stop due to a fault condition the standby pump shall take over automatically and at the same time the alarm shall come into operation indicating that a failure has occurred.

PS PME 1.6 **PROTECTION**

All pumps shall be protected against running dry, both in automatic and manual mode, by means of a low-pressure switch. This is a fault condition, and a manual reset shall be provided for the low-pressure indication light.

In automatic mode the pumps shall restart when the liquid has risen to the starting pressure level, but the alarm and low-pressure indication lights shall stay on until accepted and reset.

No-flow protection shall be provided by means of an undercurrent sensor. This is to form part of an electronic overload protection module.

The no-flow indication light shall be fitted with a manual reset.

PS PME 1.7 **PRESSURE GAUGES**

Each pump shall be fitted with a suction pressure gauge (0 to 150 kPa) and a discharge pressure gauge (0 to 300 kPa).

The pressure gauges shall be 100 mm diameter dial, glycerine-filled with stainless steel bodies.

PS PME 1.8 **PUMP SPARES**

The Tenderer shall submit a complete list of all pump and motor spare parts, which are not regularly kept in stock by the supplier and which the Tenderer considers to be necessary for the replacement of wearing parts.

PS PME 1.10 **CHECK VALVES**

Check valves shall be screwed cast-iron single door swing-type check valves complying with the requirements of SANS 1551-Part 1 Class 25.

Flanges shall be drilled to Table 2500/3 of SANS 1123.

PS PME 1.11 **AIR VALVES**

Air valves shall be of the Vent-O-Mat Series RBX type valves with sizes varying between DN25 and DN50 for maximum operating pressures of PN10.

Flanges shall be drilled to Table 2500/3 of SANS 1123

PS PME 1.12 **PIPE-WORK**

Tenders shall include for the supply, delivery, installation and testing of all interconnection pipework, including all valves and specials, as shown on the

drawings. Pipe sizes shown are minimum sizes.

All pipes shall be flanged steel pipes with flanges complying with the requirements of SANS 1123 and drilled to Table 2500/3.

Steel pipes and fittings of nominal bore up to 200 mm shall be of heavy series seamless steel pipes complying with the requirements of SANS 62.

Steel pipes of nominal bore over 200 mm shall be Grade X42 with minimum wall thickness of 6 mm and shall comply with the requirements of SANS 719. The height of the inner weld reinforcement and of upset metal on the inner surface shall not exceed 1 mm. Pipe fittings and specials of nominal bore over 200 mm shall be fabricated in accordance with BS 534 from pipe complying with SANS 719 as prescribed above.

All pipe specials shall be free of weld spatter and all sharp corners and edges shall be ground smooth and round before painting.

Steel pipes shall be thoroughly cleaned by grit blasting in accordance with Part 5 Section 3 clause PMA 3.2 of this document and coated with four (4) hours after cleaning with a polyamide-cured epoxy system similar and equal to Copon EP 2300 or Ameron 385, externally and internally. The coating shall be built up to a dry film thickness of 350 microns, as prescribed by the manufacturers.

The tendered price for pipework shall include the cost of providing instruments for testing the thickness of the coating and for testing for pin holes.

Stainless steel pipes shall be of a grade 316 L stainless steel.

Bends and branches shall provide non-turbulent flow conditions and the layout of pipework shall be such as to facilitate dismantling and inspection. The pipes shall be properly supported and so arranged that all stresses created in the pipeline by static and dynamic forces, including recoil shock, will be taken up by suitable anchors.

PS PME 2 **ELECTRICAL INSTALLATION**

PS PME 2.1 **SCOPE**

This section of the contract covers the electrical installation for the Works consisting of switchboards, control gear, cables, and all electrical equipment necessary to complete the installation in full working order. Electric motors must be provided as part of the relevant driven equipment.

All equipment and work carried out must be in accordance with the particular specification PMA 4 of this document, unless stated otherwise in the scope of works. Special attention shall be paid to clause PMA 4.2, relating to electrical motors.

PS PME 2.2 **ELECTRICAL SUPPLY AND EARTH CONNECTION**

The supply to the installations will be 3-phase 400/230 V at 50 Hz.

It will be the responsibility of the Contractor to make the necessary arrangements for the electrical connections with the supply authority. Once connected, the Contractor must ensure that the supply in terms of voltage and earthing is in order before switching power onto his equipment. Claims for damage arising from non-compliance will not be accepted.

PS PME 2.3 SWITCHBOARDS

PS PME 2.3.1 GENERAL

Switchboards shall be provided as detailed below.

Starters must conform strictly to clause PMA 4.3 of the Particular Specification unless specified otherwise in the scope of works and must be equipped to auxiliaries as stated.

Switchgear fault rating shall be 10-kA minimum.

PS PME 2.3.2 CLEAR-WATER PUMPS

The switchboard shall be an indoor type wall-mounted switchboard.

The switchboard shall comprise the following:

- a) Incoming panel equipped with:
 - i) Main circuit breaker rated for the total power demand of the plant equipment served from this board;
 - ii) Voltmeter with a six-position selector switch;
 - iii) Three instantaneous type CT operated ampere meters;
 - iv) Lighting surge suppressor equal to Pontins 280 JS 4 pole.

PS PME 2.4 GENERAL ELECTRIC INSTALLATION

PS PME 2.4.1 CABLES

Tenderers must allow for the supply and installation of all necessary cables of appropriate size to all the electrical equipment specified in accordance with Clause PMA 4.9 in this document.

Cables must be installed in lengths of surface mounted galvanised conduit to prevent them from sagging, or on cable trays.

PS PME 2.4.2 EARTHING

Earthing of equipment shall be done strictly in accordance with Clause PMA 4.11 in this document.

PS PME 3 GUARANTEE

The Tenderer shall submit performance details of the plant, where called for in the information sheets and these details shall be taken as the guaranteed figures of the performance of the plant. Should the overall performance of the plant fail to comply with these figures by more than 5%, then the Engineer shall have the right to reject the plant, to recover all monies paid to the Contractor under the contract for such plant and to confiscate the surety by way of liquidated damages, whereupon the Contractor at his own expense shall remove all rejected plant when ordered to do so by the Engineer.

All equipment shall be guaranteed against faulty design, materials and workmanship for a period of twelve (12) months from the date of commissioning. During this period the Contractor shall rectify, at his own cost, any defect, which can be attributed to faulty designs, materials and workmanship. Normal wear and tear shall be excluded.

PS PME 4 COMMISSIONING AND ACCEPTANCE

The Contractor shall be responsible to commission all equipment and put in readiness for use.

The hand-over/acceptance of equipment shall be preceded by a forty-eight (48) hour trial run by the Contractor to enable him to prove to the Engineer that all equipment and the plant as a whole perform to requirements.

Where after the equipment shall be run by the Contractor as directed by the Engineer for a further period of approximately five (5) days during which thorough inspection, testing, etc. of all equipment will take place to be evaluated for acceptance by the Engineer. The Contractor shall schedule this period such as to allow himself enough time to remedy, replace, etc. unsatisfactory work, equipment, etc. and still meet the final completion date.

Costs incurred by the Engineer for all unsuccessful acceptance tests will be borne by the Contractor.

When the Contractor has completed all work and the plant subsequently performs to requirements, then the Contractor shall supply all manuals and drawings as called for in Clause PS PME 7. Thereupon a certificate of commissioning will be issued and a portion of the retention released. The guarantee period then commences.

PS PME 5 FINAL COMPLETION DATE

On final completion all work in terms of the contract shall be completed. A certificate of completion/taking-over will be issued.

PS PME 6 MAINTENANCE OBLIGATIONS

The Contractor shall maintain all equipment provided in a good working order during the defects liability period.

The defects liability period shall commence on the day following final completion.

The Employer reserves the right to undertake any emergency repair work during the defects liability period without the prior consent of the Contractor. The Engineer has the right to decide whether an emergency exists and shall notify the Contractor accordingly. Should this emergency repair work be caused by poor material, faulty workmanship or neglect on the part of the Contractor, the Employer may deduct the cost of the repair work from the outstanding retention money owing to the Contractor.

After the satisfactory completion of the guarantee period, the final certificate will be issued and all retention money released.

PS PME 7 OPERATION AND MAINTENANCE MANUALS

Three (3) copies of comprehensive operation and maintenance instructions in the form of hard covered manuals with a rear pocket enclosing prints of relevant "as built" drawings shall be supplied.

All manuals shall be supplied prior to hand-over/acceptance of equipment. The completion certificate will not be issued nor will the corresponding payment be made until the above manuals and drawings have been supplied.

Operating instructions shall include:

- index;
- pre-start check list;
- step-by-step description of the approved procedures for all modes of operation of equipment;
- description of required safety checks.

Maintenance manuals shall include:

- index;
- details of routine and regular maintenance work which the manufacturer considers necessary to maintain equipment in satisfactory running order;
- instructions for the repair or replacement of worn or damaged parts;
- schedules of routine testing of electrical equipment (as recommended by specific suppliers);
- spare parts lists;
- particular technical data of equipment;
- preference list, including local agents for the supply and repairs of specific equipment;
- All schematic wiring diagrams pertaining to technical equipment.

The Contractor shall in addition to supplying the above information, undertake to instruct departmental staff and satisfy himself that they are capable of operating all equipment when it has been commissioned.

PS PME 8 MEASUREMENT AND PAYMENT

PS PME 8.1 SCHEDULED ITEMS

PS X 8.1.1 Supply and install Abeco or similar 650 kl steel tank Unit: Prov Sum

SECTION 2: PARTICULAR SPECIFICATION

(PART 1)

PA 1 SPECIFICATIONS

PA 1.1 SCOPE

The specifications are for the drilling of boreholes, installation of casings and for the development and capping of boreholes for rural water supply.

The Contractor shall provide all labour, transport, plant, tools, materials and appurtenances, and shall perform all work necessary to satisfactorily construct and complete the boreholes in accordance with this Specification and to any further details as may be ordered by the Engineer. The borehole depths will be dependant on drilling results and the strata intersected.

PA 1.2 EQUIPMENT

The equipment to be used must be of such standard that the requirements as set out in the Project Specifications can be accomplished without any disruption of the works.

- The Contractor shall specify in the List of Available Plant and Equipment the type of plant he intends to use as well as the method of operation. Its capacity shall be sufficient to cope with the work as specified for each particular work order. It shall be kept at all times in full working order and in good repair. The Engineer will reserve the right to inspect the equipment to be used for the completion of the Works prior to the commencement of the Works.
- If the Engineer considers that the plant in use on the site of the Works is in any way inefficient or inadequate in capacity, he shall have the right to call upon the Contractor to put such equipment in order within seven (7) days, or alternatively, to remove such plant and replace it with additional plant or equipment which he considers necessary to meet the requirements of the Contract. In the event that his requirement is not satisfied, the Engineer reserves the right to advise the Albert Luthuli Municipality to terminate the Work Order immediately.
- It is requirement that:-
Compressors used shall have a minimum capacity of 21 BAR, 200 PSI (750 CFM);
Drill rigs used shall be mounted on a 6X4, 4X4 or 6X6 truck.
- It will be the responsibility of the Contractor to arrive on site with all equipment required to complete the work without interruption.

PA 1.3 MATERIALS

All materials to be used shall be new and undamaged and shall be supplied and delivered as such on site.

All materials as are required in the drilling and construction of the boreholes shall be assembled in an approved manner and in accordance with normal groundwater engineering practice.

PA 1.4 DRILLING**i) Drilling Techniques****a) Rotary Percussion Air Flush Drilling**

Where the geological formation comprises consolidated rock with limited overburden the standard drilling technique shall be rotary percussion air flush drilling unless otherwise ordered by the Engineer. Under this technique provision must be made for drilling through boulders (Alluvial deposits) and the provision of Odex Air Percussion drilling for advancement through collapsible layers.

b) Rotary Mud Drilling

Where the geological formation comprises predominantly unconsolidated soils and subordinate partially to well cemented sediments, the standard drilling technique shall be rotary mud drilling unless otherwise ordered by the Engineer. Under this technique provision must be made for drilling through boulders.

Both drilling techniques shall further include the necessary facilities with adequate capacity to consistently introduce lubrication water and/or foam as required.

ii) Design and Depth

Various borehole design options will be employed. Typical Borehole Design Options include:

Typical Construction Detail**a) Boreholes in Consolidated Rock Formations**

Hand pump type borehole
(with outer casing only)

Figure 2

Production type borehole
(lined with inner casings, perforated casing and/or screens)

Figure 3

b) Boreholes in Unconsolidated Soil Formations

Hand pump & production type borehole

Figure 4

The decision as to which design to use will be made by the Engineer. The Engineer will base his decision(s) on geological conditions encountered as well as the final diameter to which the borehole must be completed.

It is anticipated that borehole depths will vary typically between 40m and 150 m. The Engineer will determine the final borehole depth and boreholes shallower than requested will not be acceptable and will not be paid for, unless it can be satisfactorily proved that the borehole cannot be drilled to the required depth.

A minimum 10 m sump will be drilled below the level at which the major water strike is intersected or to a level as specified by the Engineer.

iii) Drilling Diameter

Drilling diameters will be 165 mm, 167 mm, 202 mm, 216 mm, 254 mm, 205 mm and 454 mm. The Engineer will specify the diameter/s for each borehole to be drilled.

iv) Drilling Media

The Contractor may not use drilling media which may cause hole erosion or involve the use of native clay, oil, salt or any lost circulation agent, sawdust, cement, or any form of plugging that could affect the production capacity of the water bearing strata intersected.

In the event of circulation losses, commercially available foam can be introduced during drilling operations.

v) Drilling Foam

The Contractor at his own discretion and cost may use drilling foam.

vi) Straightness and Verticality

a) Straightness

Boreholes shall be sufficiently straight to permit a steel tube 6m in length and with outer diameter no more than 15 mm smaller than the inner diameter of the cased borehole, to be lowered without hindrance to the full depth of the particular borehole. Any deviation, which prevents the lowering of such plumb to the bottom of the borehole, will not be accepted, and the hole declared a lost borehole. The Contractor shall, in such case, redrill the hole at his own cost to specification. The Contractor shall ensure that the above piping, complete with the necessary attachments and equipment required for testing straightness, is available at the drilling machine and such piping shall form part of his standard equipment.

b) Verticality

The centre of the borehole at any depth shall not deviate from the vertical through the centre of the borehole at the top by more than one-third (1/3) of the borehole diameter per 20 m of depth.

The diameter of the deviation of a borehole from the vertical shall be carried out in accordance with the latest issue of SABS 045. The apparatus referred to in SABS 045 shall be supplied by the Contractor and shall form part of his standard equipment under this Contract.

In the event that these requirements for verticality are not met, the borehole will be declared a lost borehole. The Contractor shall thereupon redrill the hole at his own cost, to specification.

vii) Sampling

Representative drilled cutting samples of the materials intersected shall be collected every metre and stacked in a representative fashion per rod length completed on a cleared patch near the drilling site. The samples shall be clearly marked and fenced off to prevent tampering and the borehole information recorded on the Borehole Drilling Report as supplied to the Contractor and as outlined in Clause 1.11.

viii) Blow Yield Measurement

Blow yield measurement shall be undertaken and recorded during drilling operations in order to establish the blow yields for different water strikes occurring in each borehole.

ix) Cleaning of Borehole

On completion of drilling a borehole the borehole shall be cleaned out, developing the borehole for a minimum duration as stated below, or as otherwise specified by the Engineer under Clause 1.6 (i).

- a) unconsolidated material - 6 hours.
- b) consolidated material - 2 hours.

x) Water Quality Testing

'ph' and electrical conductivity (EC) readings are to be recorded on a fresh sample of groundwater taken on final completion of drilling operations and cleaning of borehole as given in Clause 1.4 (ix).

xi) Water Level Monitoring

Water level measurement is to be recorded prior to the capping of the borehole.

xii) Disinfection

On completion of cleaning of borehole and water quality testing the borehole shall be disinfected with a solution of 0,5 kg of HTH mixed in 250 litres of water.

xiii) Reaming

Where a borehole has previously been drilled to a smaller diameter than that required, the original borehole should be reamed to the required diameter as specified by the Engineer. Reaming shall comprise the widening of the existing borehole using rotary percussion air flush methods for varying borehole diameters advanced through all types of consolidated rock formations encountered. Reaming shall be to one of the following diameters: 202 mm, 219 mm, 254 mm and 205 mm.

PA 1.5 CASING, PERFORATED CASING AND SCREENS

i) General

The Contractor shall supply casings, perforated casings and screens as specified in the Schedule of Rates or as specified otherwise by the Engineer. Mild steel casing will be used predominantly.

All materials to be used shall be new and undamaged and shall be supplied and delivered as such on site.

ii) Plain Casing

Plain casing shall be used as an outer and/or inner lining to a borehole and shall be made of either mild or steel or PVC depending on the nature of the formation and as determined by the Engineer.

The outer casing shall be inserted through the overburden and any zones of non-potable/undesirable seepage water and driven into the consolidated rock formation below. The inner casing shall be installed in conjunction with perforated casing and/or screens.

All steel casing shall have a minimum wall thickness (as specified) and shall be level edged. All PVC casing shall be a minimum CLASS (as specified) and shall be threaded both ends. All steel casing shall be weld jointed and all PVC casing joined with threaded sockets unless otherwise specified by the Engineer.

Casing shall be installed to depths as specified by the Engineer. After completion of the work, the casing shall protrude a minimum of 500 mm above natural ground level.

The casing shall be of the diameter specified, self-aligning and from approved suppliers. It must be possible to uplift, disconnect and re-use the casing. Refer to Figure 1 for typical construction details of casing installations.

iii) Perforated Casing

Perforated casing shall be used as an inner lining to a borehole where collapsing conditions occur at water bearing horizons and for production boreholes. The perforated casing shall be made of either mild or stainless steel or PVC as determined by the Engineer and shall comply with the requirements of Clause 2.5 (ii) for Plain Casings. The perforated casing shall be installed under supervision to levels as given by the Engineer. The casing may be perforated on-site or factory perforated as specified by the Engineer.

a) Perforation on-site

The manner in which the perforations are to be cut is shown in Figure 1. The width of the perforations shall be as specified by the Engineer within the range of 1 mm minimum and 4 mm maximum. The perforations shall be of uniform width with no resultant protrusions and shall be clear of debris.

b) Factory Perforated Casing

The manner in which the perforations are to be cut is shown in Figure 1. The perforated casing shall comprise 300 mm long slots at 150 mm intervals with an effective open area of a minimum 2% or as otherwise specified by the Engineer. The perforations shall be cut clean and square and shall be flush with the casing wall. The casing shall be guided and supported by casing centralisers if requested by the Engineer.

iv) Screens

Where production boreholes are constructed the Engineer may request that stainless steel, wedge wire Johnson screens (or equivalent) be installed at the water bearing horizons. The diameter, slot size and % open area of the screens shall be determined by the Engineer. A minimum 0,25 mm slot size and minimum 20% open area is allowed for in this contract.

The screens shall be installed under supervision to levels as given by the Engineer.

v) Temporary Casing

Where difficult drilling conditions occur, the insertion of temporary casing during drilling and borehole construction will be necessary. This casing must also comply with the requirement of Clause 1.5 (ii).

PA 1.6**BOREHOLE CONSTRUCTION**i) Development of Borehole

On completion of construction the borehole shall be developed to attain the maximum possible yield of groundwater, free of suspended materials. Where the required development time exceeds the stipulated duration as specified in Paragraph 2.4 (ix), approval from the Engineer must be obtained. Development by means of flushing and blowing large volumes of water shall be carried out using either air surging, air jetting, or such other standard techniques as may be directed by the Engineer.

Where there is insufficient natural water in the borehole then sanitised water shall be imported to site by the Contractor to augment the low yielding borehole.

ii) Jetting of Borehole

High pressure water jetting to effectively develop a sand filter shall be carried out on a screened borehole at the instruction and supervision of the Engineer. The jetting tool to be used is detailed in Figure 5.

iii) Formation Stabilizer/Gravel pack

Where collapsing conditions are found, formation stabilizer is to be inserted in the annular space of the borehole and perforated casing at depths specified by the Engineer. Formation stabilizer material shall be rounded; uniform and clean gravel with a grain size varying between 6 and 14 mm. Sieved and washed river gravel can also be accepted. Samples of formation stabilizer must be submitted to the Engineer for approval before placement.

iv) Filter Pack

A filter pack installed between the annular space of the borehole and the Engineer may specify perforated casing or screens for boreholes where specific geological conditions are encountered. The filter material shall comprise clean, graded sand and/or gravel (as specified) and shall be trimmed to the levels as specified by the Engineer. Sanitised water shall be used for this purpose.

v) Grout Backfill/Bentonite Seal

Where specific levels in a borehole require to be sealed off, the Engineer shall specify a grout backfill or bentonite seal. The grout shall comprise a mixture of bentonite, sand and cement as specified by the Engineer.

vi) Capping of Borehole

On completion of the borehole the Contractor shall cap the borehole by completely welding a 2 mm thick steel cover onto the protruding steel casing or by permanently affixing a PVC cap onto the protruding PVC casing. It is the responsibility of the Contractor to ensure that the capping is not broken off and the borehole not damaged.

A borehole identification number will be inscribed onto the capping as given in Clause 1.7.

vii) Plugging of Unsuccessful Borehole

Where an unsuccessful borehole is drilled or a borehole abandoned or lost the outer casing may not be removed.

A borehole identification number and the word 'DRY' will be inscribed onto the capping as given in Clause 1.7.

viii) Blow Yield Testing

The Contractor shall carry out a blow yield test after completion of drilling of the borehole as specified by the Engineer. The blow yield test comprises the constant displacement of groundwater at optimum yield using air flush methods with the yield measured by draw-off pipe and bucket method.

PA 1.7 BOREHOLE NUMBER IDENTIFICATION

Each new borehole drilled shall be allocated a Borehole Number issued to the Contractor by the Engineer. It is the responsibility of the Contractor to clearly inscribe the Borehole Number for each new borehole as follows:

Position	Type	Method of Inscription	Details Inscribed
Borehole Capping (for capped successful and unsuccessful Boreholes)	Steel cover	Welding	Borehole No. Wet or Dry
	PVC cap	Indelible Marker Pen	

PA 1.8 CESSATION OF DRILLING ACTIVITIES

The termination, at any stage, of drilling operations on a particular borehole shall rest with the Engineer.

PA 1.9 ABANDONMENT

The Engineer shall have the right at any time during the progress of the work to order the abandonment of the borehole. No casing shall be removed and the Contractor shall leave the borehole to the satisfaction of the Engineer. Payment will be approved for any casing left in the borehole that has been abandoned.

Should the abandoned borehole be considered a potential pollution point source, the Engineer may issue further instructions to effectively seal the borehole.

PA 1.10 LOST BOREHOLE

Should accident to the plant, behaviour of the ground, jamming of the tools or casing, non-compliance of the straightness or verticality test (as specified in Clauses 1.4 (vi)) or any other cause, prevent the satisfactory completion of the works, the borehole shall be deemed to be lost and no payment shall be made for the drilling or borehole construction costs nor for any materials, nor for any time. The cost of materials, which have been recovered, be in good order, then the Contractor shall have no claim for such materials and will have the option to re-use such materials within the scope of the project.

Should the lost borehole be considered a potential pollution point source, the Engineer may issue further instructions to effectively seal the borehole.

In the event of a lost borehole, the Contractor shall construct a new borehole adjacent to the lost borehole, on a site indicated by the Engineer. The option of declaring any borehole lost shall rest with the Contractor, subject to directions from the Engineer.

No payment whatsoever will be made for the lost borehole. Measurement and payment for the construction of a borehole adjacent to the lost boreholes shall be in accordance with the specifications of any other borehole included in this document, provided that the specifications therefore are met.

PA 1.11 REPORTS

The Contractor shall accurately record the following reports:

Name	Description	Supplied
Borehole Drilling Report	An accurate record for each borehole of borehole No., locality, drilling techniques used and stratigraphic data including depths, strata type, water strike levels, blow yields, casing diameter, lengths, etc.	On completion of each borehole drilled

The Contractor shall not be paid for any work invoiced unless the abovementioned reports pertaining to the work invoiced has been satisfactorily submitted.

The Contractor shall submit each report to the Engineer within 2 days of completion of the work as detailed in the Report. Failure to do so shall be regarded as non-performance in terms of the contract and will be subject to the conditions of contract.

PA 1.12 TESTING PROCEDURES

- i) The boreholes allocated to the Contractor shall be tested by means of-
 - a) Sequential step-draw-down tests. Four (4) steps of 100 minutes duration each shall be executed.
 - b) Recovery measurements shall be in the same fashion as above, but not necessarily have to coincide with the discharges volumes as measured with the step-draw-test.
 - c) Constant discharge test with a minimum duration of 4 hours up to a maximum of 48 hours.
- ii) Water level measurements shall be taken in the pumped hole. Accuracy of less than 10 mm is required. Time intervals for pumping and recovery tests are detailed on the forms supplied with this tender.
- iii) Water samples shall be taken during the test period. The Engineer will supply sampling bottles.
- iv) Discharge shall be measured twofold either:
 - a) by using stopwatch and cubic tank or drum not smaller than 220 litres.
 - b) by means of a calibrated measuring device of approved design with a range of 0,2 - 20 l/s.
- v) The discharge pipeline should be of sufficient diameter to cope with flows of 20 l/s and should have a length of 100m or more above ground with facilities for extension of up to 400m.
- vi) The pump(s) should be capable of a variable discharge between 6 000 litres per hour and 220 000 litres per hour. The pump(s) shall be inserted to a depth varying as determined by the Engineer.
- vii) Prescribed data sheets should be signed and submitted to the Engineer on completion of tests on each borehole.
- viii) The site and borehole collars and caps, if disturbed, shall be restored to original state unless instructed to the contrary. Caps to be welded flush to the casing.
- ix) The Contractor should state whether he has, or will have, equipment with a discharge capacity of up to 150 00 litres per hour.
- x) The Contractor will be responsible for water level measurements in observation boreholes within 100 meters of the pumped borehole, if available. The timing of these water level measurements are to be the same as those for the constant yield, but will be determined by the Engineer.
- xi) The Contractor should ascertain before every test with a dummy run that the erection and lowering of this equipment would cause no damage to either the borehole or his own equipment. Any such damage or loss of equipment is the Contractor's liability.
- xii) If, for some reason the Contractor discovers the borehole to be blocked during the dummy run his equipment is to be removed, the borehole capped and the Engineer informed.
- xiii) Once the pump test that comprises 4 step tests, which extends to a water level recovery measurement followed by a constant discharge test has commenced, followed by recovery measurement, the Contractor shall not interrupt or terminate the testing procedure until completion thereof.

PA 1.13 INSTALLATION OF HAND/ELECTRICAL PUMP

Hand/electrical pumps must be installed complete as per supplier's guidelines.

A concrete block 'footing' must be constructed for hand pumps as indicated on the Figures.

A Certificate of Compliance (COC) must be issued with each electrical pump installed and commissioned.

PA 1.14

SUPERVISION

The Engineer will nominate a suitably experienced drilling supervisor to the Contractor who will be required to supervise and direct the work at all times.

- a) confirmation of borehole positions (with allocated Borehole Numbers) as set out by the Engineer;
- b) supervision of drilling operations;
- c) reporting of water strike levels and recording blow yield measurement and borehole construction;

SECTION 2**PARTICULAR SPECIFICATIONS****(PART 2)****PA 2 MEASUREMENT & PAYMENT****PA 2.1 GENERAL**

The Contractor under this Contract is considered to be an expert groundwater borehole driller and is expected to organise and carry out the work specified hereunder in a competent manner. Drilling problems encountered will be overcome entirely within the framework of this Specification and Schedule of Rates, and no claims for extra payments will be entertained for problems foreshadowed in the Specification or due to limitation placed by this Specification.

PA 2.2 ESTABLISHMENT Unit: Sum

The rate is inclusive of provision of all equipment, plant, personnel and facilities that are necessary to perform the work as required per rig with establishment thereof at the first borehole site only and de-establishment on completion of the work order.

PA 2.3 INTER-BOREHOLE MOVE**a) Set-up Unit: No**

The rate is inclusive of all transport and personnel required for relocation of the rig and all plant and equipment from one borehole site to another site and the set-up thereof. The provision of sumps is included in the Rotary Mud set-up.

b) Travel Unit: km

Moves involving travel over and above the first 10 km travel in Payment 2.3 (a)

PA 2.4 WATER HAULAGE Unit: m³

Where additional water is required to be hauled to site in order to satisfactorily carry out Rotary Mud Drilling (Payment Items 2.11), Development of Borehole (Payment 2.12) and Jetting of Borehole (Payment 2.12). The rate is inclusive of all water supply equipment and personnel required to draw and contain water and the haulage thereof from water source to site. Payment shall be made as follows: Unit rate per cubic metre (m³) of water hauled.

PA 2.5 TRANSPORT OF SPECIAL ITEMS Unit: km

The rates are to include for the provision of suitable vehicular transport and personnel for additional transport of Odex Casing Shoes (Payment Item 2.5) Special Casings and/or Screens (Payment Item 2.25) or Additional Items (Payment 2.27) as directed by the Engineer.

PA 2.6 AIR PERCUSSION DRILLING (abrasive rock) Unit: m

The rates for Air Percussion Drilling are based on diameter and cover all costs for labour, plant, materials and fuel required for advancement of borehole to specified depths, and which are not covered under other payment items. The Contractor shall

be paid a rate per borehole diameter per linear metre advanced for depth ranges up to 200 m under Payment Item 2.6.

PA 2.7 AIR PERCUSSION DRILLING (boulders & alluvium) Unit: m

The rate provides for all additional labour, plant, materials and fuel required for the successful advancement of the borehole through alluvial boulder layers of any thickness overlying the consolidated rock formation where standard air percussion drilling methods are ineffective. The rates are determined as a drilling rate per borehole diameter for the drilling depth range 0 – 50 m as provided in Payment Item 2.7

PA 2.8 ODEX AIR PERCUSSION DRILLING Unit: m

The rates for Odex Air Percussion Drilling are based on diameter and cover all costs for labour, plant, material and fuel required for the successful advancement of the borehole through collapsible layers of any thickness overlying the consolidated rock formation where standard air percussion drilling methods are proved to be ineffective, and which are not covered under other payment items. The Contractor shall be paid a rate per linear metre advanced as per borehole diameter of 165 mm only for the depth range of 0 – 100 m under Payment Item 2.8.

PA 2.9 ODEX AIR PERCUSSION CASING SHOE Unit: No

Where Odex Air Percussion drilling is required a casing shoe shall be used.

Where the requirement for Odex drilling has not been specified in the work order and if special transport of the casing shoe is required the transport cost thereof shall be covered under Payment Item 2.5.

PA 2.10 REAMING Unit: m

The rate provides for all additional labour, plant, material and fuel required for reaming a smaller diameter borehole to a larger diameter as specified by the Engineer. The Contractor shall be paid at a rate per linear metre advanced for the depth range up to 150 m under Payment Item 2.10.

PA 2.11 ROTARY MUD DRILLING Unit: m

The rates for Rotary Mud Drilling are based on diameter and cover all costs for labour, plant, material and fuel required from advancement of borehole to specified depths and which are not covered under the other payment items. The Contractor shall be paid a rate per linear metre advanced for the depth range up to 150 m under Payment Item 2.11.

- PA 2.12 DEVELOPMENT OF BOREHOLE Unit: hr**
- The borehole development time rate is to cover all the time effectively spent on borehole development as instructed by the Engineer. The Contractor is deemed to have all the necessary equipment on site for development.
- On completion of drilling a borehole, a minimum of 2 hours of development is deemed to be the necessary cleaning out of the borehole. The Contractor shall be paid at an hourly rate under Payment Item 2.12.
- If additional water is required for development the water haulage cost thereof shall be covered under Payment Item 2.4.
- PA 2.13 JETTING OF BOREHOLE Unit: hr**
- The rate is to cover all the special equipment used and time effectively spent on jetting the borehole a minimum of 6 hours as instructed by the Engineer. The Contractor is deemed to have all the necessary equipment on site for jetting under Payment Item 2.12.
- If additional water is required for jetting the water haulage cost thereof shall be covered under Payment Item 2.4.
- PA 2.14 INSERTION OF CASING Unit: m**
- The rate provides for the insertion of permanent casings in boreholes as instructed by the Engineer under Payment Item 2.14.
- PA 2.15 REMOVAL OF CASINGS Unit: m**
- There shall be no payment for removal of casing in boreholes declared lost or in which the casing cannot be set in position due to misalignment or other operational problems. Removal of casing as instructed by the Engineer under Payment Item 2.15.
- PA 2.16 INSTALLATION OF FACTORY PERFORATED CASING AND/OR SCREENS Unit: m**
- Where factory perforated casing and/or screens are to be installed in production boreholes in accordance with specific instructions under the supervision of the Engineer a metre rate shall cover all costs for the installation thereof under Payment Item 2.16.
- PA 2.17 PERFORATION OF CASING (ON-SITE) Unit: m**
- The rate provides for the on-site perforation of plain casing as supplied under Payment Item 2.22 and is inclusive of all equipment and labour required for perforation. The Contractor is deemed to have all the necessary equipment on site for perforation. Payment shall be measured at a rate per linear metre of casing perforated under Payment Item 2.17.
- PA 2.18 FORMATION STABILIZER/GRAVEL PACK Unit: m³**
- Where instructed by the Engineer a formation stabiliser or a gravel pack shall be inserted and will be measured at a rate per cubic metre (m³) of material supplied and inserted under Payment Item 2.18.

- PA 2.19 FILTER PACK Unit: m³**
- Where instructed by the Engineer a filter pack shall be inserted and will be measured at a rate per cubic metre (m³) of material supplied and inserted under Payment Item 2.19.
- To take into account the higher cost of a special supply of filter material (specified by the Engineer) payment shall be made for the supply and insertion of a minimum 0,5m³ of filter pack at a time.
- PA 2.20 GROUT BACKFILL/BENTONITE SEAL Unit: m**
- Grout backfill/Bentonite Seal shall be paid for at a rate per linear metre inserted under Payment Item 2.20.
- PA 2.21 CAPPING OF BOREHOLE Unit: No**
- The rate for capping of a borehole of varying diameter includes the provision and affixing of the steel or PVC cover to the steel or PVC casing respectively and the inscription of the borehole number identification thereof under Payment Item 2.21.
- PA 2.22 SUPPLY OF MILD STEEL CASING, SPECIAL CASINGS AND SCREENS Unit: m or No**
- Payment under Payment Item 2.22 for the cost of supply, transport, delivery and safekeeping on site of mild steel casing, special casings and screens of varying diameter and wall thickness with fittings as given in Section 6: Schedule of Rates and as specified by the Engineer shall be on the basis of proven cost with a percentage mark up of 12% on the net price (excluding VAT). Payment shall be made only for materials used and shall be calculated for each completed borehole. No claims for extra payment will be entertained by reason of remoteness. The Contractor shall purchase the specified casings and screens on the basis of competitive quotes as approved by the Engineer.
- There shall be no payment for casings and screens declared lost or made unusable due to damage thereof
- Where the requirement for special casings and screens has not been specified in the work order and if special transport as approved by the Engineer is required to deliver these items to site the cost thereof shall be made in accordance with Payment Item 2.5: Transport of Special Items.
- PA 2.23 ADDITIONAL ITEMS**
- Where Additional Items are specified by the Engineer and rates are not included in the Schedule of Rates, the costs thereof shall be recovered on the basis of proven cost with a percentage mark up of 12% on the net price (excluding VAT).
- Payment shall be made only for materials used and shall be calculated for each completed borehole. No claims for extra payment will be entertained by reason of remoteness. The Contractor shall purchase specified materials on the basis of competitive quotes as approved by the Engineer.
- The 'proven cost' shall then be approved by the Engineer on the following basis:

a) Materials Unit: TBS

Original invoices and receipts provided by the Contractor.

b) Labour Unit: hr

A daywork rate with calculations based on the aggregate of the gross remuneration of the workmen and of the foreman for the time they are actually engaged on the work concerned.

PA 2.24 TESTING OF BOREHOLES**(a) Setup, test run, installation, calibration of equipment****(i) For yield up to 7 l/s and 50 m deep Unit: No****(ii) Extra- over (i) per metre deeper than 50 m Unit: m**

The rate shall cover the cost for set-up, "dummy run", installation and calibration of equipment for each test, borehole disinfection and protection.

(b) Travelling for Inter-borehole moveUnit: km

The rate shall cover all cost incurring for travelling and moving plant between boreholes for testing of boreholes.

(c) Sequential step-draw-down tests of 110 minutes duration

..... Unit: hr

The rate will cover the cost for executing all necessary processes for each step separately.

(d) Recovery measurement to 80 % of static water level

..... Unit: hr

The rate shall cover the cost for all proceedings during the period at an hourly rate.

(e) Constant discharge test Unit: hr

The rate shall cover the cost to perform the test and will be measured separately for (a) Blow yield and (b) time.

(f) Sampling of water and test for human consumption Unit: No

The rate shall cover the cost for taking a water sample per borehole according to the minimum requirements, the correct transporting of the sample to a commercial laboratory and the subsequent chemical and bacteriological tests to determine whether the water is acceptable for long term human consumption.

SECTION 1 : PROJECT SPECIFICATION**PB12 EQUIPPING OF BOREHOLES AND SMALL ELECTRICAL INSTALLATIONS****PB12.1 STANDARDS**

Unless otherwise specified all materials must comply with SABS specifications.

Where no applicable SABS Specification exists all materials must comply with the equivalent DIN, IEC, IP or BSS specifications or be of the quality as specified.

The general applicable standards specifications for work carried out in accordance with this specification shall be:

SABS 150	:	PVC-insulated cables.
SABS 152	:	Triple-pole on-load isolators.
SABS 156	:	Magnetic circuit breakers.
SABS 177	:	HV Insulators (Class B)
SABS 178	:	HV Non-Current Carrying Accessories
SABS 182	:	Conductors for Overhead Electrical Transmission Lines
SABS 221	:	Steel cross-arms
SABS 555	:	Transformer oil
SABS 763	:	Hot-dip Galvanizing
SABS 767	:	Earth Leakage Relays.
SABS 780	:	Transformers
SABS 784, 1195	:	Solid drawn high conductivity copper.
SABS 808	:	Glands for PVC-insulated cables.
SABS 890, 891	:	Ballasts for tubular fluorescent lamp luminaries.
SABS 1041	:	Fluorescent lamps.
SABS 1119	:	Tubular fluorescent lamp luminaries.
SABS 1180	:	Flush mounted distribution boards.
SABS 1250	:	Capacitors for tubular fluorescent lamp luminaries.
BS 37	:	kWh meters.
BS 89	:	Indicating instruments.
BS 3938	:	
IEC 185	:	Current transformers.
IEC 51	:	Running hour meters.
IEC 99-1	:	Surge Arrestors

The standard drawings of the Department which are issued together with this specification are :

As listed in C3.2.4, page C3.2.1.

These drawings contain the typical standard layout and principle of controls required by the Department.

Tenderer's shall, however, prepare their own GA and diagrammatic drawings which shall contain all numbering and types of equipment to be used by them when a tender is prepared for the Department.

Also refer to the section on the submission of drawings further in this specification.

PB12.2 EARTHING AND LIGHTNING PROTECTION

This section covers the lightning protection and earthing of electrical installations in buildings, open structures or in "stand alone" installation such as borehole control panels or distribution- or control gear pillars or kiosks. The earthing of all electrical installation shall be in complete accordance with SABS 0142 and the Machinery and Occupational Safety Act 85 of 1993.

The earthing described further herein is mainly applicable to the general earth systems of the pump stations, reservoirs, purification works and other water treatment plants.

PB12.2.1 General

It is a specific requirement of this contract specification that all electrical installation maintained under this contract be properly earthed. This requires that the earthing shall be tested and where earthing is found incomplete or earth values found outside the acceptable limits, this be repaired or improved and that the earthing system(s) again be tested and the values submitted together with the regular site report.

PB12.2.2 General Recommendations of The Practical Installation of Earth Electrodes

This section describes the requirements of the practical earthing of installations and the materials which shall normally be used to obtain proper earthing.

Earth systems employed at the various installations which are maintained under this contract may vary in type and scope from the recommendations of this specifications and this specification must thus be used as a guideline to enable maintenance personnel to install or repair an earth system for compliance with the standard requirements and earth values as mentioned further herein.

PB12.2.3 Requirements of An Effective Earth

An effective earth must prevent dangerous over-voltages arising between metallic structures, frames, supports or enclosures of electrical equipment and the ground during fault conditions.

An effective earth must be able to permit fault currents of sufficient magnitude to flow so as to operate protective devices to isolate the fault before damage can occur.

The ohmic resistance of an effective earth must be low enough to ensure that the step potential on the ground in the vicinity of the earthing point is within safe limits under fault conditions i.e. a voltage gradient not exceeding 40 V/m fault durations exceeding 1 sec.

PB12.2.4 Types of Earth Electrodes

Three types of earth electrodes are suitable:

(a) Trench Earths

Trench earths shall comprise a bare copper conductor laid at a minimum of 500 mm below ground level, usually when underground cables are installed. This type of earth electrode provides a relatively large contact area between electrode and surrounding ground, makes contact with a variety of types of soil and soils of varying moisture content en route and is economical to install.

(b) Spike Earths

Spike earths comprise rods of bare copper, copper-coated steel, stainless steel or galvanized steel designed for the purpose of penetrating ground to depths of up to several metres. A low resistance earth may sometimes be obtained by driving multiple spikes at some distance from each other in order to provide parallel paths.

In hard or rocky ground, it is usually necessary to drill holes into which earth spikes are inserted and then packed with soft soil.

(c) Foundation Earths

Foundation earths comprise bare copper or galvanized iron conductors laid under the foundations of buildings, miniature substations, distribution pillars, bases of wooden, concrete or steel poles and structures. Because soil under foundations usually retains moisture, foundation earths are located to take advantage of this favourable condition. Furthermore, they are economical to install.

PB12.2.5 Materials for Earth Electrodes

Bare copper, either in stranded, strip or rod form, is considered the most suitable general purpose material for earth electrodes. Its main disadvantage is its cost and susceptibility to theft.

Bare galvanized iron and steel, either in stranded, strip or rod form, has a satisfactory record of survival in non-aggressive soils and is more economical than copper.

Bare aluminium is unsuitable as electrode material.

Earthing electrodes used for earth systems shall preferably be solid steel with bonded copper protection.

The nominal diameter of earthing electrodes shall not be less than 16 mm unless the electrodes are specified for placing in pre-drilled holes in which event a minimum nominal diameter shall not be less than 12 mm.

Each earth electrode shall be provided complete with an earth electrode coupling supplied by the earth electrode supplier. The coupling shall be suitable to accommodate the earth wire specified, as well as the type and size of earth electrode used.

Earth electrodes designed for coupling by means of external sleeves shall be provided with an adequate quantity of hydro-carbon or silicone grease to be applied to the coupling before the joint is made.

Earth electrodes designed for coupling by means of internal pins or splines shall be provided with thin walled tubes and hydro-carbon or silicone grease to seal the joints.

The material of the clamps shall be electrolytically compatible with the electrodes and the conductor materials.

An adequate number of driving caps or bolts shall be supplied with the electrodes to protect the ends of the earthing electrodes whilst been driven into hard soil.

PB12.2.6 Corrosion

Because galvanized ferrous metals corrode sacrificially to copper, galvanized iron and steel electrodes should not be buried in close proximity to bare copper.

PB12.2.7 Technical Requirements Of Neutral Earthing of Distribution System
(Multiple Earthed Neutral (MEN) and Protective Multiple Earthing (PME) systems)

NOTE : The following relevant aspects have been extracted from the "AMEU CODE OF PRACTICE FOR THE APPLICATION OF NEUTRAL EARTHING ON LOW VOLTAGE DISTRIBUTION SYSTEMS"

Distribution equipment associated with transformer substations that are either ground mounted or pole mounted and fed by underground cable or overhead line, with or without an earth continuity conductor, (ECC), should be installed, connected and earthed in accordance with the following requirements:

- (i) Where the resistance to earth of the HV equipment earth is 1 ohm or less, it is permissible to earth the LV neutral to the HV earth electrode.
- (ii) Where the HV equipment earth exceeds 1 ohm the LV neutral shall be earthed at a minimum distance of 6 m from the HV equipment earth (i.e. 6 m from the HV electrode/s and also from any earthed metalwork connected thereto).
- (iii) Notwithstanding the requirements of (i) above, where transformers are associated with HV overhead lines, it is considered good practice to separate the HV and LV earth electrodes. The minimum earth separation should be 6 m or 1 LV span.
- (iv) The overall resistance to earth of the neutral of an LV distributor or distribution system must not exceed 10 ohms.
- (v) The LV neutral may be connected to other supply neutrals, earth electrodes, cable sheaths and armouring and these connections used to obtain the required earthing value of 10 ohms or less specified in par. (iv) above.
- (vi) The neutral of underground and overhead LV distributors must be earthed at the remote ends of each distributor.
- (vii) Where the overall resistance to earth of the neutral of the distribution system exceeds 10 ohms, the neutral shall be earthed at intermediate positions on the distributor/s to reduce its resistance to earth to below this limit.
- (viii) The cross-sectional area of the neutral of all LV distributors must not be less than that of a phase conductor.
- (ix) No circuit breakers, isolators, fuses, switches or removable links shall be installed in the neutral between the transformer star point and the remote end of any LV distributor or service connection.
- (x) All metallic sheathing and armouring of cables and all metalwork associated with meter cabinets, fuse pillars, etc., supporting or enclosing LV cables shall be bonded to the distributor neutral conductor.
- (xi) Where a Separate Neutral Earth (SNE) cable is part of an MEN or PME system, the armouring and/or metallic sheath and any ECC shall be bonded to the neutral at the supply end of the cable.

(xii) To ensure the integrity of the neutral, it is recommended that all connections and joints on or to overhead line conductors be made by compression fittings or, alternatively double bolted connectors.

(xiii) MEN or PME may be applied to any single LV distributor without alterations to other LV distributors supplied from the same transformer.

PB12.2.8 Substation Earthing

In order to comply with the requirements of the previous paragraphs, an earth resistivity measurement shall be undertaken at the site of a substation or miniature substation, preferably by a specialist firm.

The Contractor may undertake this measurement himself but in compliance with SABS 0142 by using the nul-balance megger method and employing test electrodes. The earth resistance measurement in this case shall preferably be $5\ \Omega$, referred to zero.

The Contractor shall then submit to the Department or Engineer the details of a proposed substation earth indicating whether a trench earth, spike earth or foundation earth is intended and the proposed inter-connections with the installation.

PB12.2.9 Fence Earth System Of Outdoor Substations

In cases where substations contain transformers or switchgear installed outdoors, the fence enclosure shall be earthed as follows:

A 70 mm^2 earth wire shall be installed 600 mm below ground level and 500 - 1000 mm from the fence on the outside of the substation along the entire length of the fence. This earth loop shall be lugged and earthed at each corner pole of the wire mesh enclosure. The earth resistance of this installation shall preferably be $< 20\Omega$, referred to zero.

If a 20Ω resistance cannot be obtained, then 1,8 m earth rods shall be installed at each corner post of the fence enclosure and bonded to the pole by means of a 70 mm^2 earth wire tail.

Such a fence earth system shall also be bonded to the main meter box earth point or 400 V switchgear earth bar of the substation (if available) by means of lugged 70 mm^2 earth wire.

This earth system shall further be earthed to the tank earth point of the transformer and the tank earth point shall be earthed to the neutral (star point) of the transformer, all by means of 70 mm^2 earth wire.

If the earth system of the MV lightning arrestors is within 9 m of the fence earth system, the MV lightning arrestor earth shall also be bonded to the fence earth system. This connection shall only be carried out if ESKOM or the Supply Authority allows the Contractor to carry out this work.

PB12.2.10 Trench Earth System

This section shall be applicable where pole mounted transformers and ESKOM meter boxes supply the power to a site.

Two separate 1,8 m earth electrode shall placed at least 9 m apart and at 600 mm below ground level in the cable trench for the LV cables leading away from the transformer or meter to the main board or motor control centre of the installation.

These earth electrodes shall be connected together with 70 mm^2 bare copper earth wire by means of clamping the earth wire to the earth electrode with standard earth electrode clamps and the earth wire shall further be laid in the trench together with the main cables to the main board or motor control centre of the installation.

The earth electrode nearest to the ESKOM supply point shall be connected to the earth point in the ESKOM meter box.

All earth conductor ends connected to earth bars in meter boxes or boards shall be lugged.

In the case where a fenced enclosure is used for a ground mounted transformer, the trench earth conductor must be connected to one of the earth points at a corner post or the earth point on the tank of the transformer.

Any trench earth system earth resistance shall preferably be 5 Ω , referred to zero

PB12.2.11 MV equipment earth.(where applicable)

Any MV switchgear earths shall be bonded to the fence earth system or the trench earth system if such MV earth system is within 9 m of the fence earth system or the trench earth system.

Any support steelwork for MV equipment or the transformer support steelwork shall be bonded to the fence earth system or the trench earth system with 70 mm² bare copper earth wire.

This connection shall only be carried out if ESKOM or the Supply Authority allows the Contractor to carry out this work.

PB12.2.12 Substation Building Earths

In the case of a substation building which contains MV switchgear and/or transformers, the following section shall apply.

A main earth mat shall be placed 700 mm. below ground level in a position outside the substation building in a position as instructed on site.

The earth mat shall consist of 5 earth rods driven into the bottom of ground trenches with 4 rods placed in a 2 m x 2m square pattern with the fifth rod at the centre thereof.

The 4 outer rods shall be connected to the centre rod by means of 70 mm² bare copper earth wire.

A 70 mm² bare copper earth wire shall be connected to the centre rod and shall terminate on a main earth bar in the main LV switchboard.

A 70 mm² bare copper earth wire shall further be connected to the transformer tank and LV star bushing.(neutral bushing) of the transformer and to the MV switchgear earth point or bar and shall be terminated on the earth bar of the main board.

PB12.2.13 Earthing of General Electrical Installations

PB12.2.13.1 General

All earth conductors shall be stranded copper with or without green PVC insulation. Trench earths shall preferably be bare copper earths.

All earth conductor sizes shall be determined in accordance with SABS 0142, where the earth does not form an integral part of the cable.

PB12.2.13.2 Switchboards

A separate earth connection shall be supplied between the earth busbar of the main switchboard and the earth busbar of every sub-switchboard. These connections shall consist of bare or insulated stranded copper conductors installed along the same routes as the supply cables or in the same conduit as the supply conductors. Alternatively armoured cables with earth continuity conductors included in the armouring may be utilised.

PB12.2.13.3 Sub-Circuits

The earth conductors of all sub-circuits shall be connected to the earth busbar in the supply switchboard in accordance with SABS 0142.

PB12.2.13.4 Ring Mains

Common earth conductors may be used where various circuits are installed in the same wiring channel in accordance with SABS 0142.

Earth conductors for individual circuits branching from the ring main shall be connected to the common earth conductor with T-ferrules or be soldered. The common earth shall not be broken.

PB12.2.13.5 Connections

Under no circumstances shall connection points, bolts, screws, etc., used for earthing be utilized for any other purpose. It will be the responsibility of the Contractor to supply and fit earth terminals or clamps on equipment and materials that must be earthed where these are not provided. Unless earth conductors are connected to proper terminals, the ends shall be tinned and lugged. Lugs may be crimped, using mechanical or pneumatic tools designed for this purpose, on condition that evidence is submitted that the method used complies with the performance requirements of BS 4579, Part 1: "COMPRESSION JOINTS IN COPPER".

PB12.2.13.6 Non-Metallic Conduit

Where non-metallic conduit is specified or allowed, stranded copper earth conductors shall be installed in the conduits and fixed securely to all metal appliances and equipment, including switch boxes, socket-outlet boxes, draw-boxes, switchboards, luminaries, etc. The securing of earth conductors by means of self-threading screws are not permitted.

PB12.2.13.7 Flexible Conduit

An earth conductor shall be installed in all non-metallic flexible conduit. This earth conductor shall not be installed external to the flexible conduit but within the conduit with the other conductors. The earth conductor shall be connected to the earth terminals at both ends of the circuit.

PB12.2.13.8 Water Pipes

Metal domestic cold water mains shall be bonded to the earth busbar in the main switchboard by solid 15 x 2 mm copper strapping. All other domestic metal water pipes shall be connected by 12 x 0,8 mm perforated or solid copper strapping (not conductors) to the nearest switchboard. The strapping shall be fixed to the pipe work by brass nuts and bolts and against walls by brass screws at 150 mm centres.

In all cases where metal water pipes, down pipes, flues, etc., are positioned within 1,6 m of switchboards, an earth connection consisting of copper strapping shall be installed between the pipe work and the board. In vertical building ducts accommodating both metal water pipes and electrical cables, all the pipes shall be earthed at each switchboard.

PB12.2.13.9 Roofs

Where service connections consist of overhead conductors, all metal parts of roofs, gutters and down pipes shall be earthed. One bare 10 mm² copper conductor shall be installed over the full length of the ceiling void, fixed to the top purlin and connected to the main earth conductor of each switchboard. The roof and gutters shall be connected at 15 m intervals to this conductor by means of 12 x 0,8 mm copper strapping (not conductors) and galvanized bolts and nuts. Self-tapping screws are not acceptable. Where service connections consist of underground supplies, the above requirements are not applicable.

PB12.2.13.10 Pump Station Buildings, Roof Earths and Reservoirs

A ring earth consisting of a 70 mm² bare copper earth wire shall be installed all around the perimeter of each pump station or building on site at 600 mm below ground level and 1m from the building structure.

The building roofs and steel columns (where applicable) shall be bonded to this ring earth in two places at diagonal corners of the building.

The roof earth connections shall be housed in 25 mm Ø hot dipped galvanised conduit with the conduit saddled to the walls of the buildings by means of hot dipped galvanised conduit spacer saddles. The conduits shall reach from below the roof overhang to 300 mm below ground level.

This earth system shall also be bonded to the earth bar of the main switchboard or motor control centre.

In the case of a concrete roof of a building or a reservoir with a concrete roof which is not protected against lightning, the Contractor shall first enquire whether the Department requires such a structure to be protected.

Some reservoirs and buildings are already fitted with foundation earths and will not require additional earthing.

In the case where a structure must be protected against lightning, the Contractor shall submit a report (preferably by an earthing specialist firm) to the Department in terms of SABS 03/1985 (as amended), of the type of system required and the cost thereof.

PB2.13.11 Corrosion Protection

Steel pipelines employing corrosion protection systems, must not be earthed, but the Department must be informed of such systems and advice must be obtained from corrosion protection specialists before any earthing of such pipelines are attempted.

PB12.3 INSTALLATION AND TESTING OF ELECTRICAL EQUIPMENT

PB12.3.1 DISTRIBUTION BOARDS AND MOTOR CONTROL CENTRES.

PB12.3.1 General Construction

PB12.3.1 Size

All switchboards shall be of ample size to accommodate the specified switchgear and provide space for future switchgear. For every 4 (or part of 4) 5 kA circuit breakers on a switchboard, space for an additional 5 kA circuit breaker shall be allowed for unless future space requirements are clearly specified. For circuit breakers above 5 kA, this factor shall be 15%.

PB12.3.2 External Dimensions

The maximum allowable height of free-standing switchboards is 2,2 m. Cubicle type boards may be up to 2,4 m high if they can be fully dismantled into individual cubicles. Where, due to space restrictions, a board exceeds 2,2 m in height, equipment not normally requiring access, shall be installed in the top section, enabling equipment normally requiring access to be installed lower down in the board.

All other specified external dimensions for switchboards shall be strictly adhered to. If the proper clearances cannot be adhered to as a result of restricting external dimensions, the Contractor shall obtain the approval of the Engineer before manufacturing the switchboards.

PB12.3.3 Moisture And Vermin

All switchboards shall be rendered moisture proof and vermin proof and shall be adequately ventilated.

PB12.3.4 Load Balance

The load shall be balanced as equally as possible across multiphase supplies.

PB12.3.5 General Work

NOTE: Care must be taken when using megger test equipment on electrical installations due to damage which can result to MOV type lightning arrestors, electronic motor protection units and electronic instrumentation.

The following work shall be carried out on electrical installations whenever any work is carried out on any site.

- a) The earthing of the whole installation shall be tested and checked in accordance with the requirements of the Section PB12.2 of this specification.
- b) Clean inside and outside of all distribution boards and control panels. Note severe rust problems and report to the Department.
- c) All wiring connections to terminals in boards, joint boxes, lock-stop button boxes, stop-start remote station boxes, instrument casings and in motor cable boxes shall be tightened.

Overheating damage to conductor ends and terminals or switchgear due to loose connections shall be repaired as set out further herein.

- d) All light circuits shall be checked for operation and lamps shall be replaced as necessary.

- e) All plug circuits shall be checked for correct polarity and for earthing problems. Damaged 16A 3 pin switch-plugs shall be replaced as necessary.
- f) All earth leakage units shall be checked with an earth leakage tester. Where a 1000 mA earth leakage unit is used in conjunction with a shunt trip main incoming circuit breaker, the manufacturer's specification for testing of the unit shall be followed.
- g) Any over/under voltage or phase failure/phase rotation protection monitor relays shall be tested for proper operation.
- h) Check all voltmeters, voltmeter switches and ammeters for correct operation and log all maximum demand currents before resetting ammeters.
- i) Log all motor running hour meters.
- j) Check all recorded data (if available) on electronic motor protection units. Time lapse since last trips and cause of trips must be logged.
- k) Check all instrumentation fuses and all control circuit supply fuses and circuit breakers.
- l) Test all indication lamps and replace blown lamps as necessary.
- m) All board doors and covers shall be checked for proper closing.

All open connections such as found in broken or missing light switches, plugs and lights shall be closed off with cover plates or replaced, as the case may be.

No live open connections or live metalwork on any appliance or board shall be left in that state by the Contractor.

- n) All surge arrestors and lightning protection equipment shall be inspected for damage or burn-out. Damaged units shall be replaced. Carbon granule type of arrestors (for power) must be replaced with MOV arrestors with a fault rating of not less than 40 kA.

Instrumentation surge arrestors must be replaced with the correct type as prescribed by the supplier of the instrument, for digital signals and current loops.

PB12.3.6 Starter- and Distribution Boards (such as used for boreholes and small plants)

Boards shall be constructed and maintained as follows, over and above the work specified in PB.5 above:

a) Circuit Breakers or Main Switches

Circuit breakers shall comply with SABS 156.

Contacts of circuit breakers shall be silver alloy and shall close with a high pressure wiping action.

Where specified, the circuit breaker shall be capable of accommodating factory fitted shunt trip or auxiliary contact units or similar equipment.

The operating handle shall provide clear indication of "ON", "OFF" and "TRIP" positions.

The mechanism shall be of the TRIP-FREE type preventing the unit from being held in the ON position under overload conditions.

All moulded-case circuit breakers in a particular installation shall as far as is practical be supplied by a single manufacturer.

The incoming terminals of single-pole miniature circuit breakers shall be suitable for connection to a common busbar.

The circuit breaker shall have a rating plate indicating the current rating, voltage rating and breaking capacity.

Extension type operating handles shall be provided for units which are placed inside a board and shall be mounted on a chassis on the back plate of the board so that the operating shaft is as short as possible.

Extension shafts shall engage easily with the door handle cavity. The handle shall have a mechanical interlock so that the face panel or front door of the panel cannot be opened whilst the breaker is ON.

Isolators used as main switches for boards shall comply in principle with requirements of the previous paragraphs of 3.1.2 (a) above.

Isolators shall be of the triple-pole, hand operated type complying with SABS 152.

Isolators shall have a high speed closing and opening feature.

Isolators shall be suitably rated for the continuous carrying, making and breaking of the rated current specified as well as the through-fault current capacity as specified.

To distinguish the switches from circuit-breakers the operating handles shall have a distinctive colour and/or the switch shall be clearly and indelibly labelled "ISOLATOR".

When checking for proper operation the main switch or circuit breaker must be switched ON and OFF and voltage measurements taken on the outgoing side in both cases to check that all three poles switch properly and that the supply to the switchgear is OFF when the main switch or circuit breaker is switched OFF.

b) Contactors

Contactors shall be of the open or totally enclosed, triple- or double pole, electromechanically operated, air-break type suitable for 380/433 V or 220/250 V supplies and shall comply with SABS 1092.

Contactors shall have the following characteristics:

- (1) Enclosed coil easily replaceable.
- (2) A permanent air gap in the magnetic circuit to prevent sticky operation.
- (3) Provision for quick and simple inspection of contacts.
- (4) Clearly marked main and auxiliary terminals.

All parts shall be accessible from the front.

In addition to the required current carrying capacity and switching duty of a contractor, the contractor chosen for a particular application shall be rated for the maximum through fault current allowed by the back-up protection devices at the point where the contractor is installed. Careful co-ordination of the short circuit devices shall take place.

All laminations of the magnetic system of the contractor shall be tightly clamped. Noisy contractors will not be accepted.

Non-current-carrying metallic parts shall be solidly interconnected and a common screwed terminal shall be provided. The contractor shall be earthed to the switchboard earth bar.

Latched contractors shall be provided with a trip coil and a closing coil. The contractor shall remain closed after de-energizing the closing coil and shall only trip on energizing the trip coil.

Contractor operating coils shall have a voltage rating as required by the control circuitry and shall have limits of operation and temperature rise as specified in clause 7.5 and Table IV of IEC 158-1. Latched contractors shall be capable of being tripped at 50 % of the rated coil voltage.

Contractors with provision to add auxiliary contacts on site are preferred. Contractors with permanently fixed auxiliary contacts shall have at least 1 x N/O and 1 x N/C spare auxiliary contacts in addition to the contacts specified for control purposes and in addition to the contacts required for self-holding operations or economy resistances. Where the number of auxiliary contacts required is greater than the number of contacts that can be accommodated on the contractor, an auxiliary relay or additional contractor shall be provided to supply the additional contacts.

It shall be possible to replace main contacts without disconnecting wiring.

Auxiliary contacts shall be capable of making, carrying continuously and breaking 6 A at 220 V AC, unity power factor for contractors used on 380-433/220-250 V systems.

Auxiliary contact functions required e.g. "lazy" contacts, late-make, late-break, make-before-break, etc. shall be inherent in the contact design. Under no circumstances may these functions be improvised by bending contacts, loading contacts, etc. These functions shall be available in all contractors.

Spare auxiliary contacts shall be wired to numbered terminal strips in the switchboard and shall appear on the switchboard drawings.

All contractors on a specific project shall be from a standard range of one single manufacturer, unless specified to the contrary.

Contractor(s) which are tested for proper operation must be operated to ensure that the coil of the unit is in order and voltage measurements taken on the outgoing side to check that all three sets of contacts make evenly.

Contractors shall not emit a humming noise when pulled in and contractors shall further be checked for sticky moving parts.

Auxiliary contacts of contractors shall be inspected likewise.

Faulty contractor coils shall be replaced and badly worn or burned contacts sets must be replaced as a set.

Contactors which cannot be maintained must be replaced with an equivalent unit, if faulty, and maintainable units must preferably be used in that case.

Malfunctioning auxiliary contact blocks of contactors must be replaced.

If the same manufacture and model of maintainable contactor or parts thereof cannot be obtained, the whole unit must be replaced with an equivalent unit.

Contactor ratings shall be determined by using one size larger than the correct AC3 rating which would normally be used.

Star contactor must be of the same rating as main or delta contactors, in the case of star-delta starters.

c) Connections to busbars

Conductor ends shall be fitted with crimped or solid sweated lugs which are bolted to the busbar.

Busbar clamps with bolted connections are acceptable for smaller circuit conductors.

Where lugs are crimped evidence shall be submitted that the crimping technique used will comply with the performance requirements of BS 4579, Part 1: "COMPRESSION JOINTS IN COPPER".

(d) Busbars

Busbars in panels where the main switch or circuit breaker exceeds 150A, shall be manufactured of solid drawn high conductivity copper with rectangular cross-section in accordance with SABS 1195 and BS 159 and BS 1433, where applicable.

Busbars in boards where the main switch or circuit breaker is less than 150A may be done in the form of flexible welding cable, installed in PVC trunking along with small bore wiring.

Although SABS 784 refers to overhead and rising busbars, busbars in miniature substations shall comply with applicable sections of this specification, especially as far as insulation and clearance values, creepage distance, joints, insulation resistance, dielectric strength, deflection test, absorption resistance and rated short time withstand current are concerned.

Busbars shall be supplied for the following applications:

- (1) Distribution of supply voltage.
- (2) Connection of equipment with ratings exceeding the current rating of 70 mm² conductors.
- (3) Connection of outgoing circuits with current ratings in excess of that followed for 70 mm² conductors
- (4) Collector bars for parallel cables.
- (5) Connection bars for neutral conductors .
- (6) Earth busbars .
- (7) Connections to miniature circuit breakers.

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All busbars shall be covered with coloured heat-shrinkable or air drying shrinkable.

The colour shall correspond to the colour of the supply phase.

Busbars shall be radius-edged where they change direction.

Neutral conductors for circuits protected by a single-pole circuit breaker or fuse-switch shall be connected to a neutral busbar mounted in a suitable position.

A separate neutral bar shall be provided for each earth leakage unit provided.

Neutral bars shall have a cross-section of at least 6,3 x 25 mm and shall be long enough for the lugs of all neutral conductors to be bolted separately to the busbar without overlapping the lugs.

(e) Wiring

Incoming and outgoing cables shall be terminated on the gland plate.

Cable tails with sizes up to 70 mm² may terminate on clamp type terminals where the clamping screws are not in direct contact with the conductor. All cables larger than 70 mm² shall terminate on busbar studs which are connected directly to the equipment. Parallel connected cables shall be connected to a collector busbar or busbar stub without crossing the conductors.

External wiring for low voltage, control, interlocking, alarm, measuring and D.C. Circuits shall terminate on numbered wiring terminals.

The correct terminal size as recommended by the manufacturer for each conductor to be connected shall be used throughout. The terminal numbers shall appear on the wiring diagrams of the switchboard.

Terminals for power wiring shall be separated from other terminals. Terminals for internal wiring shall not be interposed with terminals for external circuits. All connections to terminals shall be identified with numbers.

Where switchboards consist of separate sections, the control wiring passing between sections shall be terminated on strips in each section so that control wiring can be readily re-instated when reassembling the board.

The current rating of conductors for the internal wiring shall be sufficient to carry the maximum continuous current than can occur in the circuit. This value shall be determined from the circuit breaker or fuse protection of the circuit. The smallest conductor size to be used for power wiring shall be 2,5 mm².

PVC wiring channels shall be used throughout and shall be installed horizontally and vertically. Under no circumstances may power and low voltage control circuit wiring be installed in the same wiring channel. Channels shall not be more than 40% full and shall preferably be of the finger type of channel.

Where neutral connections are looped between the terminals of instruments, it is essential that the two conductor ends be inserted into a common lug or ferrule and are crimped or soldered together in order that the neutral connection is not broken when the conductors are removed from one of the instruments.

Wiring should as far as possible be confined to the front portions of switchboards for ease of access. This requirement is important for wiring between smaller circuit breakers and the associated main circuit breaker as well as the wiring from circuit breakers to lighting and socket-outlet circuits

Conductors connected to terminals shall be soldered or ferruled. Connections to circuit breakers, isolators or contractors shall be made by one of the following methods:

- (i) A ferrule or lug of the correct size,
- (ii) soldering the end of the conductor

All conductors terminating on meters, fuse holders and other equipment with screwed terminals shall be fitted with lugs. The lugs shall be soldered or crimped to the end of the conductor. The correct amount of insulation shall be stripped from the end to fit into the terminal. Strands may not be cut from the end of the conductor. Neutral wires may not be cut where these are looped on control gear terminals, but the insulation must be removed and the wire looped and crimped or soldered into the lug.

The colour of the conductors for all 220/250 Volt circuits shall correspond to the colour of the supply phase for that circuit. Neutral conductors shall be black.

All other conductors in the board, supplying control circuits, etc., shall be coded in colours other than those specified above. A colour code shall be devised for each board and the colour code shall be shown on the wiring diagrams.

All conductors that terminate at wiring terminals and all conductors used for the internal wiring of the switchboard shall further be identified at both ends by means of durable cable marking ferrules. PVC or other tape is not acceptable.

The numbers on the markers shall be shown on the wiring diagrams.

(f) Labelling

Care shall be taken to ensure that all equipment is fully labelled and that accurate descriptions and safety warning notices appear in English only. The Engineer must be approached by the Contractor to obtain the specific requirements for labels before the labels are manufactured.

Engraved plastic or ivory sandwiched strips shall be used throughout. The strips shall bear white lettering on a black background for normal labels and red letters on a white or yellow background for danger notices.

All other equipment including meters, instruments, indicator lights, switches, push buttons, circuit breakers, fuses, contactors, control relays, protection relays, etc., shall be identified. The function of the equipment and circuits shall be clearly indicated. The main switch shall be labeled as such and designated:

"SWITCH OFF IN CASE OF EMERGENCY"

Flush mounted equipment within doors or front panels shall be identified with labels fixed to the doors or front panels respectively.

The labels for equipment installed behind panels, shall be fixed to the chassis close to the equipment. If this equipment is positioned too close together to accommodate descriptive engraved labels, the equipment may be identified by a code or number on an engraved label which shall be fixed close to the equipment. The code number shall be identified on a legend card which shall be installed on the switchboard behind a plastic or other protective cover.

(g) Instruments

Instruments shall be suitably rated for the supply voltage and frequency to be applied, which shall be 400/230 Volt, 50 Hz unless specified to the contrary.

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All the instruments used for a particular application or a specific project shall be from the range of a single reputable supplier and shall have the same face dimensions. The face dimensions shall be square and not less than 96 x 96 mm.

All instruments shall comply with BS 89 and/or IEC 51.

Instruments shall be screened against magnetic interference and shall have anti-static, impact-resistant glass or "MACROLON" faces.

Preference will be given to locally manufactured instruments.

Instruments shall be insulated to achieve a 2 kV insulation resistance to earth.

All instruments shall be splash-proof and dust-proof unless more stringent requirements are specified for hazardous locations.

Instruments shall be sufficiently resistant to vibration that may be encountered in the specific application.

For normal environmental and supply conditions, instruments shall be suitable for use inside the limits specified in Tables III and VI of IEC 51.

All instruments shall be capable of withstanding overloads of continuous or short duration in accordance with section 8.3 of IEC 51.

Instruments shall be provided with studs for rear connection. Shrouds shall be provided to prevent accidental contact where instruments are to be installed in hinged panels of switchboards.

(h) Voltmeters and Voltmeter Selector

Unless specified to the contrary, voltmeters shall be scaled from 0-250 Volt in the case of L.V applications.

Voltmeters shall be of the moving iron type with class 1,5 accuracy as specified in IEC 51.

A zero adjustment screw shall be provided.

Unless specified to the contrary, a single voltmeter and selector switch shall be provided. The voltmeter switch shall have an "OFF" and three metering positions to indicate readings between neutral and each of the three phases.

The markings shall be indicated clearly on the face plate of the selector switch and the handle position shall be accurate in relation to the markings on the face plate.

The selector switch shall be of the cam-actuated or wiping air-break type with two breaks per pole.

(i) Ammeters

Ammeters shall have a moving iron element to indicate instantaneous values.

Direct reading ammeters up to a maximum rating of 60 A may be used. Current transformer operated ammeters shall be 5 A full scale, calibrated to read actual primary circuit currents. The current transformer ratio shall be indicated on the face plate.

A zero adjustment screw shall be provided.

Where combined maximum demand and indicating ammeters are specified, a bimetallic spiral element shall be provided in the same housing to indicate mean value over a 15 minute period.

The bi-metal element shall drive a residual pointer to indicate maximum mean current between resettings. This pointer shall operate on the main scale and shall be of a distinctive colour. The pointer shall be resettable from the face of the meter.

The bi-metal element shall be designed to compensate for limits of ambient temperature between -20°C and 70°C.

Full load or rated current shall be clearly indicated, preferably with a red line. Unless specified to the contrary, a 100% condensed over scale shall be provided for instantaneous reading instruments and no over scale for combined maximum demand ammeters.

The intrinsic error, expressed in terms of the fiducially value in accordance with IEC 51, shall be class 1,5 for the instantaneous readings and class 2,5 for the mean maxima.

Where saturation current transformers are required, these shall form an integral part of the meter. Separate saturation current transformers are unacceptable to the Engineer.

(j) Running Hour-Meters

Running hour-meters shall be of the electrically operated cyclometer type, suitable for flush mounting.

Numerals shall be clearly defined white on a black background.

The range of hour-meters shall be five digits, the fifth digit indicating one-tenth of an hour, i.e. from 0 to 9999,9 hours.

The accuracy class shall be class i in accordance with IEC 51 unless otherwise specified.

(k) Earth Leakage Relays

Earth leakage relays shall be single or three-phase units with a sensitivity of 20 mA, with associated circuit breaker or on-load switch for use on 220/250 Volt single phase or 380/433 Volt three-phase, 50 Hz, supplies.

The units shall be suitable for installation in switchboards in clip-in trays or bolted to the chassis.

The earth leakage relay shall function on the current balance principle and shall comply with SABS 767 as amended, and shall bear the SABS mark. Integral test facilities shall be incorporated in the unit.

Circuit breakers with trip coils used integrally with earth leakage units (two-pole for single-phase units and three-pole for three-phase units) shall comply with SABS 156.

On-load switches used integrally with earth leakage units (two-pole for single-phase units and three-pole for three-phase units) shall comply with SABS 152.

The fault current rating of the unit shall be 2,5 kA or 5 kA as required, when tested in accordance with SABS 156

(I) Current Transformers

Current transformers shall comply with the requirements of BS 3938 and IEC 185 with the exception of the required impulse test level as specified below.

1) Ratings

Current transformers shall be suitable for the primary currents listed hereunder and their decimal multiples:

10, 12,5, 15, 20, 25, 30, 40, 50, 60 and 75.

The preferred values are:

10, 15, 20, 30, 50 and 75.

Current transformers shall have secondary ratings of 1, 2 and 5 A, with 5 A being preferred.

Current transformers shall have standard outputs of 2,5, 5, 10, 15 or 30 VA as applicable in terms of the burden of the instruments and interconnecting wiring. The current transformer output shall match the actual instrument burden as possible in order not to introduce unnecessary errors.

2) Accuracy Class

For metering applications, accuracy classes of 0.1, 0.2, 0.5, 1, 3 or 5 are applicable. Where no accuracy class has been specified, the following table may be used as a guide:

Application	Primary Current	Suggested Class
Indicating Instruments	All	5
Metering Applications	Up to 200 A	1
Metering Applications	250 to 600 A	0.5
Metering Applications	800 A and above	0.2

Where ring type current transformers are specified, the aperture shall not be unnecessary large as accuracy is thereby reduced.

The classes for protection are 5P, 10P, 15P, 20P or 30P with 5P and 10P being standard. Turns compensation shall not be employed on protection current transformers for ratios greater than 150/5.

Class X current transformers shall be used in differential protection systems.

Manufacturers shall supply the magnetization curve details and saturation factors for each different transformer ratio.

3) Markings

All current transformers shall come complete with a label on which the following information is indelibly stamped:

Manufacturer.

Serial No. or Type.

Rated primary and secondary current.

Rated Frequency.

Rated output and accuracy class.

Highest system voltage.

Rated insulation level.

4) Fault Current

Current transformers shall be capable of withstanding the dynamic forces resulting from the maximum through-fault current which may be encountered at the point where they are installed. The short time current rating of current transformers shall be as least equal to that of the associated circuit breaker.

5) Impulse Level

Current transformers used in system voltages in excess of 660 Volt shall withstand an impulse test level of 95 kV. Impulse levels for current transformers used in system voltages up to 660 Volt shall comply with BS 3938.

6) Tests of Current Transformers

One protection current transformer of each type used in a contract shall be tested to confirm the estimated characteristics. The following results shall be submitted:

(a) Magnetization curve.

(b) Secondary resistance.

(c) Secondary leakage reactance, if not negligible or if required by the Engineer.

The power frequency, secondary to earth and over-voltage interturn test in accordance with BS 3938 shall be conducted on all current transformers. Impulse tests shall be conducted on all current transformers intended for use in system voltages in excess of 660 Volt.

(m) Tests of Boards

The Engineer shall be notified when the mechanical construction of the switchboard, i.e. frame, panels and base frame, is complete in order that it may be inspected at the factory.

Function tests of all equipment, control and interlocking circuits shall be conducted to the satisfaction of the Engineer. Testing equipment and facilities including instruments, dummy loads and additional switchgear and cables shall be provided by the Contractor at no extra cost. The Engineer shall be notified in writing two weeks in advance of any test to be conducted, to allow its representative to be present at such tests. A complete report on the tests shall be handed to the Engineer.

(n) Drawings for Approval

A set of three prints of the shop drawings for the switchboards shall be submitted to the Engineer for approval before the boards are manufactured. The following information shall be presented:

- (i) A complete wiring diagram of the equipment on the boards.
- (ii) A complete layout of the arrangement of the switchboards indicating all equipment dimensions and the construction of the boards. The positions and method of fixing and sizes of busbars shall be shown.
- (iii) All labelling information on a separate sheet.
- (iv) The make, catalogue number and capacity of all equipment such as isolators, circuit breakers, fuses, contactors, etc. on a separate sheet.

The approval of drawings shall not relieve the Contractor of his responsibility to supply the switchboards according to the requirements of Department.

(o) Final Drawings

Five complete sets of "as built" drawings of all switchboards shall be submitted to the Engineer within two weeks after delivery of the boards. The following basic information shall be presented:

- (1) Item (i) to (iv) of the previous paragraph.
- (2) Terminal strip numbers, numbers and colours of conductors connected to the terminal strips and numbers and colours of the conductors utilized for the internal wiring.
- (3) A separate schedule of all equipment with the name of the equipment, name of the manufacturer, type of equipment, model of equipment, address and telephone number of the supplier .

All further information and data shall also be submitted as specified further herein.

(p) Manuals

Five sets of manuals for all specified main and sub-main switchboards shall be supplied to the Engineer at no extra cost. These manuals shall include the following information:

- (1) Complete information on the operation of the equipment.
- (2) Complete information for maintenance of the equipment.
- (3) Brochures and ordering information
- (4) A complete equipment list indicating quantities and relevant catalogue numbers

PB12.4 ELECTRIC MOTORS

PB12.4.1 STANDARDS

Electric motors shall comply with SABS 0157, Part 1, as far as quality is concerned and the performance of motors shall comply with SABS 948, Part 1 (1978) and with IEC 34-1 and with BS4999: Part 30, 31 and 32. Insulation of motors shall be Class "F" (B-rise) and shall comply with BS2757 (1955)

The dimensions of motors shall be in accordance with SABS 948, Part 1 (1978) and IEC 72-1, 72-2 and BS4999, Part 10.

Frames of motors shall comply with IP55 and cooling shall comply with ICO 141.

PB12.4.2 TYPES

The motors shall be 380 Volt, 3-phase, 6-terminal, 50 Hz, T.E.F.C. type, squirrel cage induction motors and suitable for DOL or star-delta starting. The method of starting of the different sizes of motors covered by this specification is tabled further herein.

The transformers supplying power to the installations will normally be standard 400/231 V secondary voltage (SABS 780) type. The supply voltage at the terminals of the motors during start-up shall not be less than + 385 Volt whilst the supply voltage shall not be less than + 395 Volt at full-load current.

PB12.4.3 CONSTRUCTION

PB12.4.3.1 Frames and End shields

Motors shall have stator frames with deep external cooling ribs. The frames, feet and end shields shall be manufactured from cast iron. Alloy cast frames will only be accepted after written approval has been granted by the Engineer. Frames shall be machined to accept the stator core after which the registers shall be finish machined with particular regard to concentricity of the stator bore. All frames, end shields and terminal box fixing holes shall be jig drilled to ensure interchange ability of components.

Motors shall be foot mounted and will be used in a vertical position situation with the motor shaft at the top.

The underside of the frame (feet) shall also be machined to obtain correct centre height to and parallelism with the shaft axis.

PB12.4.3.2 Stator

The stator shall be built of electrical steel lamination having semi-closed slots. Thick end plates shall prevent spreading of the laminations and burrs shall be removed before winding takes place.

Windings shall consist of pre-formed coils of synthetic resin covered copper wire.

Slot liners shall consist of thick durable insulating material to give additional protection. The wound core shall be impregnated before being hydraulically pressed into the frame and shall thereafter be fixed into position.

PB12.4.3.3 Rotor and shaft

Motors shall have rotor windings of cast aluminium or copper bar as the case may be. End rings and wafer blades shall form an integral part of the casting procedure where this is employed. Rotors shall be dynamically balanced and shafts shall consist of 080M40 (EN8) steel.

PB12.4.3.4 Terminal Boxes and Terminals

Terminal boxes and lids shall be manufactured from cast iron or heavy duty cast alloy and terminal boxes shall be mounted on the right hand side of the motor, as seen from the shaft end.

Boxes for motors shall be suitable to accept 4-core PVC armoured cables as tabled further herein

Terminals shall be brass stud type in rigid insulated mountings and shall be suitable for the lugs of the cables and specification herein. Six winding end terminals complete with removable brass straps for DOL or star-delta connections, and one earth terminal shall be provided in the box.

Each terminal shall be provided with three brass nuts and two brass washers per stud, as well as with the solid brass straps as specified. The terminals shall be suitably sized to accept the lugs of the cables specified further herein

IP55 seals shall be provided between the cable box frame and the motor and between the box lid and the cable box.

PB12.4.3.5 Bearings

Bearings shall be of the ball or roller type with shields and shall be enclosed in dust proof housings. Bearings shall be charged with BP Energrease LS3 upon assembly of the motor under dust and grit free conditions. Standard high quality bearings shall be used on motors.

PB12.4.3.6 Markings

All motors shall be supplied with a riveted on metal plate label on top of the motor on which the following information is engraved (not stamped) :

Manufacturer of Motor

Serial number of motor

Rated voltage of motor

Full load current of motor (for delta operation)

Output kW rating on shaft.

Rotational speed in RPM.

Continuous duty cycle

Temperature insulation class

SABS or IEC mark.

All markings required further by BS 4999 and not already specified above.

Other manufacturers data as required

PB12.4.4 RATING

Motors complying with the following ratings used in a project must be connected with cables as shown in the following table.

Motors up to and including 7,5 kW shall be started DOL and motors from 11 kW to 22 kW shall be started Star-Delta.

The specific size of motor for a site shall be sized for a rating applicable to the project requirements.

MOTOR RATING	METHOD OF STARTING	CABLE TERMINAL BOX SUITABLE FOR THE FOLLOWING CABLES
5,5 kW	DOL	1 x 6 mm ² 4-core PVC cable
7,5 kW	DOL	1 x 6 mm ² 4-core PVC cable
11 kW	Star-Delta	2 x 10 mm ² 4-core PVC cable
15 kW	Star-Delta	2 x 10 mm ² 4-core PVC cable
18,5 kW	Star-Delta	2 x 16 mm ² 4-core PVC cable
22 kW	Star-Delta	2 x 16 mm ² 4-core PVC cable

PB12.5 CABLES**PB12.5.1 CONSTRUCTION**

Cables shall be manufactured in accordance with SABS 150, shall come only from fresh stocks, and shall be constructed as follows:

- (a) Un-armoured cables : PVC-insulated/PVC-sheathed.
- (b) Armoured cables : PVC-insulated/PVC-bedded/armoured/black extruded PVC sheath.
- (c) Single core cables : PVC-insulated/unsheathed.

The conductors shall be of high conductivity annealed stranded copper and the cores may be shaped or circular.

The insulation shall be general purpose PVC, 600/1000 Volt Grade.

The bedding shall consist of a continuous impermeable sheath of PVC extruded to fit the core or cores closely and in the case of multi-core cables, to fill the interstices between the cores.

When armouring is specified it shall consist of one layer of galvanized steel wire in the case of multi-core cables and non-magnetic metallic wire in the case of single core cables. Aluminium strip or tape armouring is not acceptable.

Where specified, an earth continuity conductor shall be provided in the armouring in accordance with SABS 150.

PB12.5.2 RESIN FILLED JOINTS

The resin filled joint kit shall comprise a self sealing plastic mould of high mechanical strength having sufficient connector space.

The exact amount of cold hardening resin shall be provided in a two-compartment plastic bag.

The resin shall have absolute minimum shrinkage.

The mould and resin shall be completely waterproof and non-hygroscopic and shall be resistant to ultraviolet radiation.

PB12.5.3 CABLE BOX JOINTS

Cable boxes shall be manufactured of die cast aluminium material for normal conditions or glass fibre reinforced thermosetting compound where exposed to corrosive conditions.

The lid shall provide an absolute moisture barrier.

Boxes shall contain 2, 3, or 4 entries as required.

Unused entries shall be sealed with watertight blanking plugs.

Earth continuity shall be maintained through the box by means of the material of the box in the case of aluminium boxes or by means of earth straps and studs in the case of glass fibre reinforced boxes.

PB12.5.4 GLANDS FOR PVC-INSULATED CABLES

Glands to be used for terminating PVC/PVC/SWA/PVC cables shall be of the adjustable type.

Glands shall be suitable for general purpose 600/1000 Volt Grade cable with steel armouring.

The glands shall be made of nickel-plated bronze or brass.

The glands shall consist of a barrel carrying a cone bush screwed into one end and a nickel-plated brass nipple carrying a nickel-plated brass or a heavy galvanized steel locknut screwed into the other end. The galvanizing shall comply with SABS 763.

Non-watertight glands must be easily converted to watertight glands by means of a waterproofing shroud and inner seal kit. On the cable entry side of the barrel a concave groove shall be provided to accommodate the top rim of the waterproofing shroud.

The shrouds shall be made of non-deteriorating neoprene or other synthetic rubber, and shall be resistant to water, oil and sunlight. The shrouds shall fit tightly around the glands and cable.

Glands shall be provided with ISO threads and shall be suitable for the specified cable sizes.

Flame proof glands shall comply with SABS 808, Groups 1, 2a and 2b.

Suitable accessories shall be provided with glands to be used on ECC armoured cables to facilitate a bolted lug connection of the earth continuity conductors. Grooves cut into the barrel or cone bush to accommodate the earth continuity conductors are not acceptable.

For un-armoured cables the cone bush and compression ring of the gland shall be replaced with a synthetic rubber compression bush and ring to provide the required grip on the outer sheath of the cable.

PB12.5.5 TRENCHING

PB12.5.5.1 General

The Contractor shall be responsible for all trenching excavations unless specified to the contrary.

The Contractor shall, before trenching commences, familiarize himself with the routes and site conditions and the procedure and order of doing the work shall be planned in conjunction with the general construction program for other services and building requirements.

The Contractor shall acquaint himself with the position of all the existing services such as storm water pipes, water mains, sewer mains, gas pipes, telephone cables, etc. before any excavations are commenced. For this purpose he shall approach this Engineer's representative, the local municipal authority and any other authority which may be involved, in writing.

The Contractor will be held responsible for damage to any existing services brought to his attention by the Engineer and shall be responsible for the cost of repairs.

The Contractor shall take all the necessary precautions and provide the necessary warning signs and/or lights to ensure that the public and/or employees on site are not endangered.

The Contractor shall ensure that the excavations will not endanger existing structures, roads, railways, other site constructions or other property.

PB12.5.5.2 Routes

Trenches shall connect the points shown on the drawings in a straight line. Any deviations due to obstructions or existing services shall be approved by the Engineer beforehand. Refer also to par. 9.10.

The Engineer reserves the right to alter any cable route or portion thereof in advance of cable laying. Payment in respect of any additional or wasted work involved shall be at the documented rates.

The removal of obstructions along the cable routes shall be subject to the approval of the Engineer.

PB12.5.5.3 Dimensions of Trenches

Cable trenches for one or two cables shall not be less than 300 mm wide and need not be more than 450 mm wide. This dimension shall be valid for the total trench depth.

The width shall be increased where more cables are installed to allow for spacing of 100 mm. between cables.

Where trenches change direction or where cable slack is to be accommodated, the Contractor shall ensure that the requirements of the relevant SABS Specification regarding the bending radii of cables are met when determining trench widths.

Trench depths shall be determined in accordance with cable laying depths and bedding thickness.

Payment will be made on a volumetric excavation rate calculated on the basis of the given maximum dimensions or the actual dimensions, whichever is the lesser.

Cables shall be installed at a minimum depth of 600 mm. below final ground level.

All cable depth measurements shall be made to the top of the cable when laid directly in ground or to the top of the duct or sleeve where these are provided.

The above depths shall apply to the top layer where cables are installed in layers.

The Contractor may only deviate from the above depths provided prior authority in writing has been obtained from the Engineer. In this event the cables shall be protected with a suitable concrete covering.

The depth of cable pipes or ducts beneath railway lines or roads shall be not less than 1,1 m below the formation level.

PB12.5.5.4 Testing of Cables

Each cable shall be tested after installation in accordance with SABS 150.

LV cables shall be tested by means of a suitable megger at 1 kV and the insulation resistance shall be tabulated and certified.

PB12.5.5.5 Completion

The Engineer reserves the right to inspect the installation at any stage during the course of construction. Such inspections will, however, not deem the portions inspected as being complete or accepted and the Contractor shall remain responsible for completing the installation fully in accordance with the Contract Documents.

The Contractor shall carry out a final "as built" survey of the cable routes and present to the Engineer "as built" route plans of the complete installation. The following information shall be reflected on the plans or submitted as separate schedules with the plans:

- (a) Overall length of each cable.
- (b) Locations of all joints (if any) in relation to permanent reference points.

Dimensions shall be shown and the method of triangulation i.e. two dimensions to each joint, shall be used.

- (c) Identification of each cable.

The works will be deemed to be incomplete until all tests have been conducted successfully and all "as built" drawings and schedules have been handed to the Engineer.

PB12.6 LIGHT SWITCHES**PB12.6.1 GENERAL**

This section covers the requirements for switches for use in general installations under normal environmental conditions.

PB12.6.2 Flush and Surface Mounted Switches

All switches shall be suitable for mounting in 100 x 50 x 50 mm boxes, shall comply with SABS 163 and shall bear the SABS mark.

Switches shall be of tumbler operated micro-gap type rated at 16A, 220/250 Volt.

Switches shall have protected terminals for safe wiring.

Contacts shall be of silver material.

On multi-lever switches, it shall be possible to individually change any of its switches.

The yoke strap shall be slotted to allow for easy alignment.

The covers of surface mounted switches shall have toggle protectors.

Where light switches are installed in partitions, they shall, where possible, be of the special narrow type intended for installation into the mullions.

PB12.6.3 Watertight Switches

Watertight switches shall be of the micro-gap type suitable for surface mounting and shall bear the SABS mark.

The housing shall be of galvanized cast iron or die cast aluminium with watertight cover plate and toggle.

The switch shall have a porcelain base and a quick acting spring mechanism and shall be rated at 16A, 220/250 Volt.

The ON/OFF positions shall be clearly marked on the switch housing.

PB12.7 SWITCHED SOCKET-OUTLETS**PB12.7.1 General**

This section covers the requirements for switched socket-outlets for use in general installations under normal environmental conditions.

PB12.7.2 Flush and Surface Mounted Switched Sockets

All switched socket-outlets shall be suitable for mounting in 100 x 100 x 50 mm or 100 x 50 x 50 mm boxes, shall comply with SABS 164 and shall bear the SABS mark.

Switches shall be of the tumbler operated micro-gap type rated at 16A, 220/250 Volt.

Terminals shall be enclosed for safe wiring.

Contacts shall be of silver material.

Safety shutters shall be provided on live and neutral openings.

The yoke strap shall be slotted to allow for easy alignment.

The covers of surface mounted switched sockets shall have toggle protectors.

Where 13A flat pin switched socket-outlets are specified, these shall comply with BS 1363.

PB12.7.3 Watertight Switched Sockets

The housing of watertight switched sockets shall be of galvanized cast iron or die cast aluminium with watertight machined joints.

The switch shall have porcelain base and a quick-acting spring mechanism and shall be rated at 16A, 220/250 Volt.

The ON/OFF positions shall be clearly marked on the switch housing.

The socket openings shall be rendered watertight by means of a gasketed cover plate which is screwed onto the body of the unit. The cover plate shall be secured to the body of the unit by means of a chain.

PB12.7.4 Three-Phase Switched Socket-Outlets

Three-phase switched socket-outlets shall have 5 pins, one for each phase, neutral and earth. The current rating shall be a minimum of 32A. .

The units shall be interlocked to prevent switching on if the plug top is not installed.

The units shall be supplied complete with plug top.

The live terminals shall be shrouded and shall be completely safe when the plug top is removed.

Samples shall be submitted to the Engineer for approval prior to the installation.

PB12.8 TUBULAR FLUORESCENT LAMP LUMINARIES FOR INTERIOR APPLICATIONS

PB12.8.1 GENERAL

Luminaries, associated equipment and control gear shall be new and unused and shall be supplied complete with lamps, control gear, diffusers, mounting brackets, etc. as applicable, and shall be delivered to site in a protective covering.

Lamps shall be delivered separately.

Tenders shall be accompanied by full descriptive information of the luminaries offered. Photometric data, i.e. polar curves and coefficients of utilization certified by the SABS shall be submitted with tenders for all luminaries offered.

PB12.8.2 GENERAL TECHNICAL REQUIREMENTS

(a) General

Tubular fluorescent lamp luminaries shall comply fully with SABS 1119 and all amendments as well as the additional requirements of this specification. Luminaries which bear the SABS mark are preferred.

(b) Construction

A luminary shall consist of a ventilated body manufactured of cold rolled sheet steel not less than 0,8 mm thick, suitably braced or stiffened to prevent distortion. The body shall be of sufficient strength for the mounting of the entire luminary.

The luminary body shall be designed to accommodate the control gear, wiring, lamp holders and, where applicable, the diffusers. It shall be possible to reach the control gear without disconnecting wiring or removing the luminary.

Except for mounting holes and/or slots and the required openings in air-return luminaries, the back of the body channel shall be closed over the full length of the luminary.

Suitable knock-outs shall be provided in the rear of the luminary body for wire entry.

All components, including screws, bolts and nuts utilized in the construction of the luminary or fixing of its components, shall be corrosion proof.

(c) Internal Wiring

Luminaries shall be completely wired internally. Conductors shall be protected with grommets where they pass through holes in the body.

The wiring shall be totally metal enclosed to prevent any possible contact with live components while changing lamps.

The conductor insulation shall be rated to withstand the temperature inside the luminary body without deterioration.

The wiring shall terminate on a suitable terminal block. There shall be no joints in the internal wiring.

An earth terminal, welded to the luminary body, shall be provided. To ensure good earth continuity the earth terminal shall not be spray painted. The earth conductor shall be connected to this terminal by means of a crimped lug.

(d) Lamp Holders

Lamp holders shall preferably be of the telescopic spring loaded type. Where twist-lock type lamp holders are provided, the mounting of the holders shall be able to accommodate the tolerances experienced in the length of lamps and in the manufacture of luminaries.

(e) Control Gear

The control gear, ballasts, capacitors and starters shall be designed and manufactured to suit the control circuitry adopted.

Ballasts shall comply with SABS 890 and 891, suitable for operation on 220/250 Volt, 50 Hz supplies.

Ballasts shall further be suitable for the particular luminary to ensure that the thermal limits specified in par. 3.5 of SABS 1119 are not exceeded.

Noisy ballasts will not be accepted and shall be replaced at no cost.

Starters shall comply with BS 3772. Starters with metal cans shall contain integral earthing facilities to earth them upon insertion.

Starters shall be accessible from the outside of the luminary, and the replacement of the starter shall not necessitate the removal of lamps.

(f) Capacitors

Capacitors shall comply with SABS 1250. The power factor of each complete fitting shall be corrected to at least 0,85.

(g) Lamps

Fluorescent lamps shall be suitable for the control circuitry used. Lamps shall comply with SABS 1041.

The light colour shall correspond to colour 2 (4300 K) of SABS 1041.

Lamps of the same colour shall be provided for an entire installation unless specified to the contrary.

There shall be no visible flicker in the lamps and lamps shall readily strike when switched on. Faulty lamps or ballasts shall be replaced at no cost to the Engineer.

PB12.8.3 CHANNEL LUMINARIES

Channel luminaries shall consist of a ventilated, enclosed channel body with one or more lamps as specified. The channel body shall house the ballast, capacitor, terminals and internal wiring.

Provision shall be made for the addition of reflector wings and/or diffusers.

Three sets of mounting slots and knock-outs suitable for mounting onto standard round conduit boxes and/or 20 mm Ø. conduit pendant rods, shall be provided in the rear of the channel, one in the centre and one approximately one sixth from each end.

A knock-out suitable for a 20 mm Ø. conduit entry shall be provided at each end of the channel. The distance between the back of the luminary and centre of the knock-out shall be approximately 25 mm.

The knock-outs shall be positioned on the centre line of the channel.

The body channel shall incorporate a removable cover acting as a reflector, manufactured of cold rolled steel, not less than 0,8 mm thick, designed and mounted to completely cover the interior of the body channel and its contents and extending over the full length of the luminary up to the lamp holders.

The reflector shall be firmly held in position with a latching device consisting of knurled, coin slot, captive screws. Plastic, used as a spring mechanism, is not acceptable as a fixing device for reflectors. The action of the latching device shall not deteriorate due to use and/or ageing.

PB12.8.4 DUST AND SPRAY PROOF LUMINARIES

PB12.8.4.1 CONSTRUCTION

The fluorescent luminary shall be totally enclosed and dust- and moisture-proof with an IP55 rating. It shall be designed for and supplied with 2 x 58 watt lamps.

The body of the luminary shall consist of die-formed glass-fibre reinforced polyester (GRP) which has an exceedingly long life under corrosive conditions or ultraviolet radiation.

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The diffuser of the luminary shall consist clear injection moulded polycarbonate on the inside and smooth outside

The diffuser of the luminary shall be firmly held in position by at least 8 injection-moulded thermoplastic clamp type catches.

A closed cell foam gasket shall be provided as a seal between the body and the reflector.

The gear tray of the fitting shall be retained in place by two rotary latches obviating the need for tools when servicing the luminary. It shall be secured to the body by nylon safety straps from which it can hang during opening of the fitting. The sheet metal gear tray shall be finished in white polyester powder paint.

Rotolock lamp holders shall prevent accidental lamp removal. The lamp holders shall be of the bi-pin polycarbonate type which can accommodate both 26 mm *and* 38 mm diameter lamps.

The conductors shall be covered with a high temperature insulation rated at 1050C, 600V.

The electrical connection to the fitting shall be via a three-way, 15A terminal block.

One 20 mm diameter entry shall be provided at each end of the luminary.

Switch start ballasts comply with the requirements of SABS 890 to operate both 26 mm and 38 mm lamps shall be used in the fitting.

Any openings cut into the back of the body of the fitting shall be sealed again with silicone rubber after wiring or cabling is complete.

Contractors shall ensure that the fitting is left completely dust and insect proof after working on the fitting for whatever reason.

PB12.8.5 **EXTERIOR SECURITY LIGHTS**

The luminary shall consist of a high pressure die cast aluminium body with non-discolouring prismatic high impact acrylic diffuser bowl and shall be designed to operate 125 Watt mercury vapour and 70 Watt high pressure sodium/metal halide lamps.

The luminary shall bear the SABS 1464 safety mark.

The luminary shall have a degree of protection that complies with SABS 1222:

The lamp compartment shall have a rating of IP66.

The body shall be supplied with three mounting holes.
Electrical cable entry shall be via a compression type gland at the rear of the luminary.

The diffuser bowl shall be manufactured from borosilicate glass with internal prisms. The prisms shall be restricted to the inside of the bowl and shall be carefully formed to work in conjunction with the reflector to provide a spacing to mounting height ratio of up to 8: 1, whilst controlling excessive glare.

The bowl shall be seated in a rigid high pressure die cast aluminium frame with two silicon sponge gasket systems.

This frame assembly shall be held to the body by four stainless steel M6 Allen head captive screws located outside the sealed lamp compartment

A wire guard shall be installed over the fitting. The type of wire guard offered shall be approved by the Department as most commercially available wire guards are not suitable to withstand vandalism.

A high purity, single piece, die formed aluminium reflector shall be mounted on the reflector back plate.

Fine slots in the reflector, aligning with the reflector plate, shall ensure precise positioning and consistent optical performance.

The control gear shall be mounted directly onto the body to provide optimum heat dissipation. It shall be suitable for operation with the specified rating of the lamp on a 230V +3%/-10% 50 Hz single phase system.

All control gear components shall be removable and bear the relevant SABS mark. All internal wiring shall be Teflon coated with protective sleeving to prevent damage by possible abrasion.

All screws, bolts and metal parts shall be stainless steel or non-corrosive material.

Mains connections shall be by means of a suitable screw terminal block with a wire clamping contact. Ignitors, where applicable, shall be of the superposed pulse type.

The luminaire shall be power factor corrected to a minimum of 0,85.

Contractors shall ensure that the fitting is left completely dust and insect proof after working on the fitting for whatever reason.

PD ELECTRICAL WORK AT BOREHOLES AND SMALL INSTALLATIONS**PD1.1 SCOPE OF ELECTRICAL INSTALLATION WORK**

This section includes the design, manufacture, supply delivery, offloading, storing, if necessary, erection, painting commissioning, testing and maintenance during the maintenance period and final handing-over of all the necessary electrical equipment (unless otherwise indicated below) which shall include the following:

- * Supply and installation of the power supply cables from the ESKOM meter point to the MCC or starter panel.
- * Supply and installation of motor control switchgear panels.
- * All control cabling in pump stations or on sites.
- * Earthing and lightning protection of electrical equipment.
- * Installation of all instrumentation and control devices

This specification covers electrical installations using transformers up to and including 1 000 kVA rating, 600/1 000 V cables up to 240 mm² 4-core, motors up to 185 kW as well as all switchgear, equipment and instrumentation used in conjunction with such installations.

This Specification further describes the usual materials required for electrical installations and general methods of installing these materials. This Specification forms a part of any project specifications which are bound together with this specification, or issued as a separate volume. Where drawings are issued with this specification, or where standard drawings of the Department are referred to in this specification, such drawings shall be read together with this specification and shall form part of this specification for all intents and purposes.

PD1.2 APPLICATION

The specifications here following are essentially functional specifications only. The contractor shall design the various installations and produce complete constructional drawings and diagrams and complete lists of equipment complying with the requirements set out below and with those of the standard specifications listed further herein. The Contractor shall then submit all this information to the Engineer for approval before commencing manufacture of any motor control panels or small starter panels or power distribution boards.

PD2 GENERAL REQUIREMENTS

All material and equipment supplied and/or installed under this Contract shall be new and of high class quality and shall comply with the requirements laid down in the latest editions of the SABS, BSS or IEC specifications.

All materials shall be subject to the approval of the Department.

Departmental standard specifications for various materials to be used under this contract are available from the Department in Pretoria.

Similar equipment supplied under this contract must be identical in all respects and it shall be possible to interchange parts of identical equipment.

A Contract shall contain equipment of only one supplier for a specific type of equipment, such as, for instance, contactors or circuit breakers, unless the project specification or this specification allows deviation from this requirement.

Materials wherever possible must be locally available in South Africa and must preferably be of South African manufacture.

Materials removed from a specific site or has become redundant shall not be re-used on another site without the written permission of the Department.

The uses of second hand materials are strictly forbidden.

The Department will also not for oversupply of materials. Contractors shall plan their work and shall assess the quantities of material to be used. Unused materials shall be removed from site after the completion of the project as the Department will not accept for material on site which has not been built into the Contract.

Cables, wire and conduit lengths will be paid on the basis of "As Built" quantities only.

Any quantities in any Schedule which may form part of this document or which may be issued as a separate schedule must be regarded as being provisional as far as re-measurable material is concerned and the value of such material on site will be paid for per installed quantity.

Invoices for payment shall contain full details of the material installed and work done since the previous payment and shall also show the materials and work done as per previous certificates so that an assessment can be made of the progress of the work.

Test or commissioning results obtained shall be submitted in detail reports together with the invoices.

Wording such as "motor not earthed" will not be acceptable.

The serial numbers of equipment or specific detail descriptions of positions and types of equipment worked on shall be shown on invoices and schedule item work shall refer to the schedule item number and the specific application or position where applied shall be detailed on invoices.

Invoices for materials purchased, together with the signatures of the recipients, shall be submitted together with invoices.

PD3

COMPLIANCE WITH LAW AND REGULATIONS

The installation, testing and commissioning of electrical equipment shall always comply with the requirements, stipulations and regulations contained in the following Acts:-

Machinery and Occupational Safety Act 85 of 1993 with special reference to Section 1 (Act & Regulations), Section 2 (Administrative Regulations), Section 6 (Electrical Installation Regulations.), Section 13 (Driven Machinery Regulations), Section 14 (Electrical Machinery Installations), Section 15 (General Machinery Regulations) and Section 16 (General Safety Regulations).

Special mention is made to Annexure A1 of Section 6, which will be applicable on completion of the work.

The Mines and Works Act, No.27 of 1956 and subsequent amendments and regulations issued there under.

The Electricity Act, No.40 of 1958.

Explosives Act, No.26 of 1956.

Code of Practice for the Wiring of Premises - SABS 0142

The contractor shall be responsible for serving of all notices and paying of all fees due in terms of the above laws and regulations.

PD4 TRANSPORT OF EQUIPMENT

Contractors will be responsible for the transport of all materials and equipment to the site and on the site. All material and equipment must be thoroughly packed and any damage that may occur must be repaired or corrected by the Electrical Contractor before installation and testing proceeds.

PD5 LOCAL AUTHORITY

The Contractor must arrange with the Supply Authority, Administration, TELKOM and other authorities to make sure that their regulations are met when the main incoming supply and the substation equipment is installed.

PD6 DRAWINGS AND DATA

Where Tenderer's offer items that differ from those as specified, the Tenderer must submit drawings, diagrams and full technical details of such items on the closing date of tenders.

PD7 CHANGEABILITY

Equipment of the same type shall be obtained from one manufacturer and components shall be changeable.

C3.5 MANAGEMENT**C3.5.1 MANAGEMENT OF THE WORKS****C3.5.1.1 Applicable SANS Standards**

The SANS 1200 Standardized Specifications listed in C3.4.1.1 are applicable.

C3.5.1.2 Particular/Generic Specifications

The Particular Specifications listed in C3.4.6 are applicable.

C3.5.1.3 Methods and Procedures**(a) Maintenance of access and streets**

The Contractor is responsible for access to the site and the subsequent maintenance thereof.

(b) Blasting operation

If applicable, all blasting shall be carried out by a competent, registered blaster. The blaster shall furnish to the Engineer copies of all the permits required to purchase, transport, use and dispose of unused blasting material. The Contractor shall inform the commander of the local SAPS at least 1 day prior to the date and time blasting is about to take place.

No blasting operations shall take place on weekends or holidays or week days after 17h00.

The Contractor shall ensure that sufficient suitable material, to the satisfaction of the blaster, is available and in place before the blast is initiated.

(c) Normal working hours

Normal working hours shall be from 07h00 until 17h00 on weekdays from Monday to Friday. It shall be from 07h00 until 13h00 on Saturdays.

Work on other days will only be allowed after written approval has been granted by the Engineer.

(d) Interference with municipal staff and operations

The Contractor shall ensure that none of his staff interfere in any way with any municipal staff member or their functions or with the operations of the water treatment works in any way.

Any person ignoring this shall be removed permanently from site, all at the expense of the Contractor.

(e) Access for other contractors

The Contractor shall provide reasonable access to other Contractors carrying out work on the site from time to time, as and when such access is required. The Contractor is entitled to request reasonable notification of at least 24 hours before access by others is required.

The contractual responsibilities of the Contractor shall remain in full force in spite of the other Contractors having access to the site.

(f) Giving notice of work to be covered up

The Contractor shall give the Engineer at least 24 hours notice prior to a request for examination of materials or work to be covered up. This request must be made in the request book on site.

Should such a request be made and upon inspection the Engineer found that the works or materials are not yet ready for inspection, the Contractor shall reimburse the Engineer within 30 days of invoice for all expenses incurred as a result.

(g) Sequence of the works

The Contractor shall arrange with the mechanical and electrical Contractor and the Engineer the sequence of the works.

C3.5.1.4 Quality plans and controls (Testing)

Refer to Section C3.4.2.5 (b).

C3.5.1.5 Environmental Management Plan (EMP)**(a) Demarcation of the site**

For the purpose of the EMP, the site shall be demarcated into two distinct areas, viz.;

- (i) The construction camp comprising all buildings, hostels, offices, lay down yards, vehicle wash areas, fuel and material storage area, batching areas and other infrastructure that is required for the running of the job.
- (ii) The working area in which construction activities are permitted to take place. No infrastructure, permanent lay down or storage areas shall be established in this working area unless specified in the project specification or prior approval is obtained from the Engineer.

(b) Construction camp

The Contractor shall provide the Engineer with a plan showing the positions of all buildings, yards, vehicle wash areas, batching areas and other infrastructure for approval by the Engineer at least ten (10) days prior to the commencement date.

(c) Fencing of site

If a temporary fence is required, the Contractor shall erect and maintain such a fence (demarcating the boundary of the working area, construction camp and access roads) to the satisfaction of the Engineer.

This fence shall be erected before the commencement of any other work on site. The fence shall be removed after completion of the project and the site reinstated to its original state.

(d) Workshops

All workshops shall be located inside the demarcated construction camp area as approved by the Engineer prior to establishment. The workshop shall have a smooth impermeable concrete floor sloped to one side where oil is trapped in an oil trap or sump to contain any spillages of substances such as oil.

Waste material shall be disposed of in accordance with the national, regional and local by-laws regulations and by-laws. The waste shall be regularly removed and disposed of at an approved site.

(e) Eating areas

The Contractor's employees shall eat in a designated eating area indicated on the drawing approved by the Engineer. The Contractor shall provide adequate shade and provide scavenger proof and waterproof refuse bins. Cooking will only take place in this area on well maintained gas cookers with fire extinguishers present. Open fires other than the gas cookers shall not be allowed.

(f) Watchmen

The Contractor shall have a watchman present on site during non-working hours and on holidays to ensure the safety of plant and materials on site.

(g) Ablution facilities

The exact location of toilets shall be approved by the Engineer. The Contractor shall provide the toilets and maintain and service it on a daily basis. The toilets shall be kept clean. Regular inspections shall be conducted by the Engineer. Burial of waste on site is strictly forbidden. Leaking or broken toilets shall be removed and replaced immediately by the Contractor.

(h) Solid waste

"Solid waste" refers to construction debris, chemical waste, tins, cans, paper, wrappers, excess concrete, waste timber, etc.

The Contractor shall establish a waste control and removal system. He shall submit a method statement to the Engineer for approval prior to commencement.

Appropriate solid waste containers shall be provided for the storage of waste. The containers shall be water proof. The waste shall be removed on a regular basis to prevent the accumulation of waste on site and disposed of at an approved waste site.

(i) Wastewater

Water shall be used sparingly on site. Where possible, wastewater shall be recycled. A wastewater management plan shall be submitted to the Engineer for approval 10 days prior to the commencement date.

The management plan shall detail the expected extent of the contamination of each wastewater stream and how the Contractor plans to deal with it.

Wastewater shall be prevented from flowing into the Olifants River.

(j) Fuel storage area

Fuel shall be stored on site in a depot at a location as agreed with the Engineer. The Contractor shall ensure that liquid fuels are stored in tanks with lids. The tanks shall be placed on a sloped smooth concrete surface with an oil trap on the lower end to collect any spillage.

Fuel shall be kept under lock at all times.

(k) Concrete batching area

Cement and concrete is hazardous to the environment due to the high pH of the material and the chemicals it contains.

The Contractor shall furnish to the Engineer for approval a method statement for the mixing of concrete. Concrete shall not be mixed directly on the ground. Care must be taken to ensure that wastewater and contaminated material is collected and disposed of correctly.

(l) Equipment maintenance and storage

All equipment and vehicles shall be kept in good working order and serviced regularly. Leaking equipment shall be repaired immediately or removed from site. Where possible, maintenance and service shall take place only in the workshop. Permission must be obtained from the Engineer if the aforementioned cannot be adhered to.

The Contractor shall demarcate an area in which the equipment and vehicles may be stored. The location shall be approved by the Engineer.

(m) Materials handling, use and storage

The Contractor is responsible to ensure that all material suppliers are aware of the EMP's restrictions and conditions. The Contractor shall be held responsible should deliveries not comply with the EMP requirements.

The Contractor shall comply with all relevant national, regional and local legislation with regard to the transport, use and disposal of hazardous material.

The Contractor shall furnish to the Engineer a list of all hazardous materials to be used on site, together with the handling, storage and disposal procedures of the materials. This information shall be available to all personnel on site.

The location of the hazardous material store shall be within the demarcated construction camp area. The location shall be approved by the Engineer.

Where possible, the Contractor shall ensure that the refuelling of vehicles takes place only at the fuel storage area in the construction camp. If this is not possible, the Contractor shall obtain permission from the Engineer to refuel at any other place. Contaminated material and wastewater at the refuelling area shall be contained and disposed of correctly.

(n) Emergency procedures

The Contractor shall ensure that emergency procedures for the following situations are submitted for approval to the Engineer;

Fire – the Contractor shall inform the relevant authority immediately as soon as a fire starts. The Contractor shall ensure that his staff and subcontractors are fully aware of the procedures to be followed in the event of a fire.

Spillages – the Contractor shall ensure that his staff and subcontractors are fully aware of the procedures to be followed in the event of a spillage. The Engineer must be informed immediately about a spill. The Contractor shall ensure that the necessary materials and equipment is on site to deal with spills and leaks. The cleanup of spills and leaks shall be for the account of the Contractor.

(o) Care of surrounding areas

The Contractor shall ensure that no contamination of or damage to the surrounding areas or watercourses shall occur as a result of any of his activities during construction.

C3.5.1.6 Planning and programming

The programme to be furnished by the Contractor to the Engineer for approval shall be in the form of a Gantt chart. The critical path shall be indicated in red.

C3.5.1.7 Other Contractors on site

No other road construction contractors will be on site during the implementation of the project.

C3.5.1.8 Recording of weather

The Contractor shall record the weather conditions on a daily basis in the site diary. Rainfall figures and strong wind which could delay the Works shall be noted and recorded.

C3.5.1.9 Format of communications

All communication regarding the Contract shall be channelled through the Engineer or his representative.

C3.5.1.10 Planning and programming

Management meeting shall be held monthly on site for the duration of the project on dates to be agreed upon.

C3.5.1.11 Daily records

Daily records of plant, personnel, materials, etc., shall be kept daily by the Contractor and noted in the site diary to be supplied by the Contractor before commencement date of the project.

C3.6 HEALTH AND SAFETY**C3.6.1 HEALTH AND SAFETY REQUIREMENTS AND PROCEDURES**

Before starting work on site, the Contractor shall present to the Engineer his Health and Safety Plan for approval. He shall also appoint a health and Safety Officer in writing and give a copy of the letter of appointment to the Engineer.

The Health and Safety Specification is attached as Appendix B and must be referred to when compiling the Health and Safety Plan.

(a) Construction Regulations, 2003

The Contractor shall be required to comply with the Occupational Health and Safety Act, 1993: Construction Regulations, 2003 (the regulations) as promulgated in Government Gazette No 25207 and Regulation Gazette No 7721 of 18 July 2003. Non-compliance with these regulations, in any way whatsoever, will be adequate reason for suspending the Works.

The proposed type of work, materials to be used and potential hazards likely to be encountered on this Contract are detailed in the Project Specifications, Schedule of Quantity and Drawings, as well as in the Employers' Health and Safety Specifications (regulation 4(1)) of the Construction Regulations 2003.

The Contractor shall in terms of regulation 5(1) provide a comprehensive health and safety plan detailing his proposed compliance with the regulations, for approval by the Employer.

The Contractor shall at all times be responsible for full compliance with the approved plan as well as the Construction Regulations and no extension of time will be considered for delays due to non-compliance with the abovementioned plan or regulations.

Payment items are included in the Schedule of Quantities to cover the Contractor's cost for compliance with the OHS Act and the abovementioned regulations.

C3.6.2 PROTECTION OF THE PUBLIC

The site is accessible to the general public. The Contractor shall ensure that all personnel entering the construction site is fully informed about the dangers, dos and don'ts on the site. The Contractor shall ensure that non-construction personnel are protected within the guidelines of the OH&S Regulations.

C3.6.3 BARRICADES AND LIGHTING

All excavations, into which a person may fall, shall be securely barricaded at all times in accordance with the requirements of the applicable OH&S Regulations.

C3.6.4 TRAFFIC CONTROL ON ROADS

The Safety Officer shall take full responsibility for the traffic control in and around the site. The personnel on site shall be fully informed and trained by the Safety Officer regarding the construction traffic and general traffic control.

C3.6.5 MEASURES AGAINST DISEASE AND EPIDEMICS

No specific measures have to be taken against disease and epidemics on site.

C3.6.6 AIDS AWARENESS

All construction personnel shall be given an Aids Awareness briefing session by the Safety Officer.

NKOMAZI MUNICIPALITY

CONTRACT NO: NKO 61/2022

FOR

**EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND
PACKAGE PLANT**

PART C4 SITE INFORMATION

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C4.1 NATURE OF GROUND AND SUBSOIL CONDITIONS

C4.1.1 NATURE OF GROUND

At Louieville the area is mainly underlain with weathered basalt which converts to highly active clays.

Most of the granular bedding material needed for the laying of the water pipes can be sieved from excavated trench material. Additional bedding material could be obtained from commercial sources at Kaapmuiden.

The tenderer shall acquaint himself with soil conditions.

C4.1.2 SUBSOIL CONDITIONS

No subsoil water (seepage) was evident during the investigation process. However, a perched groundwater table could be present and the Contractor must therefore assume that groundwater could be experienced during the construction period and provide for the handling of it in his rates.

NKOMAZI MUNICIPALITY

CONTRACT NO: NKO 61/2022

FOR

**EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND
PACKAGE PLANT**

APPENDIX A: STANDARD CONDITIONS OF TENDER

Annex F (normative) Standard Conditions of Tender

F.1 General

F.1.1 Actions

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

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

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

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

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

F.1.2 Tender Documents

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

F.1.3 Interpretation

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

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

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

- a) conflict of interest means any situation in which:
 - i) someone in a position of trust has competing professional or personal interests which make it difficult to fulfil his or her duties impartially;
 - ii) an individual or organisation is in a position to exploit a professional or official capacity in some way for their personal or corporate benefit; or
 - iii) incompatibility or contradictory interests exist between an employee and the organisation which employs that employee.
- b) comparative offer means the tenderer's financial offer after all tendered parameters that will affect the value of the financial offer have been taken into consideration in order to enable comparisons to be made between offers on a comparative basis
- c) corrupt practice means the offering, giving, receiving or soliciting of anything of value to influence the action of the employer or his staff or agents in the tender process; and
- d) fraudulent practice means the misrepresentation of the facts in order to influence the tender process or the award of a contract arising from a tender offer to the detriment of the employer, including collusive practices intended to establish prices at artificial levels

- e) organization means a company, firm, enterprise, association or other legal entity, whether incorporated or not, or a public body
- f) quality (functionality) means the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs

F.1.4 Communication and employer's agent

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

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

F.1.5.1 The employer may accept or reject any variation, deviation, tender offer, or alternative tender offer, and may cancel the tender process and reject all tender offers at any time before the formation of a contract. The employer shall not accept or incur any liability to a tenderer for such cancellation and rejection, but will give written reasons for such action upon written request to do so.

F.1.5.2 The employer may not subsequent to the cancellation or abandonment of a tender process or the rejection of all responsive tender offers reissue a tender covering substantially the same scope of work within a period of six months unless only one tender was received and such tender was returned unopened to the tenderer.

F.1.6 Procurement procedures

F.1.6.1 General

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

F.1.6.2 Competitive negotiation procedure

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

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

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

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

F.1.6.3 Proposal procedure using the two stage-system

F.1.6.3.1 Option 1

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

F.1.6.3.2 Option 2

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

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

F.2 Tenderer's obligations**F.2.1 Eligibility**

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

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

F.2.2 Cost of tendering

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

F.2.3 Check documents

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

F.2.4 Confidentiality and copyright of documents

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

F.2.5 Reference documents

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

F.2.6 Acknowledge addenda

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

F.2.7 Clarification meeting

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

F.2.8 Seek clarification

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

F.2.9 Insurance

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

F.2.10 Pricing the tender offer

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

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

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

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

F.2.11 Alterations to documents

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

F.2.12 Alternative tender offers

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

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

F.2.13 Submitting a tender offer

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

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

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

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

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

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

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

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

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

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

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

F.2.15 Closing time

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

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

F.2.16 Tender offer validity

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

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

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

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

F.2.17 Clarification of tender offer after submission

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

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

F.2.18 Provide other material

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

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

F.2.19 Inspections, tests and analysis

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

F.2.20 Submit securities, bonds, policies, etc.

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

F.2.21 Check final draft

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

F.2.22 Return of other tender documents

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

F.2.23 Certificates

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

F.3 The employer's undertakings

F.3.1 Respond to requests from the tenderer

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

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

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

F.3.2 Issue Addenda

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

F.3.3 Return late tender offers

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

F.3.4 Opening of tender submissions

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

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

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

F.3.5 Two-envelope system

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

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

F.3.6 Non-disclosure

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

F.3.7 Grounds for rejection and disqualification

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

F.3.8 Test for responsiveness

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

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

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

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

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

F.3.9 Arithmetical errors, omissions and discrepancies

F.3.9.1 Check responsive tenders for discrepancies between amounts in words and amounts in figures. Where there is a discrepancy between the amounts in figures and the amount in words, the amount in words shall govern.

F.3.9.2 Check the highest ranked tender or tenderer with the highest number of tender evaluation points after the evaluation of tender offers in accordance with F.3.11 for:

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

F.3.9.3 Notify the tenderer of all errors or omissions that are identified in the tender offer and either confirm the tender offer as tendered or accept the corrected total of prices.

F.3.9.4 Where the tenderer elects to confirm the tender offer as tendered, correct the errors as follows:

- a) If bills of quantities or pricing schedules apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total shall govern and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted shall govern, and the unit rate shall be corrected.

- b) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total of the prices shall govern and the tenderer will be asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices.

F.3.10 Clarification of a tender offer

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

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

F.3.11 Evaluation of tender offers

F.3.11.1 General

F.3.11.2 Method 1: Financial offer

In the case of a financial offer:

- a) Rank tender offers from the most favourable to the least favourable comparative offer.
- b) Recommend the highest ranked tenderer for the award of the contract, unless there are compelling and justifiable reasons not to do so.
- c) Re-rank all tenderers should there be compelling and justifiable reasons not to recommend the highest ranked tenderer and recommend the highest ranked tenderer, unless there are compelling and justifiable reasons not to do so and the process set out in this subclause is repeated.

F.3.11.3 Methods 2: Financial offer and preference

In the case of a financial offer and preferences:

- a) Score each tender in respect of the financial offer made and preferences claimed, if any, in accordance with the provisions of F.3.11.7 and F.3.11.8.
- b) Calculate the total number of tender evaluation points (T_{EV}) in accordance with the following formula:

$$T_{EV} = N_{FO} + N_P$$

where: N_{FO} is the number of tender evaluation points awarded for the financial offer made in accordance with F.3.11.7; N_P is the number of tender evaluation points awarded for preferences claimed in accordance with F.3.11.8.

- c) Rank tender offers from the highest number of tender evaluation points to the lowest.
- d) Recommend the tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.
- e) Rescore and re-rank all tenderers should there be compelling and justifiable reasons not to recommend the tenderer with the highest number of tender evaluation points, and recommend the tenderer with the highest number of tender evaluation points, unless there are compelling and justifiable reasons not to do so and the process set out in this subclause is repeated

F.3.11. Method 3: Financial offer and quality

In the case of a financial offer and quality:

- a) Score each tender in respect of the financial offer made and the quality offered in accordance with the provisions of F.3.11.7 and F.3.11.9, rejecting all tender offers that fail to score the minimum number of points for quality stated in the tender data, if any.

- b) Calculate the total number of tender evaluation points (T_{EV}) in accordance with the following formula:

$$T_{EV} = N_{FO} + N_Q$$

where: N_{FO} is the number of tender evaluation points awarded for the financial offer made in accordance with F.3.11.7; N_Q is the number of tender evaluation points awarded for quality offered in accordance with F.3.11.9.

- c) Rank tender offers from the highest number of tender evaluation points to the lowest.
- d) Recommend tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.
- e) Rescore and re-rank all tenderers should there be compelling and justifiable reasons not to recommend the tenderer with the highest number of tender evaluation points and recommend the tenderer with the highest number of tender evaluation points, unless there are compelling and justifiable reasons not to do so and the process set out in this subclause is repeated.

F.3.11.5 Method 4: Financial offer, quality and preferences

In the case of a financial offer, quality and preferences:

- a) Score each tender in respect of the financial offer made, preference claimed, if any, and the quality offered in accordance with the provisions of F.3.11.7 to F.3.11.9, rejecting all tender offers that fail to score the minimum number of points for quality stated in the tender data, if any.
- b) Calculate the total number of tender evaluation points (T_{EV}) in accordance with the following formula, unless otherwise stated in the Tender Data:

$$T_{EV} = N_{FO} + N_P + N_Q$$

where: N_{FO} is the number of tender evaluation points awarded for the financial offer made in accordance with F.3.11.7; N_P is the number of tender evaluation points awarded for preferences claimed in accordance with F.3.11.8. N_Q is the number of tender evaluation points awarded for quality offered in accordance with F.3.11.9.

- c) Rank tender offers from the highest number of tender evaluation points to the lowest.
- d) Recommend the tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.
- e) Rescore and re-rank all tenderers should there be compelling and justifiable reasons not to recommend the tenderer with the highest number of tender evaluation points and recommend the tenderer with the highest number of tender evaluation points, unless there are compelling and justifiable reasons not to do so and the process set out in this subclause is repeated.

F.3.11.6 Decimal places

Score financial offers, preferences and quality, as relevant, to two decimal places.

F.3.11.7 Scoring Financial Offers

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

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

where: N_{FO} is the number of tender evaluation points awarded for the financial offer. W_1 is the maximum possible number of tender evaluation points awarded for the financial offer as stated in the Tender Data. A is a number calculated using the formula and option described in Table F.1 as stated in the Tender Data.

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

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

F.3.11.8 Scoring preferences

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

F.3.11.9 Scoring quality

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

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

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

where: S_Q is the score for quality allocated to the submission under consideration; M_S is the maximum possible score for quality in respect of a submission; and W_2 is the maximum possible number of tender evaluation points awarded for the quality as stated in the tender data

F.3.12 Insurance provided by the employer

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

F.3.13 Acceptance of tender offer

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

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

F.3.14 Prepare contract documents

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

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

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

F.3.15 Complete adjudicator's contract

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

F.3.16 Notice to unsuccessful tenderers

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

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

F.3.17 Provide copies of the contracts

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

F.3.18 Provide written reasons for actions taken

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

NKOMAZI MUNICIPALITY

CONTRACT NO: NKO 61/2022

FOR

**EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND
PACKAGE PLANT**

APPENDIX B: OCCUPATIONAL HEALTH AND SAFETY SPECIFICATIONS

OCCUPATIONAL HEALTH AND SAFETY SPECIFICATIONS

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PARTICULAR SPECIFICATIONS

SECTION OHS: OHSA 1993: HEALTH AND SAFETY SPECIFICATION

OHS 1 SCOPE

This specification covers the health and safety requirements to be met by the Contractor to ensure a continued safe and healthy environment for all workers, employees and subcontractors under his control and for all other persons entering the site of works.

This specification shall be read with the Occupational Health and Safety Act (Act No 85 and amendment Act No 181) 1993, and the corresponding Construction Regulations 2014, and all other safety codes and specifications referred to in the said Construction Regulations.

In terms of the OHSA Agreement in Section (C1.4) of the Contract document, the status of the Contractor as mandatory to the Employer (client) is that of an employer in his own right, responsible to comply with all provisions of OHSA 1993 and the Construction Regulations 2014.

This safety specification and the Contractor's own Safety Plan as well as the Construction Regulations 2014, shall be displayed on site or made available for inspection by all workers, employees, inspectors and any other persons entering the site of works.

The following are possible risks associated with this project:

Additional risks may arise from specific methods of construction selected by the Contractor which are not necessary covered in the above.

OHS 2 DEFINITIONS

For the purpose of this contract the following shall apply:

Employer where used in the contract documents and in this specification, means the Employer as defined in the General Conditions of Contract and it shall have the exact same meaning as **client** as defined in the Construction Regulations 2014. **Employer** and **client** is therefore interchangeable and shall be read in the context of the relevant document.

- (b) **Contractor** wherever used in the contract documents and in this specification, shall have the same meaning as **Contractor** as defined in the General Conditions of Contract.

In this specification the terms **principal contractor** and **contractor** are replaced with **Contractor** and **subcontractor** respectively.

For the purpose of this contract the **Contractor** will, in terms of OHSA 1993, be the mandatory, without derogating from his status as an employer in his own right.

- (c) **Engineer** where used in this specification, means the Engineer as defined in the General Conditions of Contract. In terms of the Construction Regulations the Engineer may act as agent on behalf of the Employer (the client as defined in the Construction Regulations).

OHS 3 TENDERS

The Contractor shall submit the following with his tender:

- (a) a documented Health and Safety Plan as stipulated in Regulation 7 of the Construction Regulations. The Safety Plan must be based on the Construction Regulations 2014 and will be subject to approval by the Employer;
- (b) a declaration to the effect that he has the competence and necessary resources to carry out the work safely in compliance with the Construction Regulations 2014;
- (c) a declaration to the effect that he made provision in his tender for the cost of the health and safety measures envisaged in the Construction Regulations.
- (d) Failure to submit the foregoing with his tender, will lead to the conclusion that the Contractor will not be able to carry out the work under the contract safely in accordance with the Construction Regulations.

OHS 4 NOTIFICATION OF COMMENCEMENT OF CONSTRUCTION WORK

After award of the contract, but before commencement of construction work, the Contractor shall, in terms of Regulation 3, notify the Provincial Director of the Department of Labour in writing if the following work is involved:

- (a) the demolition of structures and dismantling of fixed plant of height of 3,0m or more;
- (b) the use of explosives;
- (c) construction work that will exceed 30 days or 300 person-days;
- (e) excavation work deeper than 1,0m; or
- (f) working at a height greater than 3,0m above ground or landings.

The notification must be done in the form of the pro forma included under Section T2 (Forms to be Completed by Tenderer) of the tender document.

A copy of the notification form must be kept on site, available for inspection by inspectors, Employer, Engineer, employees and persons on site.

OHS 5 RISK ASSESSMENT

Before commencement of any construction work during the construction period, the Contractor shall have a risk assessment performed and recorded in writing by a competent person. (Refer Regulation 9 of the Construction Regulations 2014).

The risk assessment shall identify and evaluate the risks and hazards that may be expected during the execution of the work under the contract, and it shall include a documented plan of safe work procedures to mitigate, reduce or control the risks and hazards identified.

The risk assessment shall be available on site for inspection by inspectors, Employer, Engineer, subcontractors, employees, trade unions and health and safety committee members, and must be monitored and reviewed periodically by the Contractor.

OHS 6 APPOINTMENT OF EMPLOYEES AND SUBCONTRACTORS

6.1 Health and Safety plan

The Contractor shall appoint his employees and any subcontractors to be employed on the contract, in writing, and he shall provide them with a copy of his documented Health and Safety Plan, or relevant sections thereof. The Contractor shall ensure that all subcontractors and employees are committed to the implementation of his Safety Plan.

6.2 Health and safety induction training

The Contractor shall ensure that all employees under his control, including subcontractors and their employees, undergo a health and safety induction training course by a competent person before commencement of construction work. No visitor or other person shall be allowed or permitted to enter the site of the works unless such person has undergone health and safety training pertaining to hazards prevalent on site.

The Contractor shall ensure that every employee on site shall at all times be in possession of proof of the health and safety induction training issued by a competent person prior to commencement of construction work.

OHS 7 APPOINTMENT OF SAFETY PERSONNEL

7.1 Construction Supervisor

The Contractor shall appoint a full-time **Construction Supervisor** with the duty of supervising the performance of the construction work.

He may also have to appoint one or more competent employees to assist the construction supervisor where justified by the scope and complexity of the works.

7.2 Construction safety officer

Taking into consideration the size of the project and the hazards or dangers that can be expected, the Contractor shall appoint in writing a full-time or part-time **Construction Safety Officer** if so decided by the client. The Safety Officer shall have the necessary competence and resources to perform his duties diligently.

Provision shall be made by the Contractor in his rates, to cover the cost of this dedicated construction safety officer appointed after award of the contract.

7.3 Health and safety representatives

In terms of **Section 17 and 18 of the Act (OHSA 1993)** the Contractor, being the employer in terms of the Act for the execution of the contract, shall appoint a **health and safety representative** whenever he has more than 20 employees in his employment on the site of the works. The health and safety representative must be selected from employees who are employed in a full-time capacity at a specific workplace.

The number of health and safety representatives for a workplace shall be at least one for every 100 employees.

The function of health and safety representative(s) will be to review the effectiveness of health and safety measures, to identify potential hazards and major incidents, to examine causes of incidents (in collaboration with his employer, the Contractor), to investigate complaints by employees relating to health and safety at work, to make representations to the employer (Contractor) or inspector on general matters affecting the health and safety of employees, to inspect the workplace, plant, machinery etc. on a regular base, to participate in consultations with inspectors and to attend meetings of the health and safety committee.

7.4 Health and safety committee

In terms of **Sections 17 and 18 of the Act (OHSA 1993)** the Contractor (as employer), shall establish one or more **health and safety committee(s)** where there are two or more health and safety representatives at a workplace. The persons selected by the Contractor to serve on the committee shall be designated in writing.

The function of the health and safety committee shall be to hold meetings at regular intervals, but at least once every three months, to review the health and safety measures on the contract, to discuss incidents related to health and safety with the Contractor and the inspector, and to make recommendations regarding health and safety to the Contractor and to keep record of recommendations and reports made by the committee.

7.5 Competent persons

In accordance with the Construction Regulations the Contractor has to appoint in writing **competent persons** responsible for supervising construction work on each of the following work situations that may be expected on the site of the works.

- (a) Risk assessment and induction training as described in Regulation 9 of the Construction Regulations;
- (b) Fall protection as described in Regulation 10;
- (c) Structures described in Regulation 11;
- (d) Temporary works described in Regulation 12;
- (e) Excavation described in Regulation 13;
- (f) Demolition work described in Regulation 14;
- (g) Tunnelling as described in Regulation 15;
- (h) Scaffolding as described in Regulation 16;
- (i) Suspended platforms as described in Regulation 17;
- (j) Rope Access Work as described in Regulation 18;
- (k) Material hoists as described in Regulation 19;
- (l) Bulk mixing plant as described in Regulation 20;
- (m) Explosive actuated fastening device as described in Regulation 21;
- (n) Cranes as described in Regulation 22;
- (o) Construction vehicle and mobile as described in Regulation 23;
- (p) Electrical installations and machinery of construction sites as described in Regulation 24;
- (q) Use and temporary storage of flammable liquids on construction sites as described in Regulation 25;
- (r) Water environments as described in Regulation 26;
- (s) Housekeeping and general safeguarding on construction sites as described in Regulation 27;
- (t) Stacking and storage on construction sites as described in Regulation 28;
- (u) Fire precautions on construction sites as described in Regulation 29, and
- (s) Construction employees' facilities as described in Regulation 30.

A competent person may be appointed for more than one part of the construction work with the understanding that the person must be suitably qualified and able to supervise at the same time the construction work on all the work situations for which he has been appointed.

The appointment of competent persons to supervise parts of the construction work does not relieve the Contractor from any of his responsibilities to comply with **all** requirements of the

Construction Regulations.

OHS 8 RECORDS AND REGISTERS

In accordance with the Construction Regulations the Contractor is bound to keep records and registers related to health and safety on site for periodic inspection by inspectors, the Engineer, the Employer, trade union officials and subcontractors and employees. The following records and registers must be kept on site and shall be available for inspection at all times.

- (a) A copy of the OHSA 1993 Construction Regulations 2014;
- (b) A copy of this Health and Safety Specification;
- (c) A copy of the Contractor's Health and Safety Plan (Regulation 7);
- (d) A copy of the Notification of Construction Work (Regulation 4);
- (e) A health and safety file in terms of Regulation 5(1)(b) with inputs by the Construction Safety Officer (Regulation 7(1));
- (f) A copy of the risk assessment described in Regulation 9;
- (g) A full protection plan and the corresponding records of evaluation and training of employees working from elevated positions as described in Regulation 10;
- (h) Drawings pertaining to the design of structures (Regulation 11(1)(c)) and formwork and support work structures (Regulation 12) must be kept on site;
- (i) Pronouncement of the safety of excavations must be recorded in a register to be kept on site (Regulation 13);
- (j) A copy of the certificate of the system design for suspended platforms (Regulation 17(2)(b));
- (k) A notice must be affixed around the base towers of material hoists to indicate the maximum mass load, which may be carried at any one time by material hoists (Regulation 19(5));
- (l) Maintenance records of material hoists and inspection results must be kept in a record book to be kept on site (Regulation 19(8));
- (m) A record of any repairs to or maintenance of a batch plant must be kept on site (Regulations 20(8));
- (n) A warning notice must be displayed in a conspicuous manner when and wherever an explosive powered tool is used (Regulation 19(2));
- (o) A register for recording of findings by the competent person appointed to inspect construction vehicles and mobile plant (Regulation 23(1)(k)).

OHS 9 CONTRACTORS RESPONSIBILITIES

For this contract the Contractor will be the mandatory of the Employer (Client), as defined in the Act (OHSA 1993), which means that the Contractor has the status of employer in his own right in respect of the contract. The Contractor is therefore responsible for all the duties and obligations of an employer as set out in the Act (OHSA 1993) and the Construction Regulations 2014.

Before commencement of work under the contract, the Contractor shall enter into an agreement with the Employer (Client) to confirm his status as mandatory (employer) for the contract under consideration.

The Contractor's duties and responsibilities are clearly set out in the Construction Regulations

2014, and are not repeated in detail but some important aspects are highlighted hereafter, without relieving the Contractor of any of his duties and responsibilities in terms of the Construction Regulations.

(a) Contractor's position in relation to the Employer (Client) (Regulation 5)

In accordance with Section 4 of the Regulations, the Contractor shall liaise closely with the Employer or the Engineer on behalf of the Employer, to ensure that all requirements of the Act and the Regulations are met and complied with.

(b) The Principal Contractor and Contractor (Regulation 7)

The Contractor is in terms of the definition in Regulation 1 the equivalent of Principle Contractor as defined in the Construction Regulations, and he shall comply with all the provisions of Regulation 7.

Any subcontractors employed by the Contractor must be appointed in writing, setting out the terms of the appointment in respect of health and safety. An independent subcontractor shall however provide and demonstrate to the Contractor a suitable, acceptable and sufficiently documented health and safety plan before commencement of the subcontract. In the absence of such a health and safety plan the subcontractor shall undertake in writing that he will comply with the Contractor's safety plan, the health and safety specifications of the Employer and the Construction Regulations 2014.

(c) Supervision of construction work (Regulation 8)

The Contractor shall appoint the safety and other personnel and employees as required in terms of Regulation 7 and as set out in OHS 7 above. Appointment of those personnel and employees does not relieve the Contractor from any of the obligations under Regulation 7.

(d) Risk assessment (Regulation 9)

The Contractor shall have the risk assessment made as set out in paragraph 7 above before commencement of the work and it must be available on site for inspection at all times. The Contractor shall consult with the health and safety committee or health and safety representative(s) etc. on a regular basis to ensure that all employees, including subcontractors under his control, are informed and trained by a competent person regarding health hazards and related work procedures.

No subcontractor, employee or visitor shall be allowed to enter the site of works without prior health and safety induction training, all as specified in Regulation 7.

(e) Fall protection (Regulation 10)

Fall protection, if applicable to this contract shall comply in all respects with Regulation 8 of the Construction Regulations.

(f) Structures (Regulation 11)

The Contractor will be liable for all claims arising from collapse or failure of structures if he failed to comply with all the specifications, project specifications and drawings related to the structures, unless it can be proved that such collapse or failure can be attributed to faulty design or insufficient design standards on which the specifications and the drawings are based.

In addition the Contractor shall comply with all aspects of Regulation 11 of the

Construction Regulations.

(g) Temporary works (Regulation 12)

The Contractor will be responsible for the adequate design of all formwork and support structures by a competent person.

All drawings pertaining to formwork shall be kept on site and all equipment and materials used in formwork, shall be carefully examined and checked for suitability by a competent person.

The provisions of Regulation 12 of the Construction Regulations shall be followed in every detail.

(h) Excavation work (Regulation 13)

It is essential that the Contractor shall follow the instructions and precautions in the Standard Specifications and Project Specifications as well as the provisions of the Construction Regulations to the letter as unsafe excavations can be a major hazard on any construction site. The Contractor shall therefore ensure that all excavation work is carried out under the supervision of a competent person, that inspections are carried out by a Professional Engineer or Technologist, and that all work is done in such a manner that no hazards are created by unsafe excavations and working conditions.

Supervision by a competent person will not relieve the Contractor from any of his duties and responsibilities under Regulation 13 of the Construction Regulations.

(i) Demolition work (Regulation 14)

Whenever demolition work is included in a contract, the Contractor shall comply with all the requirements of Regulation 14 of the Construction Regulations. The fact that a competent person has to be appointed by the Contractor does not relieve the Contractor from any of his responsibilities in respect of safety of demolition work.

(j) Tunnelling (Regulation 15)

The Contractor shall comply with Regulation 15 wherever tunnelling of any kind is involved.

(k) Scaffolding (Regulation 16)

The Contractor shall ensure that all the provisions of Regulation 16 of the Construction Regulations are complied with. [Note: Reference in the Regulations to "Section 44 of the Act" should read "Section 43 of the Act"].

(l) Suspended platforms (Regulation 17)

Wherever suspended platforms will be necessary on any contract, the Contractor shall ensure that copies of the system design issued by a Professional Engineer are submitted to the Engineer for inspection and approval. The Contractor shall appoint competent persons as supervisors and competent scaffold erectors, operators and inspectors and ensure that all work related to suspended platforms are done in accordance with Regulation 17 of the Construction Regulations.

(m) Rope Access Work (Regulation 18)

Where rope access work is required on the construction site, the Contractor shall comply with Regulation 18.

(n) Material Hoists (Regulation 19)

Wherever applicable, the Contractor shall comply with the provisions of Regulation 19 to the letter.

(o) Batch plants (Regulation 20)

Wherever applicable, the Contractor shall ensure that all lifting machines, lifting tackle, conveyors, etc. used in the operation of a batch plant shall comply with, and that all operators, supervisors and employees are strictly held to the provisions of Regulation 20. The Contractor shall ensure that the General Safety Regulations (2003), the Driven Machinery Regulations (Government Notice R295 of 26/2/1988) and the Electrical Installation Regulations (Government Notice R2271 of 11/10/1995) are adhered to by all involved.

In terms of the Regulations, records of repairs and maintenance shall be kept on site.

(p) Explosive powered tools (Regulation 21)

The Contractor shall ensure that, wherever explosive-powered tools are required to be used, all safety provisions of Regulation 21 are complied with.

It is especially important that warning notices are displayed and that the issue and return of cartridges and spent cartridges be recorded in a register to be kept on site.

(q) Cranes (Regulation 22)

Wherever the use of tower cranes becomes necessary, the provisions of Regulation 20 shall be complied with.

(r) Construction vehicles and mobile plant (Regulation 23)

The Contractor shall ensure that all construction vehicles and plant are in good working condition and safe for use, and that they are used in accordance with their design and intended use. The vehicles and plant shall only be operated by workers or operators who have received appropriate training, all in accordance with all the requirements of Regulation 23.

All vehicles and plant must be inspected on a daily basis, prior to use, by a competent person and the findings must be recorded in a register to be kept on site.

(s) Electrical installation and machinery on construction sites (Regulation 24)

The Contractor shall comply with the Electrical Installation Regulations (Government Notice R2920 of 23 October 1992) and the Electrical Machinery Regulations (Government Notice R1953 of 12 August 1993). Before commencement of construction, the Contractor shall take adequate steps to ascertain the presence of, and guard against dangers and hazards due to electrical cables and apparatus under, over or on the site.

All temporary electrical installations on the site shall be under the control of a competent person, without relieving the Contractor of his responsibility for the health and safety of all workers and persons on site in terms of Regulation 24.

(t) Use of temporary storage of flammable liquids on construction sites (Regulation 25)

The Contractor shall comply with the provisions of the General Safety Regulations (2003) and all the provisions of Regulation 25 of the Construction Regulations to ensure a safe and hazard-free environment to all workers and other persons on site.

(u) Water environments (Regulation 26)

Where construction work is done over or in close proximity to water, the provisions of Regulation 26 shall apply.

(v) Housekeeping on Construction sites (Regulation 27)

Housekeeping on all construction sites shall be in accordance with the provisions of the environment Regulations for workplaces (Government Notice R2281 of 16 October 1987) and all the provisions of Regulation 27 of the Construction Regulations.

(w) Stacking and storage on construction sites (Regulation 28)

The provisions for the stacking of articles contained in the General Safety Regulations (2003) as well as all the provisions Regulation 28 of the Construction Regulations shall apply.

(x) Fire precautions on construction sites (Regulation 29)

The provisions of the Environmental Regulations for Workplaces (Government Notice R2281 of 16 October 1987) shall apply.

In addition the necessary precautions shall be taken to prevent the incidence of fires, to provide adequate and sufficient fire protection equipment, sirens, escape routes etc. all in accordance with Regulation 29 of the Construction Regulations.

(y) Construction employees' facilities (Regulation 30)

The Contractor shall comply with the construction site provisions as in the Facilities Regulations (2004) and the provisions of Regulation 30 of the Construction Regulations.

(z) Non-compliance with the Construction Regulations 2014

The foregoing is a summary of parts of the Construction Regulations applicable to all construction projects.

The Contractor, as employer for the execution of the contract, shall ensure that all provisions of the Construction Regulations applicable to the contract under consideration are complied with to the letter.

Should the Contractor fail to comply with the provisions of the Regulations 3 to 30 as listed in Regulation 33, he will be guilty of an offence and will be liable, upon conviction, to the fines or imprisonment as set out in Regulation 33.

The Contractor is advised in his own interest to make a careful study of the Act and the Construction Regulations as ignorance of the Act and the Regulations will not be accepted in any proceedings related to non-conformance to the Act and the Regulations.

OHS 10 MEASUREMENT AND PAYMENT

10.1 Principles

It is a condition of this contract that Contractors, who submit tenders for this contract, shall make provision in their tenders for the cost of all health and safety measures during the construction process. All associated activities and expenditure are deemed to be included in the Contractor's tendered rates and prices.

(a) Safety personnel

The Construction Supervisor, the Construction Safety Officer, Health and Safety Representatives, Health and Safety Committee and Competent Persons referred to in clauses 7.1 to 7.5 shall be members of the Contractor's personnel, and no additional payment will be made for the appointment of such safety personnel.

(b) Records and Registers

The keeping of health and safety-related records and registers as described in paragraph 8 is regarded as a normal duty of the Contractor for which no additional payment will be considered, and which is deemed to be included in the Contractor's tendered rates and prices.

AGREEMENT IN TERMS OF SECTION 37(2) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT NO 85 OF 1993

THIS AGREEMENT is made between.....

(hereinafter called the EMPLOYER of the one part, herein represented by:

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

in his capacity as:

.....

AND:

(hereinafter called the CONTRACTOR) of the other part, herein represented by

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

in his capacity as:

.....

duly authorised to sign on behalf of the Contractor.

WHEREAS the CONTRACTOR is the Mandatory of the EMPLOYER in consequence of an agreement between the CONTRACTOR and the EMPLOYER in respect of

CONTRACT:.....

AND WHEREAS the EMPLOYER and the CONTRACTOR have agreed to enter into an agreement in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act No 85 of 1993, as amended by OHSA Amendment Act No 181/1993 (hereinafter referred to as the ACT);

NOW THEREFORE the parties agree as follows:

- 1. The CONTRACTOR undertakes to acquaint the appropriate officials and employees of the CONTRACTOR with all relevant provisions of the ACT and the regulations promulgated in terms thereof.**
2. The CONTRACTOR undertakes to fully comply with all relevant duties, obligations and prohibitions imposed in terms of the ACT and Regulations: Provided that should the EMPLOYER have prescribed certain arrangements and procedures that same shall be observed and adhered to by the CONTRACTOR, his officials and employees. The CONTRACTOR shall bear the onus of acquainting himself/herself/itself with such arrangements and procedures.
3. The CONTRACTOR hereby accepts sole liability for such due compliance with the relevant duties, obligations, prohibitions, arrangements and procedures, if any, imposed by the ACT and Regulations, and the CONTRACTOR expressly absolves the EMPLOYER and the Employer's CONSULTING ENGINEERS from being obliged to comply with any of the aforesaid duties, obligations, prohibitions, arrangements and procedures in respect of the work included in the contract.

4. The CONTRACTOR agrees that any duly authorised officials of the EMPLOYER shall be entitled, although not obliged, to take such steps as may be necessary to ensure that the CONTRACTOR has complied with his undertakings as more fully set out in paragraphs 1 and 2 above, which steps may include, but shall not be limited to, the right to inspect any appropriate site or premises occupied by the CONTRACTOR, or to take such steps it may deem necessary to remedy the default of the CONTRACTOR at the cost of the CONTRACTOR.
5. 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 in terms of this agreement, and shall, on written demand, provide full details in writing of such investigation, complaint or criminal charge.

Thus signed at for and on behalf of the **CONTRACTOR**

on this the day of 20.....

SIGNATURE:

NAME AND SURNAME:

CAPACITY:

WITNESSES: 1.

2.

Thus signed at for and on behalf of the **EMPLOYER** on this

the day of 20.....

SIGNATURE:

NAME AND SURNAME:

CAPACITY:

WITNESSES: 1.

2.

CONTRACTOR'S HEALTH AND SAFETY DECLARATION

In terms of Clause 4(4) of the OHSA 1993 Construction Regulations 2014 (referred to as "the Regulations" hereafter), a Contractor may only be appointed to perform construction work if the Employer is satisfied that the Contractor has the necessary competencies and resources to carry out the work safely in accordance with the Occupational Health and Safety Act No 85 of 1993 and the OHSA 1993 Construction Regulations 2014.

To that effect a person duly authorised by the tenderer must complete and sign the declaration hereafter in detail.

Declaration by Tenderer

1. I the undersigned hereby declare and confirm that I am fully conversant with the Occupational Health and Safety Act No 85 of 1993 (as amended by the Occupational Health and Safety Amendment Act No 181 of 1993), and the OHSA 1993 Construction Regulations 2014.

2. I hereby declare that my company has the competence and the necessary resources to safely carry out the construction work under this contract in compliance with the Construction Regulations and the Employer's Health and Safety Specifications.

3. I propose to achieve compliance with the Regulations by one of the following:
 - (a) From my own competent resources as detailed in 4(a) hereafter: ***Yes / No**
 - (b) From my own resources still to be appointed or trained until competency is achieved, as detailed in 4(b) hereafter: ***Yes / No**
 - (c) From outside sources by appointment of competent specialist subcontractors as detailed in 4(c) hereafter: ***Yes / No**

(* = delete whatever is not applicable)

4. Details of resources I propose:

(Note: Competent resources shall include safety personnel such as a construction supervisor and construction safety officer as defined in Regulation 8, and competent persons as defined in Regulations 9-29, (all or individual regulations) as applicable to this contract)

- (a) Details of the competent and qualified key persons from my company's own resources, who will form part of the contract team:

NAMES OF COMPETENT PERSONS	POSITIONS TO BE FILLED BY COMPETENT PERSONS

- (b) Details of training of persons from my company's own resources (or to be hired) who still have to be trained to achieve the necessary competency:

- (i) By whom will training be provided?
- (ii) When will training be undertaken?
- (iii) List the positions to be filled by persons to be trained or hired:

.....

.....

- (c) Details of competent resources to be appointed as subcontractors if competent persons cannot be supplied from own company:

Name of proposed subcontractor:

Qualifications or details of competency of the subcontractor:

5. I hereby undertake, if my tender is accepted, to provide, before commencement of the works under the contract, a suitable and sufficiently documented Health and Safety Plan in accordance with Regulation 7(1) of the Construction Regulations, which plan shall be subject to approval by the Employer.
6. I confirm that copies of my company's approved Health and Safety Plan, the Employer's Safety Specifications as well as the OHSA 1993 Construction Regulations 2014 will be provided on site and will at all times be available for inspection by the Contractor's personnel, the Employer's personnel, the Engineer, visitors, and officials and inspectors of the Department of Labour.
7. I hereby confirm that adequate provision has been made in my tendered rates and prices in the schedule of quantities to cover the cost of all resources, actions, training and all health and safety measures envisaged in the OHSA 1993 Construction Regulations 2014, and that I will be liable for any penalties that may be applied by the Employer in terms of the said Regulations (Regulation 33) for failure on the Contractor's part to comply with the provisions of the Act and the Regulations.

8. I agree that my failure to complete and execute this declaration to the satisfaction of the Employer will mean that I am unable to comply with the requirements of the OHSA 1993 Construction Regulations 2014, and accept that my tender will be prejudiced and may be rejected at the discretion of the Employer.

SIGNATURE:

DATE:

(of person authorised to sign on behalf of the Tenderer)

**PRO FORMA NOTIFICATION FORM IN TERMS OF THE
OCCUPATIONAL HEALTH AND SAFETY ACT 1993, CONSTRUCTION
REGULATIONS 2014**

[This form must be completed and forwarded, prior to commencement of work on site, by all Contractors that qualify in terms of Regulation 3 of the Construction Regulations 2014, to the office of the Department of Labour]

NOTIFICATION OF CONSTRUCTION WORK

1. (a) Name and postal address of principal contractor.

- (b) Name and tel. pf principal contractor's contact person:

2. Principal contactor's compensation registration number:

3. (a) Name and postal address of client :

- (b) Name and tel. no of clients contact person or agent:

- 4 (a) Name and postal address of designer (s) for the project:

- (b) -----

5. Name and telephone number of principal contractor's sub- ordinate supervisor on site appointed in terms of Regulation 8 (1).

6. Name /s of principal contractor's sub- ordinate supervisor on site appointed in terms of Regulation 8 (2)

7. Exact physical address of the construction site or site office:

8. Nature of the construction work:

9. Expected commencement date:

10. Expected completion date:

11. Estimated maximum number of persons on the construction site.

Total: _____ Male: _____ Female _____

12. Planned number of contractors on the construction:

13. Name (s) of contractors already selected.

Principal Contractor

Date

Client's Agent (where
applicable)

Date

Client

Date

NKOMAZI MUNICIPALITY

CONTRACT NO: NKO 61/2022

FOR

**EXTENSION OF LOUIEVILLE WATER: PHASE 2 – STORAGE TANK AND
PACKAGE PLANT**

APPENDIX C: DRAWINGS FOR TENDER PURPOSES