

O. R. TAMBO DISTRICT MUNICIPALITY



O.R. TAMBO
DISTRICT MUNICIPALITY

TENDER NO.:	ORTDM SCMU 39-25/26
DESCRIPTION:	APPOINTMENT OF A PANEL OF SERVICE PROVIDERS FOR MECHANICAL & ELECTRICAL WORKS AND BOREHOLE EQUIPPING FOR 36 MONTHS (3 YEARS) CIDB GRADE 6ME AND 7ME (FOR EMERGENCY)

MARCH 2026

Issued by:

The Municipal Manager
O. R. Tambo District Municipality
Private Bag x 6043
MTHATHA
5100
Tel. No.: (047) 501 6400

Prepared by:

Infrastructure & Water Services
O. R. Tambo District Municipality
Private Bag x 6043
MTHATHA
5100
Tel. No.: (047) 501 6400

NAME OF BIDDER: _____

CSD SUPPLIER NUMBER: _____

SARS TAX COMPLIANCE STATUS PIN: _____

EMAIL ADDRESS: _____

TENDER AMOUNT/RATES: _____

O.R. TAMBO DISTRICT MUNICIPALITY TENDER

NO. ORTDM SCMU 39-25/26

APPOINTMENT OF A PANEL OF SERVICE PROVIDERS FOR MECHANICAL & ELECTRICAL WORKS AND BOREHOLE EQUIPPING FOR 36 MONTHS (3 YEARS) CIDB GRADE 4ME AND 5ME

PLEASE CHECK

x / √

1. That you have read all the pages of the tender document.
2. That you have completed ALL the forms required to be completed in **NON-ERASEABLE INK**.
3. That your arithmetic calculation in the pricing schedule is correct.
4. That you have attached ALL necessary documentation relating to the composition of the tendering entity, i.e.
 - (a) Company registration documents naming the shareholders and directors / members of the company, close corporation etc
 - (b) Joint venture agreement, if tendering entity is a joint venture.
5. That the **COMPLETE** tender document is submitted.
6. That the **FORM OF OFFER** is completed in full and signed.
7. That ALL returnable documents are submitted.
8. That ALL returnable schedules are completed and signed.
9. Ensure that your tender is submitted by **12H00PM** on the closing date of the tender.

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THE TENDER

SECTION 1: TENDER NOTICE AND INVITATION TO TENDER

O.R. Tambo District Municipality hereby invites bids for the project listed below:

TENDER NUMBER	NAME AND DESCRIPTION	CIDB GRADE	BRIEFING SESSION
ORTDM SCMU 39-25/26	APPOINTMENT OF A PANEL OF SERVICE PROVIDERS FOR MECHANICAL & ELECTRICAL WORKS AND BOREHOLE EQUIPPING FOR 36 MONTHS (3 YEARS)	6ME AND 7ME	DATE: 14 APRIL 2026 TIME: 10:00AM VENUE: GROUND FLOOR OPEN FOYER, O.R TAMBO OFFICES, MYEZO PARK, MTHATHA

A compulsory briefing/clarification meeting with representatives of the Municipality will take place on the aforementioned date(s), time(s) and venue(s).

THE MUNICIPALITY WILL NOT REPEAT ANY MATTERS ALREADY COVERED IN THE COMPULSORY BRIEFING MEETING TO BIDDERS WHO ARRIVE MORE THAN 10 MINUTES LATE TO THE MEETING, NOR WILL IT ALLOW SUCH BIDDERS TO COMPLETE THE ATTENDANCE REGISTER.

Bid documents should be downloaded on the e-Tender website (www.etenders.gov.za) alternatively on the OR Tambo website (www.ortambodm.gov.za).

Bids must be completed in black ink, enclosed in a sealed envelope clearly marked with the “**Tender number, tender name and description**”, and deposited in the Tender Box, Ground Floor, O. R. Tambo District Municipality Building, Nelson Mandela Drive, Myezo Park, Mthatha, Eastern Cape, not later than **12H00pm on 11 MAY 2026**.

It must be expressly understood that the Municipality accepts no responsibility for ensuring that bid submissions sent by courier or post, or delivered in any other way, are deposited in the Tender Box. It is therefore preferable for the bidder to ensure that its bid submission is placed in the Tender Box by its own staff or representative(s).

The Municipality reserves the right not to accept the only or lowest priced tender or any tender at all, or to accept the whole or part of any tender.

In terms of the O.R. Tambo District Municipality SCM Policy Section 91, the Municipality will apply Fair Distribution of Municipal Resources on Capital Infrastructure Projects, Objective criteria on the evaluation and award of bids.

RETURNABLE DOCUMENTS TO BE SUBMITTED WITH BID:

- Copy of business registration documents, as issued by CIPC.
- Certified copy of identity documents of directors/ shareholders/ partners / members, as the case may be.
- Original Valid Tax Clearance Certificate or a Confirmation of Tax Validity with the pin issued by SARS

NB: CERTIFICATION OF DOCUMENTS MUST NOT BE MORE THAN SIX (6) MONTHS FROM DATE CERTIFIED BY COMMISSIONER OF OATHS.

THE BID WILL BE REJECTED IF THE BIDDER FAILS TO:

- Complete fully the bid document or to provide the information requested, or to sign the bid at the appropriate spaces provided or next to errors.
- Fill and properly sign the form of offer.
- Attach proof of registration with CSD.
- Proof of Registration with CIDB
- Attach latest audited annual financial statements of the bidding entity (for projects in excess of R10 million).
- Attach latest unaudited annual financial statements for close corporations and companies if the public interest score is below 350 in line with the companies act of 2008.
- Proof of latest municipal rates and taxes statement of the bidder indicating that rates and taxes are not in arrears for more than 3 months.
- Proof of latest municipal rates and taxes statement of each company director indicating that rates and taxes are not in arrears for more than 3 months.
- Proof of latest municipal water and sanitation charges statement of the bidder indicating that rates and taxes are not in arrears for more than 3 months.
- Proof of latest municipal water and sanitation charges statement of each company director indicating that rates and taxes are not in arrears for more than 3 months.
- Confirmation of address from a ward councilor where the bidder and company directors operate and reside in a peri-urban area where no rates and taxes and service charges are not billed.
- A copy of a valid lease agreement where the bidder does not own the property they are operating from.
- Attach joint Venture Agreement or Consortium Agreement signed and initialed on each page (if applicable).
- **NOTE:** Joint Ventures and Consortiums will only be considered provided they submit consolidated company registration documents and **on award** will be required to submit a joint venture or consortium bank account and a joint venture or consortium SARS Tax PIN.

EVALUATION OF BIDS IN TERMS OF THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK REGULATIONS, 2022:

Bids will be evaluated in three stages, namely:

- Stage 1- Mandatory Requirements
- Stage 2- Minimum conditions of tender
- Stage 3 - Price and specific goals

Bidders who fail to comply with the requirements in Stage 1 will not be evaluated further in Stages 2. Only Bidders who score a minimum of 80 points in Stage 2 will not proceed to be evaluated further in Stage 3.

Item	Weight
Stage 2- Minimum Conditions of Tender	100
• Company Experience with respect to similar projects	60
• Qualifications and Experience of key staff assigned to the contract	40
Stage 3 of Evaluation- Price & Specific Goals	100
• Specific Goal Points	20 OR 10
• Price	80 OR 90

Tenders may only be submitted on tender documentation issued. No alterations may be made to the tender documentation. No late, faxed, e-mailed, telephonic or other electronically transmitted submissions will be

accepted. Should a bidder commit any corrupt or fraudulent act during the bidding process, its tender shall be disqualified.

The Municipality reserves the right to extend the tender advert period at its own discretion, by notice published in the Daily Dispatch Newspaper; the e-Tender Publication Portal, and by notice sent to all parties who attend the non-compulsory briefing session, if any.

ENQUIRIES:

TECHNICAL : Mr. L. Mashiya Email: mashiyal@ortambodm.gov.za : Tel : 047 501 6492
SUPPLY CHAIN MANAGEMENT : Mr. S. Hopa Email: sakhiwoh@ortambodm.org.za, Tel: 047 501 6449

Enquiries can be made from Monday to Friday between 08H00-13H00 and 13H30-16H30 and such enquiries will not be entertained five days before the tender closes.

Tenders will be evaluated in terms of the Supply Chain Management policy of the O. R. Tambo District Municipality. The Municipality reserves the right to accept the whole or part of any tender or not to consider any tender not suitably endorsed. Joint Ventures and Consortium will only be considered provided they submit consolidated company registration documents, bank account, SARS Tax pin, CSD is prepared for every separate tender. An 80/20-point system shall apply where 80 points is allocated for price and 20 points allocated for specific goals as follows

OR

An 90/10-point system shall apply where 90 points is allocated for price and 10 points allocated for specific goals as follows:

The specific goals allocated points in terms of this tender	Number of points Allocated on 90/10 system	Number of points Allocated on 80/20 system
51% Black-owned enterprises	04	05
100% Women-owned enterprises	02	05
100% Youth-owned enterprises	02	05
Where the enterprise head office or primary place of business is located within O.R. Tambo District.	02	05

Tenderers must submit copies of all supporting documents necessary to prove conformance with Specific Goal criteria listed above in order to be eligible for Specific Goal points.

**B. Mase
Municipal Manager**

SECTION 2: STANDARD CONDITIONS OF TENDER

BIDDERS ARE REQUIRED TO FAMILIARIZE THEMSELVES WITH THE TENDERING CONDITIONS AND PROCEDURES DETAILED IN THIS SECTION.

1. No tender will be considered unless it is submitted on this O.R. Tambo bid document. Under no circumstances whatsoever may this bid document be retyped or redrafted.
2. The whole, original bid document as issued by O.R. Tambo District Municipality must be completed. A tender will be considered invalid and will not be accepted, if any part of this bid document is not submitted.
3. The bidder is advised to check the number of pages and to satisfy him/herself that none are missing or duplicated.
4. Bids submitted must be complete in all respects.
5. Telephonic, telegraphic, telex, facsimile or emailed tender offers will not be accepted, unless stated otherwise in these tender conditions.
6. Bid submissions must be properly deposited, on or before the closing date and time of the tender, in the Tender **Box** located at the Ground Floor, O.R. Tambo House, Myezo, Mthatha.
7. **Each bid shall be lodged in a separate sealed envelope, with the name and address of the bidder, the bid number and closing date indicated on the envelope. The envelope shall not contain documents relating to any bid other than that shown on the envelope. If this provision is not complied with, such bids may be rejected as being invalid.**
8. O.R. Tambo Municipality accepts no responsibility for ensuring that tenders are placed in the correct tender box, and should a tender be placed in the incorrect tender box, it will be not be accepted.
9. No bid sent through the post will be considered if it is received after the closing date and time stipulated in the bid documentation, and proof of posting will not be accepted as proof of delivery.
10. Bids received after the closing time and/or date shall not be considered.
11. Bidders will be responsible for all costs associated with the preparation and submissions of their bids.
12. The bid must be signed by a person duly authorized to do so.
13. Any alterations made to the bid document must be initialed by the person or persons authorized to sign the bid document. The use of correcting fluid is prohibited.

14. Bids will be opened in public, as soon as possible after the closing time of the bid. Where practical, bid prices will be read out at the time of opening bids.

15. National Treasury Central Supplier Database

15.1 Bidders must be registered on the National Treasury Central Supplier Database ('CSD'), and must provide their CSD supplier number in their bid submission.

15.2 The municipality will verify on the CSD, the following information relating to bidders –

15.2.1 business registration, including details of directorship and membership;

15.2.2 bank account information;

15.2.3 tax compliance status;

15.2.4 identity documents of directors, members or trustees, as the case may be;

15.2.5 tender defaulters and restrictions status;

15.2.6 whether the bidder has any directors, managers, principal shareholders or stakeholders in the service of the state.

15.3 Bidders must ensure that their information on the CSD is up to date and correct.

16. Tax compliance status

16.1 Bidders must ensure that their tax matters are in order. No award will be made to any bidder whose tax matters have been declared to be in order by the South African Revenue Services (SARS).

16.2 Each party to a joint venture, consortium or partnership must comply with the above requirement.

17. Bid validity period

17.1 The validity period for the bid is ninety (90) days from the close of the bid.

17.2 All bids submitted shall remain valid, irrevocable and open for acceptance by the Municipality within the validity period, or such extended period as may be applicable.

17.3 If the bid validity period expires on a Saturday, Sunday or public holiday, the bid offer shall remain valid and open for acceptance until the closure of business on the following working day.

17.4 The bid offer may not be amended during the aforesaid bid validity period.

17.5 Where required, the Municipality may request all bidders to agree to the extension of the validity period on the same terms and conditions as the original bid, or such amended terms and conditions as may be allowed by the Municipality.

17.6 A request for a bid validity extension request will be done in writing, before the expiry of the original validity period.

18. Withdrawal or modification of a tender prior to closing time

18.1 Tenderers may withdraw their tender before the tender closes.

18.2 Insofar as a modification will affect the information that will be made available at the public opening, the Municipality shall have the authority to make such information from the submissions available to the other tenderers.

19. Withdrawal of a tender after the closing time

Tenderers may withdraw their tender submission before the tender is awarded provided that they do so in writing, and ensure that such withdrawal reaches the Municipality and the Municipality confirms receipt in writing before the tender is awarded. The tender as modified will be considered as the tenderer's offer.

20. Prequalification criteria

20.1 Prequalification criteria may be applied to the tender to advance designated groups.

20.2 Should prequalification criteria be applicable to this tender, the basis of such criteria will be detailed in Section 4 of this document.

21. Tender evaluation

21.1 Tenders will be evaluated in accordance with the tender evaluation criteria stipulated in this document.

21.2 Tenders will be evaluated for price and preference using the 80/20 preference points system.

21.3 Unless otherwise stated in this document, a contract will be concluded with the bidder who complies with the tender evaluation criteria, and scores the highest total price and preferences.

22. Test for tender responsiveness

22.1 Invalid tenders

Tenders shall be invalid if –

- (a) The tender document is completed in non-erasable ink;
- (b) The form of offer is not completed and signed by the bidder;
- (c) In a two-envelope system, a bidder fails to submit both a technical proposal and a separate, sealed financial offer;
- (d) The bidder has been listed on the National Treasury's Register for Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act, No. 12 of 2004, or has been listed on the National Treasury's List of Restricted Suppliers and who is therefore prohibited from doing business with the public sector;
- (e) The bidder is /has been restricted from doing business with the Municipality Clause 38A of the O.R. Tambo Municipality Supply Chain Management Policy.

22.2 Non-responsive tenders

Tenders will be held to be non-responsive and eliminated from further consideration in the following circumstances –

- (a) The tender does not comply with the tendering procedures, where such procedures have been indicated as mandatory.
- (b) The tender does not comply with the prequalification criteria for the tender, if any, or the tender evaluation criteria, including any minimum conditions of tender criteria.
- (c) Where there are material deviations from, or qualifications to the tender, which in the Municipality's opinion would –
 - (i) detrimentally affect the scope, quality or performance of the services or supply identified in the scope of services;
 - (ii) significantly change the Municipality's or the bidder's risks and responsibilities under the contract, or
 - (iii) affect the competitive position of the bidder, or other bidders presenting responsive tenders, if it were to be rectified.
- (d) The bid will be declared non-responsive in the event that the bidder's tax matters, as verified on the government Central Supplier Database, are shown not to be in order, and the bidder fails to ensure that its tax matters are in order within such timeframe as maybe required by O.R Tambo District Municipality in writing.

23. Clarification of the tender offer after submission

The bidder must provide clarification of its tender offer in response to a request to do so from the Municipality during the bid evaluation or adjudication stages. 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 bidders or substance of the tender offer may be sought, offered, or permitted.

24. Inspections, tests and analyses

The bidder shall, at the request of the Municipality, provide access during working hours to its business premises, or any other specified premises, for any inspections, tests and analyses as required in this document.

25. Samples

Where applicable, samples shall be provided strictly in accordance with the instructions stipulated in this bid document.

26. Pricing the tender offer

Bidders must –

- 26.1 Include in the rates, prices, and the tendered total of the prices (if any) all duties, taxes (including Value Added Tax (VAT), and other levies applicable.

26.2 Provide rates and prices that are fixed for the duration of the contract and not subject to adjustment except as specified in this tender document.

26.3 State the rates and prices in Rand unless instructed otherwise.

27. Imbalance in tendered rates or prices

If the Municipality declares any rate or price to be unacceptably high or low, the tenderer shall be requested to provide evidence to support the tendered rate or price. If the Municipality remains unsatisfied with the rate or price, it may propose to the tenderer an amended rate or price together with counterbalancing change(s) elsewhere in the Pricing Schedule such that the tender sum remains unchanged. Should the tenderer refuse to amend his / her tender as proposed by the Municipality, his / her tender may be regarded as non-responsive.

28. Inducements, gifts, rewards and other abuses of the supply chain management system

28.1 No bidder may directly or indirectly commit any fraudulent act during the tender process or abuse the supply chain management system of the Municipality.

28.2 Should a bidder be found to have committed fraud or abused the supply chain management system, its bid will be rejected, any existing contract between it and the Municipality will be cancelled, and any other remedies available to the Municipality as provided for in the Supply Chain Management Regulations or other relevant legislation shall be imposed, including blacklisting.

29. Alternative offers

Alternative offers may be considered, provided that a bid free of qualifications and strictly in accordance with the tender document is also submitted. The Municipality shall not be bound to consider alternative bid offers.

30. Objections, complaints, queries and disputes / Appeals in terms of Section 62 of the Municipal Systems Act

30.1 Objections, complaints, queries and disputes

Persons aggrieved by decisions or actions taken by the Municipality in the implementation of the supply chain management system, or any matter arising from a contract awarded in terms of the supply chain management system may, within 14 days of the decision or action, lodge a written objection or complaint or query or dispute against the decision or action.

30.2 Section 62 appeals

(a) In terms of section 62 of the Systems Act, a person whose rights are affected by a decision taken by a political structure, political office bearer, councilor or staff member of a municipality in terms of a power or duty delegated or sub-delegated by a delegating authority, may appeal against that decision by giving written notice of the appeal and reasons to the Accounting Officer within 21 days of the date of notification of the decision.

(b) An appeal shall contain the following:

(i) The reasons and/or grounds for the appeal;

- (ii) The manner in which the appellant's rights have been affected;
- (iii) The remedy sought by the appellant.

30.3 Lodging of appeals, objections, complaints, queries and disputes relating to this tender

Appeals, objections, complaints, requests for information, queries and disputes must be submitted in writing to the Office of the Municipal Manager, O.R. Tambo House, Myezo, Mthatha.

SECTION 3: REGISTRATION ON THE NATIONAL TREASURY CENTRAL SUPPLIER DATABASE (CSD)

1. In terms of National Treasury MFMA Circular No. 81, Accounting Officers of Municipalities are required to encourage their prospective suppliers to register on the Central Supplier Database ('CSD').
2. Bidders may apply for online registration, using the following website link: www.csd.gov.za.
3. Bidders must register on CSD. **FAILURE TO REGISTER BEFORE THE CLOSE OF THIS TENDER WILL RESULT IN THE DISQUALIFICATION OF THE BIDDER'S TENDER.**

SECTION 4: PREQUALIFICATION CRITERIA

Only bidders that meet the requirements indicated as applicable below, may respond to this tender -

No.	Criteria	Applicable / Not applicable	Indicate compliance (Yes / No)
		<u>TO BE SPECIFIED BY THE MUNICIPALITY</u>	<u>TO BE COMPLETED BY THE BIDDER</u>
1.	Bidders must have a stipulated minimum BBBEE status level to prequalify for this bid	Not applicable	
1.1	The stipulated BBBEE level required to prequalify for this bid is	Not applicable	
2.	Bidders must be an Exempted Micro Enterprise (EME) or a Qualified Small Enterprise (QSE)	Not applicable	
3.	Bidders must subcontract a minimum of 30 percent of the value of the contract to:		
3.1	an EME or QSE	Not applicable	
3.2	an EME or QSE which is at least 51% owned by black people	Not applicable	
3.3	an EME or QSE which is at least 51% owned by black people who are youth	Not applicable	
3.4	an EME or QSE which is at least 51% owned by black people who are women	Not applicable	
3.5	an EME or QSE which is at least 51% owned by black people with disabilities	Not applicable	
3.6	an EME or QSE which is at least 51% owned by black people living in rural or underdeveloped areas or townships	Not applicable	
3.7	A cooperative which is at least 51% owned by black people	Not applicable	
3.8	an EME or QSE which is at least 51% owned by black people who are military veterans	Not applicable	

A TENDER THAT FAILS TO MEET THE APPLICABLE PREQUALIFICATION CRITERIA INDICATED ABOVE WILL BE HELD TO BE NON-RESPONSIVE.

SECTION 5: SUBCONTRACTING AS COMPULSORY BIDDING CRITERIA

This section applies only to tenders which exceed the value of R30 million.

No.	Criteria	Yes / No / Not applicable (Indicate)	Agree / Do Not Agree
		<u>TO BE SPECIFIED BY _____ TH E MUNICIPALITY</u>	<u>TO BE COMPLETED BY BIDDER</u>
1.	The estimated value of this contract exceeds R30 million	NO	
2.	If the estimated value of the contract exceeds R30 million, is it feasible for this contract to be sub-contracted?	Not applicable	
3.	If sub-contracting is feasible, bidders <u>MUST</u> agree to subcontract the contract to one, or more of the following designated groups -	Not applicable	
3.1	an EME or QSE	Not applicable	
3.2	an EME or QSE which is at least 51 percent owned by black people	Not applicable	
3.3	an EME or QSE which is at least 51 percent owned by black people who are youth	Not applicable	
3.4	an EME or QSE which is at least 51 percent owned by black people who are women	Not applicable	
3.5	an EME or QSE which is at least 51 percent owned by black people with disabilities	Not applicable	
3.6	an EME or QSE which is at least 51 percent owned by black people living in rural or underdeveloped areas or townships	Not applicable	
3.7	a cooperative which is at least 51 percent owned by black people	Not applicable	
3.8	an EME or QSE which is at least 51 percent owned by black people who are military veterans	Not applicable	

FAILURE OF A BIDDER TO AGREE TO SUBCONTRACT AS SPECIFIED ABOVE WILL RESULT IN ITS BID BEING HELD TO BE NON-RESPONSIVE.

SECTION 6: TENDER EVALUATION CRITERIA

Bids will be evaluated in three stages, namely:

- Stage 1- Mandatory requirements.
- Stage 2 – Minimum Conditions of Tender
- Stage 3 - Price and Specific Goals

STAGE 1- MANDATORY REQUIREMENTS

- Fill and properly sign the form of offer.
- Attach proof of registration with CSD.
- Attach proof of registration with CIDB.
- Attach joint Venture Agreement or Consortium Agreement signed and initialed on each page (if applicable).
- Attach consolidated company registration documents, bank account, SARS Tax pin, CSD (for JV or Consortium)
- Attach audited annual financial statements of the bidding entity (for projects in excess of R10 million);
- Attach unaudited annual financial statements for close corporations and companies if the public interest score is below 350 in line with the companies act of 2008;
- Attach proof of latest municipal rates and taxes statement **of the bidder and each company director** indicating that rates and taxes are not in arrears for more than 3 months.
- Attach proof of latest municipal water and sanitation charges statement **of the bidder and each company director** indicating that rates and taxes are not in arrears for more than 3 months for bidders who reside in the O. R. Tambo District Municipality area
- Attach a confirmation of address from a ward councillor where the bidder and company directors operate and reside in a peri-urban area where no rates and taxes and service charges are not billed.
- Attach a copy of a valid lease agreement where the bidder does not own the property they are operating from.

Only bidders who meet all the requirements of stage 1 will proceed to be evaluated further in stage 2

STAGE 2 – MINIMUM CONDITIONS OF TENDER

Only bidders who score a minimum of 80 points on minimum conditions of tender will be evaluated further on Price and Specific Goals. The maximum score for minimum conditions of tender shall be 100, distributed as follows:

Minimum Conditions of Tender		
	Minimum Conditions of Tender	Weight
B1.1	Experience on similar projects	60
	Experience on similar projects: Proven experience in the Construction, refurbishment or repairs of Mechanical and Electrical Infrastructure of Water and Sanitation schemes and pump stations and borehole equipping. Copies of Certificate of Completion MUST be submitted with the bid. No points will be awarded where Certificates of Completion have not been submitted with the Bid. If the value of completed project is not reflected on the certificate, provide contractor's appointment or letter from the client with values.	60
	The Contractor has successfully completed at least Three (03) projects that satisfies the sub-criteria and provided evidence whose Total Sum is at least R15 Million.	60
	The Contractor has successfully completed at least Two (02) projects that satisfies the sub-criteria and provided evidence whose Total Sum is at least R13 Million.	40
	The Contractor has successfully completed at least One (01) project that satisfies the sub-criteria and provided evidence whose Total Sum is at least R11 Million.	20
	Contractor failed to provide evidence of experience.	00
B1.2	Qualifications and Experience of key personnel (NB no key personnel member may be assigned more than one duty on the Contract, i.e. different personnel must be assigned for each of the following key positions) Contracts Manager = Minimum BSC or B-Tech in Mechanical or Electrical Engineering/ NQF level 7 Registered as a Professional in terms of Engineering Council of South Africa as Pr Tech or Pr Eng or SACPCMP as a Pr CPM or Pr CM, Site Agent = Minimum ND in Civil Engineering NQF Level 6, Registered as a Professional in terms of the Engineering Council of South Africa as a Pr Techni or Registered as Professional in terms of SACPCMP as a Pr CPM and Pr CM and Milwright = Minimum Grade 12/ N5 Electromechanician Engineering, Milwright Trade Test Certificate. Bidders must submit CV's and contactable references.	40
	Contracts Manager, Site Agent, Foreman	
	Favourable previous experience in the Mechanical or Electrical Engineering field with a minimum of 5 years; Contracts Manager = 20 points, 3-4 years = 15 points & 1-2 years = 10 points.	20
	Favourable previous experience in the Mechanical or Electrical Engineering field with a minimum of 5 years; Site Agent = 12 points, 3-4 years = 10 points & 1-2 years = 8 points.	12
	Favourable previous experience in the Mechanical or Electrical Engineering field with a minimum of 5 years; Milwright = 8 points, 3-4 years = 6 points & 1-2 years = 4 points.	08
	Contractor failed to provide evidence of qualification and experience.	00

STAGE 3– PRICE AND SPECIFIC GOALS

The procedure for Stage 3 of evaluation will be as follows:

- a) PRICE..... 80**
- b) SPECIFIC GOALS 20**

Points Awarded for Price (Ps)

A total of 80 points will be awarded to the Tenderer on the following basis:

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

Where

- Ps = Points scored for price of tender under consideration
- Pt = Price of tender under consideration
- Pmin = Price of lowest acceptable tender

Points awarded for specific goals

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

The specific goals allocated points in terms of this tender	Number of points Allocated on 90/10 system	Number of points Allocated on 80/20 system
51% Black-owned enterprises	04	05
100% Women-owned enterprises	02	05
100% Youth-owned enterprises	02	05
Where the enterprise head office or primary place of business is located within O.R. Tambo District.	02	05

Tenderers must submit copies of all supporting documents necessary to prove conformance with Specific Goal criteria listed above in order to be eligible for Specific Goal points.

SECTION 7: RETURNABLE DOCUMENTS AND SCHEDULES

RETURNABLE DOCUMENTS

Bidders must submit the following documentation with their tenders:

No.	Returnable document	Compulsory (Yes / No)	Non-submission will render Tender non-responsive (Yes / No)
1.	Business registration documents	YES	YES (if proof of its business status and registration cannot be verified on CSD), non-submission will forfeit specific goals points
2.	Municipal account statement not older than 90 days OR proof that bidder leases its business premises (Both business premises and individual directors)	YES	YES
3.	Certified copy of identity documents of directors / shareholders / partners / members, as the case may be	YES	YES (if cannot be verified on CSD),
4.	Signed joint venture or consortium agreement	YES (if applicable)	YES (if applicable)
5.	Company Profile	Yes	NO (However non-submission will affect minimum conditions of tender)

RETURNABLE SCHEDULES

All returnable schedules below must be completed by the bidding entity, save for those schedules which are not applicable to it in which case the bidding entity must indicate which schedules are not applicable.

Bidders must complete the following returnable schedules:

No.	Returnable schedule	Compulsory (Yes / No)	Non-submission will render Tender non-responsive (Yes / No)
1.	Confirmation of registration on the National Treasury Central Supplier Database (Schedule A)	YES	YES
2.	Authority of bid signatory (Schedule B)	YES	YES
3.	Briefing session / site inspection certificate (Schedule C)	YES (if applicable)	YES (if applicable)
4.	Municipal Bidding Documents (Schedule D)		
4.1	MBD 1 – Invitation to bid	YES	NO
4.2	MBD 4 - Declaration form confirming the bidder is not in the service of the state	YES	YES
4.3	MBD 5 - Declaration for procurement above R10 million	YES (if applicable)	YES (if applicable)
4.4	MBD 6.1 - Preference points claim form	YES	YES
4.5	MBD 8 - Declaration of bidders' past supply chain management practices	YES	YES
4.6	MBD 9 - Declaration of independent bid determination	YES	YES
5.	Form of offer (The Contract: Section 3)	YES	YES

SCHEDULE A – CONFIRMATION OF REGISTRATION OF BIDDER ON CENTRAL SUPPLIER DATABASE (CSD)

BIDDER NAME	REGISTERED ON CSD? (YES/NO)	CSD SUPPLIER NUMBER

Bidders are required to register as suppliers on the National Treasury Central Supplier Database (CSD) prior to submission of this bid, and provide their CSD supplier number in the table above.

It is the responsibility of bidders to ensure that this requirement is complied with. In the case of Joint Ventures and Consortia, this requirement will apply to each party to the Joint Venture or Consortium.

BIDDER'S SIGNATURE:

SCHEDULE B: AUTHORITY OF BID SIGNATORY

Indicate the status of the bidder by ticking the appropriate box hereunder with an x.

COMPANY	CLOSE CORPORATION	PARTNERSHIP	SOLE PROPRIETORSHIP

JOINT VENTURE	CONSORTIUM	CO-OPERATIVE

NOTE:
BIDDERS MUST ATTACH A LETTER OF AUTHORITY TO THIS PAGE, AUTHORIZING THE SIGNATORY TO THIS BID TO SIGN ALL DOCUMENTS IN CONNECTION THEREWITH ON BEHALF OF THE BIDDING ENTITY, AS WELL AS SIGN ANY CONTRACT ARISING THEREFROM ON BEHALF OF THE BIDDING ENTITY.

ATTACH LETTER OF AUTHORITY HERE

SCHEDULE C: TENDER BRIEFING / SITE INSPECTION CERTIFICATE

Note: This certificate is only to be completed if applicable to the tender.

CERTIFICATE OF ATTENDANCE

THIS IS TO CERTIFY THAT (NAME) ON BEHALF OF
..... (BIDDING ENTITY), ATTENDED THE OFFICIAL TENDER
BRIEFING SESSION AND / OR SITE INSPECTION ON (DATE) AT
.....
..... (VENUE).

I FURTHER CERTIFY THAT I AM SATISFIED WITH THE DESCRIPTION OF THE SERVICES TO BE PERFORMED AND THE EXPLANATIONS (IF ANY) GIVEN TO ME BY THE MUNICIPALITY'S REPRESENTATIVES. I AM ALSO FAMILIAR WITH THE MANNER IN WHICH THE SERVICES ARE TO BE PERFORMED UNDER THE INTENDED CONTRACT.

.....
BIDDER / AUTHORISED REPRESENTATIVE
(PRINT NAME)

.....
SIGNATURE

.....
DATE

.....
MUNICIPAL REPRESENTATIVE
(PRINT NAME)

.....
SIGNATURE

.....
DATE

SCHEDULE D: MUNICIPAL BIDDING DOCUMENTS (MBDs)

MBD 1

**PART A
INVITATION TO BID**

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF O.R. TAMBO DISTRICT MUNICIPALITY					
BID NUMBER:	ORTDM SCMU 39-25/26	CLOSING DATE:	11 MAY 2026	CLOSING TIME:	12.00PM
DESCRIPTION:	APPOINTMENT OF A PANEL OF SERVICE PROVIDERS FOR MECHANICAL & ELECTRICAL WORKS AND BOREHOLE EQUIPPING FOR 36 MONTHS (3 YEARS) CIDB GRADE 4ME AND 5ME				

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

TENDER BOX, GROUND FLOOR, O.R. TAMBO DISTRICT MUNICIPALITY BUILDING
NELSON MANDELA DRIVE
MYEZO PARK
MTHATHA
EASTERN CAPE

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:		CSD No:	
BUSINESS REGISTRATION DOCUMENTS	<input type="checkbox"/> Yes <input type="checkbox"/> s <input type="checkbox"/> No		STATEMENT OF RATES AND TAXES	<input type="checkbox"/> Yes <input type="checkbox"/> s <input type="checkbox"/> No

[BUSINESS REGISTRATION DOCUMENTS AND STATEMENT OF RATES AND TAXES) MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR PREFERENCES]

ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	<input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES ENCLOSE PROOF]	ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES /WORKS OFFERED?	<input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES, ANSWER PART B:3]
--	---	---	--

TOTAL NUMBER OF ITEMS OFFERED		TOTAL BID PRICE	R
--------------------------------------	--	------------------------	----------

SIGNATURE OF BIDDER	DATE	
CAPACITY UNDER WHICH THIS BID IS SIGNED			
BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO:		TECHNICAL INFORMATION MAY BE DIRECTED TO:	
DEPARTMENT	SCM DEPARTMENT	CONTACT PERSON	LUTHANDO MASHIYA
CONTACT PERSON	SAKHIWO HOPA	TELEPHONE NUMBER	047 501 6492
TELEPHONE NUMBER	047 501 6449	FACSIMILE NUMBER	N/A
FACSIMILE NUMBER	N/A	E-MAIL ADDRESS	mashiyal@ortambodm.gov.za
EMAIL ADDRESS	sakhiwoh@ortambodm.org.za		

**PART B
TERMS AND CONDITIONS FOR BIDDING**

1. BID SUBMISSION:	
1.1.	BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
1.2.	ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED–(NOT TO BE RE-TYPED).
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)? <input type="checkbox"/> YES <input type="checkbox"/> NO
3.2.	DOES THE ENTITY HAVE A BRANCH IN THE RSA? <input type="checkbox"/> YES <input type="checkbox"/> NO
3.3.	DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA? <input type="checkbox"/> YES <input type="checkbox"/> NO
3.4.	DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA? <input type="checkbox"/> YES <input type="checkbox"/> NO
3.5.	IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION? <input type="checkbox"/> YES <input type="checkbox"/> NO
IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 ABOVE.	

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

SIGNATURE OF BIDDER:

CAPACITY UNDER WHICH THIS BID IS SIGNED:

DATE:

MBD 4

DECLARATION OF INTEREST

1. No bid will be accepted from persons in the service of the state¹.
2. Any person, having a kinship with persons in the service of the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid. In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons connected with or related to persons in service of the state, it is required that the bidder or their authorised representative declare their position in relation to the evaluating/adjudicating authority.
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 bidder or his or her representative:.....

3.2 Identity Number:

3.3 Position occupied in the Company (director, trustee, shareholder²):
.....

3.4 Company Registration 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.....
.....

¹ 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.

² 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**

3.9.1 If yes, furnish particulars.....

.....

3.10 Do you have any relationship (family, friend, other) with persons in the service of the state and who may be involved with the evaluation and or 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 any other bidder and any persons in the service of the state who may be involved with the evaluation and or adjudication of this bid?..... **YES / NO**

3.11.1 If yes, furnish particulars.....

.....

3.12 Are any of the company's directors, trustees, managers, principle shareholders or stakeholders in service of the state? **YES / NO**

3.12.1 If yes, furnish particulars

.....

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

3.13.1 If yes, furnish particulars.....

.....

3.14 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?. **YES / NO**

3.14.1 If yes, furnish particulars

.....

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

Full name	Identity number	State employee number

.....
Signature

.....
Date

.....
Capacity

.....
Name of Bidder

MBD 5

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:

NO.	QUESTION	ANSWER (TICK WHICH RESPONSE IS APPLICABLE)	
		YES	NO
1.	Are you by law required to prepare annual financial statements?		
1.1	If yes, submit audited annual financial statements for the past three years or since the date of establishment if established during the last 3 years.		

NO.	QUESTION	ANSWER (TICK WHICH RESPONSE IS APPLICABLE)	
		YES	NO
2.	Do you have any outstanding undisputed commitments for municipal services towards any municipality for more than 3 months or any other service provider in respect of which payment is overdue for more than 30 days?		
2.1	If no, this serves to certify that the bidder has no undisputed commitments for municipal services towards any municipality for more than 3 months or other service provider in respect of which payment is overdue for more than 30 days.		
2.2	If yes, provide details:		

NO.	QUESTION	ANSWER (TICK WHICH RESPONSE IS APPLICABLE)	
		YES	NO
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?		
3.1	If yes, provide details:		

NO.	QUESTION	ANSWER (TICK WHICH RESPONSE IS APPLICABLE)	
		YES	NO
4.	Will any portion of the goods of services be sourced from outside the Republic, and if so, what portion, and whether any portion of payment from the municipality is expected to be transferred outside of the Republic?		
4.1	If yes, provide details:		

CERTIFICATION

I, THE UNDERSIGNED (NAME)

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

I ACCEPT THAT THE STATE MAY ACT AGAINST ME SHOULD THIS THIS DECLARATION PROVE TOBE FALSE.

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

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

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

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

1. GENERAL CONDITIONS

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

- 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 To be completed by the organ of state

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

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

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

1.4 To be completed by the organ of state:

The maximum points for this tender are allocated as follows:

	POINTS	POINTS
PRICE	80	90
SPECIFIC GOALS	20	10
Total points for Price and SPECIFIC GOALS	100	100

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

1.6 The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

2. DEFINITIONS

- (a) **“tender”** means a written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation;
- (b) **“price”** means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;
- (c) **“rand value”** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;
- (d) **“tender for income-generating contracts”** means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and
- (e) **“the Act”** means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. POINTS AWARDED FOR PRICE

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

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

$$\begin{array}{ccc}
 \mathbf{80/20} & \mathbf{or} & \mathbf{90/10} \\
 \\
 P_s = 80 \left(1 - \frac{Pt - P_{min}}{P_{min}} \right) & \mathbf{or} & P_s = 90 \left(1 - \frac{Pt - P_{min}}{P_{min}} \right)
 \end{array}$$

Where

- P_s = Points scored for price of tender under consideration
- P_t = Price of tender under consideration
- P_{min} = Price of lowest acceptable tender

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

3.2.1. POINTS AWARDED FOR PRICE

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

$$\begin{array}{ccc}
 \mathbf{80/20} & \mathbf{or} & \mathbf{90/10} \\
 \\
 P_s = 80 \left(1 + \frac{Pt - P_{max}}{P_{max}} \right) & \mathbf{or} & P_s = 90 \left(1 + \frac{Pt - P_{max}}{P_{max}} \right)
 \end{array}$$

Where

Pmax = Price of highest acceptable tender

4. POINTS AWARDED FOR SPECIFIC GOALS

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

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

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

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

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

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

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

The specific goals allocated points in terms of this tender	Number of points Allocated on 90/10 system	Number of points Allocated on 80/20 system
51% Black-owned enterprises	04	05
100% Women-owned enterprises	02	05
100% Youth-owned enterprises	02	05
Where the enterprise head office or primary place of business is located within O.R. Tambo District.	02	05

DECLARATION WITH REGARD TO COMPANY/FIRM

4.3. Name of company/firm.....

4.4. Company registration number:

4.5. TYPE OF COMPANY/ FIRM

- Partnership/Joint Venture / Consortium
 - One-person business/sole propriety
 - Close corporation
 - Public Company
 - Personal Liability Company
 - (Pty) Limited
 - Non-Profit Company
 - State Owned Company
- [TICK APPLICABLE BOX]

4.6. I, the undersigned, who is duly authorized to do so on behalf of the company/firm, certify that the points claimed, based on the specific goals as advised in the tender, qualifies the company/ firm for the preference(s) shown and I acknowledge that:

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;
- iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –
 - (a) disqualify the person from the tendering process;
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
 - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favorable arrangements due to such cancellation;
 - (d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and
 - (e) forward the matter for criminal prosecution, if deemed necessary.

..... SIGNATURE(S) OF TENDERER(S)	
SURNAME AND NAME:
DATE:
ADDRESS:

MBD 8

DECLARATION OF BIDDER’S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

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

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

4.2.1	If so, furnish particulars:		
		<input type="checkbox"/>	<input type="checkbox"/>
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:		
		<input type="checkbox"/>	<input type="checkbox"/>
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 <input type="checkbox"/>	No <input type="checkbox"/>
4.7.1	If so, furnish particulars:		

CERTIFICATION

I, THE UNDERSIGNED (FULL NAME)..... CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS TRUE AND CORRECT.

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

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

MBD 9

CERTIFICATE OF INDEPENDENT BID DETERMINATION

- 1 This Municipal Bidding Document (MBD) must form part of all bids¹ invited.

- 2 Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging).² Collusive bidding is a *pe se* prohibition meaning that it cannot be justified under any grounds.

- 3 Municipal Supply Regulation 38 (1) prescribes that a supply chain management policy must provide measures for the combating of abuse of the supply chain management system, and must enable the accounting officer, among others, to:
 - a. take all reasonable steps to prevent such abuse;
 - b. reject the bid of any bidder if that bidder or any of its directors has abused the supply chain management system of the municipality or municipal entity or has committed any improper conduct in relation to such system; and
 - c. cancel a contract awarded to a person if the person committed any corrupt or fraudulent act during the bidding process or the execution of the contract.

- 4 This MBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of 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.

MBD 9

CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

ORTDM SCMU 39-25/26: APPOINTMENT OF A PANEL OF SERVICE PROVIDERS FOR MECHANICAL & ELECTRICAL WORKS AND BOREHOLE EQUIPPING FOR 36 MONTHS (3 YEARS) CIDB GRADE 6ME AND 7ME

O.R. Tambo District Municipality

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 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 quotation 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 this invitation; or
 - (f) submitting a bid 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 bid.

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

This form must be completed by the authorized persons of the bidder's current or previous clients. The form must be fully completed, signed and stamped. Forms which are neither complete, nor signed nor stamped will not be considered for evaluation.

1. REFERENCE FOR THE BIDDER

Name of Institution (Client)	
Contract/ Tender Number	
Contract Description	
Name of Service Provider (Bidder)	
Value of Project	
Commencement Date	
Contractual Completion Date	
Bidder's Completion Date	

1.1 Please score the performance of the above-mentioned company by marking the relevant box

Performance Rating			Comments
Work performed in compliance with contract term	Excellent	5	
	Good	4	
	Fair	3	
	Poor	2	
Timelines of work are met	Excellent	5	
	Good	4	
	Fair	3	
	Poor	2	
Quality of service	Excellent	5	
	Good	4	
	Fair	3	
	Poor	2	
Communication and accessibility	Excellent	5	
	Good	4	
	Fair	3	
	Poor	2	
Would you recommend using this service provider in future	Yes	No	If no, please provide reasons:

OVERALL PERFORMANCE

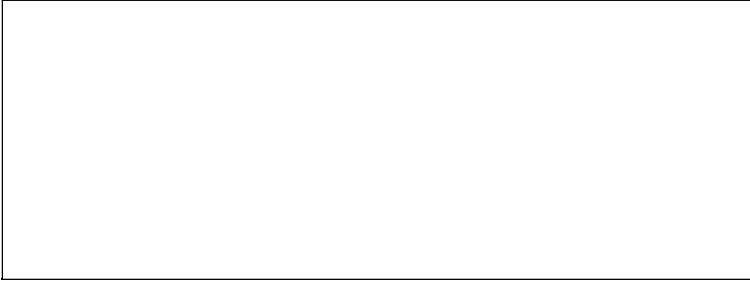
Excellent		Good		Fair		Poor	
-----------	--	------	--	------	--	------	--

Name of the Authorized Person _____ Designation _____

Signature _____

Date _____

Official Stamp



SCHEDULE G – SCHEDULE OF CURRENT PROJECTS

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

Description	Value (R) VAT excluded	Date Appointed	Reference		
			Name	Organisation	Tel no

Name of Tenderer:

Date:

Signature:

Full name of signatory:

THE CONTRACT

C1 AGREEMENTS AND CONTRACT DATA

- C1.1 Form of Offer and Acceptance
- C1.2 Contract Data
- C1.3 Special Conditions
- C1.4 Occupational Health and Safety Agreement
- C1.5 Supply Chain Management Policy

FORM C1.1 FORM OF OFFER AND ACCEPTANCE

OFFER

The Employer, identified in the Acceptance signature block, has solicited offers to enter into a contract in respect of the following works: **PROJECT NO.: ORTDM SCMU 39-25/26: APPOINTMENT OF A PANEL OF SERVICE PROVIDERS FOR MECHANICAL & ELECTRICAL WORKS AND BOREHOLE EQUIPPING FOR 36 MONTHS (3 YEARS) CIDB GRADE 6ME AND 7ME.**

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

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

.....

.....

..... Rand (in words); R..... (in figures).

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

Signature(s) _____

Name(s) _____

Capacity _____

For the tenderer _____
(Name and address of organisation)

Name & Signature
Of Witness _____
Name

_____ 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 1 Agreements and Contract Data (which includes this Agreement)
- Part 2 Pricing Data
- Part 3 Scope of Work
- Part 4 Site information
- Part 5 Additional Relevant Documentation
- Part 6 Contract Drawings

and drawings and documents or parts thereof, which may be incorporated by reference into Parts 1 to 6 above.

Deviations from and amendments to the documents listed in the Tender Data, including the proposed key personnel and any addenda thereto listed in the Tender Schedules as well as any changes to the terms of the Offer agreed by the Tenderer and the Employer during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Agreement. No amendments to or deviations from said documents are valid unless contained in this Schedule, which must be duly signed by the authorised representative(s) of both parties.

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

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

Signature(s) _____

Name(s) _____

Capacity _____

For the tenderer _____
(Name and address of organisation)

Name & Signature
Of Witness _____

Name

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 becomes 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 _____

FORM C1.2 CONTRACT DATA

PART C1.2 DATA PROVIDED BY THE EMPLOYER

Notes to Tenderer:

1. The Tenderer is not required to complete this data in full.
2. Please read both the General Conditions of Contract for Construction Works, Third Edition, 2015. (GCC 2015) and the relevant parts of its Guidance Notes to understand the implications of this Data which the tenderer is required to complete.
3. Copies of these conditions of contract may be obtained from the South African Institution of Civil Engineering www.saice.org.za
4. The number of the clause which requires the data is shown in the left-hand column for each statement; however, other clauses may also use the same data
5. Each item of data given below is cross-referenced to the clause in the General Conditions of Contract for Construction Works to which it mainly applies.
6. The General Conditions of Contract for Construction Works make several references to the Contract Data for specific data, which together with these conditions collectively describe the risks, liabilities, and obligations of the contracting parties and the procedures for the administration of the Contract. The Contract Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the general conditions of contract.
7. The General Conditions of Contract shall be read in conjunction with the variations, amendments and additions set out in the Contract Data below. Each item of data given below is cross – referenced to the clause in the General Conditions of Contract to which it mainly applies
8. The following contract specific data are applicable to this Contract:

Clause	Statement	Data
	The <i>conditions of contract</i> are	The General Conditions of Contract for Construction Works, Third Edition, 2015. (GCC 2015)
1		General
1.1.1.13	<i>Defects Liability Period</i> is	12 months after the Completion Date
1.1.1.14	<i>Due Completion Date</i> is	5 months from the access date (as described in clause 5.4.1)
1.1.1.15	The <i>Employer</i> is	O. R. Tambo District Municipality
1.1.1.16	The <i>Employer's Agent</i>	To which this <i>Contract</i> relates shall be the delegated individual specified in writing by the Employer within seven days of the commencement date.
1.1.1.17	The <i>Employer's Agent Representative</i>	To which this <i>Contract</i> relates shall be the delegated individual specified in writing by the Employer's Agent within seven (7) days of the commencement date.
1.1.1.26	The <i>Pricing Strategy</i> is	<i>A re-measurement contract</i>
1.1.1.29	The <i>Site</i> is	All Areas within the boundaries of O.R. Tambo District Municipality
1.1.1.30	The <i>Site Information</i> is	Specified in Part C4: Site Information of this document
1.1.1.33	The <i>Works</i> are	Specified in Part C3: Employer's Works Information of this document

1.2.1	The <i>Employer's</i> delivery address is	O. R. Tambo District Municipality
	Physical Address	O. R. Tambo House Nelson Mandela Drive Mthatha 5100
	Postal Address	Private Bag X 6043 Mthatha 5100
	Email Address	Shall be specified by the <i>Employer</i> within Seven days of the commencement date.
1.3.2	The law of the contract is the law of	the Republic of South Africa that applies to agreements executed and wholly performed within the Republic of South Africa
1.3.3	The <i>language of this Contract</i> is	English
3		Employer's Agent
3.2.3	The <i>Employer's Agent</i> shall first consult and obtain specific approval, As and when there is Employers Agent included in Specific Works Allocated	from the <i>delegated</i> Employer's Agent: prior to executing any of its functions or duties, with respect to following clauses: <ol style="list-style-type: none"> 1. All the <i>Employer Agent's</i> actions as contemplated in Clause 3.3.1 2. All the <i>Employer Agent's</i> actions as contemplated in Clause 3.3.4 3. All the <i>Employer Agent's</i> actions as contemplated in Clause 5.11.1 4. All the <i>Employer Agent's</i> actions as contemplated in Clause 5.12.4 5. All the <i>Employer Agent's</i> actions as contemplated in Clause 6.4.1 6. All the <i>Employer Agent's</i> actions as contemplated in Clause 10.1.5 7. All the <i>Employer Agent's</i> actions as contemplated in Clause 10.2.3
3.2.4	The <i>Employer's Agent</i> for Health and Safety	To which this Contract relates shall be the delegated individual specified in writing by the Employer's Agent within seven days of the commencement date.
3.2.4	The <i>Employer's Agent</i> for Social Facilitation	To which this Contract relates shall be the delegated individual specified in writing by the Employer's Agent within seven days of the commencement date.
5		Time and Related Matters

5.1.1	The special non-working days set out in the <i>Contract</i> are	the following: 1. South African Public Holidays, and 2. Annual builders' holiday traditionally starts on or around 15 December and ends in the second week of January.
5.3.1	The <i>Engineer's Agent</i> shall issue an <i>instruction</i> to the Contractor to commence with the Work	On approval of the following documentation: 1. Health and Safety Plan 2. OHS Agreement 3. Department of Labour (DoL) notification of construction work 4. Initial Programme 5. Letter of Good Standing 6. Performance Guarantee 7. Insurance for the Works 8. Contractor's Key Personnel Which will be within 07 days after the approval of the Documentation required from the Contractor
5.3.2	The Contractor is to Submit the documentation stipulated in clause 5.3.1	Within 07 days of the Commencement Date
5.4.1	Access to and possession to the Site	is granted on the date of the site handover meeting which should occur no later than Seven (07) days after Employer's Agent's instruction to commence carrying out the Works referred to in Clause 5.3.1.
5.8.1	The non-working days set out in the <i>Contract</i> are The special non-working days set out in the <i>Contract</i> are	weekends the following: 1. all South African gazetted public holidays, and 2. Annual builders' holiday traditionally starts on / or around 15 December and ends in the second week of January. The year-end builders' holiday does not exceed 15 Working days in duration
5.12.1	Extension of time for practical completion due to abnormal climatic conditions shall be calculated according to the requirements of the following equation.	$V = (Nw - Nn) + \frac{(Rw - Rn)}{X}$ <p>Where:</p> <p>V = Extension of time in calendar days in respect of the calendar month under consideration.</p> <p>Nw = Actual number of days during the calendar month on which rainfall of 10mm or more has been recorded.</p> <p>Nn = Average number of days in the relevant calendar month, as derived from existing rainfall records, as stated below, on which rainfall of 10 mm or more has been recorded for the calendar month;</p> <p>Rw = Actual rainfall in mm recorded for the calendar month under consideration; and</p> <p>Rn = Average rainfall in mm for the calendar month as derived from existing rainfall records as stated in the Site Information.</p>

		<p>X = The number of days per month on which work is expected not to be possible as a result of abnormal rainfall are as per the table below.</p> <table border="1"> <thead> <tr> <th>MONTH</th> <th>EXPECTED NUMBER OF WORKING DAYS LOST AS A RESULT OF ABNORMAL RAINFALL</th> </tr> </thead> <tbody> <tr><td>January</td><td>7</td></tr> <tr><td>February</td><td>5</td></tr> <tr><td>March</td><td>4</td></tr> <tr><td>April</td><td>3</td></tr> <tr><td>May</td><td>2</td></tr> <tr><td>June</td><td>2</td></tr> <tr><td>July</td><td>2</td></tr> <tr><td>August</td><td>2</td></tr> <tr><td>September</td><td>4</td></tr> <tr><td>October</td><td>5</td></tr> <tr><td>November</td><td>5</td></tr> <tr><td>December</td><td>6</td></tr> </tbody> </table>	MONTH	EXPECTED NUMBER OF WORKING DAYS LOST AS A RESULT OF ABNORMAL RAINFALL	January	7	February	5	March	4	April	3	May	2	June	2	July	2	August	2	September	4	October	5	November	5	December	6
MONTH	EXPECTED NUMBER OF WORKING DAYS LOST AS A RESULT OF ABNORMAL RAINFALL																											
January	7																											
February	5																											
March	4																											
April	3																											
May	2																											
June	2																											
July	2																											
August	2																											
September	4																											
October	5																											
November	5																											
December	6																											
5.13.1	The penalty for delay or late completion is	<p>If the Contractor fails by the Due Completion Date to complete the Works, or any specific portion thereof that is identified in the Scope of Works to the extent which entitles him in terms of Clause 5.14.2 to receive a Certificate of Practical Completion for the Works, then the Contractor shall be liable to the Employer for the sum(s) stated below as (a) penalty/ies for every day which shall elapse between the Due Completion Date for the Works or the specific portion of the Works and the actual Date of Practical Completion of the Works or of the specific portion. The penalty for delay shall be R5 000 or 0.02% of the Contract Value (excluding VAT) per day; whichever is the higher value."</p>																										
6		Payment and related matters																										
6.2.1	The performance guarantee for liability of the Contractor for claims made against the Contractor arising out of the Contractor's failure to deliver the requested Works per the standards, practices, methods and procedures conforming to applicable laws and exercising that degree of skill, care, diligence, prudence and foresight that would reasonably and ordinarily be expected from a skilled and experienced person engaged in a similar type of undertaking under similar circumstance is	10% of the Contract Price																										
6.2.2	The security of ten percent retention of the value of the Works	<i>Shall be deducted from the Contractor's first three payment certificates in equal increments as per the SCM Policy.</i>																										

6.8.2	Contract Price Adjustment Factor	is not applicable for this contract
6.10.1.5	The advance payment percentage limit for plant and materials delivered to <i>Site</i> but not yet built into the <i>Permanent Works</i> is	80% of the value of the materials.
6.10.1.5	The advance payment percentage limit for plant and materials not yet supplied to <i>Site</i>	is not applicable for this contract
6.10.3	The percentage retention is	10% of the value of the Works
6.10.3	The limit of retention money is	10% of the value of the Works
8		Risks and related matters
8.6.1.1.2	The value of plant and materials supplied by the Employer to be included in the insurance sum is	NIL
8.6.1.3	The minimum limit of indemnity for insurance in respect of loss of or property damage (except for the <i>Works</i> , Plant and Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the <i>Contractor</i>) caused by activity in connection with this <i>Contract</i> for any one event is:	R5,000,000
8.6.1.5	a) The minimum limit of indemnity for insurance in respect of loss or damage to the <i>Works</i> , Plant and Materials	The replacement cost thereof.
	b) The minimum limit of indemnity for insurance in respect of the death of or bodily injury to employees of the <i>Contractor</i> arising out of and in the course of their employment in connection with this <i>Contract</i> for any one event is	As prescribed by the Compensation for Occupational Injuries and Diseases Act No. 130 of 1993 and the <i>Contractor's</i> common-law liability for people falling outside the scope of the Act with a limit of indemnity of not less than R1 000 000 (One Million South African Rand).
10		Claims and disputes
10.5.3	The Adjudication Board shall consist of	one (1) member
10.7.1	The determination of disputes shall be by arbitration	
10.7.2	The arbitration procedure is	the latest edition of Rules for the Conduct of Arbitrations published by the Association of Arbitrators (Southern Africa) or its successor body.
	The place where arbitration is to be held is	Mthatha
	The person who shall choose an arbitrator	the Chairman of the Association of Arbitrators (www.arbitrators.co.za) or its successor body.

PART C1.2.3 DATA PROVIDED BY THE CONTRACTOR		
Notes to Tenderer:		
9. The Tenderer is required to complete this data in full.		
10. Please read both the General Conditions of Contract for Construction Works, Third Edition, 2015.(GCC 2015) and the relevant parts of its Guidance Notes to understand the implications of this Data which the tenderer is required to complete.		
11. The number of the clause which requires the data is shown in the left-hand column for each statement; however, other clauses may also use the same data		
CLAUSE	STATEMENT	DATA
	The <i>conditions of contract</i> are	The General Conditions of Contract for Construction Works, Third Edition, 2015. (GCC 2015)
1		General
1.1.1.9	<i>The Contractor is</i>	_____
1.2.1	The Contractor's delivery address is	
	Physical Address	_____
	Postal Address	_____ _____
	Email Address	_____
4.4.2	The <i>Contractor</i> must Sub-Contract any parts of the Contract.	To which this Contract relates that a portion of the Value of the Works must be Sub-Contracted to a Local SMME or the Designated Groups as agreed during the Procurement of the Sub-Contractors is 10% .
4		Contractor's General Obligations
4.10.2	Contractor shall provide monthly reports outlining compliance with	Site progress and Employer's CPG and EPWP objectives at intervals specified in Part C3: Employer's Works Information of this document.
4.11.1	<i>Contractor's</i> Competent Employees are:	
	Title	Construction Manager
	Name	
	Qualifications	
	Tel No	
	Email	_____

	Title	Site Agent
	Name	
	Qualifications	
	Tel No	
	Email	_____
	Title	Construction Site Foreman
	Name	
	Qualifications	
	Tel No	
	Email	_____
	Title	Safety Officer
	Name	
	Qualifications	
	Tel No	
	Email	_____
	SACPMP Registration Number	
4.12.2	Contractor's Superintendence:	The Contractor's Site Agent, Site Foreman and Safety Officer MUST be on site at all times when work is being performed. No work may be performed without these persons being on site.
Should the Contractor decide to use other Personnel rather than the one's listed above, must do it in writing, and the proposed Personnel must have the same or very similar Qualifications and experience		
<u>Security</u>		
6.2.1	The security to be provided by the Contractor shall be one of the following:	
	Type of security	Select (Tick)
	1. Cash Deposit of 10% of the Contract Sum plus retention of 10% of the value of Works	
	2. Fixed Performance Guarantee of 10% of the Contract Sum plus retention of 10% of the value of Works	
	Note A	
	The Performance Guarantee shall be of an Insurance Company listed on the Johannesburg Stock Exchange or owned by such a company, a Registered South African Bank or a recognised government sponsored, provincial or national development agency	

PART C1.4 SPECIAL CONDITIONS OF CONTRACT

Notes to Tenderer:

1. Particular Conditions of the Contract defines conditions that are specific to a Project.
2. The Particular Conditions of the Contract are used for addition/ omission and change of General Conditions of the Contract.
3. The number of the clause which requires the data is shown in the left-hand column for each statement; however, other clauses may also use the same data

Clause	Statement	Data
		Amendment of GCC 2015 Clauses
	<i>Employer's SCM Policy</i>	
	<i>Insertion of additional clause</i>	<p>The parties agree that this contract shall be subject to the Employer's Supply Chain Management Policy (SCM Policy') that was applicable on the date the bid was advertised.</p> <p>Abuse of the supply chain management system is not permitted and may result in cancellation of the contract, restriction of the supplier, and/or the exercise by the Employer of any other rights and remedies available to it as described in the SCM Policy</p>
	<i>Ambiguity and discrepancy</i>	
	Insertion of additional wording:	<p>All parts of the Contract should be read together and that their original purpose is to be mutually explanatory. However, if there is a discrepancy between the information provided, the order of priority of contract documents is as stated below:</p> <ol style="list-style-type: none"> 1. the Contract Agreement 2. the Letter of Acceptance (this is the formal acceptance of the contractor's tender and usually presents the point in time when Contractual Parties enter the Contract), 3. the Contract Data, 4. the Particular Conditions of the Contract 5. the General Conditions of the Contract, 6. the Specification, 7. the Drawings, and 8. the Schedules and any other document forming part of the Contract <p>In the event of a discrepancy or ambiguity, the document of higher priority takes precedence.</p>
	<i>Assignment</i>	
	Delete wording and replace with the following:	<p>The Employer will, at all times, be entitled to cede its rights and/or delegate its obligations under this Contract and/or assign this Contract to any financier and/or nominee of any financier of the Employer for purposes of the programme. Any cession and/or delegation and/or assignment by the Employer to any such financier or nominee of any financier is expressly permitted. The Contractor shall, if requested thereto by the Employer and/or any such financier, sign a separate authority giving effect to the aforementioned in such form as the Employer and/or any financier of the Employer may reasonably require</p>

	<p>The Employer will, at all times, be entitled to cede its rights and/or delegate its obligations under this Contract and/or assign this Contract to any financier and/or nominee of any financier of the Employer for purposes of the programme. Any cession and/or delegation and/or assignment by the Employer to any such financier or nominee of any financier is expressly permitted. The Contractor shall, if requested thereto by the Employer and/or any such financier, sign a separate authority giving effect to the aforementioned in such form as the Employer and/or any financier of the Employer may reasonably require</p>
	<p>The Contractor shall not be entitled to cede any of its rights and/or delegate any of its obligations under this <i>Contract</i> to any person without the prior written consent of the <i>Employer</i>.</p>
<p><i>Access to and possession of Site</i></p>	
<p>Insertion of additional wording:</p>	<p>The Employer allows access to, possession and use of each part of the Site to the <i>Contractor</i> which is necessary for the work included in this contract. The <i>Employer</i> shall grant access and use of the Site no later than seven days after <i>Employer's Agent's</i> instruction to commence with the Works.</p> <p>If the <i>Employer</i> does not give the <i>Contractor</i> access to, possession and use of the <i>Site</i> within seven days of the <i>Employer's Agent</i> instruction to commence with the Works, access to, possession and use of the <i>Site</i> shall be as the date when <i>Employer's Agent</i> instructed the <i>Contractor</i> to commence with the Works.</p>
<p><i>Some reasons for extension of time</i></p>	
<p>Insertion of additional wording:</p>	<p>No extension of time will be granted in respect of any delays attributed to normal climatic conditions. Normal climatic conditions shall be deemed to include normal rainfall and associated wet conditions and materials, strong winds and extremes of temperature. However, in the event that delays to critical activities exceed the number of working dates listed below for each month, then abnormal climatic conditions shall be deemed to exist, and an extension of time may be claimed in accordance with the provisions of clause 5.12</p> <p>The number of days quoted below shall be regarded as fair estimate of the delays to be anticipated and allowed for under normal climatic conditions where inclement weather prevents or disrupts critical work</p>

MONTH	EXPECTED NUMBER OF WORKING DAYS LOST AS A RESULT OF ABNORMAL RAINFALL
JANUARY	7
FEBRUARY	5
MARCH	4
APRIL	3
MAY	2
JUNE	2
JULY	2
AUGUST	2
SEPTEMBER	4
OCTOBER	5
NOVEMBER	5
DECEMBER	6
TOTAL	47

Claims for delays for abnormal climatic conditions shall be accompanied by substantiating facts and evidence, which shall be submitted timeously as each day or half-day is experienced.

It shall be noted that where the critical path is not affected, no extension of time for abnormal climatic conditions or for any other reason will be considered

Termination by the Employer

Insertion of additional wording

- 9.2.1.3.9 Has substantially broken a health or safety regulation.
- 9.2.1.3.10 Failure to obtain access to Site due to non-compliant documentation as stated in clause 5.3.1
- 9.2.1.3.11 Has failed to provide or update the required insurances within the prescribed time

- 9.2.1.4 Where the *Works* are no longer required
- 9.2.1.5 Where the funding for the *Works* is no longer available
- 9.2.1.6 An event occurs that stops the Contractor from completing the works by the date shown on the Accepted Programme and is forecast to delay Completion by more than 13 weeks
- 9.2.1.7 The Service Provider becomes insolvent or Liquidated
- 9.2.1.8 If as a result of Force Majeure, the Service provider is unable to perform part or the whole service for a period of thirty 30 days.

Right of Retention

The *Contractor* hereby waives and abandons any and all lien and/or any other right of retention that the *Contractor* now has or in future may have, in terms of the Contract, the common law or otherwise, in respect of the works, the Site or any property belonging to the *Employer* and shall under no circumstances be entitled to withhold delivery of the same to the *Employer*. The Contractor warrants that all Subcontractors shall, mutatis mutandis, waive and abandon any such Subcontractor's lien or any other right of retention, in favour of the *Employer*.

Joint Ventures	
Suppose the <i>Contractor</i> constitutes a joint venture, consortium, or other unincorporated groupings of two or more persons or organizations. In that case, these persons or organizations are deemed to be jointly and severally liable to the <i>Employer</i> for the performance of this <i>Contract</i> .	
Unless already notified to the <i>Employer</i> , the persons or organizations notify the <i>Employer's</i> Agent within two weeks of the date of acceptance of the <i>Contract</i> of the key person who has the Authority to bind the <i>Contractor</i> on their behalf.	
The <i>Contractor</i> does not alter the composition of the joint venture, consortium, or other unincorporated groupings of two or more persons without the consent of the <i>Employer</i> having been given to the <i>Contractor</i> in writing.	
Nothing in this <i>Contract</i> shall be deemed to create any joint venture, partnership or principal-agent relationship between the Parties and neither Party shall hold itself out in its advertising or otherwise in any manner which would indicate or imply such relationship with the other Party according to this <i>Contract</i>	
The dissolution of the <i>Joint Venture</i> shall be deemed as a separation and that constitutes the <i>Contract</i> to be Terminated	
Illegal or Corrupt Practices	
Any offer, payment, consideration, or benefit of any kind made by the <i>Contractor</i> , which constitutes or could be construed either directly or indirectly as an illegal or corrupt practice, an inducement or reward for the award or in the execution of this <i>Contract</i> constitutes grounds for terminating the <i>Contractor's</i> obligation to Provide the Works or taking any other action as appropriate against the <i>Contractor</i> (including civil or criminal action).	
The Employer may terminate the <i>Contractor's</i> obligation to provide the Works if the <i>Contractor</i> (or	
	any member of the <i>Contractor</i> where the <i>Contractor</i> constitutes a joint venture, consortium or other unincorporated groupings of two or more persons or organisations), or a director of any such entity, is found guilty by a competent court, administrative or regulatory body of participating in illegal or corrupt practices.
SCC4.3	Such practices include, but are not limited to, the making of offers, payments, considerations, or benefits of any kind or otherwise, whether in connection with any procurement process or contract with the Employer or other people or organisations and including in circumstances where the <i>Contractor</i> or any such member is removed from the approved vendor database of the <i>Employer</i> as a consequence of such practice.
Confidentiality	
	The <i>Contractor</i> does not disclose or make any information arising from or in connection with this <i>Contract</i> available to Others. This undertaking does not, however, apply to information which at the time of disclosure or thereafter, without default on the part of the <i>Contractor</i> , enters the public domain or to information which was already in possession of the <i>Contractor</i> at the time of disclosure (evidenced by written records in existence at that time). Should the <i>Contractor</i> disclose information to Others in terms of clause 25.1, the <i>Contractor</i> ensures that the provisions of this clause are complied with by the recipient.
	Any information communicated by the <i>Employer</i> to the <i>Contractor</i> in connection with the <i>Contract</i> and any secret and/or confidential information of the <i>Employer</i> otherwise acquired by the <i>Contractor</i> shall be regarded by the <i>Contractor</i> as strictly confidential and shall not, without the prior written consent of the <i>Employer</i> in each instance, be published or disclosed to any other party or be used for any purpose whatsoever other than to execute the Works.
	If the <i>Contractor</i> is uncertain about whether any such information is confidential, it is to be regarded as such until notified otherwise in writing by the <i>Employer's Agent</i> .
	Suppose the <i>Contractor</i> is, at any time, required by law to disclose any such information which is required to be kept confidential. In that case, the <i>Contractor</i> , to the extent permitted by law before disclosure, notifies the <i>Employer</i> so that an appropriate protective order and/or any other action can be taken if possible, before any disclosure. If such protective order is not, or cannot, be obtained, then the <i>Contractor</i> may only disclose that portion of the information which it is required to be disclosed by law and uses reasonable efforts to obtain assurances that confidential treatment shall be afforded to the information so disclosed.

	The taking of images (whether photographs, video footage or otherwise) of the works or any portion thereof, in the course of Providing the Works and after Completion, requires the prior written consent of the <i>Employer's Agent</i> . All rights in and to all such images vests exclusively in the <i>Employer</i> .
	The Contractor ensures that all his subcontractors abide by the undertakings in this clause.
	Existing Services and Housekeeping
	The Site may be in continuous operation and, accordingly, the <i>Contractor</i> shall assume that existing services and access ways shall be in continuous use and fully operational at all times.
	The Contractor shall be held responsible for repair or making good of existing installations that may be required due to any act or omission of whatever nature by the <i>Contractor</i> and for any costs to the <i>Employer</i> which may arise, due to the <i>Contractor</i> preventing in any manner whatever the normal operation and use of such services and access ways.
	During the execution of the Works, the <i>Contractor</i> shall keep the Site reasonably free from all unnecessary obstructions and shall store or dispose of any <i>Contractor's</i> Equipment and surplus materials and without delay clear away and remove from the Site any wreckage, rubbish or temporary works no longer required.
	The <i>Contractor</i> must use and/or attend to all areas of the Site which are used by it or under its control from time to time in a safe, professional and responsible manner.
	The Contractor shall be responsible for all areas of the Site which are used by it or under its control from the time the area in question is made available to the <i>Contractor</i> until the time the <i>Employer</i> requires the Site to be returned to it or otherwise when the <i>Contractor</i> demobilises from the area of the Site in question and returns to the <i>Employer</i> all of the <i>Employer's</i> property.
	The <i>Contractor</i> must ensure that all such areas of the Site are kept at all times in a safe, clean and hygienic condition and in good working order and repair and the <i>Contractor</i> shall promptly repair, at its cost, any damage to the Site which is attributable to the <i>Contractor</i> or its employees of sub-contractors, failing which the <i>Employer</i> shall be entitled to repair the Site and recover the cost of such repairs from the <i>Contractor</i> .
	Any damages suffered by the <i>Employer</i> as aforesaid shall be paid by the <i>Contractor</i> within ten business days or shall be set off against any amounts owing to the <i>Contractor</i> by the <i>Employer</i> .
	The <i>Contractor</i> shall not unnecessarily interfere with the operations of the <i>Employer</i> or Others at the Site. The <i>Employer</i> has the right to refuse access to the Site to any of the <i>Contractor's</i> employees, representatives and/or subcontractors whom it suspects of being a health and safety or other risk.
	The Contractor shall not have any lien or right of retention in respect of the Site, the works and/or any other property belonging to the <i>Employer</i> .
	Indemnity against Contractor's Design
	The <i>Contractor</i> indemnifies and keeps indemnified the <i>Employer</i> against any losses and costs, including legal costs between attorney and client, and all other expenses whatsoever that the <i>Employer</i> may incur as a result of any action, proceeding or claim made against the <i>Employer</i> arising from the use of a design constituting an infringement of patent rights, design registration, registered trademarks or other exclusive rights in respect thereof. This indemnity does not apply to any infringement which is solely due to the <i>Contractor</i> having followed in its entirety instructions stipulated by the <i>Employer</i> .
	The <i>Employer</i> shall give the <i>Contractor</i> prompt notice of any such action, proceeding, claim or threat instituted or made against it or both of them. Promptly after the giving of such notice the Parties are to consult together about the subject of the notice and the <i>Employer</i> may at its option decide to a) permit the Contractor at the <i>Contractor's</i> own expense to conduct any litigation that may ensue and all negotiations for a settlement of such litigation or claim with the proviso that the <i>Contractor</i> keeps the <i>Employer</i> informed of all steps that are taken and of the outcome; or b) conduct any litigation that may ensue and all negotiations for a settlement, in which event the <i>Employer</i> shall act in consultation with the <i>Contractor</i> and shall keep the <i>Contractor</i> informed of all aspects that are taken and of the outcome.

<p>The <i>Contractor</i> hereby cedes and agrees to cede all intellectual property, excluding intellectual property in respect of which the <i>Contractor</i> can demonstrate proprietorship prior to the date of signature hereof, but including intellectual property specifically developed by the <i>Contractor</i> on behalf of the <i>Employer</i> under instruction and payment by the <i>Employer</i> and including all current and future technical information relating to the works; technical concepts; know-how; specifications; data; formulae; computer programs; design; patent and / or applications in respect thereof; copyrighted works; memoranda; scripts; reports; manuals; diagrams; drawings; including engineering drawings; prototypes; drafts in performing the works, whether completed or not and whether accepted, amended or rejected, and the like relating to the works, whether patented or not, and includes all intellectual property relating to the works developed by or on behalf of the <i>Employer</i>, to the <i>Employer</i>, its successors, assigns or legal representatives locally and / or internationally, together with the right to apply for Letters Patent in respect thereof.</p>
<p>It is further agreed that the <i>Employer</i> may apply in its name and its own cost for Letters Patent in respect of such inventions and registration of such designs locally and/or internationally.</p>
<p>The <i>Contractor</i> hereby agrees that when requested, he shall without any charges to the <i>Employer</i>, but at the latter's expense, sign all papers, take all rightful oaths, and do all acts which may be necessary, desirable or convenient for securing and maintaining patents relating to the works and/or the patent applications in any and all countries and for vesting titled thereto in the <i>Employer</i>, its successors, assign or legal representatives and the <i>Contractor</i> confirms and agrees that he shall assist the <i>Employer</i> to ensure that total and complete cession and transfer of all right, title and interest in the intellectual property takes place.</p>
<p>Time</p>
<p>The <i>Contractor</i> acknowledges that time is of the essence to the performance of its obligations in terms of this Contract.</p>
<p>Discovery/Reproduction of Documentation</p>
<p>The <i>Contractor</i> hereby authorises the <i>Employer</i> to reproduce all documentation made available by the <i>Contractor</i> to the <i>Employer</i> in connection with this Contract. In so far as the <i>Contractor</i> has any copyright protection in the items that are so reproduced by the <i>Employer</i>, the <i>Contractor</i> hereby grants a right and license to the <i>Employer</i> to reproduce the same for the purposes specified in this Contract. The <i>Contractor</i> keeps the <i>Employer</i> informed of any threats or claims made against it in respect of infringement of patent or other exclusive rights by virtue of the provision of the works.</p>
<p>Damages</p>
<p>The <i>Employer</i> shall be entitled, in its sole discretion, to claim and recover from the <i>Contractor</i> damages <i>in lieu of</i> any penalty agreed upon in terms of this Contract.</p>
<p>Accrual</p>
<p>Unless otherwise provided <i>herein</i>, rights which accrue to a Party in terms of this Contract shall survive its termination.</p>
<p>Commitments and Undertakings</p>
<p>Neither Party shall be bound by any express, tacit or implied term, representation, warranty, promise nor the like not recorded <i>herein</i>. This Contract supersedes and replaces all prior commitments, undertakings or representations, whether oral or written, between the Parties in respect of the subject matter hereof.</p>
<p>Validity and Enforceability of Contract</p>
<p>If any provision of this Contract is found to be invalid, unlawful or unenforceable, that provision shall be severable from the remaining provisions of this Contract, which shall continue to be valid and enforceable.</p>
<p>Strategic Socio-Economic Objectives</p>
<p>in terms of which the <i>Contractor</i> gives unconditional warranties and undertakings committing itself to the promotion of the strategic socio-economic objectives stipulated herein, including, but not limited to, warranties and undertakings to the effect that –</p>
<p>the Specific Goal Points information disclosed to the <i>Employer</i> in the bid response to the Tender Invitation</p>

	pursuant to which it was appointed, as supplemented subsequently in writing, is accurate and complete and that it shall maintain at least those levels of Specific Goal Points for the duration of the contract;
	it shall only subcontract aspects of the Works to Subcontractors with which it has concluded Subcontracts and actively take steps towards achieving the <i>Employer's</i> CPG requirements for the empowerment of Subcontractor/s
	it shall ensure that the execution of the Works and the expenditure of the project costs results in the achievement of the general socio-economic and empowerment objectives
	<p>it shall keep detailed records of –</p> <p>its equity ownership and control and, where applicable, that of its duly appointed Subcontractors and/or suppliers.</p> <p>a) its total spends on targeted enterprises used to fulfil its obligations in terms of the <i>contract</i>.</p> <p>b) any transformation programmes and/or initiatives relating to skills development and transfer, employment equity and enterprise development of the Subcontractors and Target Individuals; and any public benefits and/or job opportunities created according to the fulfilment of its obligations in terms of the <i>contract</i> and provide monthly reports outlining compliance with such objectives to the <i>Employer</i>;</p>
	Contractor Obligations
	in terms of which the <i>Contractor</i> unconditionally warrants and undertakes that, in its performance of its obligations under the <i>Contract</i> , it shall, at all times, -
	owe a duty of care to the ORTDM and comply with the reasonable directions issued to it by the <i>Employer, Employer's Agent and/or Employer's Agent Representative</i> ;
	not do anything that constitutes, or is reasonably likely to constitute, a corrupt act or that is otherwise intended or is likely to harm the reputation of the ORTDM, the Contract; and
	Undertake the Works in accordance with the standards, practices, methods and procedures conforming to applicable law, and exercising that degree of skill, care, diligence, prudence and foresight that would reasonably and ordinarily be expected from a skilled and experienced person engaged in a similar type of undertaking under similar circumstances.

FORM OF GUARANTEE

PERFORMANCE GUARANTEE

For use with the General Conditions of Contract for Construction Works, Third Edition (2015).

GUARANTOR DETAILS AND DEFINITIONS

“Guarantor” means:.....

Physical Address.....

“Employer” means.....

“Contractor” means:.....

“Employer’s Agent” means:
.....

“Works” means:.....

“Site” means:.....

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

“Contract Sum” means: The accepted amount inclusive of tax of R.....

Amount in words:.....

“Guaranteed Sum” means: The maximum aggregate amount of R.....

Amount in words:.....

Type of Performance Guarantee(Insert Variable or Fixed)

“Expiry Date” means..... (Give date) or any other later date set by the Contractor and/or Employer provided such instruction is received prior to the Expiry Date as indicated here.

CONTRACT DETAILS

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

1. VARIABLE PERFORMANCE GUARANTEE

1.1 Where a Variable Performance Guarantee has been selected, the Guarantor's liability shall be limited during the following periods to diminishing amounts of the Guaranteed Sum as follows:

1.1.1 From and including the date of signing the Performance Guarantee up to and including the date of the interim payment certificate certifying, for the first time, more than 50% of the Contract Sum:

R.....
(Amount in words)

1.1.2 From the day following the date of the said interim payment certificate up to and including the Expiry Date, or the date of issue by the Employer's Agent of the Certificate of Completion of the Works, whichever occurs first:

R.....
(Amount in words)

1.2 The Employer's Agent and/or the Employer shall advise the Guarantor in writing of the date on which the interim payment certificate certifying, for the first time, more than 50% of the Contract Sum, has been issued and the date on which the Certificate of Completion of the Works has been issued.

2. FIXED PERFORMANCE GUARANTEE

2.1 Where a Fixed Performance Guarantee has been selected, the Guarantor's liability shall be limited to the amount of the Guaranteed Sum.

2.2 The Guarantor's period of liability shall be from and including the date on which the Performance Guarantee is signed, up to and including the Expiry Date, or the date of issue by the Employer's Agent of the Certificate of Completion of the Works, or the date of payment in full of the Guaranteed Sum, whichever occurs first.

2.3 The Employer's Agent and/or the Employer shall advise the Guarantor in writing of the date on which the Certificate of Completion of the Works has been issued.

3. CONDITIONS APPLICABLE TO VARIABLE AND FIXED PERFORMANCE GUARANTEES

3.1 The Guarantor hereby acknowledges that:

3.1.1 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.

3.1.2 Its obligation under this Performance Guarantee is restricted to the payment of money.

3.2 Subject to the Guarantor's maximum liability referred to in 1.1 or 2.1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 3.2.1 to 3.2.3:

- 3.2.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Employer's Agent in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 3.2.2;
- 3.2.2 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 3.2.1 and the sum certified has still not been paid;
- 3.2.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 3.2.
- 3.3 Subject to the Guarantor's maximum liability referred to in 1.1 or 2.1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:
 - 3.3.1 the Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 3.3; or
 - 3.3.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 3.3; and
 - 3.3.3 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.
- 3.4 It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 3.2 and 3.3 shall not exceed the Guarantor's maximum liability in terms of 1.1 or 2.1.
- 3.5 Where the Guarantor has made payment in terms of 3.3, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Guarantor showing how all monies received in terms of this Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Performance Guarantee shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.
- 3.6 Payment by the Guarantor in terms of 3.2 or 3.3 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.
- 3.7 Payment by the Guarantor in terms of 3.3 will only be made against the return of the original Performance Guarantee by the Employer.
- 3.8 The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may consider fit and the Guarantor shall not have the right to claim

his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.

- 3.9 The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.
- 3.10 This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 1.1.2 or 2.2, 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.
- 3.11 This Performance Guarantee, with the required demand notices in terms of 3.2 or 3.3, shall be regarded as a liquid document for the purposes of obtaining a court order.
- 3.12 Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrates' Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed at

Date

Guarantor's signatory (1)

Capacity

Guarantor's signatory (2)

Capacity

Witness signatory (1)

Witness signatory (2)

Payment for the labor-intensive component of the Works

Payment for works identified in the Scope of Work as being labor-intensive shall only be made in accordance with the provisions of the Contract if the works are constructed strictly in accordance with the provisions of the Scope of Work. Any non-payment for such works shall not relieve the Contractor in any way from his obligations either in contract or in delict.

Applicable labour laws

The Ministerial Determination, Special Public Works Programmes, issued in terms of the Basic Conditions of Employment Act of 1997 by the Minister of Labour in Government Notice N° R63 of 25 January 2002, as reproduced below, shall apply to works described in the scope of work as being labour intensive and which are undertaken by unskilled or semi-skilled workers.

1 Introduction

1.1 This document contains the standard terms and conditions for workers employed in elementary occupations on a Special Public Works Programme (SPWP). These terms and conditions do NOT apply to persons employed in the supervision and management of a SPWP.

1.2 In this document –

- (a) "**Department**" means any department of the State, implementing agent or contractor;
- (b) "**Employer**" means any department, implementing agency or contractor that hires workers to work in elementary occupations on a SPWP;
- (c) "**Worker**" means any person working in an elementary occupation on a SPWP;
- (d) "**Elementary** occupation" means any occupation involving unskilled or semi-skilled work;
- (e) "**Management**" means any person employed by a department or implementing agency to administer or execute an SPWP;
- (f) "**Task**" means a fixed quantity of work;
- (g) "**task-based work**" means work in which a worker is paid a fixed rate for performing a task;
- (h) "**task-rated worker**" means a worker paid on the basis of the number of tasks completed;
- (i) "**time-rated worker**" means a worker paid on the basis of the length of time worked.
- (j) "**Task rate or daily rate**" = *As per Government Gazette*

2 Terms of Work

- 2.1 Workers on a SPWP are employed on a temporary basis.
- 2.2 A worker may NOT be employed for longer than 24 months in any five-year cycle on a SPWP.
- 2.3 Employment on a SPWP does not qualify as employment as a contributor for the purposes of the Unemployment Insurance Act 30 of 1966.

3 Normal Hours of Work

- 3.1 An employer may not set tasks or hours of work that require a worker to work–
- 3.2
 - (a) More than forty hours in any week
 - (b) On more than five days in any week; and
 - (c) For more than eight hours on any day.
- 3.3 An employer and worker may agree that a worker will work four days per week. The worker may then work up to ten hours per day.

-
- 3.4 A task-rated worker may not work more than a total of 55 hours in any week to complete the tasks allocated (based on a 40-hour week) to that worker.

4 Meal Breaks

- 4.1 A worker may not work for more than five hours without taking a meal break of at least thirty minutes duration.
- 4.2 An employer and worker may agree on longer meal breaks.
- 4.3 A worker may not work during a meal break. However, an employer may require a worker to perform duties during a meal break if those duties cannot be left unattended and cannot be performed by another worker. An employer must take reasonable steps to ensure that a worker is relieved of his or her duties during the meal break.
- 4.4 A worker is not entitled to payment for the period of a meal break. However, a worker who is paid on the basis of time worked must be paid if the worker is required to work or to be available for work during the meal break.

5 Special Conditions for Security Guards

- 5.1 A security guard may work up to 55 hours per week and up to eleven hours per day.
- 5.2 A security guard who works more than ten hours per day must have a meal break of at least one hour or two breaks of at least 30 minutes each.

6 Daily Rest Period

Every worker is entitled to a daily rest period of at least eight consecutive hours. The daily rest period is measured from the time the worker ends work on one day until the time the worker starts work on the next day.

7 Weekly Rest Period

Every worker must have two days off every week. A worker may only work on their day off to perform work which must be done without delay and cannot be performed by workers during their ordinary hours of work ("emergency work").

8 Work on Sundays and Public Holidays

- 8.1 A worker may only work on a Sunday or public holiday to perform emergency or security work.
- 8.2 Work on Sundays is paid at the ordinary rate of pay.
- 8.3 A task-rated worker who works on a public holiday must be paid –
- (a) The worker's daily task rate, if the worker works for less than four hours;
 - (b) Double the worker's daily task rate, if the worker works for more than four hours.
- 8.4 A time-rated worker who works on a public holiday must be paid –
- (a) The worker's daily rate of pay, if the worker works for less than four hours on the public holiday;
 - (b) Double the worker's daily rate of pay, if the worker works for more than four hours on the public holiday.

9 Sick Leave

- 9.1 Only workers who work four or more days per week have the right to claim sick-pay in terms of this clause.
- 9.2 A worker who is unable to work on account of illness or injury is entitled to claim one day's paid sick leave for every full month that the worker has worked in terms of a contract.

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- 9.3 A worker may accumulate a maximum of twelve days' sick leave in a year.
- 9.4 Accumulated sick leave may not be transferred from one contract to another contract.
- 9.5 An employer must pay a task-rated worker the worker's daily task rate for a day's sick leave.
- 9.6 An employer must pay a time-rated worker the worker's daily rate of pay for a day's sick leave.
- 9.7 An employer must pay a worker sick pay on the worker's usual payday.
- 9.8 Before paying sick-pay, an employer may require a worker to produce a certificate stating that the worker was unable to work on account of sickness or injury if the worker is –
- (a) Absent from work for more than two consecutive days: or
 - (b) Absent from work on more than two occasions in any eight-week period.
- 9.9 A medical certificate must be issued and signed by a medical practitioner, a qualified nurse or a clinic staff member authorised to issue medical certificates indicating the duration and reason for incapacity.
- 9.10 A worker is not entitled to paid sick leave for a work-related injury or occupational disease for which the worker can claim compensation under the Compensation for Occupational Injuries and Diseases Act.

10 Maternity Leave

- 10.1 A worker may take up to four consecutive months' unpaid maternity leave.
- 10.2 A worker is not entitled to any payment or employment-related benefits during maternity leave.
- 10.3 A worker must give her employer reasonable notice of when she will start maternity leave and when she will return to work.
- 10.4 A worker is not required to take the full period of maternity leave. However, a worker may not work for four weeks before the expected date of birth of her child or for six weeks after the birth of her child, unless a medical practitioner, midwife, or qualified nurse certifies that she is fit to do so.
- 10.5 A worker may begin maternity leave –
- (a) four weeks before the expected date of birth; or
 - (b) On an earlier date –
 - (i) If a medical practitioner, midwife or certified nurse certifies that it is necessary for the health of the worker or that of her unborn child; or
 - (ii) if agreed to between employer and worker; or
 - (c) on a later date, if a medical practitioner, midwife or certified nurse has certified that the worker is able to continue to work without endangering her health.
- 10.6 A worker who has a miscarriage during the third trimester of pregnancy or bears a stillborn child may take maternity leave for up to six weeks after the miscarriage or still birth.
- 10.7 A worker who returns to work after maternity leave has the right to start a new cycle of twenty-four months employment, unless the SPWP on which she was employed has ended.

11 Family responsibility leave

- 11.1 Workers, who work for at least four days per week, are entitled to three days paid family responsibility leave each year in the following circumstances -
- (a) When the employee's child is born;
 - (b) When the employee's child is sick;
 - (c) In the event of a death of –
 - (i) The employee's spouse or life partner.
 - (ii) The employee's parent, adoptive parent, grandparent, child, adopted child, grandchild, or sibling.

12 Statement of Conditions

- 12.1 An employer must give a worker a statement containing the following details at the start of employment –
- (a) The employer's name and address and the name of the SPWP;
 - (b) The tasks or job that the worker is to perform; and
 - (c) the period for which the worker is hired or, if this is not certain, the expected duration of the contract;
 - (d) The worker's rate of pay and how this is to be calculated;
 - (e) The training that the worker will receive during the SPWP.
- 12.2 An employer must ensure that these terms are explained in a suitable language to any employee who is unable to read the statement.
- 12.3 An employer must supply each worker with a copy of these conditions of employment.

13 Keeping Records

- 13.1 Every employer must keep a written record of at least the following –
- (a) The worker's name and position;
 - (b) In the case of a task-rated worker, the number of tasks completed by the worker;
 - (c) In the case of a time-rated worker, the time worked by the worker;
 - (d) Payments made to each worker.
- 13.2 The employer must keep this record for a period of at least three years after the completion of the SPWP.

14 Payment

- 14.1 An employer must pay all wages at least monthly in cash or by cheque or into a bank account.
- 14.2 A task-rated worker will only be paid for tasks that have been completed.
- 14.3 An employer must pay a task-rated worker within five weeks of the work being completed and the work having been approved by the manager or the contractor having submitted an invoice to the employer.
- 14.4 A time-rated worker will be paid at the end of each month.
- 14.5 Payment must be made in cash, by cheque or by direct deposit into a bank account designated by the worker.
- 14.6 Payment in cash or by cheque must take place –
- (a) At the workplace or at a place agreed to by the worker.
 - (b) during the worker's working hours or within fifteen minutes of the start or finish of work;
 - (c) In a sealed envelope which becomes the property of the worker.
- 14.7 An employer must give a worker the following information in writing –
- (a) The period for which payment is made;
 - (b) The numbers of tasks completed or hours worked;
 - (c) The worker's earnings;
 - (d) Any money deducted from the payment;
 - (e) The actual amount paid to the worker.
- 14.8 If the worker is paid in cash or by cheque, this information must be recorded on the envelope and the worker must acknowledge receipt of payment by signing for it
- 14.9 If a worker's employment is terminated, the employer must pay all monies owing to that worker within one month of the termination of employment.

15 Deductions

- 15.1 An employer may not deduct money from a worker's payment unless the deduction is required in terms of a law.
- 15.2 An employer must deduct and pay to the SA Revenue Services any income tax that the worker is required to pay.
- 15.3 An employer who deducts money from a worker's pay for payment to another person must pay the money to that person within the time period and other requirements specified in the agreement law, court order, or arbitration award concerned.
- 15.4 An employer may not require or allow a worker to –
- (a) Repay any payment except an overpayment previously made by the employer by mistake;
 - (b) State that the worker received a greater amount of money than the employer actually paid to the worker; or
 - (c) Pay the employer or any other person for having been employed.

16 Health and Safety

- 16.1 Employers must take all reasonable steps to ensure that the working environment is healthy and safe.
- 16.2 A worker must –
- (a) Work in a way that does not endanger his/her health and safety or that of any other person;
 - (b) Obey any health and safety instruction;
 - (c) Obey all health and safety rules of the SPWP;
 - (d) Use any personal protective equipment or clothing issued by the employer;
 - (e) Report any accident, near-miss incident, or dangerous behaviour by another person to their employer or manager.

17 Compensation for Injuries and Diseases

- 17.1 It is the responsibility of the employers (other than a contractor) to arrange for all persons employed on a SPWP to be covered in terms of the Compensation for Occupational Injuries and Diseases Act, 130 of 1993.
- 17.2 A worker must report any work-related injury or occupational disease to their employer or manager.
- 17.3 The employer must report the accident or disease to the Compensation Commissioner.
- 17.4 An employer must pay a worker who is unable to work because of an injury caused by an accident at work 75% of their earnings for up to three months. The employer will be refunded this amount by the Compensation Commissioner. This does NOT apply to injuries caused by accidents outside the workplace such as road accidents or accidents at home.

18 Termination

- 18.1 The employer may terminate the employment of a worker for good cause after following a fair procedure.
- 18.2 A worker will not receive severance pay on termination.
- 18.3 A worker is not required to give notice to terminate employment. However, a worker who wishes to resign should advise the employer in advance to allow the employer to find a replacement.
- 18.4 A worker who is absent for more than three consecutive days without informing the employer of an intention to return to work will have terminated the contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period.

18.5 A worker who does not attend required training events, without good reason, will have terminated the contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period.

19 Certificate of Service

19.1 On termination of employment, a worker is entitled to a certificate stating –

- (a) The worker's full name;
- (b) The name and address of the employer;
- (c) The SPWP on which the worker worked;
- (d) The work performed by the worker;
- (e) Any training received by the worker as part of the SPWP;
- (f) The period for which the worker worked on the SPWP;
- (g) Any other information agreed on by the employer and worker

FORM C1.4 HEALTH AND SAFETY AGREEMENT

HEALTH AND SAFETY SPECIFICATION
THE OCCUPATIONAL HEALTH AND SAFETY ACT 1993
CONSTRUCTION REGULATIONS 2003

SECTION 1

INTRODUCTION

This document was construed in order to comply with the provisions of the **OCCUPATIONAL HEALTH AND SAFETY ACT NO 85 OF 1993, CONSTRUCTION REGULATIONS 2014 and COVID-19 Occupational Health and Safety Measures in Workplace 2020.**

Definitions of words are those described in the Act and the Construction Regulations of 2003.

This document formulates the specification of the O. R. Tambo District Municipality in terms of the above act and forms part of the constitution of the organisation.

This document forms part of the employment contract of all employees and is as such accepted in writing by each employee. It also forms part of the agreement between the O. R. Tambo District Municipality and all service providers.

No clause in this document shall be amended in any contract document construed by agents, designers or anyone else except so ordered or sanctioned by the O. R. Tambo District Municipality in writing.

SCHEDULE

1.1 Definitions

1. In these Policy any word or expression to which a meaning has been assigned in the Act shall have the meaning so assigned and, unless the context otherwise indicates—

“Agent” means any person who acts as a representative for a client in the managing the overall construction work.

“angle of repose” means the steepest angle of a surface at which a mass of loose or fragmented material will remain stationary in a pile on a surface, rather than sliding or crumbling away;

“Batch plant” means machinery, appliances or other similar devices that are assembled in such a manner so as to be able to mix materials in bulk for the purposes of using the mixed product for construction work;

“Client” means O. R. Tambo District Municipality;

“competent person” in relation to construction work, means any person having the knowledge, training and experience specific to the work or task being performed: Provided that where appropriate qualifications and training are registered in terms of the provisions of the South African Qualifications Authority Act, 1995 (Act No. 58 of 1995), these qualifications and training shall be deemed to be the required qualifications and training;

“Construction work” means any work in connection with—

- (a) The erection, maintenance, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure;
- (b) The installation, erection, dismantling or maintenance of a fixed plant where such work includes the risk of a person falling;
- (c) the construction, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system or any similar civil engineering structure; or
- (d) the moving of earth, clearing of land, the making of an excavation, piling, or any similar type of work;

“construction vehicle” means a vehicle used for means of conveyance for transporting persons or material or both such persons and material, as the case may be, both on and off the construction site for the purposes of performing construction work;

“Contractor” mean an employer, as defined in section 1 of the Act, who performs construction work and includes principal contractors;

“Design” in relation to any structure includes drawings, calculations, design details and specifications;

“Designer” means any person who—

- (a) prepares a design;
- (b) checks and approves a design;
- (c) arranges for any person at work under his control (including an employee of his, where he is the employer) to prepare a design, as well as;
- (d) Architects and engineers contributing to, or having overall responsibility for the design;
- (e) Build services engineers designing details for fixed plant;
- (f) Surveyors specifying articles or drawing up specifications;
- (g) Contractors carrying out design work as part of a design and build project;
- (h) Temporary works engineer designing formwork and false work; and
- (i) Interior designers, shop-fitters and landscape architects.

“ergonomics” means the application of scientific information concerning humans to the design of objects, systems and the environment for human use in order to optimise human well-being and overall system performance;

“Excavation work” means the making of any man-made cavity, trench, pit or depression formed by cutting, digging or scooping;

“explosive powered tool” means a tool that is activated by an explosive charge and that is used for driving bolts, nails and similar objects for the purpose of providing fixing;

“fall prevention equipment” means equipment used to prevent persons from falling from an elevated position, including personal equipment, body harness, body belts, lanyards, lifelines or physical equipment, guardrails, screens, barricades, anchorages or similar equipment;

“fall arrest equipment” means equipment used to arrest the person in a fall from an elevated position, including personal equipment, body harness, lanyards, deceleration devices, lifelines or similar equipment, but excludes body belts;

“fall protection plan” means a documented plan, of all risks relating to working from an elevated position, considering the nature of work undertaken, and setting out the procedures and methods to be applied in order to eliminate the risk;

“Hazard identification” means the identification and documenting of existing or expected hazards to the health and safety of persons, which are normally associated with the type of construction work being executed or to be executed;

“Health and safety file” means a file, or other record in permanent form, containing the information required as contemplated in these regulations;

“Health and safety plan” means a documented plan which addresses hazards identified and includes safe work procedures to mitigate, reduce or control the hazards identified;

“Health and safety specification” means a documented specification of all health and safety requirements pertaining to the associated works on a construction site, so as to ensure the health and safety of persons;

“material hoist” means a hoist used to lower or raise material and equipment, and includes cantilevered platform hoists, mobile hoists, friction drive hoists, scaffold hoists, rack and pinion hoists and combination hoists;

“Medical certificate of fitness” means a certificate valid for one year issued by an occupational health practitioner, issued in terms of these regulations, whom shall be registered with the Health Professions Council of South Africa;

“Method statement” means a written document detailing the key activities to be performed in order to reduce as reasonably as practicable the hazards identified in any risk assessment.

“Mobile plant” means machinery, appliances or other similar devices that is able to move independently, for the purpose of performing construction work on the construction site.

“National Building Regulations” means the National Building Regulations made under section 17(1) of the National Building Regulations and Building Standards Act, 1977 (Act No.103 of 1977), and published under Government Notice No. R.1081 of 10 June 1988, as amended;

“Person day” means one individual carrying out construction work on a construction site for one normal working shift;

“principal contractor” means an employer, as defined in section 1 of the Act who performs construction work and is appointed by the client to be in overall control and management of a part of or the whole of a construction site;

“professional engineer or professional certificated engineer” means any person holding registration as either a Professional Engineer or Professional Certificated Engineer under the Engineering Profession Act, 2000 (Act No. 46 of 2000).

“Professional technologist” means any person holding registration as a Professional Technologist under the Engineering Profession Act, 2000 (Act No. 46 of 2000);

“Provincial director” means the provincial director as defined in regulation 1 of the General Administrative Regulations under the Act;

“risk assessment” means a programme to determine any risk associated with any hazard at a construction site, in order to identify the steps needed to be taken to remove, reduce or control such hazard.

“Roof apex height” means the dimensional height in metres measured from the lowest ground level abutting any part of a building to the highest point of the roof;

“SABS 085” means the South African Bureau of Standards’ Code of Practice entitled “The Design, Erection, Use and Inspection of Access Scaffolding”.

“SABS 0400” means the South African Bureau of Standards, Code of Practice for the application of the National Building Regulations;

“SABS EN 1808” means the South African Bureau of Standards’ Standard Specification entitled: “Safety requirements on suspended access equipment – Design calculations, stability criteria, construction-tests”;

“SABS 1903” means the South African Bureau of Standards’ Standard Front-end Specification entitled: “Safety requirements on suspended access equipment – Design calculations, stability criteria, construction-tests”;

“Scaffold” means any temporary elevated platform and supporting structure used for providing access to and supporting workmen or materials or both;

“shoring” means a structure such as a hydraulic, mechanical or timber/steel shoring system that supports the sides of an excavation and which is intended to prevent the cave-in or the collapse of the sides of an excavation, and “shoring system” has a corresponding meaning;

“Structure” means—

- (a) any building, steel or reinforced concrete structure (not being a building), railway line or siding, bridge, waterworks, reservoir, pipe or pipeline, cable, sewer, sewage works, fixed vessels, road, drainage works, earthworks, dam, wall, mast, tower, tower crane, batching plants, pylon, surface and underground tanks, earth retaining structure or any structure designed to preserve or alter any natural feature, and any other similar structure;
- (b) any formwork, false work, scaffold or other structure designed or used to provide support or means of access during construction work; or
- (c) any fixed plant in respect of work which includes the installation, commissioning, decommissioning or dismantling and where any such work involves a risk of a person falling two metres or more;

“Suspended platform” means a working platform suspended from supports by means of one or more separate ropes from each support;

“The Act” means the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993).

“Tunnelling” means the construction of any tunnel beneath the natural surface of the earth for a purpose other than the searching for or winning of a mineral

O. R. TAMBO DISTRICT MUNICIPALITY
HEALTH AND SAFETY SPECIFICATION
THE OCCUPATIONAL HEALTH AND SAFETY ACT 1993
CONSTRUCTION REGULATIONS 2003

SECTION 2: DESIGNERS

1. All wording shall have the meaning as defined by the H&S Regulations 2003.
2. This specification is in terms of the H&S act 1993 and the regulations of 2003.
3. All work performed and procedures followed by designers shall be done according to the H&S regulations of 2003.
4. The client is aware of the fact that the appointment of a designer does not implicate that the designer becomes the agent of the client for the particular project. The appointment of an agent is done separately in writing and should be accepted by the designer as such.
5. The client is ultimately responsible for all safety issues regarding the project for which a designer is appointed and cannot contract out of his obligations in terms of the law.
6. The client shall not employ a designer should he have reasonable doubts that the designer is not able to execute work in a safe manner.
7. All designers shall have adequate insurance cover to indemnify the client for their acts and omissions in terms of professional conduct the H&S act in particular to indemnify the client against penalties imposed for acts or omissions. The client is aware of the fact that additional insurance over and above PI insurance is necessary to have himself indemnified by the designers for acts and omissions in terms of the H&S regulations. The professional indemnity insurance has a "negligent acts and omissions" wording only and therefore additional insurance is necessary to cover the client against penalties imposed in terms of the regulations.
8. Designers shall not accept work from the client if they are not capable of executing such work professionally and if such work cannot be executed in a safe manner, according to the provisions of the H&S regulations.
9. Designers shall execute all designs in terms of the relevant SABS and other acceptable codes and procedures and shall place great emphasis on safety issues including the maintenance procedures after inaugurations of such systems or projects.
10. Ergonomic parameters shall have high priority in all designs.

O. R. TAMBO DISTRICT MUNICIPALITY

**HEALTH AND SAFETY SPECIFICATION
THE OCCUPATIONAL HEALTH AND SAFETY ACT 1993
CONSTRUCTION REGULATIONS 2003**

SECTION 3: PRINCIPAL CONTRACTORS (P C)

All work by the P C shall be done in compliance with the provisions of the H&S regulations.

1. The Employer recognises the right of each employee to work safely in a healthy environment under decent human conditions. Each employee has the right to return home safely and healthy to his home and family after each day's work.

Work shall not be done at the expense of human safety or health.
2. Work shall be executed under humane conditions, especially with reference to hours and H&S issues in mind.
3. The P C shall appoint a fulltime H&S Manager should he have more than 50 employees on site.
4. The PC shall conduct monthly safety meetings on site. All foremen, gang leaders and other employees shall participate and all incidents with relation to unsafe practices shall be discussed. Minutes of such meetings shall be kept in the H&S file.
5. Foremen and gang leaders shall, under the supervision of the H&S manager, conduct meetings with all staff and people under their direct supervision on a frequent basis. Minutes of such meetings shall be kept in the H&S file.
6. New personnel (temporary or full time employees) shall attend safety induction courses under the supervision of the H&S manager.
7. The P C shall install and maintain a box in which proposals for improvement of H&S procedures could be placed. All such proposals shall be considered, recorded and placed in the H&S file.
8. An adequate first aid facility shall be placed maintained on site and shall be adequately indicated by means of signs. All personnel shall be made aware of its existence and only trained first aid assistants shall be authorized to treat injuries.
9. The P C shall see that work is only executed by people trained for the particular task.
10. All safety equipment shall be SABS approved and under no circumstance shall any safety equipment be non-certified homemade equipment. Specifications and order details shall be kept in the H&S file.
11. Workers and personnel shall be attending safety courses on a regular basis and all information regarding such training shall be kept in the H&S file.
12. All employees shall be trained in safe working procedures and shall be trained on safety consciousness in particular. Employees in position of leadership shall be trained through accredited training processes in H&S matters.
13. The contractor shall prepare and maintain a safety plan for the particular project and shall train his personnel to work according to such plan.
14. Personnel and workers will be made aware of any natural hazards existing on site. They will also be made aware of items defined by the designer in his risk assessment.
15. No horseplay between employees will be tolerated on site. Neither will aggressive or threatening behaviour by anybody be allowed.

16. Workers shall wear appropriate protective clothing for the applicable task which shall include special safety equipment like protective eyewear, gloves, boots, ear protection, etc. Workers shall be issued with these items and copy of such issuing shall be kept in the H&S file.
17. Workers shall not be allowed to wear loose clothes and footwear.
18. Workers shall have the opportunity and right to prescribed rest, eating and toilet breaks.
19. Workers on nightshift shall be protected against inclement weather and shall have access to adequate food and drinks.
20. In cases where work is executed in remote or in security restricted areas, the P C will make provision for food to be supplied to his employees.
21. Potable water shall be made available free of charge to all workers on site.
22. Adequate toilet and washing facilities shall be made available to workers.
23. In the event of chemicals being present or used on site, the P C will allow for adequate shower facilities on site. All chemicals shall be stored according to specification and shall be clearly identified and marked in prescribed containers.
24. Workers under instruction to execute inherently unsafe procedures shall report such incidences to the H&S manager, designer of client immediately.
25. Unauthorised or unlawful instructions from foremen, gang leaders or colleagues shall be reported by the H&S manager immediately.
26. The P C shall stop his contractors if they work unsafely.
27. All specialist work shall be executed by registered artisans only.
28. Workers shall not be required to lift equipment or material heavier than 25kg or carry a load of more than 50 kg for more than 10 metres.
29. Workers shall not be exposed to conditions of heat where the temperature is above 40° Celsius and the humidity more than 75%. Likewise, will personnel not be exposed to temperatures lower than -5° Celsius? Should the designer and the P C decide that the work is urgent, workers will be issued with proper protective clothing.
30. All workers shall have access to a shaded eating and resting place on site.
31. Workers executing tasks in rivers, trenches and other natural or artificial water ways shall be made aware of the hazard off flash floods and special precautions shall be made by the P C to implement an effective flood warning system.
32. Workers executing tasks in manholes for sewer or stormwater systems, shall be made aware of the existence of hazardous gasses in closed areas and shall be issued with gas masks in any event, even after tests conducted by the H&S manager has proven that no gasses are existent. Only specialists shall work in gas-filled chambers.
33. Personnel executing work during rainy weather or under other wet conditions shall be equipped with proper gumboots and proper rain suits.
34. No personnel will be allowed to work in water unless gumboots are worn. Should the water be deeper than 300mm watertight suits shall be worn.
35. All ladders shall be fixed against scaffolding or other permanent structures.
36. Welding on site shall only be done by trained personnel behind adequate eye protecting shields and all welders shall wear proper protective gear.
37. Personnel operating grinders, saws or any other hand tools of similar description shall be equipped with the necessary eyewear and ear protection.

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38. All personnel working under potentially dusty conditions shall wear nose and mouth filters.
 39. Workers operating rock drilling equipment shall wear ear, nose and eye protection.
 40. All scaffolding will comply with the H&S regulations.
 41. Blasting will be done by specialists under the regulations of the Explosives Act.
 42. Workers shall wear protective clothing when exposed to chemicals like cement, lime, detergents, tar, fumes, etc. Should work be executed in the presence of such material, adequate protective clothing and equipment shall be issued after permission is granted by the H&S manager.
 43. Workers will not be allowed to make open fires on any part of the site unless it is made in designated areas approved by the H&S manager.
 44. Fuel storage will only be allowed on certified areas on site.
 45. Workers and other personnel will be trained for fire procedures and will practise such fire drill on a regular basis.
 46. Assembly areas for emergency evacuations will be indicated by adequate signage.
 47. The P C will have an attendance register for the purposes of identifying people before, during and after potential hazardous situations.
 48. All transport supplied by the P C shall be on road worthy vehicles only and all transport shall be conducted in terms of the transport act.
 49. Drivers of vehicles shall be responsible for the roadworthiness of vehicles and will report any dysfunctional vehicles to the P C.
 50. All drivers will be responsible to handle vehicles in such a way to comply with the transport act.
 51. Passengers of vehicles shall report any unsafe conduct to the P C immediately. Such report shall be forwarded to the H&S manager and shall be investigated. Copy of such procedure shall be entered into the H&S file.
 52. Only trained personnel shall be permitted and required to operate construction machinery. All such machinery shall be maintained in safe working condition.
 53. All vehicles operating on site shall have audible warning signals if driven backwards.
 54. No vehicle shall be kept on site if it is leaking oil or other substances.
 55. No vehicle or equipment shall be operated on site if it produces noise above 90 decibel measured within a distance of 10,0 m from the unit.
 56. Equipment producing serious dusty conditions shall only be operated under the supervision of the P C and the H&S manager with the necessary protection to workers.
 57. All excavations on site shall be adequately protected and not only indicated.
 58. Exploratory excavation to reveal services shall be done in a specific way.

All areas to be explored shall first be inspected by the landowner or local authority. Position of services identified shall then be verified by opening by hand, not by machine. Particular care shall be taken not to damage these services.
Electrical services are inherently dangerous and shall be opened by skilled people only.
These excavations shall not be left open without supervision. If necessary the excavation shall be backfilled temporarily with approved material until the specified modifications to the services can be made.
 59. Access to excavations shall only be by means of ladders or stairs with handrails.

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60. All refuse, unsafe material, potential hazardous material and rubbish shall be placed in designated areas to be removed on a regular basis.
61. Rainwater shall be contained in trenches or pipes in such a way that it will not cause contamination of material in these refuse areas.
62. All electrical sources or cables or overhead power lines should be regarded as live at all times and all workers on site shall be made aware of its existence during H&S meetings and as many times as necessary.
63. Adequate signage shall be used on site to indicate
- Nonsmoking areas on site
 - Safety exits / Emergency exits from buildings under construction
 - Stairs (temporary and permanent works)
 - Toilets
 - Firefighting equipment
 - Workmen busy with equipment overhead
 - Fire assembly points
 - Fire escapes
 - Areas where members of the public are not allowed.
 - First aid room
64. All visitors to the site shall be granted permission to the site only upon application through a predetermined procedure and records of these visitors shall be kept in the H&S file. Visitors shall attend safety induction training before entering the site. Areas out of bounds to all visitors shall be indicated clearly by means of adequate signs.
65. Work performed in public servitudes like the construction of streets or roads shall be done according to the specifications of the local or national authority and adequate signage shall be implemented.
66. People complaining about their health or people displaying symptoms of illness or disease, shall be allowed to go to the first aid facility or to visit a doctor or a clinic. Permission shall not be withheld unreasonably. In remote areas the P C is required to have reasonable ways of transporting people to a doctor or clinic whether the person is ill or injured on site.
67. Personnel must be informed about the location of the nearest doctor or clinic for casualty purposes, and the P C shall provide such transport for injured workers and injured members of the public (within the limits of the site) free of charge.
70. A principal contractor who intends to carry out any construction work shall—
- (a) before carrying out that work, notify the provincial director in writing of the construction work if it includes—
- (i) The demolition of a structure exceeding a height of 3 metres; or
 - (ii) The use of explosives to perform construction work; or
 - (iii) The dismantling of fixed plant at a height greater than 3m.
- (b) before carrying out that work, notify the provincial director in writing when the construction work—
- (i) Exceeds 30 days or will involve more than 300 person days of construction work; and
 - (ii) Includes excavation work deeper than 1m; or
 - (iii) Includes working at a height greater than 3 metres above ground or a landing.
- (2) The notification to the provincial director must be done on the form similar to Annexure A to this Policy.
- (3) A principal contractor shall ensure that a copy of the completed form is kept on site for inspection by an inspector, client, client's agent or employee.

O. R. TAMBO DISTRICT MUNICIPALITY

**HEALTH AND SAFETY SPECIFICATION
THE OCCUPATIONAL HEALTH AND SAFETY ACT 1993
CONSTRUCTION REGULATIONS 2003**

SECTION 4: CLIENT

- (1) A client shall be responsible for the following in order to ensure compliance with the provisions of the Act:
 - (a) to prepare a documented health and safety specification for the construction work, and provide any principal contractor who is making a bid or appointed to perform construction work for the client with the same;
 - (b) To promptly provide the principal contractor and his or her agent with any information which might affect the health and safety of any person at work carrying out construction work;
 - (c) To appoint each principal contractor in writing for the project or part thereof on a construction site;
 - (d) To take reasonable steps to ensure that each principal contractor's health and safety plan is implemented and maintained on the construction site: Provided that the steps taken, shall include periodic audits at intervals mutually agreed upon between the client and principal contractor, but at least once every month;
 - (e) to stop any contractor from executing construction work which is not in accordance with the principal contractor's health and safety plan for the site or which poses to be a threat to the health and safety of persons;
 - (f) to ensure that where changes are brought about, sufficient health and safety information and appropriate resources are made available to the principal contractor to execute the work safely;
 - (g) to ensure that every principal contractor is registered and in good standing with the compensation fund or with a licensed compensation insurer prior to work commencing on site; and
 - (h) To ensure that potential principal contractors submitting tenders, have made provision for the cost of health and safety measures during the construction process.
- (2) A client shall discuss and negotiate with the principal contractor the contents of the health and safety plan and thereafter finally approve the health and safety plan for implementation.
- (3) A client shall ensure that a copy of the principal contractor's health and safety plan is available on request to an employee, inspector or contractor.
- (4) (4) O. R. Tambo District Municipality shall not appoint a principal contractor to perform construction work, unless O. R. Tambo District Municipality is reasonably satisfied that the principal contractor that he or she intends to appoint has the necessary competencies and resources to carry out the work safely.
- (5) A client may appoint an agent in writing to act as his or her representative and where such an appointment is made, the responsibilities as are imposed by these regulations upon a client, shall as far as reasonably practicable apply to the person so appointed.
- (6) No client shall appoint any person as his agent, unless the client is reasonably satisfied that the person he or she intends to appoint has the necessary competencies and resources to perform the duties imposed on a client by these regulations.

ANNEXURE A

OCCUPATIONAL HEALTH AND SAFETY ACT, 1993
Regulation 3 of the Construction Regulations, 2003

NOTIFICATION OF CONSTRUCTION WORK

- 1.(a) Name and postal address of principal contractor:

- (b) Name and tel. no of principal contractor's contact person:

2. Principal contractor's compensation registration number: _____
- 3.(a) Name and postal address of client:

- (b) Name and tel. no. of client's contact person or agent:

- 4.(a) Name and postal address of designer(s) for the project:

- (b) Name and tel. no. of designer(s) contact person:

5. Name and telephone number of principal contractor's construction supervisor on site appointed in terms of regulation 6. (1). _____
6. Name/s of principal contractor's sub-ordinate supervisors on site appointed in terms of regulation 6. (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.

12. Planned number of contractors on the construction site accountable to principal contractor:

13. Name(s) of contractors already chosen.

Principal Contractor

_____ Date

Client

_____ Date

- **THIS DOCUMENT IS TO BE FORWARDED TO THE OFFICE OF THE DEPARTMENT OF LABOUR PRIOR TO COMMENCEMENT OF WORK ON SITE.**
- **ALL PRINCIPAL CONTRACTORS THAT QUALIFY TO NOTIFY MUST DO SO EVEN IF ANOTHER PRINCIPAL CONTRACTOR ON THE SAME SITE HAD DONE SO PRIOR TO THE COMMENCEMENT OF WORK.**

GUIDELINES FOR CONTRACT ADMINISTRATION



**O.R. TAMBO
DISTRICT MUNICIPALITY**

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GUIDELINES FOR CONTRACT ADMINISTRATION
IN TERMS OF THE CONSTRUCTION REGULATIONS 2003
HEALTH & SAFETY ACT 1993

SECTION 1 AND 2

1. PURPOSE OF THIS DOCUMENT

This document describes the procedures to be followed in the execution of Engineering Projects for O. R. Tambo District Municipality.

The role of all parties to the development project is described.

The document is in terms of the Construction Regulation 2003 of the Health and Safety Act 1993.

2. BACKGROUND

The Minister of Labour has on 18 July 2003 under section 43 of the Occupational Health and Safety Act 1993 (Act No. 85 of 1993) published new regulations in the Government Gazette 7721, Vol. 456. They have immediate effect and are applicable to the Construction Environment.

These regulations inter alia identify the different role players and their responsibilities, particularly the role of the client, the contractor and that of the designer.

The Construction Regulations endeavor to ensure that:

- i) Hazards or potential hazards to a healthy working environment are identified.
- ii) These hazards or potential hazards are removed or minimised.
- iii) Employers and Workers are made aware of the value of safe working procedures and train themselves to work safely in potential hazardous environments or under potentially unsafe conditions.

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SECTION 3

3. THE CLIENT

In terms of the law the client is ultimately responsible for all acts and omissions as far as health and safety is concerned on site. It should be noted that the client will be held legally responsible for every trespass of the regulations, not the designer or the contractor. The law makes provision for fines to be levied and unless the client has been indemnified by the designer or the contractor, such fines will have to be paid by the client.

Clients cannot contract out of their statutory obligations except where the law allows for it. Therefore any liability imposed upon them for statutory non-compliance, cannot be passed on to designers (consultants) or contractors.

In particular the client's responsibilities are defined as follows:

- | | | |
|-----|---|----------------|
| .1 | To prepare a health and safety (H&S) specification for the work. This should cover the spectrum of activities handled by the client as part of his normal duties. | Clause 4(1)(a) |
| .2 | To provide a risk assessment to the principal contractor. | Clause 4(1)(b) |
| .3 | To appoint the principal contractor in writing. | Clause 4(1)(c) |
| .4 | To ensure that the H&S plan is implemented. | Clause 4(1)(d) |
| .5 | To stop any contractor executing work in an unsafe manner. | Clause 4(1)(e) |
| .6 | To provide additional H&S information to the contractor should changes be made to the work? | Clause 4(1)(f) |
| .7 | To ensure that the principal contractor is registered and in good standing with the workmen's compensation fund. | Clause 4(1)(h) |
| .8 | To make sure tenderers have made provision in their offers for H&S measures. | Clause 4(1)(h) |
| .9 | To discuss and approve the H&S plan with the principal contractor. | Clause 4(2) |
| .10 | To keep a copy of the H&S plan of the principal contractor. | Clause 4(3) |
| .11 | To <u>not</u> employ a contractor unless the client is reasonably satisfied that the principal contractor who is earmarked for an appointment has the necessary skills, competencies and resources to carry out the work safely. | Clause 4(4) |
| .12 | The client can appoint an agent to handle his duties. The client can obviously also delegate some of his duties but this does not make the person responsible for such particular responsibilities as agent.

The client should make sure whether such responsibilities are not already part of the designer in terms of the regulations clause 9(2). | Clause 4(5) |
| .13 | The client shall only appoint someone as his agent if he is reasonably satisfied that such person can handle such responsibilities. | Clause 4(6) |

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SECTION 4

4. THE DESIGNER

The regulations do not use names like engineer, architect, etc. Instead the term designer has been introduced. The responsibilities of the designer are given in a sub-paragraph under the obligations of the Principal Contractor.

4.1	The regulations has a comprehensive definition of the designer and this includes:	Definitions "designer"
a)	A person preparing a design.	Definitions "structure"
b)	A person checking a design.	
c)	A firm preparing a design.	
d)	An architect or engineer contributing to or having responsibility for a design.	
e)	A building services engineer designing details of fixed plant (scaffolding or cranes).	
f)	A surveyor specifying articles or drawing up specification (Quantity Surveyor).	
g)	A contractor in design & build contract.	
h)	A contractor designing temporary work.	
i)	A interior designer, shop fitter and landscape architect.	
	The regulation also talks of "an engineer designing a structure". "Structure" is a wide concept and is given in paragraph 3.2.5.1(a) underneath.	
4.2	The designer does not automatically through an appointment become the agent of the client in terms of the regulations unless he is appointed in writing to that effect and he accepts such appointment in writing.	Clause 4(5)
4.3	The SAACE model agreement between the client and Engineer has a different meaning of the word "agent". According to the model agreement of SAACE the Engineer acts as the "agent" of the client in a conventional contractual context. "Agent" in terms of the Health & Safety regulations has a totally different meaning.	
4.4	It can be derived from the regulations that the client can appoint a designer to perform certain tasks of the client on his behalf. This still does not mean that these designers become his agent in terms of clause 4(5).	Clause 4(5)

4.5	The regulations are fairly quiet regarding the functions and responsibilities of the designer except when designing of a structure. It is again assumed that the client will identify certain functions to be done by the designer on his behalf.	
4.5.1	<p>“Structure” in terms of the regulations means:</p> <p>(a)</p> <ul style="list-style-type: none"> • any building • steel or reinforced concrete structure • railway line • railway siding • bridge • waterworks • reservoir • pipe or pipeline • cable • sewer • sewage works • fixed vessels • road • drainage works • earthworks • dam • wall • mast • tower • tower crane • batching plants • pylon • surface and underground tanks • earth retaining structure <p>or any structure designed to preserve or alter any natural feature and any other similar structure.</p> <p>(b) Any formwork, false work, scaffold or other structure designed or used to provide support or access during construction (structural engineering sector).</p> <p>(c) Fixed plant to prevent people from falling 2 meters or more.</p>	Definitions
4.5.2	The designer is in fact regarded as a person delivering designs only and unless his role is defined by the client, his role is quite limited.	Clause 9(2)
4.5.3	The designer should inform the client and the principal contractor about anticipated dangers relating to the construction work. <u>This is in fact a Risk Assessment.</u>	Clause 9(2)(b)
4.5.4	<p>The designer (in the structural engineering context) shall further furnish to the contractor in writing:</p> <p>i) A geo-technical report.</p> <p>ii) The loading of the structure.</p> <p>iii) The method and sequence of the construction process.</p> <p>iv) He should exclude inherently dangerous methods of construction in his design.</p> <p>v) The maintenance of the structure shall be through safe procedures.</p> <p>vi) He should carry out inspections.</p> <p>vii) And stop the contractor from executing work dangerously.</p>	Clause 9(2)

viii)	A final inspection is necessary to ensure safety of the structure.	
ix)	Great emphasis should be given to the ergonomic design of the structure.	
x)	The engineer should also give input in the design of temporary work e.g. scaffolding.	Clause 10(c)

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SECTION 5

5. THE PRINCIPAL CONTRACTOR (P C) AND CONTRACTOR

The responsibilities of these parties are comprehensively stipulated in the regulations.

5.1	In general it can be seen that the responsibilities of the PC (Principal Contractor) towards his contractors is Mutatis Mutandis to the responsibilities of the Client towards the PC.	
5.2	The PC is responsible for the collecting of these contractors' safety plans and to hold them to it.	Clause 5(1) and (2)
i)	He should also stop his contractors should they work unsafely.	Clause 5(3)(d)
ii)	He should appoint safety officers should the size of the work warrant it.	Clause 6(6)
iii)	He should cause a risk assessment to be executed by a competent person.	Clause 7(1)
iv)	Visitors to his site should undergo induction pertaining to H&S issues.	Clause 7(8)
v)	He shall see to his employees induction and H&S training.	Clause 7(7)
vi)	The employees of the PC and his contractors shall wear visible proof of their induction training.	Clause 7(9)(a)
5.3	The regulations also covers the detail of:	
	• Fall protection	Clause 8
	• Structures (under this heading the responsibilities of the designer of a structure is found)	Clause 9
	• Formwork and support work	Clause 10
	• Excavation work	Clause 11
	• Demolition work	Clause 12
	• Tunnelling	Clause 13
	• Scaffolding	Clause 14
	• Suspended platforms	Clause 15
	• Boatswain's chairs	Clause 16
	• Material hoists	Clause 17
	• Batch plants	Clause 18
	• Explosive powered tools	Clause 19
	• Cranes	Clause 20
	• Construction vehicles and mobile plant	Clause 21
	• Electrical installation and machinery on construction sites	
	• Use and storage of flammable liquids on construction sites	
	• Water environment	Clause 22
	• Housekeeping on construction sites	Clause 23
	• Stacking and storage on construction sites	Clause 24
	• Fire precautions on construction sites	Clause 25
	• Construction welfare facilities	Clause 26
		Clause 27

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SECTION 6

6. APPOINTMENT OF THE DESIGNER

Clause 4(5)

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|-----|---|----------------|
| 6.1 | The client appoints the consultant or designer as agent only for the particular project and also for the duration of the project. | |
| 6.2 | It is further important to distinguish between "agent" in terms of the SAACE model agreement between client and engineer and "agent" in terms of the H&S regulations. | |
| 6.3 | The responsibilities and duties of a designer in the H&S context are <u>those that are dictated by law and/or those respectively given to him by the client, except when he is a structural engineer and designs a "structure" in which case clause 9(2) applies automatically.</u> | |
| 6.4 | The client should only add to the responsibilities of the designer those which is not automatically in his hand in terms of clause 9(1) of the regulations. | |
| 6.5 | The following duties are not regarded as normal work of the designer of a "structure" and will therefore require an additional appointment. | |
| .1 | To ensure the H&S plan of the PC is implemented on site. | Clause 4(1)(d) |
| .2 | To ensure that changes to the design are also incorporated in the H&S plan. | Clause 4(1)(e) |
| .3 | To ensure that the principal contractor is registered and in good standing with the workmens' compensation fund. | Clause 4(1)(f) |
| .4 | To see that the contractor registers the site as a construction site at the Department of Labour. | Clause 4(1)(g) |
| .5 | To discuss with the contractor the H&S plan and then recommend to the client the approval thereof. | Clause 4(2) |
| .6 | To keep a copy of the H&S plan of the contractor in his possession and see that a copy is forwarded to the client. | Clause 4(4) |
| .7 | Control the following on site: | |
| | a) To see that the principal contractor keeps the H&S file up to date and that it is given to the client upon completion of the contract. | Clause 5(7) |
| | b) To see that the principal contractor keeps a data base of all contractors involved with the project. | Clause 5(9) |
| | c) To see that the principal contractor appoints one or more construction supervisors. | |
| | d) To see that this person is dedicated to the particular project only. | Clause 6(4) |
| | e) To receive from the contractor his risk assessment and keep a copy of that for his and the clients records. | Clause 7(1) |

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SECTION 7

7. THE ROLE OF THE CLIENT

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| 7.1 | The client shall still prepare the H&S specification in terms of clause 4(1)(a) for its global activities. The H&S specification for the particular project is assigned to the designer. | Clause 4(1)(a) |
| 7.2 | The client shall approve of the H&S plan of the contractor, but on the recommendation of the consultant/ designer. | Clause 4(2) |
| 7.3 | The client employs the Principal Contractor. | Clause 4(1)(c) |
| 7.4 | The client can appoint an agent in which case all the responsibilities of the agent in the regulations are transferred to the agent. | Clause 4(5) |
| 7.5 | The client should only appoint an agent should he have made reasonably sure that the agent can handle the responsibility. | Clause 4(6) |
| 7.6 | The client shall not appoint a contractor if he is not reasonably sure that the contractor can execute such work in a safe manner. | Clause 4(4) |

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SECTION 8

8. THE ROLE OF THE PRINCIPAL CONTRACTOR

The principal contractor should execute the following duties:

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|-----|--|--------------|
| .1 | Provide a health and safety plan. | 5(1) |
| .2 | See that his contractors comply with the regulations. | 5(2) |
| .3 | He should discuss the particular H&S plan. | 5(5) |
| .4 | He should have his H&S plan available. | 5(6) |
| .5 | He should have an H&S file available on site and hand it over to the client upon completion. | 5(7) |
| .6 | He should not employ contractors who are not capable. | 5(10) |
| .7 | He should have full time supervision on site. | 6(1) to 6(8) |
| .8 | He should produce a risk assessment of the work. | 7(1) |
| .9 | He should train his employees. | 7(4) |
| .10 | He should introduce induction training on site. | 7(7)/ 7(8) |
| .11 | All physical aspects of the regulations as in terms of the regulations. | |

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SECTION 9

9. THE PROCEDURE

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|-----|---|---------------------|
| 9.1 | The Client decides to execute work and appoints a designer to administer the work. | |
| 9.2 | The scope of works and the exact duties of the designer are identified and given to him in writing.

The designer should affect insurance by which the client is indemnified (by the designer) for acts and omissions of the designer. This type of insurance does not form part of the normal PI insurance provided by the designer.

The designer prepares a contract document and ensures that this document states clearly the following: | |
| .1 | A risk assessment of the project and the H&S specification of the client. | |
| .2 | All relevant information to enable the pricing of the contract. | 9(2)(a) |
| .3 | Items in the bill to enable the tenderer to price for the risk including insurance indemnifying the client. The document should state whether a full time safety officer is required on site. | 9(2)(b) |
| .4 | (i) Geotechnical information
(ii) Loading of the structure – in other words all relevant technical data taking the definition of “structure” into account.
(iii) The method and sequence of the process. This should identify the priorities of the client. | 9(2)(c)(i) to (iii) |
| .5 | Inherently dangerous procedures should be avoided in the design. | 9(2)(d) |
| .6 | The maintenance of the structure should be considered also so that this aspect would be safe and ergonomic too. | 9(2)(e) |
| 9.3 | The tenderers then respond by each giving a H&S plan based on the risk assessment of the designer. | |
| 9.4 | The client then chooses the contractor according to his procurement policy (taking into account his ability to do the work safely) and appoints him in writing via the designer. | |
| 9.5 | The chosen principal contractor then affects a detailed risk assessment and a risk management plan, based on the H&S specification. | |

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|------|--|
| 9.7 | Once on site the principal contractor should register the site by means of the prescribed form and have it approved by the client/designer. |
| 9.8 | He should open and then maintain his H&S file through the duration of the contract. |
| 9.9 | He should then further adhere to the provisions of the H&S regulations. |
| 9.10 | He should hand over the H&S file (recommend to do that with the designer's as-built drawings). |
| 9.11 | The designer should stop the work if he has reason to believe that the contractor is executing work in an unsafe manner. |
| 9.12 | Likewise should the principal contractor stop the work of his contractor(s) should he have reason to believe that such contractor is not working safely. |

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SECTION 10

10. **CONTRACT DOCUMENTATION**

The contract documentation needs to emphasize the following points in order to comply with the Health and Safety Act 1993 and the Construction Regulations 2003.

A. **In the Specification section**

1. **Health and Safety Specification**

The Client shall issue the Designer with his Health and Safety specification and it shall be included as such in the document.

Should the Designer be of the opinion that variations and additions be made to the specification, due to the nature of the particular project, he shall forward the proposed variation or addition to the NDM who will authorize this in writing.

2. **Risk Assessment**

This can form part of the contract specifications.

It is necessary to identify to the contractor:

- i) The situation on site as it is with all the potential hazards and dangers involved.
- ii) The nature of the work and the situations that the average contractor would encounter during the execution of the work. The nature of the work and the expected risks should be described in particular as well as the method and the sequence of the work.
- iii) The basic safety precautions that he should take.
- iv) The Safety and Health specification of the client.
- v) To allow sufficient items in the bill of quantities for the tenderer to price for the specified H&S precautions.

3. **Insurance**

The contractor shall affect insurance indemnifying the client against penalties levied upon the client due to the acts or omissions of the contractor in failing to comply with the provisions of the H&S regulations 2003.

The contractor shall prove to the Engineer that such insurance has been affected and maintained during the construction.

B. **The Tender Rules**

The tender rules shall contain a clause requiring the contractor to submit a H&S plan based on the risk assessment given in the contract document. It should also state that the client is bound by law not to appoint a contractor

should he be reasonably sure that the contractor would not be able to execute the work safely should he be appointed.

The following example is recommended.

Compliance with the Regulations of the H&S Act 2003

Tenderers are required to study the published risk assessment and provide Annexure Y his Health and Safety Plan. Generic document will be disregarded. Such H&S plan should give details regarding the tenderers intention of dealing with the risks.

Failure to submit such H&S plan will result in disqualification of the tender.

Tenderers are informed that the client is bound by law not to accept a tender should he be reasonable sure that the tenderer will not be able to execute the work safely.

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SECTION 11

11. CONCLUSION

The Construction Regulations 2003 was long overdue in the South African Civil Engineering Construction Industry. Role players will now be forced to implement them and an awareness of safe working environments will be cultivated.

Clients might initially detect a contemptuous attitude particularly from contractors and even designers or consultants. This should not deter clients since acts and omissions from these parties will bring clients in confrontation with the law.

Contract cost will certainly escalate due to the additional specifications but this should be weighed against the value of human lives improved and saved.

The construction industry, particularly the Civil Engineering Sector, will have to accept and embrace these regulations and then seriously look at its productivity to curb the cost of the implementation process.

1.0 SCOPE

This part of the specification has the objective to assist principal contractors entering into contracts with The Employer that they comply with the Occupational Health and Safety (OH&S) Act, No 85 of 1993. Compliance with this document does not absolve the principal contractor from complying with minimum legal requirements, and the principal contractor remains responsible for the health and safety of his employees and those of his Mandataries. Principal and other contractors should therefore insist that this part of the specification from part of any contract that he may have with other contractors and/or suppliers.

This section covers the development of a health and safety specification that addresses all aspects of occupational health and safety as affected by this contract. It provides the requirements that the principal contractors and other contractors shall comply with in order to reduce the risks associated with this contract that may lead to incidents causing injury and/or ill health.

2.0 GENERAL OCCUPATIONAL HEALTH AND SAFETY PROVISIONS

2.1 Hazard Identification and Risk Assessment (Construction Regulation 7)

2.1.1 Risk Assessments

Paragraph 4 contains a generic list of risk assessment headings that have been identified by The Employer as possibly applicable to this contract. It is, by no means, exhaustive and is offered as assistance to contractors intending to bid.

2.1.2 Development of Risk Assessment

Every principal contractor performing construction work shall, before the commencement of any construction work or work associated with the aforesaid construction work and during such work, cause a risk assessment to be performed by a competent person, appointed in writing, and the risk assessment shall form part of the OH&S plan and be implemented and maintained as contemplated in Construction Regulation 5(1).

The risk assessment shall include at least:

- the identification of the risks and hazards to which persons may be exposed
- the analysis and evaluation of the risks and hazards identified
- a documented plan of safe work procedures to mitigate, reduce or control the risks and hazards that have been identified.
- a monitoring plan and
- a review plan

Based on the risk assessment, the principal contractor shall develop set site-specific OH&S rules that shall be applied to regulate the OH&S aspects of the construction. The risk assessment, together with the site-specific OH&S rules shall be submitted to The Employer before construction on site commences.

Despite the risk assessment listed in paragraph 4, the principal contractor shall conduct a baseline risk assessment, and the aforesaid listed risk assessment shall be incorporated into the baseline risk assessment. The baseline assessment shall further include the standard working procedures and the applicable method statements based on the risk assessments.

All variations to the scope of work shall similarly be subjected to a risk assessment process.

2.1.3 Review of Risk Assessment

The principal contractor shall review the hazard identification, risk assessments and standard working procedures at each production planning and progress report meetings as the contract work develops and progresses and each time changes are made to the designs, plans and construction methods and processes. The principal contractor shall provide The Employer, other contractors and all other concerned parties with copies of any changes, alterations or amendments as contemplated in paragraph 2.1.3.

2.2 Legal Requirements

A principal contractor shall, as minimum, comply with:

The Occupational Health and Safety Act and Regulations (Act 85 of 1993), an up to date copy of which shall be available on site at all times.

The Compensation or Occupational Injuries and Diseases Act (Act 130 of 1993), an up to date copy of which shall be available on site at all times.

Where work is being carried out on a "mine", the contractor shall comply with the Mines Health and Safety Act and Regulations (Act 29 of 1960) and any other OH&S requirements that the mine may specify. An up-to-date copy of the Mine's Health and Safety Act and Regulations shall be available on site at all times.

2.3 Structure and Responsibilities

It is a requirement that the principal contractor, when he appoints contractors (Sub-contractors) in terms of Construction Regulations 5(3), 5(5), 5(10), and 5(12) includes in his agreement with such contractors the following:

- OH& S Act (85 of 1993), Section 37(2) agreement: "Agreement with Mandatory"
- OH&S Act (85 of 1993), Section 16(2) appointee/s as detailed in his / her/ their respective appointment forms.

2.2.3 Further (Specific) Supervision Responsibilities for OH & S

The contractor shall appoint designated competent employees and/or other competent persons as required by the Act and Regulations. Below is a generic list of identified appointments and may be used to select the appropriate

appointments for this contract. The contractor shall note it is a generic list only and is intended for use as a guideline.

Ref. Section/ Regulation in OHS Act	
Batch Plant Supervisor	(Construction Regulation 6(1))
Construction Vehicles/ Mobile Plant/ Machinery Supervisor	(Construction Regulation 21)
Demolition Supervisor	(Construction Regulation 12)
Drivers/Operators of Construction Vehicles/ Plant	(Construction Regulation 21)
Electrical Installation and Appliances Inspector	(Construction Regulation 22)
Emergency/Security/Fire Control	(Construction Regulation 27)
Excavation Supervisor	(Construction Regulation 11)
Explosive powered Tool Supervisor	(Construction Regulation 19)
Fall Protection Supervisor	(Construction Regulation 8)
First Aider	(Construction Regulation 3)
Fire Equipment Inspector	(Construction Regulation 27)
Formwork & Support work Supervisor	(Construction Regulation 10)
Hazardous Chemical Substances Supervisor	(HCS Regulations)
Incident Investigator	(General Admin Regulation 29)
Ladder Inspector	(General Safety Regulation 13A)
Lifting Equipment Inspector	(Construction Regulation 20)
Material Hoist Inspector	(Construction Regulation 17)
OH&S Committee	(OH&S Section 19)
OH&S Officer	(Construction Regulation 6(6))
OH&S Representatives	(OHS Act Section 17)
Person Responsible for Machinery	(General Machinery Regulation 2)
Scaffolding Supervisor	(Construction Regulation 14)
Stacking & Storage Supervisor	(Construction Regulation 26)
Structures Supervisor	(Construction Regulation 9)
Suspended Platform Supervisor	(Construction Regulation 15)
Tunneling under Pressure Supervisor	(Construction Regulation 13)
Vessel under Pressure Supervisor	(Vessel under Pressure Regulations)
Working on/next to Water Supervisor	(Construction Regulation 24)
Welding Supervisor	(General Safety Regulation 9)

In addition, The Employer requires that a Traffic Safety Officer be appointed (see COLTO Section 1500). The above appointments shall be in writing and the responsibilities clearly stated together with the period for which the appointment is made. This information shall be communicated and agreed with the appointees. Notice of appointments shall be submitted to The Employer. All changes shall also be communicated to the Employer.

The principal contractor or shall, furthermore, provide The Employer with an organogram of all contractors that he/she has appointed or intends to appoint and keep this list updated and prominently displayed on site.

Where necessary, or when instructed by an inspector of the Department of Labour, the principal contractor shall appoint a component safety officer.

2.3.3 Designation of OH&S Representatives (Section 17 of the OH&S Act)

Where the principal contractor employs more than 20 persons (including the employees of other contractors (sub-contractors) he has to appoint one OH&S representatives for every 5 employees or part thereof. General Administrative Regulation 6 requires that the appointment or election and subsequent designation of the OH&S representatives be conducted in consultation with employee representatives or employees. (Section 17 of the Act and General Administrative Regulation 6 & 7). OH&S representatives shall be designated in writing and the designation shall include the area of responsibility of the person and term of the designation.

2.3.4 Duties and Functions of the OH&S representatives (Section 18 of the OH&S Act)

The principal contractor shall ensure that the designated OH&S representatives conduct continuous monitoring and regular inspections of their respective areas of responsibility using a checklist and report thereon to the principal contractor. OH&S representatives shall be included in accident or incident investigations. OH&S representatives shall attend all OH&S committee meetings.

2.3.5 Appointment: of OH&S Committee (Section 19 and 20 of the OH&S Act)

The principal contractor shall establish an OH&S committee, which shall meet as specified in the Regulations.

2.4 Administrative Controls and the Occupational Health & Safety File

2.4.1 The OH&S File (Construction Regulation 5(7))

As required by the Construction Regulation 5(7), the principal contractor and other contractors shall each keep an OH&S file on site. The following list is not exhaustive and shall only be used as a guide:

- Notification of construction work (Construction Regulation 3)
- Latest copy of OH&S Act (General Administrative Regulation 4)
- Proof of registration and good standing with COID Insurer (Construction Regulation 4(g))
- OH&S plan agreed with the client including the underpinning risk assessment/s and method statements (Construction Regulation 5(1))
- Copies of OH&S committee and other relevant minutes
- Designs/Drawings (Construction Regulation 5(8))
- A list of contractors (sub-contractors) including copies of the agreements between the parties and the type of work being done by each contractor (Construction Regulation 9)
- Appointment/designation forms as per paragraphs 2.1.1 and 2.1.2
- Registered as follows:
 - Accident/incident register (Annexure 1 of the General Administrative Regulations)
 - OH&S representatives' inspection register
 - Asbestos demolition and stripping register
 - Batch plant inspections
 - Construction vehicles and mobile plant inspections by controller
 - Daily inspection of vehicles, plant and other equipment by the operator/driver/user
 - Demolition inspection register
 - Designer's inspection of structures record
 - Electrical installations, equipment and appliances including portable electrical tools)
 - Excavations inspector
 - Explosive powered tool inspection, maintenance, issue and returns register (incl. Cartridges and nails)
 - Fall protection inspection register
 - First aid box contents
 - Fine equipment inspection and maintenance
 - Formwork and support work inspections
 - Hazardous chemical substances record
 - Ladder inspections
 - Lifting equipment register
 - Materials hoist inspection register
 - Machinery safety inspection register (incl. Machine guards, lock-outs etc.)
 - Scaffolding inspections
 - Stacking and storage inspection
 - Inspection of structures
 - Inspection of suspended platforms
 - Inspection of tunnelling operations
 - Inspection of vessels under pressure

- Welding equipment inspections
- Inspection of work conducted near water
- All other applicable records including traffic safety officer reports.

The Employer will conduct an audit on the OH&S file of the principal constructor from time-to time.

2.5 Notification of Construction Work (Construction Regulation 3)

The principal constructor shall, where the contract meets the requirements laid down in Construction work and use the form (Annexure A in the Construction Regulations) for the purpose. A copy shall be kept on the OH&S file and a copy shall be forwarded to The Employer for record keeping purposes.

2.6 Training and Competence

The contents of all training required by the Act and Regulations shall be included in the principal contractor's OH&S plan. The principal contractor shall be responsible for ensuring that all relevant training is undertaken.

Only accredited service providers shall be used for OH&S training. The principal contractor shall ensure that his and other contractor's personnel appointed are competent and that all training required to do the work safely and without risk to health, has been completed before work commences. The principal contractor shall ensure that follow-up and refresher training is conducted as the contract progresses and the work situation changes. Records of all training must be kept on the OH&D file for auditing purposes.

2.7 Consultations, Communication and Liaison

OH&S liaison between the client, the principal contractor, the other contractors, the designer and other concerned parties will be through the OH&S committee as contemplated in paragraph 2.3.5. In addition to the above, communication may be directly to the client or his appointed agent, verbally or in writing, as and when the need arises.

Consultation with the workforce on OH&S matters will be through their supervisions, OH&S representatives and the OH&S committee. The principal contractor shall be responsible for the dissemination of all relevant OH&S information to the other contractors e.g. design changes agreed with the client and the designer, instructions by the client and/or/his/her agent, exchange of information between contractors, the reporting of hazardous/dangerous conditions/situations etc. The principal contractor's most senior manager on site shall be required to attend all OH&S meetings.

2.8 Checking Reporting and Corrective Actions

2.8.1 Monthly Audit by Client (Construction Regulation 4(1) (d))

The Employer will conduct monthly audits to comply with Construction Regulation 4(1)(d) to ensure that the principal contractor has implemented and is maintaining the agreed and approved OH&S plan.

2.8.2 Other Audits and Inspections by The Employer

The Employer reserves the right to conduct other hoc audits and inspections as deemed necessary. This will include site safety walks.

2.8.3 Contractor's Audits and Inspections

The principal contractor is to conduct his own monthly internal audits to verify compliances with his own OH&S management system as well as this specification.

2.8.4 Inspections by OH&S Representatives and other Appointees

OH&S representatives shall conduct weekly inspections of their areas of responsibility and report thereon to their foreman or supervisor whilst other appointees shall conduct inspections and report thereon as specified in their appointments e.g. vehicle and machinery drivers, operators and users must conduct daily inspections before start-up.

2.8.5 Recording and Review of Inspection Results

All the results of the above mentioned inspections shall be in writing at OH&S committee meetings, endorsed by the chairman of the meeting and placed on the OH&S File.

2.9 Accidents and Incident Investigation (General Administrative Regulation 9)

The principal contractor shall be responsible for the investigation of all accidents/incidents where employees and non-employees were injured to the extent that he/she/they had to be referred for medical treatment by a doctor, hospital or clinic. The results of the investigations shall be entered into an accident/incident register listed in paragraph 2.4.1

The principal contractor shall be responsible for the investigation of all minor and non-injury incidents as described in Section 24 (1) (b) & (c) of the Act and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.

2.10 Reporting

The principal contractor shall provide the Employer with copies of all statutory reports required in terms of the Act within 7 days of the incident occurring.

3.0 OPERATIONAL CONTROL

3.1 Operational Procedures

Each construction activity shall be assessed by the principal contractor so as to identify operational procedures that will mitigate against the occurrence of an incident during the execution of each activity. This specification requires the principal contractor:

- to be conversant with Regulations 8 to 29 (inclusive)
- to comply with their provisions
- to include them in his OH&S plan where relevant

3.2 Emergency Procedure

Simultaneous with the identification of operational procedures (per paragraph 3.1 above), the principal contractor shall similarly identify and formulate emergency procedures in the event an incident does occur. The emergency procedures thus identified shall also be included in the principal contractor's OH&S plan.

3.3 Personal & Other Protective Equipment (Section 8/ 15/ 23 of the OH&S Act)

The contractor shall identify the hazards in the workplace and deal with them. He must either remove them or, where impracticable, take steps to protect workers and make it possible for them to work safely and without risk to health under the hazardous conditions.

Personal protective equipment (PPE) should, however, be the last resort and there should always first be an attempt to apply engineering and other solutions to mitigating hazardous situations before the issuing of PPE is considered.

Where it is not possible to create an absolutely safe and healthy workplace the contractor shall inform employees regarding this and issue, free of charge, suitable equipment to protect them from any hazards being present and that allows them to work safely and without risk to health in the hazardous environment.

It is a further requirement that the contractor maintain the said equipment, that he instructs and trains the employees in the use of the equipment and ensures that the prescribed equipment is used by the employee/s.

Employees do not have the right to refuse to use/wear the equipment prescribed by the employer and, if it is impossible for an employee to use or wear prescribed protective equipment through health or any other reason, the employee cannot be allowed to continue working under the hazardous condition/s for which the equipment was prescribed but an alternative solution has to be found that may include relocating or discharging the employee.

The principal contractor shall include in his OH&S plan the PPE he intends issuing to his employees for use during construction and the sanctions he intends to apply in cases of non-conformance by his employees. Conformance to the wearing of PPE shall be discussed at the weekly inspection meetings.

3.4 Other Regulations

Wherever in the Construction Regulations or this specification there is reference to other regulations (e.g. Construction Regulation 22: Electrical and Machinery on Construction Sites) the principal contractor shall be conversant with and shall comply with these regulations.

3.5 Public Health and Safety (Section 9 of the OH&S Act)

The principal contractor shall be responsible for ensuring that non-employees affected by the construction work are aware of the dangers likely to arise from said construction work as well as the precautionary measures to be observed to avoid or minimize those dangers. This includes:

- *Non-employees entering the site for whatever reason*
- *The surrounding community*
- *Passers by to the site*

4.0 PROJECT/S SPECIFIC REQUIREMENTS

4.1 List of Risk Assessments

- *Clearing and Grubbing of the areas/site*
- *Site establishment including:*
 - *Offices*
 - *Secure/safe storage for materials and equipment*
 - *Ablutions*
 - *Sheltered eating area*
 - *Maintenance workshop*
 - *Vehicle access to the site*
- *Dealing with existing structures*
- *Location of existing services*
- *Installation and maintenance of temporary construction electrical supply, lightning and equipment*
- *Adjacent land uses/surrounding property exposures*
- *Boundary and access control/public liability exposures (NB: the employer is also responsible for the OH&S of the non-employees affected by his/her work activities)*
- *Health risks arising from neighbouring as well as own activities and from the environment e.g. threats by dogs, bees, snakes and lightning etc.*
- *Exposure to noise*
- *Exposure to vibration*
- *Protection against dehydration and heat exhaustion*
- *Protection from wet and cold conditions*

- *Dealing with HIV/AIDS and other diseases*
- *Use of portable electrical equipment including*
 - Angle grinder
 - Electrical drilling machine
 - Still saw
- *Excavation including*
 - Ground/soil conditions
 - Trenching
 - Shoring
 - Drainage of trench
- *Welding including*
 - Arc welding
 - Gas welding
 - Flame cutting
 - Flame cutting
 - Use of LP gas torches and appliances
- *Loading and offloading of truck*
- *Aggregate/sand and other materials delivery*
- *Manual and mechanical handling*
- *Lifting and powering operators*
- *Driving and operation of construction vehicles and mobile plant including.*
 - Trenching machine
- *Use and storage of flammable liquids and other hazardous substances*
- *Layering and bedding*
- *Installation of pipes in pipelines*
- *Backfilling trenches*
- *Protection against flooding*
- *Gabion work*
- *Use of explosive*
- *Protection from overhead power lines*
- *As discovered by the principal contractor's hazard identification exercise*
- *As discovered from any inspection and audits conducted by the client or by the principal contractor or any other contractor on site*
- *As discovered from any accident/incident investigation*

FORM C1.5 SUPPLY CHAIN MANAGEMENT POLICY

Please refer to O. R. TAMBO District Municipality's Procurement Policy.

SECTION 3

SPECIAL CONDITIONS OF CONTRACT

SPECIAL CONDITIONS OF CONTRACT

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SPECIAL CONDITIONS OF CONTRACT

The Contract shall be governed by the "General Conditions of Contract for Works of Civil Engineering Construction, First Edition (2004)". The only variations from these General Conditions of Contract shall be as given in the Special Conditions of Contract below.

The Government Procurement "General Conditions of Contract" shall apply except in so far as they are in conflict with the above conditions and the Special Conditions.

The following additions to and variations from the General Conditions of Contract for Works of Civil Engineering Construction (First edition- 2004) apply to the Contract. Certain pro-formas that are contained in the General Conditions of Contract 1990 are also replaced by the corresponding pro-formas that are bound into this document.

1(1) Definitions

1.1.4 Commencement Date

Replace the entire contents of Clause 1(1)(c) with the following:

"Commencement Date" means the date of receipt by the Contractor of an official Districtal order.

1.1.13 Due Completion Date

Add the following to the end of this definition:

This clause shall apply *mutatis mutandis* to any portion or phase of the Works that may be described in the Project Specification or in the Appendix to the BID, or agreed subsequently between the Contractor and the Employer, and committed to writing.

1.1.14 "Employer" means O.R. Tambo District Municipality, Department of Infrastructure & Water Services and shall include the Employer's duly authorised representative.

1.1.15 "Engineer" means any **DIRECTOR**, associate or professional engineer appointed generally or specifically by O.R. Tambo District, to fulfil the functions of the Engineer in terms of the Conditions of Contract.

4.2 Contractor's Liability for his own Design Errors

Add the following to the end of Clause 4.2

The successful Bidder will be required to provide the following to the Engineer for retention by the Employer or his assignee in respect of all works designed by the Contractor.

- (a) A Certificate of Stability of the Works signed by a registered Professional Engineer confirming that all such works have been designed in accordance with the appropriate codes of practice.
- (b) Proof of registration and of adequate and current professional indemnity insurance cover held by the designer(s).
- (c) Design calculations should the Engineer request a copy thereof.
- (d) Engineering drawings and workshop details (both signed by the relevant professional engineer), in order to allow the Engineer to compare the design with the specified requirements and to record any comments he may have with respect thereto.

(e) "As-Built" drawings in DXF electronic format after completion of the Works.

6. Subcontracting

Replace the entire contents of Clause 6 with the following:

6.1 The Contractor shall not sub-let the whole of Contract

6.2 Where it is so required in terms of the Project Specifications, the Contractor shall sub-let portions of the Works to local sub-contractors with a view to maximising labour intensive construction, all in accordance with the various provisions of the Contract; provided always that unless stated to the contrary elsewhere in the Contract, the Contractor shall be entitled to sub-let further portions of the Works, additional to those which he is required to sub-let in terms of this sub-clause.

6.3 Except where otherwise provided in the Contract, the Contractor shall not sub-let any part of the Contract without the prior written consent of the Engineer, which consent shall not be unreasonably withheld.

6.4 The Contractor shall obtain the Engineer's prior written consent in respect of any particular subcontractor to whom he intends sub-letting any portion of the Works and such consent shall not be unreasonably withheld; provided always that any such consent when given, shall not be deemed to constitute any form of approval by the Engineer, of the competence or suitability of any particular subcontractor in respect of whom such consent is given.

6.5 Any consent given by the Engineer in terms of Sub-clauses 6.3 or 6.4 shall not relieve the Contractor of any liability or obligations under the Contract, and he shall be fully liable for the acts, defaults and neglects of any subcontractor (whether locally contracted or otherwise) as well as for the acts, defaults and neglects of such subcontractor's agents or employees, as fully as if they were the acts, defaults or neglects of the Contractor, his agent or employees.

6.6 The Engineer's consent in respect of any particular subcontractor may be withdrawn at any time should reasonable grounds be given therefor in writing to the Contractor by the Engineer, in which event the Contractor shall forthwith terminate the engagement of that subcontractor on the Works.

The withdrawal (in terms of Sub-Clause 6.6 above) by the Engineer of his consent in respect of any particular sub-contractor that is engaged in the execution of any portion of the Works, including any portions of the Works which are required in terms of Sub-Clause 6.2 above to be sub-let by the Contractor to local subcontractors, shall not relieve the Contractor of any of his obligations under the Contract, nor of any of his obligations to sub-let the particular portions of the Works concerned.

Unless otherwise stipulated in the Contract:

- (a) the provision of labour, whether locally employed or not; or
- (b) the purchase of materials which are in accordance with the Contract; or
- (c) the purchase or hire of Constructional Plant;

shall not be regarded as sub-letting, as contemplated in this clause, for which the Contractor is required to obtain the Engineer's consent in terms of Sub-Clauses (6.3 and 6.4".

14. Notices and Fees

14.1.2 Add the following paragraph to Sub-Clause 14:

Proof of insurance shall be submitted to the Employer prior to Commencement of the Works (Clause 12), and copies of the policies and proof of due payment of all premiums shall be presented to the Employer within twenty eight (28) days of the Date of Commencement.

Workmen's Compensation

Amend to read as follows:

The Contractor shall provide proof that he has paid all contributions that are required in terms of the provisions of the Compensation for Occupational Injuries and Diseases Act (Act No. 130 of 1993), within 30 days of the Commencement Date.

Rate of Progress

Add the following:

No such instruction by the Engineer to expedite progress shall be the subject of additional compensation to the Contractor unless the instruction explicitly states that the Contractor is entitled to additional compensation, and cites the amount of such compensation or the basis upon which is to be determined.

Time for Completion

Amend this clause to read as follows:

The various portions or phases of the Works, as well as the whole of the Works, shall be completed by the Due Completion Dates (as defined in Clause 1.1.13 of these Conditions.

If before the issue of a Certificate of Practical Completion for the whole of the Works, or for any specific portion thereof that is identified in the Project Specifications and in the Appendix to BID, any further part of the Works has been:

- (i) certified as complete in terms of a Certificate of Practical Completion; or
- (ii) occupied or used by the Employer, his agents, employees or other contractors (not being employed by the Contractor);

then the appropriate penalty for delay referred to in Sub-Clause 46(1)(a) above shall be reduced by the amount which is determined by the Engineer to be appropriate under the circumstances.

If the Contractor shall, without the prior written permission of the Engineer, in respect of any portions of the Works which are prescribed in the Project Specifications to be executed using labour intensive construction methods, or for which the maximum size and capacity of mechanical plant and equipment is restricted in terms of the Contract:

- (a) fail to execute such portions of the Works, or any parts thereof, utilising labour intensive construction methods strictly in accordance with the provisions of the Contract; or
- (b) utilise in the execution of such portions of the Works, or any parts thereof, mechanical plant or equipment which is in conflict with the terms of the Contract; or

- (c) utilise in the execution of such portions of the Work, workers drawn from sources other than those allowed in terms of the Contract;

then the Contractor shall be liable to the Employer for the percentage that is stated in the Appendix of the value of the Works so executed in conflict with the provisions of the relevant Project Specification, as a penalty for non-compliance.

The imposition of penalties in terms of Sub-Clauses 14.1.2 shall not relieve the Contractor from his obligation to complete the Works, nor from any of his obligations and liabilities under the Contract.

All penalties for which the Contractor becomes liable in terms of Sub-Clauses 14.1.2 shall be accumulative. The Employer may, without prejudice to any other method of recovery, deduct the amounts of all such penalties from any monies in his possession that are or may become due to the Contractor.

The imposition of any penalties in terms of Sub-Clauses 14.1.2 shall not limit the right of the Engineer or the Employer to act.

SCOPE OF WORKS

SECTION 1: THE SCOPE OF WORK

All definitions, interpretations and general provisions for the General Conditions of Contract for Construction Work, Third Edition (2015) are applicable.

C 3.1 INTRODUCTION

O.R. Tambo District Municipality is a Water Service Authority and a Water Service Provider as mandated by the legislation. One of its responsibility is to ensure safe and reliable drinking water supply to all its communities. Henceforth O.R. Tambo District Municipality invites A Panel of Professional Service Providers for the Implementation of Civil Works in it water services schemes that will include construction, refurbishment, rehabilitation, repairs and maintenance for a period of 36 months.

O.R. Tambo District Municipality is responsible for the supply of drinking water to the following local municipalities:

- King Sabatha Dalindyebo LM
- Mhlontlo LM
- Nyandeni LM
- Port St John LM
- Ingquza Hill LM
-

C 3.2. Scope of work

1. Employer's objectives

The primary objective of O.R. Tambo District Municipality is to be able to provide access to water services for its consumers within its Jurisdiction by construction, refurbishment, rehabilitation, repairs and maintenance of its water services Mechanical and Electrical infrastructure and Equipment to ensure full operations of water and wastewater schemes so that it supplies potable drinking water consistently to its communities using it internal staff. The contractor shall use the reasonable resources. These resources include local labour, sub-contractors, and plant hire. The specification of the material should be specified by the engineer.

It is a specific goal of this project that the labour component where possible be maximized where it is economically feasible, and that the use of this labour goes hand in hand with on the job training of the labour force. The project is thus process and product orientated, and it is expected that the contractor will pursue these goals in the execution of the project.

C3.1.2 Overview of the Works

Service Providers are expected to Implement services of Mechanical and Electrical Works on infrastructure and Equipment related activities which are inclusive of Construction Works, Refurbishments, Upgrading, Rehabilitation, Repairs and Maintenance work for 36 months within O.R. Tambo District Municipality various sites as per official Instructions issued as and when necessary. These services will be provided in line with the Municipal Procurement Policy and Guidelines on a rotational basis and in a manner that will serve the interest of the municipality i.e no supplier will be entitled to a specific area for the entire contract.

Actual required quantities will be indicated by means of official Instructions from O.R. Tambo DM and Only upon receipt of our official instructions, works can commence.

C4: Site Information

The contract is applicable to the following areas:

- King Sabata Dalindyebo Municipality
- Nyandeni Municipality
- Mhlontlo Municipality
- Port St John's Municipality
- Ngquza Hill Municipality

FORM C2.3 SPECIFICATIONS

SECTION 4

SPECIFICATIONS

INDEX TO SPECIFICATIONS

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SECTION 4.1	STANDARD SPECIFICATIONS
SECTION 4.2	PROJECT SPECIFICATIONS
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PS 1	General description of the Works
PS 2	Description of Site and access
PS 3	Nature of ground and subsoil conditions
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PS 5	Construction programme
PS 6	Site facilities available
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PS 8	Statutory regulations
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PS 10	Workmanship and quality control
PS 11	Features requiring special attention
PS 12	Drawings, operation and maintenance manuals
PS 13	Samples
PS 14	Notices, signs, barricades and advertisements
PS 15	Open trenches
PS 16	Spoil material
PS 17	Information in respect of Plant
PS 18	Information in respect of Employees
PS 19	Abnormal rainfall
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PS 22	Training

Section 4.2: Portion 2: Variations to Standardised Specifications and Additional Clauses

PSA	General
PSAB	Engineers office
PSC	Site clearance
PSD	Earthworks (small works)
PSDB	Earthworks (Pipe Trenches)
PSDK	Gabions and pitching
PSGA	Concrete (small works)
PSHA	Structural steelwork (sundry item)
PSL	Medium pressure pipelines
PSLB	Bedding (pipes)

SECTION 4.3: LOCALITY PLANS

SECTION 4.4: SPECIFICATION DRAWINGS

SECTION 4.5: COMMISSIONING AND COMPLETION CERTIFICATE

Notes Application

1. The various documents listed in Section 1 shall be treated as mutually explanatory. However, should any requirement of the Project Specifications (Section 4.2) conflict with any requirement of the Standardised Specifications (Section 4.1) or with any requirement of the Particular Specifications (Section 4.3), then the requirement of the Project Specification shall prevail.
2. The Project Specifications consists of two portions, viz.

Portion 1, contains a description of the Contract, the Works to be constructed under the Contract, and other information of a general nature pertaining to the Contract.

Portion 2, contains references, amendments and additions to the Standard Specifications that are applicable to the Contract.
3. Clauses in the Project Specifications are prefixed with the letters PS. Portion 1 of the Project Specifications contains clauses numbered sequentially, but prefixed with the letters PS. Portion 2 of the Project Specifications contains clauses numbered sequentially (with reference to the actual Standard Specification clauses being referred to, amended or added to) also prefixed with the letters PS and letter applicable to the relevant Project Specification.
4. Particular Specifications are, in application, additional sections of the Standard Specifications. Particular specifications are numbered alphabetically in accordance with the standard system used in the Engineers' office. Individual clauses are numbered sequentially.

END OF SECTION

SECTION 4.1

STANDARD SPECIFICATIONS

END OF SECTION

Section 4.2

PROJECT SPECIFICATIONS

Portion 1: The Work

PART 3:

PROJECT SPECIFICATION

SECTION 1: GENERAL REQUIREMENTS

SECTION 2: EQUIPMENT DESCRIPTION

SECTION 3: REQUIREMENTS

PART 3: SECTION 1: GENERAL REQUIREMENTS

SERVICES TO BE RENDERED

- 1.1. The services to be rendered in response to this specification comprise a three-year contract for the refurbishment upgrade, maintenance and project supervision of mechanical and electrical installations and equipment associated with the DISTRICT MUNICIPALITY installations, all accompanied by written reports. The service to be provided may include preventative maintenance and condition monitoring.
- 1.2. The offered service, as a whole and regarding all component parts, is to be in strict accordance with each and every term of the documents listed below:
 - 1.2.1. The General Conditions of Contract, for use in connection with Electrical and Mechanical Works.
 - 1.2.2. The Special Conditions of Contract.
 - 1.2.3. The Standard Specification.
 - 1.2.4. This Project Specification
 - 1.2.5. The information provided in the Technical Schedules.
- 1.3. Bidders shall only offer high performance services strictly complying with the requirements specified in par. 1.2 above.
- 1.4. The Contractor must have the in-house capacity or must have acceptable written agreements with associate companies to do a preponderance of the work

2. DEPARTURES FROM SERVICES TO BE RENDERED

- 2.1. If, in their offers to meet these specifications, there are any departures whatsoever from any of the provisions, or from any of the terms set out in par. 1 above, then Bidders shall list each and every departure in Part 4. The list, which shall accompany the BID offer, shall be so numbered as to correlate each and every departure with the relative paragraph contained in any of the documents listed in par. 1.2 above.
- 2.2. Failure on the part of any Bidder to comply with the above requirement in full MAY INVALIDATE THE OFFER.
- 2.3. Should it be found at any stage up to the end of the contract period that the services performed or any component thereof deviates from the specified requirements and that such deviation had not been noted by the Bidder in his BID offer, the Contractor will be required to redo such services or any component thereof with work complying with the requirements specified in the documents listed in par. 1.2 above, at no extra cost to the Employer.

3. ADMINISTRATION AND SUPERVISION OF CONTRACT

The control of this project is vested in:

The General Manager of Water Services Provision

OR TAMBO DISTRICT MUNICIPALITY

Private Bag X6043

MTHATHA, 5100

3.2 This contract will be administered by the General Manager: of the O.R. TAMBO DISTRICT MUNICIPALITY hereafter referred to as the Engineer. The contact persons are:

The General Manager of Operations and Maintenance

OR TAMBO DISTRICT MUNICIPALITY

Private Bag X6043

MTHATHA, 5100

Attention:

Mr L Mashiya

Tel: 047 501 6492

Fax

Or his representative appointed from time to time.

ALL correspondence between the Contractor and the Employer should be routed via the General Manager: Water Services Provision at the address indicated in par. 3.1. This includes ALL telefaxes, letters, claims for payment, etc.

The Contractor to be appointed for this Contract shall undertake to forthwith acknowledge IN WRITING the receipt of ALL correspondence from the Engineer and/or the Employer and shall provide suitable response within a period of fourteen (14) days. Failure of the Contractor to comply with this requirement shall be interpreted as a breach of contract, in terms of clause 65(1) of the General Conditions of Contract.

3.5 Employer reserves the right at any time during the execution of this Contract to nominate a Specialist Engineer to fulfil part or all of the duties of the Employer for such portion of the Works as the Employer will confirm in writing.

A provisional sum has been included in Schedule 1 of the Price Schedules for payment of the nominated Specialist Engineer.

4. TESTING AND COMMISSIONING

4.1. All equipment refurbished, upgraded or repaired in terms of the requirements of this contract shall be set up at the Contractor's or Sub Contractors works for thorough inspection and testing by the Engineer BEFORE being transferred to site. All work performed in the scope of this Contract is required to be reported upon in the form of acceptable reports/test certificates etc. at no extra cost.

4.2. Any faults, deviations, etc. from the specification discovered during this inspection and testing opportunity at the Contractor's works shall be fully rectified BEFORE any equipment is transported to site.

4.3. Final testing will be performed on site during commissioning of the installation.

4.4. The Contractor shall submit all test and calibration certificates received from specialist suppliers to the Engineer for his approval.

5. TRAINING

In terms of the requirements of this contract the Contractor may be required to facilitating training from time to time.

5.1. Such training shall include: operation, special maintenance requirements and aspects of design, fabrication and assembly.

6. MAINTENANCE AND SPARES

6.1. The Contractor shall provide for maintenance of the installation and any additional equipment supplied for a minimum period of one (1) year, commencing from the date of Commissioning of the completed installation.

6.2. In terms of the Special Conditions of Contract, the Contractor shall submit maintenance reports to the Engineer, using the maintenance schedules as prescribed by the Engineer. NO

additional payment for the execution of said maintenance and inspection trips shall become due to the Contractor, unless by agreement with the Engineer these are deemed to be beyond the scope of the guarantee.

- 6.3. The Contractor shall only allow properly qualified and skilled staff to work on the equipment and installation.
- 6.4. The Contractor shall provide the spare equipment as listed in the paragraph: SCOPE OF SUPPLY. During the period of maintenance as described in par. 6.1, the Contractor shall be obliged to maintain all spare equipment in proper working condition. Any failed equipment shall be repaired and returned promptly.

7. MANUALS AND DOCUMENTATION

- 7.1. Complete sets of manuals, numbers of which will be specified by the Engineer, giving a complete and precise description of the operation, construction and maintenance of the equipment used, shall be supplied by the Contractor. Care shall be taken by the Contractor to ensure that the manuals supplied contains ALL documentation on all equipment supplied, including all system and wiring diagrams, schematic lay-outs and interconnection drawings.
- 7.2. The manuals and system documentation offered shall be to the satisfaction of the Engineer. If this should not be the case, the Contractor will be obliged to update/complete the manuals and/or documentation offered.

8. TECHNICAL SCHEDULES

- 8.1. Bidders are advised that it is in their best interest to provide accurate and detailed information in answer to all questions asked in the TECHNICAL SCHEDULES, which appears as Part 4 of this Specification.

9. SCHEDULE OF PRICES

- 9.1 The Engineer reserves the right to correct any arithmetical errors found in the completed schedules.

PART 3: SECTION 2: EQUIPMENT DESCRIPTION

2.1 ELECTRICAL EQUIPMENT

2.1.1 General electrical reticulation and lights.

2.1.2 Induction and synchronous motors.

2.1.3 Low voltage switchgear.

2.1.4 Medium voltage switchgear.

2.1.5 Transformers.

2.1.6 Generators.

2.1.7 Control panels for pump sets and valves.

2.1.8 Meters, general instrumentation and controllers.

2.1.9 Electrical circuits on other equipment (valves etc.).

2.1.10 Radio and telemetry equipment.

2.1.11 Instruments and computer controlled equipment.

2.2 MECHANICAL EQUIPMENT

2.2.1 Horizontal split, vertical, axial flow, single and multistage centrifugal pumps.

2.2.2 Positive displacement pumps.

2.2.3 Stationary diesel engines.

2.2.4 Pipelines.

2.2.4.1 Pipe material: Steel, pre-stressed concrete, asbestos cement, glass reinforced plastic and fibreglass.

2.2.4.2 Pipeline coatings.

2.2.4.3 Pipeline linings (bitumen, paints and mortar).

2.2.5 Valves to fit the relevant pipelines.

2.2.5.1 Types of valves: Butterfly, gate, reflux, ball, sleeve and float control valves.

2.2.6 Electrically, hydraulically and air opened actuators for operation of the valves.

2.2.7 Trash racks/screens.

2.3 GENERAL

2.3.1 Water flow meters (ultrasonic, magnetic, differential pressure, propeller) for pipelines.

2.3.2 Water purification plants for bulk water supply purposes.

2.3.3 Sewerage plants.

PART 3: SECTION 3: REQUIREMENTS

3.1 SAFETY CONDITIONS

3.1.1 All work, materials and equipment **shall** comply with the relevant requirements of the Occupational Health and Safety Act (Act 85 of 1993).

3.1.2 It is the sole responsibility of the Contractor to ensure that the equipment to be serviced is safe to work on. The District does not and will not accept any liability.

3.1.3 It is an explicit condition of this BID that the Contractor is solely responsible for the safety of all personnel involved in the maintenance service or repair of equipment.

3.1.4 It is the Contractor responsibility to ensure that all possible safety procedures are followed when working on any equipment or structure and to bring unsafe conditions under the attention of the respective Scheme Manager before commencing any service or repair work whatsoever.

3.1.5 The work area has to be in a safe and clean order at all times.

3.1.6 GMR = General Machinery Regulations

3.1.6.1 It is an expressed condition that the Contractor shall execute the contract under the supervision of a person appointed under GMR 2(1).

3.1.6.2 A certified copy of this letter shall be submitted with the BID offer.

3.1.6.3 The minimum requirements which the District will consider for this "competent person" (GMR1) will be as stated in subparagraph (b) of GMR1 in mechanical engineering.

3.2 REPLACEMENT PARTS

3.2.1 All replacement parts shall be new, unused or fully refurbished and comply fully with the original manufacturers specifications or as otherwise stated by the Engineer.

- 3.2.2 Replacement parts will preferably be obtained from the original manufacturer or as otherwise approved by the Engineer.
- 3.2.3 If the original manufacturer is unable or unwilling to supply the parts as may be required, refurbished parts may be used subject to the written authority of the Engineer. The Contractor shall guarantee these parts for a period of no less than 12 months from date of installation or as otherwise specified in writing by the Engineer.
- 3.2.4 Any replacement part that was not obtained from the original manufacturer, as well as the supplier of the replacement part, shall be clearly specified on the service report.
- 3.2.5 Where spare parts are obsolete it is expected from the Contractor to reverse engineer components where possible and provide the necessary guarantee.
- 3.2.6 Materials used for repair during the period of maintenance.

When, in the opinion of the Engineer, any material used or intended for use is not in accordance with the requirements of the contract, he may order to Contractor in writing to remove any objectionable part of the material immediately and to replace it with acceptable material, without cost to the Employer.

3.3 INSPECTION AND MAINTENANCE

The recommendations as specified in this BID are supplementary and will be read in conjunction with the manufacturer's operation and maintenance instructions. The manufacturer's operation and maintenance instructions have preference.

3.4 MODIFICATIONS TO MANUALS

Any alteration to the operation and maintenance of any equipment shall be updated in the relevant Operation and Maintenance Manuals.

3.5 SERVICE PROGRAMME

All specifications shall be adhered to except if the Contractor wishes to follow a proven and generally accepted better method of operation, in which case it shall be to the approval of the Engineer.

3.6 ACTIVITIES

Using proven experience and ability the Contractor shall be able to evaluate malfunction, diagnose failure, repair, refurbish, upgrade, test, commissioning and provide skilled maintenance of the following plant equipment:

- 3.6.1 Compressors: Reciprocating, single/multistage centrifugal and lobe compressor units.
- 3.6.2 Switchgear.
- 3.6.3 Switchgear protection equipment.
- 3.6.4 Transformers: Up to 200 kVA.
- 3.6.5 Valves: Total refurbishment.
- 3.6.6 Small schemes/structures: Small sluice gates, screens, hydraulic equipment, etc.
- 3.6.7 All types of pipelines e.g. steel pipes, bitumen wrapped/epoxy, bitumen or mortar lined, mortar pipes, fibreglass, glass reinforced polyester, PVC, etc.
- 3.6.8 Small electrical actuators.
- 3.6.9 Electric motors.
- 3.6.10 Diesel and petrol driven Gensets.
- 3.6.11 Diesel engines.
- 3.6.12 Internals of pumps.
- 3.6.13 Water purification plants/systems.

- 3.6.14 Sewerage plants/systems.
- 3.6.15 Electricity distribution systems for offices, personnel housing and all other relevant equipment.
- 3.6.16 Electrified security fencing.
- 3.6.17 Such equipment as may be specified from time to time by the Engineer.

Competence in providing the following engineering services:

- 3.6.18 Efficiency tests on pump sets.
- 3.6.19 Condition monitoring of pump sets with the issue of appropriate quality test reports.
- 3.6.20 Reports associated with condition of plant, review of modifications and reports/manuals.
- 3.6.21 Rebuilding of pumps to an alternative specification.
- 3.6.22 Balancing of rotating elements and alignment according agent's specification.
- 3.6.23 Vibration monitoring on rotating elements.
- 3.6.24 Non-destructive testing using ultra sonic, magnetic particle inspections, dye penetrate testing, hardness testing and radiography methods by sub-contracting specialists.
- 3.6.25 Machine facilities: Light, medium and heavy machining facilities.
- 3.6.26 Corrosion protection coatings as specified by the O.R. TAMBO DISTRICT MUNICIPALITY, (Blasting & Coating).
- 3.6.27 Mechanical, electrical and technical investigation expertise.

- 3.6.28 Mechanical manufacturing in accordance with drawings of the OR TAMBO DISTRICT MUNICIPALITY of small structures.
- 3.6.29 Reverse mechanical engineering techniques.
- 3.6.30 Underground cable fault location.
- 3.6.31 Radio and telemetry equipment.
- 3.6.32 Instruments and computer controlled equipment.
- 3.6.33 Such engineering services as the Engineer may specify from time to time.

Competence in providing the following services:

- 3.6.34 Project management.
- 3.6.35 Preventative maintenance plans on small and medium size installations with regard to auxiliary and main equipment.
- 3.6.36 Liaison with original engineering manufacturers.
- 3.6.37 Implementation of statutory safety standards.
- 3.6.38 Working procedures on all relevant equipment.
- 3.6.39 Safety: All maintenance services must comply to the Occupational and Health Safety Act 85 of 1993.
- 3.6.40 Test reports: test reports shall be provided on all tests performed or as requested by the Engineer.

3.6.41 Existing documents: The District will furnish the necessary documents with regard to the form of reports, such as technical details, components, test results, items replaced and comments where possible.

3.6.42 New documents: Prospective Bidders should have the capabilities of drafting report documents/forms where no official documents currently exist including full Operating and Maintenance Manuals.

3.7 CAPACITIES OF BIDDER

3.7.1 Managers

Managers shall have an applicable qualification and at least five year related experience.

3.7.2 Engineers

Engineers shall be at least Graduate Engineers preferably registered as a Professional Engineer/Technologist with ECSA.

3.7.3 Technicians

Technicians shall be at least Diploma Technicians.

3.7.4 Artisans

Artisan staff shall be in the possession of the qualifications appropriate to the skills required for the activities listed. An artisan qualified for example as a diesel mechanic is not suitably qualified to be considered an artisan on valves, cranes, welding, etc.

3.7.5 Specialists

Specialists (production specialist) shall at least be a suitably qualified artisan or technician with a minimum of three years' experience in the applicable specialist field.

The District request details and qualifications of personnel working for the Contractor or any subcontractor.

3.8 ELECTRICAL REQUIREMENTS

3.8.1 General requirements

Scope

This specification describes the usual materials required for the maintenance of electrical installations and general methods of installing these materials. This specification forms part of any specific maintenance contract, where such drawings are attached to this specification, or where such drawings are issued specifically for a project.

This specification covers the maintenance of electrical installations as well as all switchgear, equipment and instrumentation used in conjunction with such installations.

Statutory requirements

The maintenance and installation 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 thereunder.

The Electricity Act No. 40 of 1958.

Explosives Act No. 26 of 1956.

Code of Practice for the Wiring of Premises – SABS 0142.

Standards

Unless otherwise specified all materials must comply with SABS specification.

3.9 ELECTRICAL REQUIREMENTS FOR BOREHOLE AND SMALL ELECTRICAL INSTALLATIONS

3.9.1 Standard drawings

Bidder'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 BID is prepared for the District. Also refer to the section on the submission of drawings further in this specification.

3.9.2 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 SANS 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 station, reservoirs, purification works and other treatment plants.

3.9.2.1 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.

3.9.2.2 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.

3.9.2.3 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.

3.9.2.4 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-routed and is economical to install.

(b) Spike earths

Spike earths comprise rods of bare copper, copper-coated steel, stainless steel or galvanised 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 galvanised 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.

3.9.2.5 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 galvanised 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.

Each 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 electrologically 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.

3.9.2.6 Corrosion

Because galvanised ferrous metals corrode sacrificially to copper, galvanised iron and steel electrodes should not be buried in close proximity to bare copper.

3.9.2.7 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. 6m from the HV electrode/s and also from any earthed metal work connected thereto).
- (iii) Notwithstanding the requirements of (i) above, where transformers are associated with HV overhead lines, it is considered good practise to separate the HV and LV earth electrodes. The minimum earth separation should be 6m 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 metal work 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.

3.9.2.8 Substation earthing

In order to comply with the requirements of the previous paragraphs, an earth receptivity 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 SANS 0142 by using the nul-balance megger method and employing test electrodes. The earth resistance measurement in this case shall preferably be 5, referred to zero.

The Contractor shall then submit to The District 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.

3.9.2.9 Fence Earth System of Outdoor Substations

In case where substations contain transformers or switchgear installed outdoors, the fence enclosure shall be earthed as follows:

A 70 mm² earth wire shall be installed 600 mm below ground level and 500 – 1 000 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 <20Ω, referred to zero.

If a 20 Ω 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 mm² earth wire tail.

Such a fence earth system shall also be bonded to the main meter box earth point or 400 V switchgear earth bare of the substation (if available) by means of lugged 70 mm² 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 mm² earth wire.

If the earth systems of the MV lightning arrestors are within 9 m of the fence earth system, the MV lightning arrester 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.

3.9.2.10 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 Committee or motor control centre of the installation.

These earth electrode shall be connected together with 70 mm² 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 Committee 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 Committees 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 5Ω, referred to zero.

3.9.2.11 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 systems 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.

3.9.2.12 Substations 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 2 m 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 switch Committee.

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 Committee.

3.9.2.13 Earthing of general electrical installations

3.9.2.13.1 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.

3.9.2.13.2 Switch-Committees

A separate earth connection shall be supplied between the earth bus bar of the main switch-Committee and the earth busbar of every sub-switch Committee. The 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.

3.9.2.13.3 Sub-circuit

The earth conductors of all sub-circuits shall be connected to the earth busbar in the supply switchroom in accordance with SANS 0142.

3.9.2.13.4. Ring mains

Common earth conductors may be used where various circuits are installed in the same wiring channel in accordance with SANS 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.

3.9.2.13.5. Connections

Under no circumstances shall connection points, bolts, screws, etc., used for earthing be utilised 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 requirement of BS 4579, Part 1: "COMPRESSION JOINTS IN COPPER".

3.9.2.13.6 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, switch-rooms, luminaries, etc. The securing of earth conductors by means of self-treading screws are not permitted.

3.9.2.13.7 Flexible conduit

An earth conductor shall be installed in all non-metallic flexible conduits. 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.

3.9.2.13.8 Water pipes

Metal domestic cold water mains shall be bonded to the earth busbar in the main switch-Committee 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 switch-Committee. 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 switch-Committees, an earth connection consisting of copper strapping shall be installed between the pipe work and the Committee. In vertical building ducts accommodating both metal water pipes and electrical cables, all the pipes shall be earthed at each switch-Committee.

3.9.2.13.9 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 admin earth conductor of each switch-Committee. 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 galvanised bolts and nuts. Self-tapping screws are not acceptable. Where service connections consist of underground supplies, the above requirements are not applicable.

3.9.2.13.10 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 1 m from the building structure.

The building roof 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 conduit 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 switch Committee 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 District 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 District in terms of SABS 03/1985 (as amended), of the type of system required and the cost thereof.

3.9.2.13.11 Corrosion protection

Steel pipeline employing corrosion protection systems, must not be earthed, but the District must be informed of such systems and advice must be obtained from corrosion protection specialists before any earthing of such pipelines are attempted.

3.9.3 Installation and testing of electrical equipment

3.9.3.1 Distribution Committees and motor control centres

General construction

3.9.3.1.1 Size

All switch-Committees 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 switch-Committee, 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 %.

3.9.3.1.2 External dimensions

The maximum allowable height of free-standing switch-Committees is 2,2 m. Cubicle type Committees may be up to 2,4 m high if they can be fully dismantled into individual cubicles. Where, due to space restrictions, a Committee 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 Committee.

All other specified external dimensions for switch Committees 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 switch Committees.

3.9.3.1.3 Moisture and vermin

All switch Committees shall be rendered moisture proof and vermin proof and shall be adequately ventilated.

3.9.3.1.4 Load balance

The load shall be balanced as equally as possible across multiphase supplies.

3.9.3.1.5 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 PB 12.2 of this specification.

(b) Clean inside and outside of all distribution Committees and control panels. Note severe rust problems and reports to the District.

(c) All wiring connections to terminals in Committees, 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. Damage 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 100 mA earth leakage unit is used in conjunction with a shunt trip main incoming circuit breaker, the manufacturers 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 Committee 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 close off with cover plates or replaced, as the case may be.

No live open connection or live metalwork on any appliance or Committee shall be left in that state by the Contractor.

- (n) All surge arrestors and lightning protection equipment shall be inspected for damage or burnout. 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.

3.9.3.1.6 Starter and distribution Committees (such as used for boreholes and small plants)

Committees shall be constructed and maintained as follows: over and above the work specified in 3.9.3.15 above:

- (a) Circuit breakers or main switches.

Circuit breakers shall comply with SANS 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 on the ON position under overload conditions.

All moulded-case circuit breakers in a particular installation shall as far as 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 Committee and shall be mounted on a chassis on the back plate of the Committee 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 Committees 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 SANS 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 contactor, the contactor 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 contactor is installed. Careful co-ordination of the short circuit devices shall take place.

All laminations of the magnetic system of the contactor shall be tightly clamped. Noisy contactors will not be accepted.

Non-current carrying metallic parts shall be solidly interconnected and a common screwed terminal shall be provided. The contactor shall be earthed to the switch Committee earth bar.

Latched contactors shall be provided with a trip coil and a closing coil. The contactor shall remain closed after de-energising the closing coil and shall only trip on energising the trip coil.

Contactor 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 contactors shall be capable being tripped at 50 % of the rated coil voltage.

Contactors with provision to add auxiliary contacts on site are preferred. Contactors 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 contactor, an auxiliary relay or additional contactor 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 6A at 220 V AC, unity power factor for contactors 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 contactors.

Spare auxiliary contacts shall be wired to numbered terminal strips in the switch Committee and shall appear on the switch Committee drawings.

All contactors on a specific project shall be from a standard range of one single manufacturer, unless specified to the contrary.

Contactors 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.

Contactors shall not emit a humming noise when pulled in and contactors shall further be checked for sticky moving parts.

Auxiliary contacts of contactors shall be inspected likewise.

Faulty contactor 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 rating 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 479, 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 SANS 1195 and BS 159 and BS 1433, where applicable.

Busbars in Committees 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 busbards, 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.

All busbars shall be covered with coloured heat-shrinkable or air dying 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 glad 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 to a collector busbar or busbar stud without crossing the conductors.

External wiring for low voltage, control, interlocking, alarm, measuring and DC. 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 switchgear.

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 switchgear consists 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 switchgear.

The current rating of conductors for the internal wiring shall be sufficient to carry the maximum continuous current that can occur in the circuit. The 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 switchgear 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 Committee, supplying control circuits, etc., shall be coded in colours other than those specified above. A colour code shall be devised from each Committee 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 switch Committee, 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 labelled 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 switch Committee 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.

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 vibrating 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 IV 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 switch Committees.

(h) Voltmeters and Voltmeter Selector

Unless specified to the contrary, voltmeters shall be scaled from 0-250 Volt in the case of LV 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 marking shall be indicated clearly on the face plate of the selector switch and the handle position shall be accurate in relation to the marking 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 pointed to indicate maximum mean current between resettings. The 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 for combined maximum demand ammeters.

intrinsic error, expressed in terms of the fiducial 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 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 switch Committees 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 SANS 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 5kA as required, when tested in accordance with SANS 156.

(l) 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 5A, with 5A 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 transfer 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 Committees

The Engineer shall be notified when the mechanical construction of the switch Committee, 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 switch Committees shall be submitted to the Engineer for approval before the Committees are manufactures. The following information shall be presented:

- (i) A complete wiring diagram of the equipment on the Committees.
- (ii) A complete layout of the arrangement of the switch Committees indicating all equipment dimensions and the construction of the Committees. 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 switch Committees according to the requirements of Department.

(o) Final Drawings

Five complete sets of "as built" drawings of all switch Committees shall be submitted to the Engineer within two weeks after delivery of the Committees. 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 switch Committees 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.

3.9.4 Electric Motors

3.9.4.1 Standards

Electric motors shall comply with SABS 0157, Part 1, as far as quality is concerned and the performance of motors shall comply with SANS 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 SANS 948, Part 1 (1978) and IEC 72-1, 72-2 and BS 49999, Part 10.

Frames of motors shall comply with IP55 and cooling shall comply with ICO 141.

3.9.4.2 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 (SANS 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.

3.9.4.3 Construction

3.9.4.3.1 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.

3.9.4.3.2 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.

3.9.4.3.3 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.

3.9.4.3.4 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.

3.9.4.3.5 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.

3.9.4.3.6 Markings

All motors shall be supplied with a riveted on metal place label on top of the motor on which the following information 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

3.9.4.4 Rating

Motors complying with the following ratings used in a project must be connected with cables and 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 10 mm ² 4-core PVC cable
22 kW	Star-Delta	2 x 10 mm ² 4-core PVC cable

3.9.5 Cables

3.9.5.1 Construction

Cables shall be manufactured in accordance with SANS 150, shall come only from fresh stocks, and shall be constructed as follows:

- (a) Un-armoured cable : 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 strips or tape armouring is not acceptable.

Where specified, an earth continuity conductor shall be provided in the armouring in accordance with SABS 150.

3.9.5.2 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.

3.9.5.3 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.

3.9.5.4 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.

Flameproof glands shall comply with SANS 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 conductor 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.

3.9.5.5 Trenching

3.9.5.5.1 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.

3.9.5.5.2 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.

3.9.5.5.3 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.

Cable 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 cable 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.

3.9.5.5.4 Testing of Cables

Each cable shall be tested after installation in accordance with SANS 150.

LV cables shall be tested by means of suitable megger at 1 kV and the insulation resistance shall be tabulated and certified.

3.9.5.5.5 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 scheduled 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.

3.9.6 Light switches

3.9.6.1 General

This section covers the requirements for switches for use in general installations under normal environmental conditions.

3.9.6.2 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.

3.9.6.3 Watertight switches

Watertight switches shall be of the micro-gap type suitable for surface mounting and shall bear the SANS mark.

The housing shall be of galvanized cast iron or the 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.

3.9.7 Switched socket-outlets

3.9.7.1 General

This section covers the requirements for switched socket-outlets for use in general installations under normal environmental conditions.

3.9.7.2 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 SANS mark.

Switches shall be of the tumbler operated micro-gap type rated at 16A, 220/250

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.

3.9.7.3 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.

3.9.7.4 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.

3.9.8 Tubular fluorescent lamp luminaries for interior applications.

3.9.8.1 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.

Bids 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 Bids for all luminaries offered.

3.9.8.2 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 knockouts 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 SANS 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 the can 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 SANS 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 SANS 1041.

The light colour shall correspond to colour 2 (4 300 K) of SANS 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.

3.9.8.3 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 knockout 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 knockout shall be approximately 25 mm.

The knockouts 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 latching device for reflectors. The action of the latching device shall not deteriorate due to use and/or ageing.

3.9.8.4 Dust and Spray Proof Luminaries

3.9.8.4.1 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 the die-formed glass-fibre reinforced polyester (GRP), which has an exceedingly long life under corrosive conditions or ultraviolet radiation.

The diffuser of the luminary shall consist clear injection moulded polycarbonate with prisms 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, 600 V.

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.

3.9.8.5 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 SANS 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 bow shall be manufactured from borosilicate glass with internal prisms.

The prisms shall be restricted to the inside of the bow 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 Alien 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 District as most commercially available wire guards are not suitable to withstand vandalism.

A high purity, single piece, the 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 230 V + 30%/-10%/50 Hz single-phase system.

All control gear components shall be removable and bear the relevant SANS mark.

All internal wiring shall be Teflon's coated with protective sleeving to prevent damage by possible abrasion. All screws, bolt 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. Igniters, 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.

3.10 General Requirements of Electrical Work at Boreholes and Small Installation

3.10.1 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 specifications 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 District 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.

3.10.2 Application

The Specifications here following are essentially functional specifications only. The contractor shall design the various installations and produce complete constructional drawings 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 Committees.

3.10.3 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 SANS, BSS or IEC specifications.

All materials shall be subject to the approval of the District.

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, contractors 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 District.

The uses of second hand materials are strictly forbidden.

The District will also not for over supply 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 District will not accept for material on site which have 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. Word such as "motor not earthed" will not be acceptable.

The serial number 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.

3.10.4 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 Act:

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).

The Mines and Works Act, No. 27 of 1956 and subsequent amendments and regulations issued there under.

The Electricity Act, No. 26 of 1958.

Explosives Act, No. 26 of 1956.

Code of Practice for the Wiring of Premises – SANS 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.

3.10.5 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.

3.10.6 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.

3.10.7 Drawings and Data

Where Bidder's Officer items that differ from those as specified, the BID must submit drawings, diagrams and full technical details of such items on the closing date of BIDs.

3.10.8 Changeability

Equipment of the same type shall be obtained from one manufacturer and components shall be changeable.

3.11 Maintenance and servicing facilities

3.11.1 Each Bidder shall be able to clearly demonstrate possession of adequate servicing and maintenance facilities, including a comprehensive range of spares, to the satisfaction of the Engineer.

3.11.2 To this effect, each Bidder shall include a statement in his offer, describing the facilities available for servicing and maintenance, as well as the availability of adequate spares for the equipment offered in his BID.

3.11.3 As a further requirement, the precise physical street address and telephone number of the premises nearest to this installation, where these as stated required facilities exist, together with details regarding test equipment and personnel permanently available at this address, shall be furnished along with this statement.

3.11.4 Bidders shall accept as a condition of this contract that any premises indicated in this statement may be inspected prior to the awarding of the contract. It shall be noted that offers may be passed over where, in the opinion of the Engineer, these facilities are inadequate in terms of the foregoing requirements.

3.11.5 Personnel used for repair work during the period of maintenance. The Contractor shall only allow properly qualified and skilled staff to work on the equipment and installation at all times.

3.12 Performance of Contractor

3.12.1 Should it be found at any stage of the contract period that the services performed or any component thereof deviates from the specified requirements and that such deviation had not been noted by the Bidder in his BID offer, the Contractor will be required to redo such services or any component thereof with work complying with the requirements specified in the documents listed above, at no extra to the Employer.

3.12.2 If at any stage of this contract it is found that the Contractor has deviated from the requirements of this specification whether it be by the installation of equipment not specified, etc. or otherwise, without prior WRITTEN consent from the Engineer, the Engineer shall have the right to order the Contractor to remove such items, equipment, etc. constituting the deviation and replace it with the exact item, equipment, etc. specified, without any adjustment in the BID price.

3.12.3 Remedy on Contractor's failure to carry out work as required.

3.12.4 Should the Contractor fail to commence investigation/repair as required within a period of 10 days after receipt of written notice thereof, the Employer shall be entitled to have such work carried out by his own staff or by other Contractors at the Contractor's account.

3.12.5 If such work is work which the Contractor should have carried out at his own cost, as detailed below, the Employer shall be entitled to recover from the Contractor the cost thereof or deduct the same amount from any moneys due or that become due to the Contractor.

3.13 Radio/Telemetric Systems

3.13.1 A technical clarification to discuss and clarify any technical queries that may exist regarding the extent of the "Detail Specification and material required" shall be held subsequent to the ordering of material or before any work commences.

C3.1 SCOPE OF WORKS

INDEX OF PRICE SCHEDULES

PART 6

SCHEDULE 1	:	GENERAL (COMPULSORY)
SCHEDULE 2	:	SMALL AND MEDIUM SIZE ELECTRICAL PANELS
SCHEDULE 3	:	ELECTRIC MOTORS
SCHEDULE 4	:	BALL VALVES
SCHEDULE 5	:	BUTTERFLY VALVES (WAFER TYPE)
SCHEDULE 6	:	BUTTERFLY VALVES (DOUBLE FLANGED)
SCHEDULE 7	:	WATERWORKS GATE VALVES
SCHEDULE 8	:	RESILIENT SEAL GATE VALVES
SCHEDULE 9	:	WAFER PATTERN CHECK VALVES
SCHEDULE 10	:	HYDRAULIC FLOW CONTROL VALVES
SCHEDULE 11	:	SURGE ANTICIPATING CONTROL VALVE
SCHEDULE 12	:	PUMP (CENTRIFUGAL, AXIAL FLOW, HORIZONTAL SPLITS, DUAL STAGE)
SCHEDULE 13	:	SCREENS (TRASH RACKS)
SCHEDULE 14	:	DOSING (CHEMICAL)

SCHEDULE 15 : CHLORINATION SYSTEM

SCHEDULE 16 : DAYWORKS

PROJECT SPECIFICATIONS

PORTION 1: THE WORKS

PS 1 GENERAL DESCRIPTION OF THE WORKS

BIDs are invited for civil engineering works associated with Water Services and Water Resource Management in O.R. Tambo District.

Works are to be executed in O.R. Tambo District.

The operation area is in the Locality Plans of O.R. Tambo District. Prospective Bidders must take note of the fact that the contract will be executed on the basis of a "Bill of Quantities" contract. BID prices must include site establishment cost (see PSA 15).

The quantities indicated in the Schedule of Quantities are for adjudication purposes only and shall not be regard as an indication of the eventual value of the work to be done.

This contract comprises Civil engineering work in five local municipalities in the District, viz. King Sabatha Dalindyebo, Mhlontlo, Nyandeni, Port St Johns and Ingquza Hill.

The works to be executed under this contract comprise the following:

- 1.1 General
- 1.2. Small diameter clear water supply pipelines
- 1.3 Roads to Waterworks
- 1.4 Sewer Works
- 1.5 Filter drains (Cleaning or replacement of filter media)
- 1.6 Handrailing
- 1.7 Septic tanks
- 1.8 Circular concrete reservoir
- 1.9 Gabions and pitching
- 1.10 Segmented block paving & kerbing
- 1.11 Security fencing
- 1.12 Palisade Fencing
- 1.13 Complete pumphouse installation for boreholes & small installations
- 1.14 10 kl PVC storage tank on floor – 3 metre high tank stand and 6 metre high tank stand
- 1.15 Dayworks
- 1.16 Training
- 1.17 Appointment of Small Contractors

Execution of the work will be done by one of the following methods, or as a combination of the methods:

- (i) Main contractor to employ people from the vicinity where work is to be executed.
- (ii) Nominated emerging sub-contractors, which are also to be formally contracted and trained by the established contractor.
- (iii) Established and emerging contractor which have entered into a joint venture agreement.

The Bidders must take note of the fact that it will be expected of the successful Bidder to enter into a formal agreement with the Nominated Emerging Contractor (=NEC) and/or the "normal" Emerging Contractor (=EG). The established/main Contractor (=MC) will be responsible for the quality of the work of the NEC and/or EC. Provision has been made in Schedule 1 of the Schedule of Rates for a % mark-up on the amount payable to the NEC by the MC.

The various local municipalities in O.R. Tambo District are indicated on the map. Although not foreseen at this stage, it may happen that it will be expected of the Contractor to execute some work outside the existing borders of the area of jurisdiction. If the Bidders have any objection to it, it must be clearly indicated in Section 7.1, i.e. Alterations by Bidder, in this document.

The contract will consist of one main type of activity namely **Civil Engineering Works**. The work to be carried out during the currency of the contract may be given as separate tasks. Each task to be undertaken will be issued as a written instruction by the Engineer and will consist of a detailed scope of work and relevant drawings for each particular task.

The main activities are set out in the Pricing Schedules.

PS2 DESCRIPTION OF SITE AND ACCESS

The work to be undertaken is generally in or near existing Works in the local municipalities mentioned above. The access to the individual sites is generally very poor and it could be expected that four-wheel drive vehicles might be required at times.

It is of critical importance that Contractors should under all circumstances; liaise with O.R. Tambo District Authority's representative **prior** to going on site to ensure that the District could inform people of work to be carried out by the Contractor. If the representative cannot be contacted, the Contractor should then **not** enter a site for working purposes.

PS3 NATURE OF GROUND AND SUBSOIL CONDITIONS

The nature of ground and sub-soil conditions may vary from site to site. The Contractor must familiarise himself as far as is practically possible with soil conditions in the region.

PS4 DETAILS OF THE CONTRACT

- (i) The work required to be done entails that listed in PS1, measured in the Pricing Schedules as work of generalised nature. Specific details will be supplied by the Engineer, based on the Pricing Schedules, for each specific project.
- (ii) All sections of the Works shall be subject to a respective maintenance period (Defects Liability Period) of 12 months.

PS5 CONSTRUCTION PROGRAMME

PS5.1 Information to be made available

The Engineer will provide the Contractor with a list of specifications regarding the relevant part of the Works. It is envisaged that the information will be made available not less than four weeks prior to the installation date, to enable the contractor to order the materials and programme the works.

PS5.2 Labour Intensive Construction

The principle of labour intensive construction for certain portions of the works to be executed is to be introduced. See clause PS20.3 for details regarding the above-mentioned.

PS5.3 Phasing of the Works

- (a) The works will be scheduled, as far, as is practically possible, so that the Contractor can work uninterrupted for the duration of the contract order.

Note: All other movement cost will be deemed to be included in the rates Bidded for various items of the work.

- (b) The Contractor must take note of the fact that only inter-construction site movements will be paid for. It is also important to take note of the fact that such payment will be made only for the Contractor's first equipment team (if more than one team are fielded) to move to a specific site. Inter-construction site move payments shall be made only for transport expenditures.

(Refer to the applicable transport rates, Bidded in the pricing schedules).

- (c) Should the Contractor be requested by the Engineer to do work not included in his above-mentioned programme, he will then be paid for the movement according to rates included in the Pricing Schedules for transport expenditures only. These movements are those, which would infringe any programme predetermined and agreed to between the Contractor and the Engineer.

(Refer to the applicable transport rates).

- (d) Note: Transport rates outside the borders of O.R. Tambo District can not be claimed, except for "nominated specialised work".

Example: When the District require the services of a specialised agent. All transport costs and mark-up rates for material can be claimed from the District.

PS5.4 Interruption in Work Schedule

If information or particulars as mentioned in Clause PS4 are not available from the Employer regarding the works for any period of time, the Contractor will be ordered in writing to discontinue work. The Contractor will then be granted an extension of time. When the Contractor is requested to resume work, the establishment cost will be paid as if the Contractor moved in from another site as per the BID. No adjustment will be made in any of the rates in the Pricing Schedules.

PS5.5 Format and Approval

As soon as information is available with regard to a specific Works, the Contractor shall supply, within 14 days, a suitable and realistic construction programme for the consideration of the Engineer. This programme shall show the proposed scheduling and

methods of execution of the Works and the resources to be allocated to each item or phase of execution of the Works and the resources to be allocated to each item or phase of the work. Quantities proposed for execution for a specific Works and the anticipated

cash flow based upon these quantities should be shown, due allowance being made for price escalations and retention moneys.

The Contractor will be expected to progress with the Works in accordance with the approved programme and shall not deviate from the order of execution shown in the programme without the prior approval of the Engineer or his Representative. Should such approval be given, an adjusted programme shall be produced within 7 days and submitted to the Engineer for evaluation. Progress in advance of the programme or certain phase of the Works shall not be considered adequate reason for poor progress on another portion or phase.

PS5.6 Partial Completion and Monthly Take Over

Specific completed Works will be taken over within two weeks after completion for which a Certificate of Completion will be issued. The maintenance period on the work completed will commence with the issuing of the Certificate of Completion.

PS 5.7 Penalties

The penalties for late completion are indicated in the Appendix to BID.

The penalty in respect of each Works shall remain in force until the work for that Works has been completed. The penalties for the Works will be applied independently and are accumulative.

PS 6 SITE FACILITIES AVAILABLE

PS 6.1 Contractor's Camp

An area will be made available by the Employer for the Contractor's camp and depot, where materials can be stored and from which the administration of the contract will be undertaken by the Contractor. However, the Contractor will be responsible to arrange with the necessary authorities at each Works site to store equipment and material.

PS 6.2 Source of Water Supply

Water supply will not necessarily be available at the camp or depot nor each construction site.

The Contractor shall be responsible under the Contract for the supply and distribution at his cost of all water that he may require for purposes of constructing the Works. Accordingly, the Contractor shall pay all connection fees and consumption charges, and at his cost provide all connections, consumption meters, pipework, storage tanks, transport and other items associated with the supply of water for the Works.

Water for filling, testing and disinfecting the pipelines and structures will be made available by the Employer at no cost to the Contractor. However, should the pipelines and/or structures have to be drained and refilled due to defective materials or workmanship by the Contractor or by his subcontractors, then the water required for refilling will be for the account of the Contractor.

PS 6.3 Source of Power Supply

Power supply will not necessarily be available at the camp or depot nor at each construction site

PS 6.4 Housing

The Contractor will be permitted to house Key Personnel only within his camp site(s). At the commencement of the Contract, the Contractor shall inform the Engineer of his intentions regarding the housing of Key Personnel on Site, and he shall thereafter ensure that all such accommodation is kept neat and tidy, hygienic and properly controlled at all times. Should at any stage of the Contract the Employer and/or the Engineer be of the opinion that the housing of Key Personnel within the camp site(s) of the Contractor is causing disturbance or inconvenience to the landowner or to nearby residents, then the authority granted by this clause for the Contractor to house Key Personnel on Site may be withdrawn, either partially or entirely.

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

PS 6.5 Ablution Facilities

No ablution facilities are available at the camps and depots or construction sites.

PS 7 SITE FACILITIES REQUIRED

PS 7.1 For the Contractor

Whatever may be required for the satisfactory execution of the Contract.

PS 7.2 For the Engineer

As specified under Section PSAB (Portion 2 of the Project Specifications).

PS 7.3 Sanitary facilities

Water borne sewerage is not available on site. Chemical or flush toilets with on-site disposal shall be provided and maintained for the use of the Contractor's personnel, the Engineer and representatives of the Employer at all camp sites that the Contractor may establish for construction of the Works. In addition, the Contractor shall at all times during construction of the Works provide adequate sanitary facilities on the construction site so that all employees are at all times within easy reach of sanitary facilities.

PS 8 STATUTORY REGULATIONS

The Occupational Health and Safety Act, Act 85 of 1993 (referred to as "the Act" below), and all regulations promulgated thereunder must be adhered to by the Contractor, with specific reference to the safety of all employees and the public, irrespective of whether such employees are employed by the Contractor or by his subcontractors (including local subcontractors). The Contractor, in entering into this Contract, hereby agrees with the Employer in terms of Section 37(2) of the Act, that the Contractor as an employer in its own right and in its capacity as Contractor for the execution of the Works, shall have certain obligations and that the following arrangement shall at all times for the duration of the Contract apply between the Contractor and the Employer to ensure compliance by the Contractor with the provisions of the Act, namely:-

- (i) The Contractor undertakes to acquaint the appropriate officials and the employees of the Contractor with all relevant provisions of the Act, and the regulations promulgated in terms of the Act;
- (ii) The Contractor undertakes that all relevant duties, obligations and prohibitions imposed in terms of the Act and regulations will be fully complied with; and

- (iii) The Contractor hereby accepts sole liability for such due compliance with the relevant duties, obligations and prohibitions imposed by the Act and regulations, and expressly absolves the Employer and the Engineer from being obliged to comply with any of the aforesaid duties, obligations and prohibitions in respect of the Works; and
- (iii) The Contractor shall be obliged to report forthwith to the Employer and the 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 on behalf of the Employer, and shall, on written demand, provide full details in writing of such investigation, complaint or criminal charge.

PS9 COMMUNICATION LIAISON AND COMMUNITY RELATIONS

In all dealings with communities through which the Works are to be constructed, and in all dealings with workers employed from within such communities, the Contractor shall take due cognisance of the character, culture and circumstances of the specific community, and shall at all times use his best endeavours to avoid the development of disputes and rather to foster a spirit of co-operation and harmony towards the project.

The Contractor shall at all times, keep the Engineer fully informed regarding all matters affecting or negotiated between the Contractor and the community, and he shall attend all liaison meetings as may be arranged by the Engineer and/or the Employer. All matters concerning the community shall be discussed and where possible, resolved at such meetings.

Where any resolution during such negotiations or at such meetings shall be contrary to the terms and provisions of the Contract, the Contractor shall not give effect thereto without a prior written instruction from the Engineer. Where the Contractor is of the opinion that any instruction of the Engineer issued in terms of this clause will result in the incurring of additional costs which were not provided for in his Bidded rates and prices and/or that a delay in the progress of the Works will result, he shall be entitled to submit a claim in terms of the Conditions of Contract, provided always that the period of fourteen (14) days referred to be reduced to three (3) normal working days in respect of all claims submitted in terms of this clause.

PS10 WORKMANSHIP AND QUALITY CONTROL

The onus to produce work that conforms in quality and accuracy of detail to the requirements of the Specifications and of the Drawings rests with the Contractor, and the Contractor shall, at his own expense, **institute a quality-control system and provide 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 quality of the Works at all stages of the Contract.**

The costs of the Contractor's supervision and process control, including all testing carried out by the Contractor, will be deemed to be included in the rates Bidded for the various items of work. The Contractor's attention is drawn to the provision of the various Standardised Specifications regarding the minimum frequency of process control testing that is to be executed. The Contractor shall, at his own discretion, increase this frequency where necessary to ensure adequate control of the quality of the Works at all times. Upon completion submission of each portion of the Works to the Engineer for examination, the Contractor shall furnish the Engineer with the results of relevant tests, measurements and levels, thereby indicating compliance with the Specifications. **The Engineer will not examine or inspect any portion of work submitted for approval unless the request for inspection and approval is accompanied by relevant tests, measurements and levels indicating compliance.**

PS11 FEATURES REQUIRING SPECIAL ATTENTION

PS 11.1 Other Contractors

Other works as well as normal maintenance contracts may be under way at any site. No additional payments will be made in this regard to the Contractor.

PS11.2 Construction within Built-up Areas

The bulk of the work is situated in inhabited residential areas. Meticulous care is required to ensure:

- (a) convenient access provided for the public to their property during all stages of construction;
- (b) ensuring the safety of the public during all stages of construction;
- (c) extended liaison with concerned parties, including the local Tribal Authority, District Councils, traffic Districts, residents and management of business, imperative.

This will include notification in advance of the commencement of proposed works, etc.

VERY IMPORTANT:

THE CONTRACTOR WILL BE REQUIRED TO APPOINT A PUBLIC RELATIONS OFFICER (PRO), WHO WILL FORM PART OF THE FULL-TIME STAFF COMPLEMENT. NO SEPARATE PAYMENT WILL BE MADE FOR SUCH A PRO.

PS11.3 Trenches in Narrow Road Reserves

Prospective Bidders must take note of the fact that at some places trench excavation will take place in fairly narrow road reserves/alleys. The difficulty to overcome this obstacle must be incorporated in the Bidded rates. No separate and/or additional payment will be made in this regard.

PS11.4 Reinstatement of Fences

The Contractor shall give all land owners and residents a minimum of 48 hours notice of his intent to dismantle fences to properties, where indicated on the Drawings or so ordered by the Engineer. The Contractor shall note all aspects relevant to the condition of existing fencing and shall take photographs thereof prior to dismantling, and shall acquire the signature of the owner/occupant agreeing to such conditions.

After reinstatement, both the Contractor and the owner/occupant shall sign the form confirming that the condition of the fence is at least equivalent to its condition before dismantling.

PS11.5 Protection of Buildings and Structures

The Contractor shall give all residents or other parties owning a building or structure within an appropriate radius (not less than 100 m) from any point of blasting, a minimum of 48 hours notice of his intent to execute any blasting work. The Contractor shall note all aspects relevant to the condition of the affected buildings and/or structures prior to blasting. In the event of damage to existing buildings/or structures as a result of blasting, remedial work shall be done to the satisfaction of the owner/occupants at the Contractor's expense.

Compliance with this clause will not relieve the Contractor of any of his responsibilities in terms of the Contract, or in terms of sub-clause 5.1.1.3 of SANS 1200D.

PS11.6 Care of the Site

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

PS11.7 Control of Water

The Contractor shall at all times and in all respects be responsible for the handling of stormwater from higher-lying areas above the Works, and for the handling of any subsurface water that may affect Works. No separate payment shall be made in this regard, as all costs related thereto should be deemed to be included in the rates Bidded

for the various items of work that are included in the Pricing schedules. Refer also to SANS 1200 A, clause 5.5, in this regard.

PS12 DRAWINGS, OPERATION AND MAINTENANCE MANUALS

All information in the possession of the Contractor that is required by the Engineer's Representative in order to complete the As-Built drawings and prepare a completion report for the Employer must be submitted to the Engineer's Representative before a Certificate of Practical Completion will be issued for the Works. Similarly, the Contractor will be required to submit full details of all pipes, valves, meters and specials in a suitable loose bound format, including any special operational and maintenance procedure related thereto for incorporation in the overall operation and maintenance manual for the Scheme prior to the issue of a Certificate of Completion for the Works.

Only figure dimensions on the Drawings may be used in the interpretation thereof, and the Drawings shall not be scaled unless the Contractor is so instructed by the Engineer in writing. The Engineer will upon written request provide any dimensions that may have been omitted from the Drawings.

PS13 SAMPLES

Materials or work that do not conform to the approved samples submitted in terms of the Conditions of Contract, will be rejected. The Engineer reserves the right to submit samples for testing to ensure that the material represented by the sample meets the specified requirements.

PS14 NOTICES, SIGNS, BARRICADES AND ADVERTISEMENTS

Notice signs and barricades (required in terms of the Conditions of Contract) as well as advertisements may only be erected where 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 Bidded rates. The Engineer shall have the right to have any sign, notice or advertisement moved to another location, or to have it removed from the Site of the Works, should it in any way prove to be unsatisfactory, inconvenient or dangerous to the general public.

PS15 OPEN TRENCHES

Trenches may not be left open during the builder's holidays, and shall be safeguarded at all times from danger to the public. Safe trench-crossings shall be provided at all intersections with accesses to properties

and with public roads and paths. The length of trench left open at any one time may be restricted by the Engineer, should he consider such restriction to be in the interest of public safety.

PS16 SPOIL MATERIAL

No indiscriminate spoiling of materials will be permitted. Surplus or unsuitable materials shall be spoiled at sites designated by the Engineer for this purpose. All spoiling shall comply with the applicable statutory and municipal regulations of the local or rural authority in whose area it is located.

PS17 INFORMATION IN RESPECT OF PLANT

Information relating to plant on Site shall be recorded in the Daily diary. In addition, the Contractor shall deliver to the Engineer, on a monthly basis, a detailed summary of construction plant kept on the Site, full particulars given for each day of the month. Distinction shall be made between plant in working order and plant out-of-order. Such inventory shall be submitted by the first day of the month following the month to be reported.

PS18 INFORMATION IN RESPECT OF EMPLOYEES

Information relating to labour and management on Site shall be recorded in the Daily Diary. In addition, the Contractor shall deliver to the Engineer, on a monthly basis, a detailed summary of supervisory staff, labour employed (own and local labour) by category, and sub-contractors (both local and imported) for each day of the month. Such return shall be submitted by the first day of the month following the month to be reported.

PS19 ABNORMAL RAINFALL

Extension of time for completion of the Contract shall be allowed in the event of abnormal rainfall in accordance with the following formula:

$$V = (N_w - N_n) + (R_w - R_n)/20$$

Where

- V = Extension of time in calendar days for the calendar month under consideration
- N_w = Actual number of days the calendar month under consideration on which a rainfall of 10 mm and more is recovered
- R_w = Actual total rainfall in mm recorded during the calendar month under consideration.
- N_n = Average number of days, derived from rainfall records, on which a rainfall of 10 mm and more was recorded during the relevant calendar month as per the data tabulated hereinafter
- R_n = Average total rainfall in mm for the relevant calendar month, derived from rainfall records, as tabulated hereinafter.

Where the extension of time due to abnormal rainfall has to be calculated for portion of a calendar month, pro rata values shall be used. Should V be negative for any particular month, and should its absolute value exceed the corresponding value of N_n, then V shall be taken as being equal to minus N_n. The total extension of time to be granted shall be the algebraic sum of all the monthly extensions, provided that if this total is negative then the time for completion shall not be reduced due to subnormal rainfall.

Rainfall records for the period of construction shall be taken on Site. The Contractor shall provide and install all the necessary equipment for accurately measuring the rainfall **per site**. The Contractor shall also provide, erect and maintain a security fence plus gate, padlock and keys at each measuring station, all at

his own cost. The Engineer or his Representative shall take and record the daily rainfall readings. The Contractor shall be permitted to attend these readings, in the company of the Engineer's Representative. Access to the measuring gauge(s) shall at all times be under the Engineer's control.

The rainfall records applicable to this Contract (unless more appropriate records for the site are made available by the Weather Bureau) are those recorded at Polokwane from 1898-1989. The following values of N_n and R_n shall apply:

MONTH	N_n (days)	R_n (mm)
January	91	3
February	72	2
March	61	2
April	31	1
May	11	0
June	4	0
July	5	0
August	4	0
September	14	1
October	41	1
November	80	3
December	91	3
TOTAL	505	16

PS20 LABOUR AND PERSONNEL

PS20.1 Contractors Personnel

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

Without derogating from the Contractor's obligations to complete the Works within the specified time for completion in terms of Clause 45(1) of GCC 1990, the numbers in each category of the Contractor's key personnel, as stated by the Contractor in Section 7 of his BID, will be strictly controlled during the contract period and any increase in numbers will be subjected to the prior approval of the Employer.

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

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

- (a) The unavailability from local sources of sufficient numbers of temporary workers and/or sub-contractors to execute the Works, provided always that the Contractor has satisfied the Engineer that he has exercised his best endeavours and taken all reasonable actions to recruit sufficient temporary workers and sub-contractors from local sources.
- (b) The unavailability within the temporary worker pool and/or from subcontractor sources available to the Contractor in terms of Contract, of sufficient skills necessary to execute the Works or specific portions thereof, in situations where the completion period allowed in the Contract is insufficient to facilitate the creation of the necessary skills through the provision of suitable training, as contemplated in the Contract;
- (c) Any other circumstances which the Engineer may deem as constituting a warrant.

PS20.2 Temporary Workforce

The Contractor shall draw labour from the local communities through the Labour Desk(s), or similar arrangements, which have been established for this purpose. Accordingly, the workforce that is employed on Site shall consist of local residents, except for approved key staff in the permanent employ of the Contractor, to the maximum extent that is compatible with the requirements of the Conditions of Contract.

The Labour Desk(s), or similar arrangements which have been established for this purpose shall assist in identifying available local labour and, where available, semiskilled labour as well as local subcontractors. The Labour Desks shall also assist and advise regarding conditions of employment, minimum wages, disputes and disciplinary procedures. The function of the Labour Desk(s) shall however in no way diminish the responsibilities of the Contractor in terms of the Conditions of Contract. Although the Contractor shall adhere to the statutory minimum wage rates of the Conditions of Contract), he is however at liberty to negotiate additional incentive payments based on performance.

A contract of employment or subcontract should be signed between the Contractor and each of his employees or sub-contractors, as the case may be. Likewise contracts of employment must be entered into between each such sub-contractor, and each of the specific subcontractor's employees. Employment and subcontract agreements shall make clear reference to at least the following conditions:

- The minimum agreed wage rate per hour in respect of labourers;
- The agreed pay rate per unit production where applicable;
- UIF and WCA payments;
- Minimum working hours per day;
- Start and end times of a daily shift;
- Lunch break times;

- Company Policy regarding:
 - Rain time
 - Sickness and absenteeism
 - Disciplinary matters
 - Grievances
- Method and frequency of payment;
- Work clothes and safety equipment to be issued.

PS20.3 Labour Intensive Construction

The Northern Province has decided that labour intensive construction methods are to be introduced and practised in some of the equipment activities of this project.

Labour Intensive Construction shall mean the economically efficient employment of as great a portion of labour as is technically feasible to produce a standard of construction demanded by the Specifications with completion by Due Completion Date, thus the effective substitution of labour for equipment.

Appropriate portions included in the Contract shall be executed using labour intensive construction methods. These portions of the Works shall be constructed utilising only locally employed labour and/or the labour of local sub-contractors, supplemented to the extent necessary and unavoidable by the Contractor's key personnel as provided for in sub-clause PS20.1, unless otherwise instructed by the Engineer and in accordance with the further provisions of the relevant sections of Portion 2 of the Project Specifications. The portions of the Works to be executed using labour intensive construction methods (where feasible) are:

- clearing and grubbing of the Site;
- bedding, selected fill, backfilling and compaction of all pipe trenches irrespective of depth, but assisted by mechanical compaction equipment in order to achieve the specified densities;
- excavation of pipe trenches where the soil conditions and trench depths permit economic production;
- transportation and spoiling of all trench materials, where the disposal site is located within 20 metres of source;
- removal of oversized materials to the edge of the roadway during the construction of roads and streets;
- laying and testing of all pipelines, including all fittings, valves and house/erf connections;
- construction of all manholes, valve chambers, thrust blocks pipeline markers and the like (earth-, concrete-, brick- and metal works);
- construction of the rudimentary draw-off assemblies;
- mixing, transporting, placing and finishing of all concrete;

- dismantling and re-erection of fences; and
- cleaning and tidying up of the Site.

In respect of those portions of works which are not listed above, the construction methods adopted and plant utilised shall be at the discretion of the Contractor, provided always that the construction methods adopted and plant utilised by the Contractor are appropriate in respect of the nature of the Works to be executed and the standards to be achieved in terms of the Contract.

PS 21 SUBCONTRACTING

- PS 21.1** The Contractor shall appoint specialist subcontractors nominated by the Employer or the Engineer for those portions of the Works that are described in Section PSA in Portion 2 of the Project Specification.
- PS 21.2** The Contractor shall sub-let to local small sub-contractors appropriate portions of the works that are designated in Clause PS 20.3 as being reserved for labour intensive construction methods.
- PS 21.3** As required by Clause 6.4 of the Conditions of Contract, the Contractor shall be responsible for all work carried out by sub-contractors (whether nominated by the Employer or selected by the Contractor) on his behalf. The Engineer will not liaise directly with any such sub-contractor, nor will he become involved in any problems and/or disputes related to payments, programming, workmanship, etc, unless provided for in the Conditions of Contract. Such problems and/or disputes shall remain the sole concern of the Contractor and his sub-contractors.
- PS 21.4** The Engineer may at his discretion, upon receipt of a written and fully motivated application from the Contractor, and where he deems the circumstances so warrant, and provided always that the Contractor has complied fully and in all respects with provisions of the Contract pertaining to subletting to local sub-contractors or has utilised his best endeavours to comply therewith, authorise in writing that the Contractor may employ local residents in terms of Clause PS 20.2 with the sole intent of executing on-the-job training of such local residents to suitable levels of skill that will enable the Contractor to sub-let appropriate portions of the Works as specified in Clause PS 20.2 to such local residents.

Without limiting the generality of application of this sub-clause, circumstances, which may be considered by the Engineer to warrant such authorisation, include:

- (a) non-receipt of valid or acceptable BIDs/quotations from local sub-contractor;
- (b) serious default or failure of appointed local sub-contractor;

The Engineer shall not grant such authority in cases where it may reasonably be concluded on the available evidence that the invitation of further BIDs/quotations in accordance with the terms of the Contract, is likely to result in the successful completion of the portions of the Works concerned by local sub-contractors.

Should the Contractor, after suitable due endeavour, be unable to identify local residents suitable for and desiring to train as sub-contractors for portions of the Works as specified in Clause PS 20.2, then the Contractor shall be permitted to undertake the Works in question with his own workforce as provided for in Clause PS 20.1 above.

The Engineer shall monitor progress achieved with subcontractor training, and successful completion of this training shall be subject to his approval or instruction. The Contractor shall BID rates for the training of sub-contractors and labour. See Clause PS 22 in this regard.

PS 21.5 As specified in Clause PS 20, the Contractor shall approach the Labour Desk or similar arrangements which have been established for purposes of the Contract for assistance and advice regarding conditions of employment, minimum wages, disputes and disciplinary procedures in respect of local sub-contractors.

PS 22 TRAINING

PS 22.1 Artisan and Skills Training

When required in respect of those portions of the Works that are listed under PS 20.3 and where insufficient skills are currently available within the identified communities via the Labour Desks or from local sub-contractors, the Engineer may, after due consideration and subject to budget constraints, authorise, in writing, the training of local labour in specific trades or other skills for direct employment of the Works or as local sub-contractors. Such training shall be carried out by specialists and shall be consistent with standards that are approved at industry level, such as training provided by CEITS or by the APEX Training Centre, or by training organisations that are certified by these bodies. The cost of this training shall be borne by the Employer, and the Contractor will be compensated for actual costs incurred in this regard under the Prime Cost item that has been included for this purpose in Schedule 1.

PS 22.2 In-house Training

Alternatively, under similar conditions and subsequent to due evaluation of all relevant factors, the Engineer may authorise, in writing, that in-house training of local labour be executed by the Contractor utilising the services of approved skilled key-personnel or artisans in his employ. The Contractor shall BID rates for such training , inclusive of all training materials, construction materials (pipes, fitting, brick, sand, cent etc.) and small tools. Payment will be made to the Contractor as provided in Schedule 23 of the Pricing schedules.

END OF SECTION

Section 4.2

PROJECT SPECIFICATIONS

Portion 2

**Variations to Standardised Specifications
and Additional Clauses**

PORTION 2: VARIATIONS AND ADDITIONAL CLAUSES

PSA GENERAL

PSA1 SPECIFICATION DRAWINGS

Specification Drawings may be included in this document as annexures to the Project and Particular Specifications. Where such Specification Drawings depict items and standard structures according to layouts and details differing from those shown in the Standardised Specifications, the layouts and details shown in the annexures to the Project and Particular Specifications shall be adopted.

PSA2 QUALITY

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

PSA2.1 DEFINITIONS

PSA2.1 Definitions

Add the following:

Task	- a quantified activity or operation.
Daily task	- a task that is required to be completed within a working day.
Task remuneration (order)	- remuneration as paid for a completed task or job (order).
Daily rate	- the remuneration of a day's work.
Daily wage	- see daily rate
Daily task remuneration	- the remuneration for a completed daily task.
Labour-intensive construction	- the economically efficient employment of as great a portion of labour as is technically feasible to produce as high a standard of construction as demanded by the specification and allowed by the funding available, thus the effective substitution of labour for equipment. (Note: This definition is not Contract specific, but applies to the project as a whole. This Contract is a part of such a project).

C3.4.2 Plant and Materials

All materials shall comply with the requirements of the South African Bureau of Standards and shall bear the official standardization mark. Where SABS standard does not exist for a certain material, or a material does not bear the official standardization mark, the Engineers approval of such material must be gained before use thereof.

C3.4.3 Construction Equipment

All equipment on site shall be in a good working order and is to be in such a condition that it can achieve production rates which are typical of the industry standards.

Should any equipment, in the opinion of the Engineer, be substandard or breaks down frequently to such an extent that it affects the progress on the project, the Engineer may instruct the Contractor to replace such equipment.

C3.4.4 Health & Safety

All work is to be carried out in accordance with the Occupational Health and Safety Act and Regulations (Act 85 of 1993) (a copy of which must be kept on site), the Explosive Material Act of (Act 26 of 1956), the Minerals Act of 1991, and the Factories Machinery and Building Work Act (No 22 of 1941).

Two items relating to the fixed cost and time related cost of complying with these regulations have been provided in the Schedule of Quantities (items 1.1.9 and 1.2.9).

The Contractor is to ensure that **at least** the following is allowed for in his/ her rates:-

- (i) Provision of a full-time safety officer (and assistants if necessary) for the duration of the contract.
- (ii) Provision of all safety equipment required in terms of the Act (e.g. gloves, hard hats, safety boots, harness, masks, goggles, etc.).
- (iii) Provision for all other costs necessary for conforming with the Regulations (e.g. management, risk etc.)

- Accommodation of traffic

It is expected of the Contractor to ensure that the free flow of traffic is possible throughout the construction period.

The Contractor is to provide all necessary barricades, signs and lighting in accordance with the stipulations of the South African Road Signs Traffic Manual, and the Protective Services of the O. R. Tambo District Municipality. All work is to be to the satisfaction of the Engineer.

- Inspection by engineer

No stage of construction shall be proceeded with until the Engineer or his representative has examined and approved the previous stage. If any work is covered or hidden from view before the Engineer has inspected same, the Contractor shall at his own cost open the covered work for inspection. The Contractor shall also be responsible for making good any work damaged by such uncovering.

- Employment of local labour

It is a specific criterion of this project that should as far as possible adheres to RDP principles, and to meet these principles the following procedures will be followed:

All labour is to be sourced from the O. R. Tambo District Municipality area of jurisdiction and the Contractor may only bring in key personnel from outside this area.

C3.4.5 Existing Services

C3.4.5.1 Treatment of Existing Services

The Contractor shall ensure that none of the existing services are damaged during the implementation of this Contract.

C3.4.5.2 Use of Detection Equipment for the Location of Underground Services

The Contractor may use detection equipment to locate underground services prior to exposing such by hand.

C3.4.5.3 Damage To Services

The Contractor shall exercise care in the vicinity of existing services and shall take all necessary measures to protect such services. Repairs to existing services damaged by the Contractor shall be for his own account.

C3.4.5.4 Reinstatement of Services and Structures Damaged During Construction

In the event of a service being damaged, the Contractor shall immediately notify the authority concerned, as well as the Employer's Agent. Where the authority concerned elects to effect the repair, the Contractor shall co-operate with and allow such authority reasonable access and sufficient space and time to effect the repair.

C3.4.5 Site Establishment

C3.4.6.1 Services and Facilities Provided by the Employer

The O.R Tambo District Municipality is the Water Supply Authority.

No services or facilities will be provided by the Employer. The Contractor is to provide his own services and facilities, and to make allowance for the cost thereof in Section 1 of the Schedule of Quantities.

C3.4.6.2 Facilities Provided by the Contractor

The Contractor is to provide the facilities indicated in the Schedule of Quantities.

C3.4.6.3 Storage and Laboratory Facilities

The Contractor is to provide the facilities indicated in the Schedule of Quantities.

Storage areas are to be contained within the Contractor's designated, fenced off construction camp(s).

C3.4.6.4 Other Facilities and Services

The Contractor is responsible for the provision of all necessary temporary facilities which are not provided by the Employer, including power, water, telecommunications, security services, medical, fire protection, sanitation and toilets and solid waste disposal.

The Contractor shall make his own provisions for the collection, storage and disposal of all construction waste (i.e. whether it be in the camp or on the construction site); all in conformance with the Environmental Management Plan and with approval of the Employer's Agent, the Local Authority and the Environmental Officer. Payment for the clearing, loading, transport, dumping fees and any other requirement or costs incurred shall be included in the scheduled rates.

The Contractor shall provide suitable and adequate portable chemical latrines for his employees and his sub-contractors. Latrines shall be maintained by the Contractor in a clean and sanitary condition to the Employer's Agent's satisfaction. The use of latrines shall be enforced and fouling of the site will not be permitted.

The Contractor shall be permitted to house Key Personnel only within the construction camp site(s). At the commencement of the Contract, the Contractor shall inform the Employer's Agent of his intentions regarding the housing of Key Personnel on site, and he shall thereafter ensure that such accommodation is kept neat, hygienic, and properly controlled at all times. At any stage of the Contract, should the Employer's Agent be of the opinion that the housing of Key Personnel within the construction camp(s) is causing disturbance, or inconvenience to the land owner or nearby residents, the authority granted in this clause for the housing of Key Personnel within the construction camp(s) be withdrawn, either partially or entirely.

The Contractor is to comply with all requirements contained in law or local bylaws, as well as any other requirements set by the local authority.

C3.4.6.5 Notice Boards

The Contractor is to provide notice boards as indicated in the Schedule of Quantities, the layout of which is to match the template issued in the Tender Document.

The boards are to be erected at locations approved by the Employer's Agent. The Employer's Agent reserves the right (at no cost to the Employer) to have any sign, notice or advertisement moved to another location, or to have such removed from the site entirely, should such signs, notices or advertisements prove in any way unsatisfactory, or an inconvenience or danger to the general public.

These boards are to be maintained for the duration of the Contract. Any damage to the boards shall be repaired within fourteen (14) days of a written instruction issued by the Employer's Agent.

The notice boards and supporting structures are to be removed fourteen (14) days prior to the issue of the Final Approval Certificate.

C3.4.7 Site Usage

Access to site shall be limited to the Contractor and his personnel. The Contractor shall be responsible for the control of unauthorized entry to the site and shall inform the Employer's Agent of any breach of such rules. The site shall be managed and used for its intended purpose. The Contractor is required to keep a visitors log and ensure full compliance with site safety standards.

C3.4.8 Permits and Way Leaves

While the Engineer is responsible for obtaining all the necessary wayleaves, permissions and permits applicable to working near any existing services or other infrastructure on Site, the Contractor is responsible for abiding by the safety and other conditions imposed by such wayleaves, permissions and permits.

The Contractor shall ensure that all wayleaves, permissions and permits (furnished by the Engineer) are kept on site and are available for inspection by the relevant services authorities on demand.

The Contractor shall also ensure that any wayleaves in respect of electricity services are renewed timeously every three months.

C3.4.9 Alterations, Additions, Extensions and Modifications to Existing Works

The Contractor is to satisfy himself as to the dimensional accuracy, alignment, levels and setting out of existing structures or components thereof to ensure compatibility with the proposed works. Any concerns are to be raised timeously with the Employer's Agent.

C3.4.10 Inspection of Adjoining Properties

In the event that blasting is required on site, inspection of potentially affected buildings and properties is to be conducted with the owners of such buildings/properties, along with representatives of the local authority. This is to be completed before commencing with blasting.

The Contractor shall record the condition as well as photograph all adjoining structures before commencing with blasting.

C3.4.11 Water for Construction Purposes

The Contractor is responsible for procuring, transporting, storing, distributing and applying the water needed for construction purposes. Consultation with the local community or the local authority may be required, depending on the proposed source of such water.

C3.4.12 Survey Control and Setting Out of the Works

Control points in the form of benchmarks and pegs have been established at critical points.

C3.4.13 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 Employer's Agents, 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 and mix designs 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 Employer's Agent for examination and measurement, the Contractor shall furnish the Employer's Agent with the results of the relevant tests, mix designs, measurements and levels to demonstrate the achievement of compliance with the Specifications.

C3.4.14 Features Requiring Special Attention

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 Employer's Agents, 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.

C3.4.14.1 Supporting Documents

Refer Section PS.8.1 of this document

C3.4.14.2 Monthly Reporting

Refer Section PS.8.7 of this document

C3.4.14.4 Accommodation of Traffic

The Contractor will be required to make provision for the accommodation of traffic along all public roads for the full duration of construction.

C3.5 Management

C3.5.1 Management of the Works

C3.5.1.1 Applicable SANS 1921 Standards

- SANS 1921-1:2004 Part 1 General Engineering and Construction Works
- SANS 1921-2:2004 Part 2 Accommodation of Traffic on Public Roads Occupied by the Contractor
- SANS 1921-3:2004 Part 3 Structural Steelwork
- SANS 1921-5:2004 Part 5 Earthworks Activities which are to be Performed by Hand
- SANS 1921-6:2004 Part 6 HIV/AIDS Awareness

C3.5.1.2 Particular Specifications (refer to Annex C3.6)

Refer to C3.6 – Annexures for particular (purpose written) specifications.

C3.5.1.3 Planning and Programming

The Contractor shall submit a detailed programme within fourteen (14) days of the acceptance of the tender as stipulated in the General Conditions of Contract 2015.

The Contract period shall include all Saturdays, Sundays, non-working days (public holidays), special non-working days, as well as an allowance for anticipated inclement weather (as per Clause Clause 5.12.2.2: Extension of Time) during normal working hours. The programme shall be agreed between the Employer and the Contractor prior to the implementation of the construction works.

The programme shall be updated monthly, for discussion at the monthly progress (site) meeting, to indicate planned versus actual progress.

The Contractor shall review his progress each month and should progress lag behind the latest accepted programme, by more than 2 weeks, he shall submit a revised programme and method statement of how he proposes to make up the lost time. If, in the opinion of the Employer's Agent, such revised programme will not make up the lost time, the Employer's Agent shall have the right to request the Contractor to reorganize his work in a manner which will ensure an acceptable programme. Claims for additional payment to meet any costs incurred due to such reorganisation will not be accepted.

Should the Contractor wish to work outside normal working hours (as defined in the Contract Data) for any reason, he shall first seek permission to do so from the Employer's Agent. Attending to emergency situations or making-safe the Works are exempt from requiring prior approval, but notification shall still be sent to the Employer's Agent.

Site handover and commencement of execution of the Contract will only take place once all the necessary documentation (details given in Contract Data) has been submitted and approved. Before any site work is undertaken, an introductory meeting with the local community has to be held. The latter is arranged by the Employer's Agent.

C3.5.1.4 Programme Format and Content

Programmes shall be submitted in Microsoft Project format in hardcopy and softcopy. The Contractor is to provide the detailed programme such that it is legible.

The programme of construction shall be submitted to the Engineer within the time period stipulated in these documents. The programme shall clearly show all activities related to the works and shall indicate which activities are on the critical path.

In compiling the programme the Contractor shall take into account the following:

- The requirements and effects of employing labour intensive construction methods.
- The lead-time for training of local labour.
- The accommodation and safeguarding of public access and traffic
- Accommodation of and notification for temporary water shut down
- Establishment and de-establishment times.
- Time to obtain all permits and way-leaves.
- Appointment of Community Liaison Officer (CLO).
- All public and Contractor close down periods.
- All other activities required in terms of this document.

The Contractor's programme shall show:

- a) The various activities, related to a time scale, for each element of the Works, including those of Subcontractors, in sufficient detail to be able to assess construction progress.
- b) Water testing
- c) Critical path activities and their dependencies,
- d) Key dates in respect of information to be provided by the Employer's Agent and/or others.

C3.5.1.5 Methods and Procedures

Where requested in writing by the Employer's Agent, the Contractor shall submit Method Statements for constructing specific aspects of the Works. Such work shall not be started until the Contractor receives approval of the Method Statement in writing from the Employer's Agent.

C3.5.1.6 Quality Plans and Control

The Contractor is required to have in place, and follow, an approved Quality Assurance System for the execution of this Contract. To this end, the Contractor shall submit his proposed Quality Management Plan (QMP) to the Employer's Agent for approval along with his up-front documentation required before the commencement of the Works. The QMP shall include the Contractor's proposed Quality Control Plan (QCP) which shows how conformance to the QMP is to be documented.

In addition to this, the Contractor is required to follow the Employer's Agent's Site Quality Control procedures which entails the following:

- Contractor's submission of Request for Inspection of Work;
- Employer's Agent's signing-off of 'hold points' at each stage of the work (thereby authorising the

Contractor to proceed with the next stage of the work). This may take several iterations should the Employer's Agent require further work before signing-off. Work may not proceed on the next stage until the previous stage has been signed-off.

Claims for particular items of completed work for each interim Payment Certificate will not be certified for payment where the required sign-offs have not been obtained.

No claims for extension of time, nor any other form of compensation, will be entertained for delays in receiving the Employer's Agent sign-offs on 'hold points' where, in the opinion of the Employer's Agent, insufficient notice has been given to inspect and approve the Works. The default notice required is 48 hours.

The Contractor shall submit copies of all his conformance documentation to the Employer's Agent on a monthly basis and proof of recent calibration of all measuring devices that are to be used.

C3.5.1.7 Environment

The Contractor shall comply with the Construction Environmental Management Plan (attached in Annexures). The Environmental Control Officer shall liaise directly with the Contractor on general environmental matters. Where such matters affect construction works, the Environmental Control Officer will be required to address such concerns with the Employer's Agent.

The Contractor shall plan the work in such manner that wind-blown dust is kept to a minimum. Earthworks shall commence immediately after a section is cleared and approved. The Contractor will have a water truck or other means of dust suppression on standby for spraying the cleared areas. The cost of this process will be deemed to have been included in the clearing and excavation rates entered in the Schedule of Quantities.

Burning of any materials on site will not be allowed.

The Contractor is required to progressively and systematically finish and tidy the work as it proceeds. This will be monitored against the latest approved programme. The Employer's Agent shall have the right to not certify full payment of particular scheduled items where such items are largely complete, but finishing and tidying is deemed still outstanding.

Under no circumstances shall spoil, rubble, materials or equipment be allowed to unnecessarily accumulate on Site. If, in the opinion of the Employer's Agent, this is occurring, the Employer's Agent shall have the right to make an

allowance for the estimated cost of rectifying the above by reducing particular measured quantities from claims being processed for payment.

C3.5.1.8 Accommodation of Traffic on Public Roads Occupied by the Contractor

All work within the road reserve is to be conducted strictly in accordance with the wayleaves issued for such work.

C3.5.1.9 Other Contractors On Site

There are no other Contractors on Site.

C3.5.1.10 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 Employer's Agent 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 Employer's Agent 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 Employer's Agent with copies of the results of all such testing carried out by the independent laboratory.

For the purposes of this clause, an "independent laboratory" shall mean an "approved laboratory" (as defined in subclause PSA 7.2) which is not under the management or control of the Contractor and in which the Contractor has no financial interest, nor which has any control or financial interest in the Contractor.

- (ii) Additional testing required by the Employer's Agent

In addition to the provisions of subclause C3.4.2.5(b)(i): Contractor to engage services of an independent laboratory, the Employer's Agent 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 Employer's Agent 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 Employer's Agent, and copies of the test results shall be promptly submitted to the Employer's Agent.

- (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 Bill 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 (e.g. 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 Employer's Agent

The costs of any additional tests required by the Employer's Agent in terms of subclause C3.4.2.5(b)(ii): Additional testing required by the Employer's Agent, shall be reimbursed to the Contractor against substitution of the Provisional Sum allowed therefore in the Bill of Quantities; provided always that the costs of any such additional tests ordered by the Employer's Agent, 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.

C3.5.1.11 Recording of Weather

The Contractor is to provide and correctly install a rain gauge and maximum/minimum thermometer at the construction camp. The Contractor shall record and keep a record of the daily rainfall and maximum/minimum temperatures and supply the data to the Employer's Agent on a daily basis. Readings are to be recorded daily at 08:00 unless otherwise agreed to by the Employer's Agent.

The Contractor shall take all necessary precautions to ensure that the rain gauge cannot be interfered with by unauthorised persons.

C3.5.1.12 Format of Communications

All requests for information or requests for inspections are to be recorded in writing.

All instructions are to be issued in writing as a Site Instruction.

C3.5.1.13 Key Personnel

The Contractor is to compile and submit to the Employer's Agent a schedule of Key Personnel, including titles, names, designations and contact numbers of such personnel. This document is to be updated immediately in the event of any changes.

C3.5.1.14 Management Meetings

Formal project meetings will be held on site in the Employer's Agent's office (or similar suitable office). Representatives of the Employer, Employer's Agent and Contractor will be required to attend. The representatives are to have the necessary authority in respect of aspects such as planning and health and safety. The Contracts Manager and Construction Manager (Site Agent) are required to attend all such meetings.

The Contractor shall attend the following meetings during the Contract:

- a) An inaugural site meeting at the BM Infrastructure offices or as called by the Employer's Agent
- b) Monthly site meetings, at BM Infrastructure East London offices and on Site or as called by the Employer's Agent, from the commencement of the Works until the issue of the Practical Completion Certificate (or where necessary as determined by the Employer's Agent).
- c) Monthly technical meetings called by the Employer's Agent (or where necessary as determined by the Employer's Agent).
- d) Meetings during the Defects Notification Period called by the Employer's Agent (only if warranted)
- e) The following reports shall be submitted by the Contractor before the monthly Site Meetings:
 - Progress Report
 - Plant & Labour returns
 - Updated Programme vs Baseline Programme
 - Updated cashflow projection.

The cost of these requirements shall be included in the rates tendered for Time Related Items.

C3.5.1.15 Forms for Contract Administration

The Employer's Agent's Representative will have a full set of contract administration forms for use on site. This includes forms for recording test results, claims, inspections and the like. The Contractor may use such as a basis for his documentation should he not have adequate similar templates.

C3.5.1.16 Electronic Payments

The Employer will make payments by electronic means only.

C3.5.1.17 Daily Records

The Contractor is required to keep daily records of resources (people and construction equipment) as well as of work performed on the site. A signed copy of the previous day's record must be provided to the Employer's Agent on a daily basis.

Information relating to construction equipment shall be recorded in the Daily Site Diary. In addition, the Contractor shall deliver to the Employer's Agent, on a monthly basis, a detailed schedule of construction equipment present on the site for that month. Full particulars are to be recorded, identifying each piece of equipment, including whether the equipment is in working order or out-of order. This schedule is to be submitted by the first day of the month following the month to be reported.

C3.5.1.18 Bonds and Guarantees

Bonds and guarantees are to be submitted to the Employer from whom they can be collected once they are released, in accordance with the contract.

C3.5.1.19 Payment Certificates

Measurements for interim and final certificates must be agreed with the Employer's Agent prior to the issuing of a Tax Invoice by the Contractor.

The Contractor is to provide all invoices, vouchers and receipts in respect of payments made by him in connection with provisional or prime cost items when he requires payment for such.

The Contractor is to provide all invoices or receipts in respect of materials purchased and delivered to the site when he requires payment for such. Invoices or receipts are to clearly identify the material, the unit rate thereof, and the quantity/number purchased.

It is a specific requirement of this Contract that the Contractor shall collect and record all relevant information for the completion of end-of-month documentation to be submitted with each payment claim. The Payment Certificate (prepared by the Employer's Agent) will not be accepted by the Employer unless accompanied by the following:

- Local Labour Schedule (in EPWP format, i.e. giving employee names, IDs, gender, age group and disability status if applicable)
- Contract Participation Goal expenditure to date vs target (details of labour wages and salaries paid and payments to Targeted Enterprises vs value of work certified to date)
- Monthly Progress Report (from Site Meeting).

C3.5.1.20 Proof of Compliance with the Law

The Contractor shall insure his employees against accident in terms of the Compensation for Occupational Injuries and Diseases Act (Act 130 of 1993), as amended. A Letter of Good Standing with the Compensation Fund, as issued by the Department of Labour, must be submitted as part of the Tender.

Where the Letter of Good Standing expires during the contract period, the Contractor will be required to submit new, valid documentation. Failing to do so will result in work being stopped.

C3.5.1.21 Insurance Provided by the Employer

No insurance will be provided by the Employer.

C3.5.2 Health and Safety

C3.5.2.1 Health and Safety Requirements and Procedures

The Contractor is to comply in all respects with the Occupational Health and Safety Act (Act 85 of 1993), as amended, as well as with the Construction Regulations 2014 and the Electrical Machinery Regulations.

The Health and Safety Officer appointed by the Employer shall liaise directly with the Contractor on safety matters but shall be required to channel safety matters affecting construction work through the Employer's Agent.

The Contractor shall take special care of the following during construction:

- Flooding of trenches or excavations
- Possibility of collapse of excavations in sandy soils
- Protection of deep excavations and adjacent structures
- Protection of existing services
- Accommodation of traffic and pedestrians
- Proper storage and stacking of materials
- Good housekeeping and site tidiness
- Provision of welfare facilities
- Dust control

The Contractor's Health and Safety plan is to be approved and the Contractor's Safety Officer is to be appointed prior to the commencement of any construction activities. It is specifically noted that the person officially appointed as the Contractor's Safety Officer shall be properly qualified and experienced and be based full-time at the site while activities are taking place.

Time lost due to delayed commencement or suspension of the work as a result of the Contractor's failure to submit the safety plan timeously, shall not be used as a reason to claim for extension of time or standing time and related costs.

C3.5.2.2 Protection of the Public

Any excavations left open during the builder's holiday or other non-working days shall be adequately safeguarded at all times. Safe trench-crossings shall be provided where necessary. The length of trench left open at any one time may be restricted by the Employer's Agent, should he consider such restriction to be in the interest of public safety.

C3.5.2.3 Barricades and Lighting

The Contractor is responsible for the safety of the site and shall provide all necessary watching, barricading and lighting. This is especially significant at excavations.

C3.5.2.4 Community Participation

Although there is very limited scope for the employment of unskilled workers from the surrounding communities, there will be a strong expectation among the community that at least some people are employed while on-site activities are taking place (eg providing 24h security, assisting with lifting / carrying / holding in position during assembly etc).

Such persons are to be selected and employed via a Community Liaison Officer.

A Provisional Sum allowance has been made for the short-term employment of CLOs in accordance with the following Terms of Reference (ToR) for the CLO (*Refer Section PS.8.6*)

C3.5.2.5 Employment of the Local Community

The Contractor is to limit the import of labour to skilled personnel only. Semi-skilled and unskilled labour is to be sourced from the local community.

The human resources of the local community are generally underdeveloped, underutilised and underemployed. The Contract Participation Goals set for Targeted (local) Labour and Targeted (local) Enterprises are to encourage both skills and economic development by requiring a minimum level of local resources participation on all construction work in the O. R. Tambo District Municipal (ORTDM) area of jurisdiction. Details are given in Part C1: Contract Data and the CPG Returnable Schedules.

It is therefore a condition of Contract that the Contract Participation Goals set for Targeted Labour and Targeted Enterprises (minimum percentages of the value of work executed) are achieved. The measure of Targeted Labour Participation comprises the sum of wages and salaries paid to all locally-based (ORTDM) South African Citizen residents for any work done on this Contract (irrespective of level of skills, race, gender or who they are employed by). The measure of Targeted Enterprise Participation comprises the sum of monies paid by the Main Contractor to all locally-based (ORTDM) enterprises irrespective of race or gender of the enterprise ownership).

It is a requirement that, at least, all unskilled labour taken-on by the Main Contractor and his sub-Contractors are sourced from the local community and that such employment is arranged through the CLO and PSC.

Employment of all temporary labour, whether employed directly or through a Subcontractor, shall comply in all respects with the National Government Department of Labour's regulations; including the minimum wage applicable to construction work in the Eastern Cape.

C3.5.2.6 Certificate of Service

An employee shall, upon termination of his services, be entitled to a Certificate of Service showing the full names of his employer (i.e. the Contractor) and the employee, the type of work done by the employee, the date of commencement, a record of training received and the date of termination of his services.

C3.6 ANNEXURES

C3.6.1 Variations and Additions to the Standard SANS 1200 Specifications: General, Civil and Structural Works

C3.6.2 Particular Specifications

C3.6.3 Health and Safety Specifications by the Employer

C3.6.4 Construction Environmental Management Plan

Variations and Additions to the Standard SANS 1200 Specifications: General, Civil and Structural Works

NOTE: Numbering in the Project Specifications corresponds with the numbering of clauses in the Standard Specifications (SANS 1200).

Tenderers must make provision for all the relevant Project Specification requirements to be included when calculating the prices of the various items in the schedule of quantities.

In addition, the sum tendered shall cover all initial costs incurred in complying with the requirements of C1.2 Contract Specific Data

PSA3 MATERIALS

PSA3.1 Supply of Materials

The Contractor will be responsible to supply all the materials necessary for the proper execution of the works. He shall also be fully responsible for quality of materials used and/or installed.

PSA4 PLANT

Except where the use of plant is essential in order to meet the specified requirements by the Due Completion Date, the Contractor shall use only hand tools and equipment in the construction of those portions(s) of the Works that are required in terms of the Project Specifications to be constructed using labour intensive construction methods.

PSA5 CONSTRUCTION

PSA5.1 Setting Out of the Works

Where labour-intensive works are specified, the Contractor shall also be responsible for the setting out of daily tasks.

PSA6 TESTING

- (a) All test results obtained by the Contractor in the course of his process control of the Works shall be submitted to the Engineer or his Representative prior to requesting inspection of the relevant portions of the Works. Any request for inspection shall be submitted on the prescribed forms that are appended as annexures to the Specifications.
- (b) The Contractor shall make suitable arrangements for process control prior to commencement with the Works. Should he intend using site personnel for this purpose he shall ensure that suitably trained and competent personnel take charge of the necessary test work, and that the necessary equipment is at their disposal prior to commencement of the Works. Failure to comply with these requirements shall be just cause for the Engineer to order suspension of the Works without additional remuneration in terms of the Conditions of Contract, or for him to recommend determination to the Employer in terms of Clause 58 thereof.
- (c) The Contractor shall deliver to the Engineer, for his consideration, quality assurance programmes (as obtained from all the Contractor's proposed suppliers of pipes, valves and specials) prior to the Contractor's appointment of any suppliers.

PSA7.1 Instructions by the Engineer

Site instructions by the Engineer, addressed to the Contractor at his office on the Site, will be numbered consecutively and will be deemed to have been received by the Contractor's Representative unless a break in the sequence of number is brought to the notice of the Engineer in writing immediately.

PSA7.2 Site Diary

A site diary, which will be supplied by the Engineer, must be filled in on a daily and submitted to the Engineer on a monthly basis. No claims will be considered without the site diary's schedule properly completed (on a daily basis) and submitted.

PSA8 SITE MEETINGS

The Contractor and his authorised representative shall attend all meetings held on the Site with Employer and the professional team at dates and times to be determined by the Engineer. Such meetings will be held to evaluate the progress of the Contract, and to discuss matters pertaining to the Contract, which any of the parties represented, may wish to raise. It is not the intention to discuss day-to-day technical matters at such meetings.

PSA9 PAYMENT

Monthly Progress Payment Certificates shall be submitted to the Engineer's Representative on Site not later than the 15th of each month (or on the last working day prior to this date) in order to allow for checking and reconciliation of all quantities, rates, extensions and additions in the certificate. Each progress payment certificate shall include work executed or reasonably expected to be executed up to the 30th day of the specific month.

The Engineer's Representative shall have a period of five (5) calendar days to review the draft certificate in collaboration with the Contractor. All quantity calculations and certificates submitted by the Contractor for checking shall be in accordance with the standard formats that are included in Section 4.4C.

Upon agreement by the Engineer's Representative by not later than the 20th of each month, the certificate shall be submitted by the Contractor in a neat typed form in accordance with the prescribed format, and with the correct spelling, to the Engineer by not later than the 25th of each month (or on the first working day thereafter), together with four additional copies, for certification.

Where dayworks have been instructed by the Engineer, the Contractor shall submit the returns to the Engineer for signature and approval within twenty-four (24) hours of the end of the working day on which the work was executed. Daywork returns shall be submitted on forms following the standard format included in Section 4.4C for this purpose. Failure to comply with the terms of this clause will result in non-payment for such dayworks.

Commissioning forms must be attached to all invoices and submitted to the engineer for the approval of the payment certificates.

The tax invoice submitted with the certificate shall be dated the 1st of the month following the period certified. All costs for the preparation and submission of progress certificates shall be borne by the Contractor.

PSA10 REPORTS

The submission of each monthly payment certificate shall be accompanied by a completed Report.

This report is a pre-requisite for the approval of each monthly payment certificate and shall be completed in full to illustrate all work completed the preceding month, as well as work in progress at the time of submission of the report.

~~Each of these reports must be accompanied with the relevant, completed appurtenant Schedules. Relevant daywork reference must be attached to each Schedule.~~

Labour intensive activities must be reported separately.

PSA11 SUMS STATED PROVISIONALLY

PSA11.1 Contingencies

No provisional sum has been included for contingencies. No percentage mark up will be applicable to any payments made using contingency money other than those included in prices.

PSA11.2 Acceptance Control Testing of Earthworks

A Prime Cost Item has been included in Schedule 1 for acceptance control testing of earthworks ordered by the Engineer to be undertaken by a commercial laboratory. Payment will be based on the actual invoicing by the laboratory to the Contractor. In addition to the above-mentioned amount, provision is made in Schedule 1 for a mark-up on any payments made by the Contractor in this regard. The mark-up shall be regarded as full compensation for overheads, charges and profits as provided for the Conditions of Contract. In addition to the above amount, provision is made in Schedule 1 for a mark-up on any payments made by the Contractor. This mark-up shall be regarded as full compensation for overheads, charges and profits as provided for of the Conditions of Contract.

PSA11.3 Electrical Connection Fees

A prime cost has been included in Schedule 1 for payments to Eskom in respect of electrical connection fees. In addition to the above-mentioned amount, provision is made in Schedule 1 for a mark-up on the connection fees paid. This mark-up shall be regarded as full compensation for overheads, charges, administration and profits as provided for the Conditions of Contract.

PSA11.4 Specialist Contractor

A prime cost has been included in Schedule 1 for payments made to Specialist Contractors (agent, contractor, engineer or engineer appointed as agent for the employer). (Agent, contractor, engineer or enginer appointed as agent for the employers). In addition to the above-mentioned amount, provision is made in Schedule 1 for a mark-up on the Specialist Contractors paid. This mark-up shall be regarded as full compensation for overheads, charges, administration and profits as provided for the Conditions of Contract.

PSA11.5 Nominated Sub-Contractors

Provision is made in Schedule 1 for a mark-up on nominated Sub-Contractors in respect of overheads, charges and profit for assisting, training, co-ordinating and supervision of a nominated Emerging Sub-Contractor, who is to be employed under this programme.

PSA12 ADJUSTMENT OF PRELIMINARY AND GENERAL ITEMS DUE TO RAIN

Should the period for completion be automatically extended due to abnormal weather conditions occurring during execution of the Contract as provided for in the Project Specifications, no adjustment to the total for time-related preliminary and general items will be applicable.

PSA13 ADJUSTMENT OF PRELIMINARY AND GENERAL TIME-RELATED ITEMS

An approved extension of time will qualify the Contractor to receive additional payment for each relevant time related item at a unit rate based on the sum originally Bidded for such item, and which shall be fair and reasonable as contemplated in Clause 40 of General Conditions of Contract.

PSA14 ~~ADJUSTMENT OF PRELIMINARY AND GENERAL ITEMS DUE TO INTERRUPTION IN WORK SCHEDULE~~

Should the period of completion be automatically extended in terms of clause PS5.3 as a result of interruption in the contractors work schedule during execution of the contract, no adjustment to the total for time related preliminary and general items would be applicable. Time related preliminary and general items would be paid only if the Contractor has been established on site during a specific period. Therefore, if the Contractor was not established on site, time related P & G-items would not be paid. If he was on site for only a limited period during a specific month, time related P&G items would to be paid in full for such a month.

PSA15 PAYMENT FOR ESTABLISHMENT OF FACILITIES AND ADDITIONAL ESTABLISHMENT OF FACILITIES ON THE CONTRACT

Note: The contractor shall only be paid for site establishment by means of an official District order. Site establishment can only be claimed once per site.

PSA15.1 Amend clause 8.3.2 of SANS 1200 A as follows:

Change the heading of clause 8.3.2 to:

Site establishment cost and other movement cost will be deemed to from District/Subdistrict Office including all preliminary and general costs be included in the rates Bidded for various items of work. Only transport expenditures can be claimed for.

Important Note: Transport cost outside the borders of O.R. Tambo District cannot be claimed for except. "Nominated Specilised services". (Refer to Section 4.2, Portion 1, paragraph PSA 11.4).

The contractor will also not be paid any additional site establishment costs in each district/subdistrict or inter-site movements, when the contractor moves into a region or district to re-do defective or maintenance work in that region.

PSA15.2 Amend clause 8.3.4 of SANS 1200 A as follows:

Change the heading of clause 8.3.4 to:

"Remove Contractor's site establishment on completion of contract or interim de-establishment (on instruction of the Engineer)" - for the contractors own cost

PSA15.3 Include the following Clause 8.3.6:

Village Movement / Site Movement

All movements ordered by the Engineer, shall be priced as follows:

- (a) Only transport cost is applicable.
- (b) Other movement cost will be deemed to be included in the rates Bidded for various items of work.

PSA15.4 Include the following clause 8.3.6

"Establishment cost payable to the Contractor on re-establishment."

This item must cover all costs incurred by the Contractor when re-establishing after a previous de-establishment on interaction of the Engineer.

Refer to PSA 15.3.

PSAB ENGINEER'S OFFICE

PSAB4 SURVEY ASSISTANT (Clause 5.5) (when required by the "Engineer")

One suitably educated Assistant shall be made available for the sole use of the Engineer's Representative for the duration on the Contract. The assistant may also be required to fulfil the function of Community Liaison Officer during the Contract, should the Engineer consider this arrangement to be in the interests of the Employer. The Survey Assistants may therefore have to be appointed from the local communities.

- | | | |
|-----|--|---------|
| (a) | Steel pegs, 300 mm long and 12 mm dia | 120 No. |
| (b) | Measuring wheel | 1 No |
| (c) | Tripod holders for ranging rods (heavy duty) | 2 No. |
| (d) | Optical square, complete with
telescopic aluminium rod and levelling bubble | 1 No. |
| (e) | 100m long 50 kg strength fish line | 1 No. |
| (f) | One metre long spirit level | 1 No. |
| (g) | DCP | 1 No. |

PSC SITE CLEARANCE

PSC1 DISPOSAL OF MATERIAL (Sub-Clauses 3.1 and 8.2.1)

Materials arising from clearing and grubbing shall be disposed of as may be ordered by the Engineer. Trees and stumps necessarily removed shall not be burnt unless authorised by the Engineer, but shall be cut and stacked at areas designated by the Engineer.

PSC2 AREAS TO BE CLEARED AND GRUBBED (Clause 5.1)

The areas to be cleared and grubbed will be indicated by the Engineer. Should a portion or the whole of the site have been cleared and grubbed by nature or by others prior to the start of construction, then no clearing and grubbing will be ordered or payment made with respect to the applicable portion of the site.

PSC3 PRESERVATION OF TREES AND SHRUBS (Sub-Clause 5.2.3)

The penalty in respect of every individual tree and shrub designated as a tree or shrub to be preserved that is damaged or removed unnecessarily by the Contractor, shall be

R1 000. Trees that fall within areas upon which the Works are to be constructed or within areas that the Contractor must occupy for the proper construction of the Works will not be designated for preservation.

PSC4 OVERHAUL (New Sub-Clause)

No overhaul will be payable on the disposal of material arising from clearing and grubbing.

PSDA EARTHWORKS (SMALL WORKS)

PSDA1 FREEHAUL AND OVERHAUL (Clause 5.2.5)

~~—————The freehaul distance for all material to be imported or spoiled shall be considered as 1 km for mechanically driven vehicles and 200 m for wheelbarrows as agreed upon in the specified case of "wheelbarrow haul".~~

PSDA2 BORROW PITS (Clause 5.2.2.2)

Borrow materials shall be obtained from designated borrow pits approved by the Engineer.

PSDA3 DISPOSAL OF SURPLUS MATERIAL

All surplus or unsuitable materials arising from excavation shall be spoiled and spread where indicated by the Engineer. The Engineer shall determine the point of spoil roads that he may require for the construction of the works. No additional payment will be made in this regard.

PSDA4 HAUL AND SPOIL ROADS

The contractor shall be responsible for the provision of all haul and spoil roads that he may require for the construction of the works and that the engineer may approve. No additional payment will be made in this regard.

PSDB EARTHWORKS (PIPE TRENCHES)

PSDB1 MATERIALS (Clause 3)

PSDB1.1 Methods of classifying (Clause 3.1)

Replace the contents of this sub-clause with the following:

PSDB1.1.1 Save and except in respect of those portions of the Works which are specified in Portion 1 of the Project Specifications to be executed utilising Labour Intensive Construction Methods, the Contractor may use any method he chooses to excavate any class material, but his chosen method of excavation shall not determine the classification of the excavation. The Engineer will determine the classification of the materials.

PSDB1.1.2 The classification will be based on the specified construction methods, inspection of the material to be excavated and on the criteria given in PSDB1.2 below, as applicable.

PSDB1.1.3 Where the utilisation of Labour Intensive Construction Methods is specified in Portion 1 of the Project Specification for certain classes of excavation only, the material for those classes of material to be excavated using Labour Intensive Construction Methods will be classified in terms of PSDB1.2.2 and for those classes of excavation which are not required to be executed by Labour Intensive methods, classification will be based on the criteria given in PSDB1.2.1

(i.e. Where it is specified that the excavation of soft materials only shall be executed using Labour Intensive Construction Methods, the classification of the soft material to be so excavated will be based on the criteria given in PSDB1.2.2(a) and the Contractor will be required to excavate all such soft material by Labour Intensive methods. However, when the material is classified in terms of PSDB1.2.2(b) to be "intermediate" and is thus no longer required to be excavated by Labour Intensive methods, will be based on the criteria given in PSDB1.2.1 (thus a material classified as "intermediate" in terms of PSDB1.2.2(b) may in terms of PSDB1.2.1 be deemed to be "soft" and will be measured and paid as such under such circumstances.).

PSDB1.1.4 All tools and equipment referred to in PSDB1.2 shall be in good mechanical and operational condition.

PSDB1.1.5 "Efficiently" as used in PSDB1.2.2(a) - (c) shall be taken to mean "in a manner that can be reasonably expected of a Contractor, having regard to the production achieved".

~~PSDB1.1.6~~ The classification of material other than "soft excavatability" shall be agreed upon before excavation may commence.

PSDB1.1.7 The Contractor shall immediately inform the Engineer if and when the nature of the material being excavated changes to such an extent that a new classification is warranted for further excavation. Failure on the part of the Contractor to advise the Engineer in good time shall entitle the Engineer to reclassify, at his discretion, such excavated material.

PSDB1.2 Classes of Excavation (Sub-Clause 3.1)

Add the following new sub-clause:

PSDB1.2.1 Classes of excavation where Labour Intensive Construction Methods are NOT specified

The excavation of material will, in the case of work, which is NOT required in terms of the Contract to be executed, utilising Labour Intensive Construction Methods, be classified according to SABS 1200D for the purpose of measurement and payment. Add the following new sub-clause:

PSDB1.2.2 Classes of excavation where Labour Intensive Construction Methods are specified

The excavation of material will, in the case of work, which is required in terms of the Contract to be executed, utilising Labour Intensive Construction Methods, be classified as follows for purposes of measurement and payment:

(a) Soft excavation

(i) Class 1

Soft excavation Class 1 shall be excavation, including the excavation of boulders not exceeding 0.04 m³, in material that can be excavated and removed from the excavation by an average able bodied labourer or group of such labourers, at a rate of not less than 2.5 m³ per 9.25 hour working day per labourer, using only a suitable shovel. The average volume/task can be accepted as 3.0 m³ per labourer per day.

(ii) Class 2

Soft excavation Class 2 shall be excavation, including the excavation of boulders not exceeding 0.04 m³, (excluding soft excavation Class 1) in material that can be excavated and removed from the excavation by an average able bodied labourer or group of such labourers, at a rate of not less than 2.0 m³ and not more than 2.0 m³ per 9.25 hour working day per labourer, using only picks, "crowbars", shovels and similar hand tools. The average volume/task can be accepted as 2.5 m³ per labourer per day.

(ii) Class 3

Soft excavation Class 3 shall be excavation, including the excavation of boulders not exceeding 0.04 m³ (excluding soft excavation Class 2) in material that can be excavated and removed from the excavation by an average able bodied labourer or group of such labourers, at a rate of not less than 1 m³ and not more than 2.5 m³ per 9.25 hour working day per labourer, using only picks, "crowbars", shovels and similar hand tools, The average volume/task can be accepted as 2.0 m³ per labourer per day.

~~(b) Intermediate excavation~~

Intermediate excavation shall be excavation (excluding soft excavation) in material which requires ripping or loosening by mechanical means prior to removal of the loosened material utilising the methods as described in PSDB1.1.1(a).

(c) Hard rock excavation

Hard rock excavation shall be excavation of boulders not yet decomposed exceeding 0.4 m³ and excavation in solid rock occurring in bulk or in banks or ledges, which requires loosening or breaking up by drilling, wedging, splitting or blasting or by other approved quarrying methods, prior to being excavated and removed from the excavation utilising only picks, "crowbars", shovels and similar hand tools.

(NOTE: Such excavation generally includes materials such as formations of unweathered rock that can be removed only after blasting.)

The Engineer will instruct for which portions of the Works, based on the evidence provided from trial holes excavated at approximately 200 m spacing by the Contractor for this purpose, will be executed utilising Labour Intensive Construction methods. The Trial hole shall be excavated to trench depth utilising a Cat 416 Backactor or similar.

PSDB2 PLANT

PSDB2.1 Excavation Equipment (Sub-Clause 4.1)

Replace the contents of this sub-clause with the following:

- (a) To the extent that the provisions of the Specifications permit the use of mechanical plant and equipment in the excavation of trenches, the Contractor may use trenching plant that will excavate to a width such that the side allowance does not exceed the appropriate value specified in 5.2 by more than 50%, except that where in terms of the Project Specifications or of the Drawings, the base width of a trench for a pipeline or a portion of a pipeline is not to exceed the maximum base width or a stated value, the Contractor may use trenching plant which will produce the required trench width or he shall accept the responsibility for all costs incurred in strengthening the relevant pipeline.

PSDB3 ACCOMMODATION OF TRAFFIC (Sub-Clause 5.1.3)

Traffic must be accommodated along the lengths of the pipelines which fall within or adjacent to any road reserve.

The Contractor shall include in his rates for accommodating traffic during the duration of the Contract, which shall cover all his obligations in this regard, including but not limited to temporary barricades; the erection and re-erection of existing and/or temporary traffic signs; lights and flagmen for the guarding and protection of the Works; and for making all necessary arrangements with the applicable traffic authorities

If crossing of the road in half widths is allowed, the road shall remain continuously open to traffic. The Contractor shall make provision to ensure the safe passage of traffic using this public road whilst installing the pipe through the road, and to ensure that any disruption to public is kept to a minimum providing safe detours when so instructed by the Engineer. Each half width shall be completed in one day. No open trenches will be allowed overnight. If the half width is not completed by 16:00 the trench shall be backfilled, in which case the Contractor shall re-excavate the trench at a later stage to complete the work at his own expense. All detours and signs shall be erected and maintained in accordance with the latest issue of Road Signs Note 13 as issued by CSRA and CUTA.

PSDB4 EXISTING SERVICES (Sub-Clauses 5.1.4)

Where any existing service occurs within the specified trench excavation, and the presence of such service is known before being uncovered, then the protection of the service will be scheduled and measured as

~~provided for in Clause 8.3.5 of 1200DB. Only known services (as defined in Clause 5.4 of 1200A) shall be measured for payment.~~

Where an unknown existing service is damaged during construction, and the Engineer orders that the Contractor should undertake the repair of such service, then such repair will either be measured and paid as dayworks or alternatively as a contractual variation in terms of Clause 40 of the General Conditions of Contract.

No construction activity which may affect the integrity of telephone or electrical poles or stays may be carried out without the prior written approval of the Engineer, which approval shall only be given subject to the acceptance of a modus operandi that will ensure the integrity of such structures during construction.

PSDB5 TRENCH WIDTHS (Sub-Clauses 4.1 and 5.2)

Trenches in general shall not exceed the widths laid down in Sub-Clause 8.2.3. If trenches exceed the specified width the Contractor shall be liable for the cost of measures, which may be required as a result of the additional trench width.

PSDB6 MINIMUM BASE WIDTH (Sub-Clause 5.2)

- (a) Side allowance for pipes of diameter 125 mm or more (Sub-clauses 5.2 and 8.2.3):
- (b) The minimum base width of trench for pipes of external diameter less than 125 mm but larger than 70 mm laid at a depth of 1,5 m or less shall be 550 mm.
- (c) The minimum base width of trenches for pipes of external diameter less than 70 mm laid at a depth of 1,0 m or less shall be 400 mm.
- (d) The minimum base width of trenches where labour-based excavation is concerned shall be at least 150 mm on either side of the pipe's outer diameter to allow proper compaction of backfilling materials.
- (e) Agriculture Projects:

Only on instruction from the engineer external small HDPE diameter pipes will be laid at a depth of 500 mm. The minimum base width of trenches shall be at least 150 mm on either side of the pipe's outer diameter to allow proper compaction of backfilling materials.

PSDB7 TRENCH BOTTOMS (Sub-Clause 5.5)

Replace the first paragraph of this sub-clause "Material thatcompacted as directed" with the following:-

Where a firm foundation cannot be obtained at the grade indicated due to soft or unsuitable material, the Engineer may instruct the Contractor to remove such unsuitable material and to backfill the excess depth with approved selected material or concrete, as directed by the Engineer in each particular case, at the cost of the Employer. Backfill other than concrete, shall be placed in layers of 100 mm uncompacted thickness, each layer thoroughly compacted to the entire satisfaction of the Engineer, to provide adequate support for the pipe bedding to be placed on top of it.

Should the Contractor remove more material than is required to secure the proper grade of the pipeline, the Contractor must, at his own cost, backfill the excess excavation with approved selected material or concrete as directed by the Engineer in each particular case.

PSDB8 DISPOSAL OF EXCAVATED MATERIAL (Sub-Clauses 5.6.3 and 5.6.4)

All surplus or unsuitable materials arising from excavation shall be spoiled and spread within or adjacent to the Site of the Works or when ordered by the Engineer be spoilt at a spoil site established by Contractor.

PSDB9 FREEHAUL AND OVERHAUL (Sub-Clause 5.6.8)

~~No overhaul will be payable on earthworks for pipe trenches, other than specified or approved by the Engineer.~~

PSDB10 AREAS SUBJECTED TO TRAFFIC LOADS (Clause 5.7.2)

The requirements of Clause 5.7.2 shall apply only to pipes and sleeves crossing streets or paved areas and pipes running parallel to the road as described below.

All service trenches running parallel to the road of which the roadside edge of the trench is located less than 1,4 m away from the edge of the travelled way, will be subject to the requirements for the above mentioned clause.

The measurement and payment will apply to the full trench width. Pipes and sleeves crossing streets or paved areas will be measured and paid for to a length equal to the width of road or length of pavement crossed plus 1,4 m either side of the travelled edges.

Compaction of other pipe trenches running parallel to the roadway shall be considered areas subject to traffic loads only where instructed by the Engineer in writing. The volume will be computed from the minimum base width determined in accordance with Sub-Clause 5.2 and the depth from the top of the back fill to the top of the bedding as specified in Sub-Clause 8.3.3.1.

PSDB11 REINSTATEMENT OF EXISTING BITUMEN SURFACED ROADS (Clause 3.6 and 5.9.4)

Pipe trenches through the existing bitumen surfaced roads shall be reinstated with a 150 mm upper selected subgrade layer compacted to 93% mod AASHTO density, followed by a 150 mm sub base layer compacted to 95% mod AASHTO density and a 150 mm graded crushed stone base compacted to 98% of mod AASHTO density. The road shall be provided with a 25 mm thick asphalt seal.

The upper selected subgrade layer shall have a CBR of at least 15, a grading modulus of at least 0,75 and a maximum PI of 12. The sub base shall conform to SABS 1200 ME and the base to SABS 1200 MF.

PSDB12 MEASUREMENT AND PAYMENT (Clause 8.3.2)

PSDB12.1 Basic Principles (Clause 8.1)

Insert the following heading for Clause 8.1.2:

"Trenches not required to be excavated by Labour Intensive Construction methods"

Add the following new sub-clause: (Clause 8.1.5)

"Works required to be executed utilising Labour Intensive Construction methods"

Separate items will be provided for works covered by this Specification which are required to be executed by Labour Intensive Construction methods and for works for which the utilisation of such methods is not required.

The trench depth increments referred to in Clause 8.1.2(b) and the trench depth increment for 8.1.5 shall be:

- (a) up to 1.5 m in depth

Trenches shall be measured volumetrically, irrespective of length.

Measurement and payment for works covered by this Specification and required to be executed utilising Labour Intensive Construction (LIC) methods shall, unless otherwise stated, be *mutatis mutandis* in accordance with the provisions of SABS 1200DB as amended in this Project Specification.

PSDB12.2 Excavation (Sub-Clause 8.3.2)

~~Excavate, in all materials for trenches 0 - 1,0 m wide, backfill, compact and dispose of surplus material utilising Labour Intensive Construction methods up to 1,5 m in depth~~ m³

Extra over the above for

- | | | | |
|-----|-------------------------|-------------------|----------------|
| (1) | Soft excavation Class 2 | (refer PSDB1.2.2) | m ³ |
| (2) | Soft excavation Class 3 | (refer PSDB1.2.2) | m ³ |
| (3) | Intermediate excavation | (refer PSDB1.2.2) | m ³ |
| (4) | Hard rock excavation | (refer PSDB1.2.2) | m ³ |

Excavate, in all materials for trenches 0 - 1,0 m wide, backfill, compact and dispose of surplus material utilising Conventional Construction methods

- | | | |
|-----|--------------------|----------------|
| (a) | Up to 1,5 in depth | m ³ |
|-----|--------------------|----------------|

Extra over the above for:

- | | | |
|-----|--|----------------|
| (1) | Intermediate material | m ³ |
| (2) | Hard rock excavation | m ³ |
| (3) | Backfill and compact by means of Labour Intensive Construction methods | m ³ |
| (4) | Disposal of surplus material by means of Labour Intensive Construction methods within 20 m from the source of spoil material using wheel barrows | m ³ |

Backfill should be in 200 mm thick layers compacted to 90% Mod AASHTO.

Payment for the excavation and backfilling of trenches shall be made at the Bidded rates and at the following stages of the construction:

- (i) Upon completion and approval of the trench bottom, prior to bedding: 40%
- (ii) Upon completion and approval of top of selected backfill: 70% (cumulative)
- (iii) Upon completion and approval of the mainfill: remaining 30%.

PSDB12.3 Excavation of Trial Holes

Excavation of trial holes as described in PSDB1.2.2 will be measured by number and shall include for backfilling after inspection.

PSDB12.4 Stone Bedding

Stone bedding will be measured per cubic metre under the appropriate item in SABS 1200LB. Type A bedding (crushed stone wrapped in a geotextile blanket) shall be measured per linear metre along the centreline of the trench. The provision, operation and removal of (a) de-watering pump where authorised by the Engineer will be measured as dayworks under the appropriate item in Schedule 19.

PSGA CONCRETE (SMALL WORKS)

PSGA1 CEMENT (Sub-Clause 3.2.1)

Only the use of Ordinary Portland Cement to SANS 471 will be permitted.

PSGA2 CONCRETE FINISHES (Sub-Clause 4.4.2)

Concrete against which earth will be backfilled shall be classified as rough. All exposed concrete surfaces shall be classified as smooth. Degree of accuracy II shall prevail.

PSGA3 STRENGTH CONCRETE (Sub-Clause 5.4.1.5)

The grade of concrete and nominal size of aggregate shall be as specified on the Drawings. The successful Bidder will be required to submit samples of the coarse and fine aggregate, which he proposes using, to the Engineer's Representative(s) for tests regarding the suitability of such aggregates. The Contractor shall prepare trial mixes. These mixes shall be designed for vibration. All data and reports prepared by the Contractor shall be submitted to the Engineer for information and approval prior to the commencement of concreting operations.

PSGA4 ANCHOR AND THRUST BLOCKS

At tees, bends, terminal valves, end caps, and where otherwise directed, anchor/thrust blocks shall be constructed to dimensions ordered, shown on the Drawings or agreed to by the Engineer. Unless otherwise specified, anchor/thrust blocks and pedestals shall be constructed of prescribed mix 15/37,5 concrete.

The concrete shall be well punned round the pipe and, if in trenches, against the undisturbed faces and bottom of the trench. Backfilling behind or under thrust faces will not be permitted. Excess excavation shall be replaced with the prescribed mix concrete given above for anchor/thrust blocks at the Contractor's expense, unless an item is scheduled to cover payment of overbreak. Care shall be taken to leave the joints accessible. No anchor/thrust blocks and pedestals shall be concreted until the approval of the Engineer has been obtained.

Anchor and thrust blocks will be measured by volume of concrete; the rate Bidded shall include for any formwork required constructing the block.

Should the Contractor offer an alternative method of coupling involving flexible joints, he shall design suitable thrust and anchor blocks in order to prevent movement of the pipeline under operating and test conditions. The working and test pressure to be used by the Contractor for the calculation of anchor and thrust blocks shall be in accordance with the design information that is issued together with the BID. The earth bearing pressure to be used for the calculation of anchor and thrust blocks shall be based on field tests. The factor of safety to be used in calculating the above shall be 2.5.

PSGA5 GROUTING TO MACHINE AND STRUCTURAL BED PLATES (Sub-clause 5.5.13)

PSGA5.1 Materials

(a) Water

Water for grout shall comply with the requirements given in sub-clause 3.3 of SANS 1200G.

(b) Aggregates

Notwithstanding the requirements of Sub-clause 3.4.1 of SANS 1200G, the grading of fine aggregate (sand) and coarse aggregate (stone or pea gravel) shall conform to the gradings given in Tables 1 and 2, respectively, below.

(c) Cement

Cement shall be ordinary Portland cement complying with SANS 471.

(d) Admixtures

~~Admixtures shall comply with the requirements of Sub-clause 3.5 of SANS 1200 G, and shall have a proven record of satisfactory.~~

(e) Proprietary Grouting Materials

Unless otherwise approved by the Engineer, Proprietary Grouting Materials shall be obtained ready mixed in sealed pockets as supplied by the manufacturers.

Table 1 - Sand		Table 2 - Stone or Pea Gravel	
1	2	1	2
Test sieve Nominal aperture size, mm	%Passing (by mass)	Test sieve aperture size, mm	%Passing (by mass)
9,5	100	9,5	100
4,75	95-100	4,74	95-100
1,18	45-65	2,36	0,5
0,3(300)	5-15		
0,15(150)	0,05		

* Portland cement (ordinary, rapid-hardening, and sulphate-resisting).

PSGA5.2 Preparation and Procedures

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

- ~~(1) Shimming shall be kept to a minimum. Steel plates shall be used for packing and shall be ground to the required thickness, where necessary.~~
- (2) Before grouting is started all loosed dirt, oil, grease and other foreign matter on the surface of the foundation, the underside of bed plates, and in the bolt holes shall be removed by means of compressed air or other approved means. The surface of the foundation slab shall be thoroughly saturated with clean water and free water shall be removed from the surface and the boltholes just before the grout is placed.
 - (3) The grouting shall not be carried out until the alignment of all units to be grouted has been checked and approved by the Engineer.
 - (4) Special care shall be taken with grouting in hot or cold weather to ensure proper setting and gain of strength and, in the case of Proprietary Grouting Materials, by having ice or hot water available, as the case may be, in accordance with the instructions of the manufacturer. Enclosures shall be provided for the grout such that, until it has set, its temperature will be in the range 15-27°C. Shields to protect the grout from the sun and from hot winds shall be provided by the Contractor when so ordered.

PSGA5.3 Formwork

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

PSGA4.4 Mixing (All free-flowing grouts except epoxy grouts)

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

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

The mixing shall be done as close as possible to the place(s) where the grout is placed. No more grout shall be mixed at any one time than can be placed in a period of 20 min. After the grout has been mixed it shall not be retempered by the addition of water.

PSGA4.5 Grouting (All free-flowing grouts except epoxy grouts)

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

Wherever applicable, grout shall be placed from one side only and where this is not practicable, care shall be taken to ensure that any entrapped air is released. After the grout has taken its initial set:

- (a) the forms shall be removed;
- (b) excess grout shall be so cut away as to leave a smooth and neatly finished job;

~~(c) except where the grout is intended to provide resistance to side thrust, all edges shall be trimmed at 45°C to the vertical, from the bottom edge of the bed plate; and~~

(d) all excess grout on or about the bed plate shall be removed.

Damage to paintwork, if any shall be repaired within 24 hours. Packing plates, shims and other levelling devices shall remain in position.

PSGA4.6 Dry-packed grout (Standard dry sand and cement grout)

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

- (a) Where the clearance between bedplate and foundation is 25 mm or less: 1 part of Portland cement, and 2 parts of sand;
- (b) Where the clearance exceeds 25 mm: 1 part of Portland cement, 1 part of sand and 1 part of pea gravel. Dry-packed grout shall be rammed by means of tamping rods against formwork placed along three sides of the bedplate.

PSGA4.7 Non-shrink grout with metallic aggregate

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

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

PSGA4.8 Expanding grout with powdered aluminium additive

The manufacturer instruction shall be observed when the expanding grout powdered aluminium additive is used.

Where the clearance between the bedplate and the foundation is less than 25 mm, a sand-based mix shall be used. Where the clearance exceeds 25 mm the Engineer may order mix with a base of sand plus pea gravel to be used.

Each batch shall be mixed for at least 6 minutes after the powdered aluminium has been added. Where a ready-mixed grout is used, the powdered aluminium shall be added at the placing site and the batch mixed as specified. Grout shall be placed within 45 minutes after the addition of the powdered aluminium. The Contractor shall not use powdered aluminium additive when the ambient temperature is below 5°C.

PSGA4.9 Epoxy grout (epoxy mortar type only)

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

PSHA STRUCTURAL STEEL (SMALL WORKS)

PSHA1 GRADE OF STEEL (Sub-Clause 3.1.1)

Structural cold-formed steelwork to be to Grade 43A or 43B with the minimum properties as tabled in Table B-2 of SANS 10162.

Structural hot-rolled steelwork to be to Grade 300W with the minimum properties as tabled in "Steel design date: No. 6" of the South African Rolled Steel Producers Co-ordinating Council and the South African Institute of Steel Construction.

PSHA2 SHOP DRAWINGS (Sub-Clause 5.1.2)

The contractor is to provide shop details.

Steelwork generally of welded construction with site connections bolted:

All holes 18 dia for M16 bolts

All gussets ex 8 mm U.O.S.

All welds, 6 mm fillet

The Engineer must be notified, (at least 72 hours before hand) of the completion of the fabricated steelwork at the contractors workshops, to enable him to make an inspection if he so desires. The fabricated steelwork, thus to be inspected shall be in its prepared specified state immediately before the application of prime coat painting.

PSHA3 WELDING (Sub-Clause 5.3.4)

Delete this clause in its entirety and add the following clause:

Welding shall be done in accordance with the relevant requirements of SANS 10162 BS5135 and AWS.D.1/18 (American Welding Society).

Welding shall be Grade B welding.

The qualification of welders shall be in accordance with the relevant clauses of the above standards, and specifically SABS 044 Part III and shall be Grade 1 welders. Grade 2 welders shall be permitted only with the Engineer's approval.

The Contractor shall provide evidence, acceptable to the Engineer, that welding procedures and welders have been tested in accordance with the requirements of AWS D1.1.

PSHA4 PROTECTIVE TREATMENT (Sub-Clause 5.2.10)

PSHA4.1 Shop painting

i) Surface preparation

Steelwork shall be degreased after fabrication, using an approved degreaser immediately followed by clean fresh water rinses, to obtain a water break-free surface.

Steelwork shall be thoroughly wire brushed to Grade ST3 of Standard SIS055900-1967 and the dust removed after degreasing to leave a smooth finish free of rust, scale, grease, welding slag or any substance deleterious to the final protective coating. Rough welding shall be made smooth and all welding spatter removed.

ii) Primer

All welds, edges and corners shall be stripe coated with high build zinc phosphate primer (75 microns) to a dry film thickness of 60-90 microns, prior to the full coat, within 4 hours after wire brushing and allowed to dry according to the manufacturers specification before overcoating.

After the stripe coating one coat of high build zinc phosphate primer (75 microns) shall be applied by hand to provide a dry film thickness between 60 and 90 microns.

PSHA4.2 Painting After Erection

i) Surface preparation

After erection all areas where the primer coat has been damaged shall be degreased, wire brushed and touched up with the primer as specified in PSHA 2.1. Degreasing shall be carried out using a sugarsoap solution followed by clean fresh water rinses and painted immediately when the surface is dry.

ii) Intermediate (second) coat

An intermediate coat of a universal / general purpose alkyd undercoat shall be applied to a dry film thickness between 25 and 35 microns within the manufacturers specified overcoating time (generally 24 hours after, but within one month after application of the primer). After this time the surface shall be degreased and lightly abraded to a matt finish and the dust removed prior to painting. The surface should be clean from grease and any trace of contaminants. The colour of the undercoat shall be distinct from the colours of the primer and topcoat.

iii) Top Coat

One coat of recoatable polyurethane acrylic enamel shall be applied according to the manufacturers specified overcoating time (generally 24 to 96 hours after the application of the intermediate coat) to provide a dry film thickness of 25 to 30 microns. The surface should be clean from grease and any trace of contaminants. Degreasing shall be carried out using a sugarsoap solution followed by clean fresh water rinses and painted immediately when the surface is dry. When the topcoat is applied after the manufacturers maximum recommended overcoating time (generally 96 hours) for the undercoat, the surface shall be degreased and lightly

END OF SECTION

SECTION 4.3

PARTICULAR SPECIFICATIONS

DAYWORK SCHEDULE

Note: This "Daywork Schedule" Form Part of Price Schedule 19: "Dayworks"

This Daywork Schedule shall be used for the valuation of any additional or substituted work which cannot conveniently be valued at the rates and prices submitted in the Schedule of Quantities.

In respect of labour and materials used in the additional or substituted work not covered in the Daywork Schedule the Contractor shall be paid the actual cost plus the percentage allowance stated in the Appendix.

The Bidder shall quote hereunder rates which shall apply for payment purposes if the Engineer orders additional or substituted work to be carried out on a daywork basis and shall therefore be in accordance with the requirements of the General Conditions of Contract.

1. LABOUR AND MATERIALS

Rates and prices entered in the Schedule shall be held to allow for the gross remuneration of the labour employed and the net cost of materials actually used and shall also include the percentage allowances stated in the Appendix to Form of BID.

2. PLANT AND EQUIPMENT

The Bidders shall list all major items of plant and equipment to be used on the works and which may be required for use on dayworks. The proposed hire rates for these items shall be entered against each type of machine, such rates to include for all relevant costs of plant hire inclusive of fuels and lubricants but exclusive of labour charges for the operators which will be paid for under sub-clause (1) above.

The rates for plant items not listed in the schedule will be the ruling plant hire rates, inclusive of fuels and lubricants but exclusive of labour charges for the operators, inclusive of a 7,5% handling charge. It is therefore in the Bidders interest to ensure that the list is complete.

Should there be insufficient space on the pages provided, the Bidder shall add further pages as required.

THE RATES FOR THE PLANT AND EQUIPMENT MENTIONED IN THE SCHEDULE SHALL BE FILLED IN FOR THE ITEMS REQUESTED. SHOULD AN ITEM BE OMITTED IT SHALL BE DEEMED TO HAVE BEEN INCLUDED IN THE OTHER DAYWORK RATES.

A. PLANT AND EQUIPMENT

ITEM	DESCRIPTION	NON WORKING RATE *		OPERATING RATE		PER
		R	c	R	c	
	Excavator					
	Crane					
	Dozer					
	Tiptruck					
	Watercart					

ITEM	DESCRIPTION	NON WORKING RATE *		OPERATING RATE		PER
		R	C	R	C	
	Loader					
	Flat truck					
	Compressor and track rig					
	LDV					
	Compactor					
	Vibrating roller					
	Concrete mixer					
	Weldset					
	Test pump					
	Sideboom (pipelayer)					
	Grinder					
	Sewage Truck (5-15 m ³)					

B. LABOUR

DESIGNATION	RATE
Welder per hour	
Carpenters per hour	
Bricklayers per hour	
Steel Fixers per hour	
Pipe layers per hour	
Gangers per hour	
Plant Operators per hour	
Truck Drivers per hour	
Labour per hour	

C. TRANSPORT

DESIGNATION	RATE	
Per cubic metre kilometre		

D. MATERIALS

DESIGNATION	RATE	
Cement per 50kg pocket delivered		
Concrete sand per m ³ delivered		
Concrete Aggregate per m ³ delivered		
Reinf. Steel, round, per ton mild delivered		
per ton high tensile delivered		
Reinf. Steel, fabric per ton delivered		
Bricks, stock per 1000 delivered		
Bricks, face per 1000 delivered		

* Only applicable on authority of the Engineer

SIGNATURE OF BIDDER

NAME OF BIDDER

DATE

COMPANY NAME

SECTION 4.4

SPECIFICATION DRAWINGS

SECTION 4.5

COMMISSIONING AND COMPLETION CERTIFICATE

COMMISSIONING AND COMPLETION CERTIFICATE

CONTRACTOR: _____ DATE _____

ORTDM ORDER NO. _____

ORTDM BID NO.		(Equip)		ORTDM SCMU ----- (Civil)		(M/E)
---------------	--	---------	--	--------------------------	--	-------

Note: Mark with a X where applicable.

	Purification Plant		Borehole		Booster Pump		Sewerage Works
	Pipe Work		Valves		Diesel Engines		Electrical

A. Report to Dept Head:

Name: _____

Signature: _____

Office Name: _____

Date Visited: _____

B. Report to Satellite Office:

Name: _____

Signature: _____

Office Name: _____

Date Visited: _____

1. DETAIL:

- 1.1 Area Name: _____ Village Name: _____
- 1.2 Water Source No. H_____ Alternative_____
- 1.3 Maintenance No. W_____ Serial _____
- 1.4 Engine/Motor Type & Model and kW _____ Engine/Motor Type & Model and kW _____
- 1.5 Pump Type: _____ Pump Model Name:

- 1.6 Pump Type: _____ Pump Model Name:

- 1.7 Recommended Yield (l/s): _____ Commissioning Yield (l/s): _____
- 1.8 Recommended Pumping Time (hrs/day): _____ Rising main (pipe) pressure (kPa/Bar):

- 1.9 Pump/motor alignment _____ Pump/motor vibration test

- 1.10 Scope of Work: _____

2.	COMMISSIONING DONE BY: ORTDM					
	Name	Signature	Date	Contact Number	Fax	Cell No.

3. FAULT LIST

3.1 _____

3.2 _____

3.3 _____

4. QUALITY ASSURANCE INSPECTION					
	Date inspected	Inspectors name	Signature	Telephone number	Cell No.
4.1					

5. CONTRACTOR					
	Contractor	Name	Signature	Date	Contact Number
5.1					

*Note: Commissioning form: Attached and submitted with the original invoice for payment

SECTION 2: PRICING SCHEDULE

Pricing instructions:

- (i) The bidder's price offer shall be valid for 90 days from the closing date of this tender, or for such extended period as may be requested by the municipality and accepted by the bidder.
- (ii) The rates and prices submitted by the bidder must be entered into the pricing schedule above.
- (iii) No deviations from the pricing schedule will be permitted, except where indicated separately in the Schedule of Variations from Goods and Services.
- (iv) The bid price must be inclusive of VAT, where the bidder is a registered VAT vendor.
- (v) VAT must be calculated at 15% in line with statutory amendments to the VAT rate.
- (vi) The prices will be escalated as per CPI index.
- (vii) Should there be a discrepancy between the total bid amount in the pricing schedule, and that in the form of offer; the price in the form of offer will take precedence. Where there is a discrepancy between the amount in figures and the amount in words, the amount in words will govern.

Negotiations with successful bidders

- Where the bid price submitted by a bidder is not market related, the municipality may not award the contract to that bidder, but may negotiate a market related price.
- If a market related price cannot be negotiated with the bidder scoring the highest points, a market related price may be negotiated with the bidder scoring the second highest points, or the negotiation team may opt to cancel the tender.
- If a market related price cannot be reached with the bidder scoring the second highest points, a market related price may be negotiated with the bidder scoring the third highest points, or the negotiation team may opt to cancel the tender.
- If a market related price cannot be reached with the bidder scoring the third highest points, the tender must be cancelled.

.....
Name of bidder

.....
Signature

.....
Bidder's stamp

.....
Date

SECTION 1

PRICING SCHEDULES

INDEX – PRICE SCHEDULES

INDEX OF PRICE SCHEDULES

PART 6

SCHEDULE 1	:	GENERAL (COMPULSORY)
SCHEDULE 2	:	SMALL AND MEDIUM SIZE ELECTRICAL PANELS
SCHEDULE 3	:	ELECTRIC MOTORS
SCHEDULE 4	:	BALL VALVES
SCHEDULE 5	:	BUTTERFLY VALVES (WAFER TYPE)
SCHEDULE 6	:	BUTTERFLY VALVES (DOUBLE FLANGED)
SCHEDULE 7	:	WATERWORKS GATE VALVES
SCHEDULE 8	:	RESILIENT SEAL GATE VALVES
SCHEDULE 9	:	WAFER PATTERN CHECK VALVES
SCHEDULE 10	:	HYDRAULIC FLOW CONTROL VALVES
SCHEDULE 11	:	SURGE ANTICIPATING CONTROL VALVE
SCHEDULE 12	:	PUMP (CENTRIFUGAL, AXIAL FLOW, HORIZONTAL SPLITS, DUAL STAGE)
SCHEDULE 13	:	SCREENS (TRASH RACKS)
SCHEDULE 14	:	DOSING (CHEMICAL)
SCHEDULE 15	:	CHLORINATION SYSTEM
SCHEDULE 16	:	DAYWORKS

SCHEDULE 1 : GENERAL (As and when scope is allocated)

Schedule 1:

Item	Description	Unit	Qty	Rate	Amount
1.1	<u>SUMS STATED PROVISIONALLY BY THE ENGINEER</u> <u>Provisional Sums</u>				
1.1.1	For work to be executed (upon specific instruction of the Engineer) by the Contractor and valued in terms of the 'valuation of variations' clause in the conditions of contract (As and when scope is allocated)	sum	N/A	N/A	N/A
1.1.2	For work to be executed by a Nominated Sub-Contractor	sum	N/A	N/A	N/A
1.1.3	Overheads, charges and profit on item 1.1.2	sum	N/A	N/A	N/A
1.1.4	For work to be executed by a Nominated Emerging Sub-Contractor which is to be employed under this programme	sum	N/A	N/A	N/A
1.1.1	Overheads, charges and profit on item 1.1.4 for assisting, training, co-ordinating and supervision of a Nominated Emerging Sub-Contractor which is to be employed under this programme	sum	N/A	N/A	N/A
1.1.6	For work to be executed by a nominated Engineer	sum	N/A	N/A	N/A
1.1.7	Overheads, charges and profit on item 1.1.6	sum	N/A	N/A	N/A
1.1.8	Payment to Eskom in respect of electrical connection fees-	sum	N/A	N/A	N/A

Item	Description	Unit	Qty	Rate	Amount
1.1.9	Overheads, charges and profit on item 1.1.6	sum	N/A	N/A	N/A
1.2	<u>PRIME COST ITEMS</u>				
1.2.1	Prime cost of goods or materials to be supplied to the site of the Works upon specific instruction of the Engineer	sum	N/A	N/A	N/A
		sum	N/A	N/A	N/A
1.2.2	Overheads, charges and profit on item 1.2.1	sum	N/A	N/A	N/A
1.2.3	Specialist Contractors	sum	N/A	N/A	N/A
1.2.4	Overheads, charges and profit on item 1.2.3	sum	N/A	N/A	N/A
TOTAL SCHEDULE 1 CARRIED FORWARD TO SUMMARY				R	

SCHEDULE 2 : SMALL DIAMETER CLEARWATER SUPPLY PIPELINES

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
3.1	<u>Testing of earthing installation for the electrical panel :</u>				
3.1.1	Test earthing of distribution panel back to main earth point (per panel)	no	1	R	R
3.1.2	Testing of earth connections at light fittings, power points, motors and instrumentation (per circuit)	no	1	R	R
3.2	<u>Supply and installation of earthing materials to obtain proper earthing of installation from panel. Installation in conduit, wiring trunking, building trench or ground : (Excavations measured separately)</u>				
3.2.1	2,5mm ² bare copper or insulated earth wire	m	1	R	R
3.2.2	4mm ² bare copper or insulated earth wire	m	1	R	R
3.2.3	6mm ² bare copper or insulated earth wire	m	1	R	R
3.2.4	10mm ² bare copper or insulated earth wire	m	1	R	R
3.2.5	16mm ² bare copper or insulated earth wire	m	1	R	R
3.2.6	25mm ² bare copper or insulated earth wire	m	1	R	R
3.2.7	35mm ² bare copper or insulated earth wire	m	1	R	R
3.2.8	50mm ² bare copper or insulated earth wire	m	1	R	R
3.2.9	70mm ² bare copper or insulated earth wire	m	1	R	R
3.2.10	2,5mm ² earth wire end lugged and connected	no	1	R	R
3.2.11	4mm ² earth wire end lugged and connected	no	1	R	R
3.2.12	6mm ² earth wire end lugged and connected	no	1	R	R
3.2.11	10mm ² earth wire end lugged and connected	no	1	R	R
3.2.13	16mm ² earth wire end lugged and connected	no	1	R	R
3.2.14	25mm ² earth wire end lugged and connected	no	1	R	R
3.2.15	35mm ² earth wire end lugged and connected	no	1	R	R
3.2.16	50mm ² earth wire end lugged and connected	no	1	R	R
3.2.17	70mm ² earth wire end lugged and connected	no	1	R	R

3.2.18	1,8 m copper clad steel core earth rod installed in ground, complete with clamp and connections.	no	1	R	R
3.2.19	5 x 25 mm copper earth strap installed on surface of structure or cable ladders, including fixings	m	1	R	R
3.3	Supply and installation of 600/1 000 V. grade PVC SWA PVC cable in trench or in ground. Fixings or excavations as well as cable ends are measured elsewhere				
3.3.1	1,5 mm ² 3 or 4 core armoured	m	1	R	R
3.3.2	2,5 mm ² 3 or 4 -core armoured.	m	1	R	R
3.3.3	1,5mm ² 7-core armoured	m	1	R	R
3.3.4	4 mm ² 4 core armoured	m	1	R	R
3.3.5	6 mm ² 4 -core armoured.	m	1	R	R
3.3.6	10 mm ² 4 core armoured	m	1	R	R
3.3.7	16 mm ² 4 core armoured	m	1	R	R
3.3.8	25 mm ² 4 -core armoured.	m	1	R	R
3.3.9	35 mm ² 4 core armoured	m	1	R	R
3.3.10	50 mm ² 4 core armoured	m	1	R	R
3.3.11	70 mm ² 4 core armoured	m	1	R	R
3.3.12	95 mm ² 4 core armoured	m	1	R	R
3.3.13	120 mm ² 4 core armoured	m	1	R	R
3.3.14	150 mm ² 4 core armoured	m	1	R	R
3.3.15	185 mm ² 4 core armoured	m	1	R	R
3.4	Supply and installation of 600/1 000 V. grade PVC SWA PVC cable ends complete with lugs, connections to motor terminals, stub bars, small terminals, etc., (include for labels, wire number markers and testing)				
3.4.1	1,5 mm ² 3 or 4 core armoured	no	1	R	R
3.4.2	2,5 mm ² 3 or 4 -core armoured.	no	1	R	R

3.4.3	1,5mm ² 7-core armoured	no	1	R	R
3.4.4	4 mm ² 4 core armoured	no	1	R	R
3.4.5	6 mm ² 3 -core armoured.	no	1	R	R
3.4.6	10 mm ² 4 core armoured	no	1	R	R
3.4.7	16 mm ² 4 core armoured	no	1	R	R
3.4.8	25 mm ² 3 -core armoured.	no	1	R	R
3.4.9	35 mm ² 4 core armoured	no	1	R	R
3.4.10	50 mm ² 4 core armoured	no	1	R	R
3.4.11	70 mm ² 4 core armoured	no	1	R	R
3.4.12	95 mm ² 4 core armoured	no	1	R	R
3.4.13	120 mm ² 4 core armoured	no	1	R	R
3.4.14	150 mm ² 4 core armoured	no	1	R	R
3.4.15	185 mm ² 4 core armoured	no	1	R	R
3.5	Cable Trenches Excavation, laying 150 mm bedding, backfilling in 150mm layers, and stabilising to original stability of cable trench. (660mm wide x 1m deep) :				
3.5.1	Hard rock	m ³	1	R	R
3.5.2	Soft rock	m ³	1	R	R
3.5.3	Soil	m ³	1	R	R
3.6	<u>General maintenance of electrical equipment as per Section 3 of the maintenance specification</u>				
3.6.1	Clean inside and outside of panel (per panel)	no	1	R	R
3.6.2	Tighten all connections in panel (per panel)	no	1	R	R
3.6.3	Tighten connections in lock stop button box (per box)	no	1	R	R
3.6.4	Tighten connections in remote stop-start station box (per box)	no	1	R	R
3.6.5	Tighten connections in motor connection box, including thermal sensor wiring terminals	no	1	R	R
3.6.6	Tighten connections at instrument terminals (per instrument)	no	1	R	R

3.6.7	Repair ends of damaged conductors due to overheating at circuit breakers, contactors, overloads or motor terminals, including installation of ferrules, lugs, heatshrink materials or insulated sleeving :				
	(a) Conductor sizes up to 16 mm ² , per terminal	no	1	R	R
	(b) Conductor sizes from 25 mm ² to 50 mm ² , per terminal	no	1	R	R
3.6.8	Testing of single phase or three phase earth leakage unit	no	1	R	R
3.6.9	Testing of under/over voltage relay or phase monitor relay per unit	no	1	R	R
3.6.10	Checking of all voltmeters and voltmeter switches for correct operation	no	1	R	R
3.6.11	Logging of all motor running hour meter readings and trip data of electronic motor protection units on a site (per site)	no	1	R	R
3.6.12	Checking of all indicator lamps on panel	no	1	R	R
3.6.13	<u>Replacement of indicator lamps as follows:</u>				
	(a) Incandescent lamps per lamp	no	1	R	R
	(b) LED type removable lamp	no	1	R	R
	(c) LED type, whole unit	no	1	R	R
3.6.14	Checking of all instrumentation fuses on a site (per site)	no	1	R	R
3.6.15	<u>Replacement of blown fuses as follows:</u>				
	(a) HRC up to 10 A	no	1	R	R
	(b) HRC above 10A and up to 32 A	no	1	R	R
3.6.16	Checking of all lightning arrestors on a site (per site)	no	1	R	R
3.6.17	<u>Replacing of lightning arrestors as follows:</u>				
	(a) Class 2 over voltage surge arrestors - 275V MOV type - 40 kA fault rating	no	1	R	R
	(b) Class 2 overvoltage surge arrestors - 275V MOV type - 65 kA fault rating	no	1	R	R
	(c) Class 2 overvoltage surge arrestors - 275V MOV type - 100 kA fault rating	no	1	R	R
	(d) IT Blitzductor surge arrester -24V	no	1	R	R
3.6.18	Transformers from 220Vac to 24Vdc	no	1	R	R
	220Vac to 24Vdc	no	1	R	R
3.7	Megger testing of 600/ 1000 V cables with both ends of cables disconnected for the following sizes of cable :				
	(a) Cables with 3 to 7 cores up to 2,5mm ² per cable	no	1	R	R
	(b) Cable with 3 or 4 cores from 4mm ² to 25mm ²	no	1	R	R

	(c) Cable with 3 or 4 cores from 35mm ² to 50mm ²	no	1	R	R
3.8	<u>Supply and installation of PVC warning tape</u> in top 300 mm of trench backfill 300 mm of trench backfill	m	1	R	R
3.9	Supply and fitting of cable labels on ends of cable with strap-on type label with up to 10 digits on label (per label)	no	1	R	R
3.10	Testing and checking of motors of all size sand comparing current readings with current rating of motor and logging of data as follows per motor:				
3.10.1	Megger between phases and phases and phases to earth and log data (per motor)	no	1	R	R
3.10.2	Measuring line currents of motor and logging data (per motor)	no	1	R	R
3.11	Maintenance of panels executing the following various tasks per unit of equipment :				
3.11.1	Inspecting all circuit breakers and testing to see that circuit breakers can handle the current of the particular circuit without tripping under normal load conditions and under transient conditions of motors starting for all sizes and types of circuit breakers, single pole and triple pole, as well as checking for overheating of circuit breakers (per panel)	no	1	R	R
3.11.2	Inspecting contactors and measuring outgoing voltages to determine if contactors are closing properly and that one or more phase contacts are not malfunctioning or that the contactor is not overheating (per contactor)	no		R	R
3.11.3	Checking that overloads are of correct rating and that setting is correct for the rating of the motor protected with the overload. Also check for malfunctioning of overload and nuisance tripping as well as overheating of overloads. Check that overload is not set for " Auto" reset. (per panel)	no	1	R	R
3.11.4	Checking and setting of star-delta starter timer for proper changeover of star-to-delta (per timer)	no	1	R	R
3.12	Installation of Circuit breakers Supply, installation, connection, testing and commissioning of the following circuit breakers for distribution boards or motor controls : (per circuit breaker)				
3.12.1	100 A TP on-load isolator	no	1	R	R
3.12.2	100 - 250 A TP on-load isolator	no	1	R	R
3.12.3	160A TP MCB (5kA)	no	1	R	R

	225A TP MCB (10 kA)	no	1	R	R
3.12.4	500 A TP mcb (15 kA)	no	1	R	R
3.12.5	750 A TP mcb (25kA)	no	1	R	R
3.12.6	1000 A TP ACB - Fixed (65kA)(with tripping unit similar to Micro Logix 2)	no	1	R	R
3.12.7	1500 A TP ACB - Withdrawable (65kA)(with tripping unit - similar to Micrologix 2)	no	1	R	R
3.12.8	2000 A TP ACB - Withdrawable (65kA)(with tripping unit - similar to Micrologix 2)	no	1	R	R
3.13	<u>Installation of Electronic Overload Relays</u> Supply, installation, connection, testing and commissioning of the following protection relays for distribution boards or motor controls : (per relay & CT's as shown)				
3.13.1	Similar or equal to Newelec KC25 with door mounted reset and no CT's	no	1	R	R
3.13.2	Similar or equal to Newelec KC50 with door mounted reset and 3 x50/5A CT's	no	1	R	R
3.13.3	Similar or equal to Newelec KC200 with door mounted reset and 3 x200/5A CT's	no	1	R	R
3.13.4	Similar or equal to Rockwell Automation 825-P with line voltage card	no	1	R	R
3.13.5	Similar and equal to Rockwell Automation 825-MCM180 CT installed in busbars	no	1	R	R
3.13.5	Similar and equal to Rockwell Automation 825-MCM420 CT installed in busbars	no	1	R	R
3.13.5	Similar and equal to Rockwell Automation 825-MCM630 CT installed in busbars	no	1	R	R
3.14	<u>Installation of Contactors and Components</u> Supply, installation, connection, testing and commissioning of the following equipment for distribution boards or motor controls.				
3.14.1	<u>Complete New Contactor for:</u>				
	(a) 4 to 5,5kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(b) 7,5 to 11kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(c) 11 to 15kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(d) 18,5kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R

	(e) 22kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(f) 30kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(g) 37kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(h) 45kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(i) 55kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(j) 75kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(k) 90kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(l) 110kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(m) 132kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(n) 150kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(o) 185kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(o) 220kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
3.14.2	<u>Replacing contactor contacts per set of three for the following sizes:</u>				
	(a) 4 to 5,5kW AC-3 rating contactor (Similar or equal to Siemens)	set	1	R	R
	(b) 7,5 to 11kW AC-3 rating contactor (Similar or equal to Siemens)	set	1	R	R
	(c) 11 to 15kW AC-3 rating contactor (Similar or equal to Siemens)	set	1	R	R
	(d) 18,5kW AC-3 rating contactor (Similar or equal to Siemens)	set	1	R	R
	(e) 22kW AC-3 rating contactor (Similar or equal to Siemens)	set	1	R	R
	(f) 30kW AC-3 rating contactor (Similar or equal to Siemens)	set	1	R	R
	(g) 37kW AC-3 rating contactor(Similar or equal to Siemens)	set	1	R	R
	(h) 45kW AC-3 rating contactor (Similar or equal to Siemens)	set	1	R	R
	(i) 55kW AC-3 rating contactor (Similar or equal to Siemens)	set	1	R	R
	(j) 75kW AC-3 rating contactor (Similar or equal to Siemens)	set	1	R	R
	(k) 90kW AC-3 rating contactor (Similar or equal to Siemens)	set	1	R	R
	(l) 110kW AC-3 rating contactor (Similar or equal to Siemens)	set	1	R	R
	(m) 132kW AC-3 rating contactor (Similar or equal to Siemens)	set	1	R	R
	(n) 150kW AC-3 rating contactor (Similar or equal to Siemens)	set	1	R	R

	(o) 185kW AC-3 rating contactor (Similar or equal to Siemens)	set	1	R	R
	(o) 220kW AC-3 rating contactor (Similar or equal to Siemens)	set	1	R	R
3.14.3	<u>Replacing contactor coil in the following sizes of contactors:</u>				
	(a) 4 to 5,5kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(b) 7,5 to 11kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(c) 11 to 15kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(d) 18,5kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(e) 22kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(f) 30kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(g) 37kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(h) 45kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(i) 55kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(j) 75kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(k) 90kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(l) 110kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(m) 132kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(n) 150kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(o) 185kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
	(o) 220kW AC-3 rating contactor (Similar or equal to Siemens)	no	1	R	R
3.15	Installation of Standard Adjustable Overloads				
	Supply, installation, connection, testing and commissioning of the following adjustable (standard electronic) motor overloads for motor controls.				
	(a) 0,1 - 1A	set	1	R	R
	(b) 1,6 - 5 A	set	1	R	R
	(c) 12 - 32 A	set	1	R	R
	(d) 14 - 45A	set	1	R	R
	(e) 23 - 75A	set	1	R	R
	(f) 60 - 85A	set	1	R	R
3.16	<u>Replacing star-delta timer for star-delta starters as follows: (per unit)</u>				

	(a) Electronic type	no	1	R	R
	(b) Magnetic type	no	1	R	R
	(c) Vacuum type	no	1	R	R
3.17	Motor Control Centres (complete assemblies)				
	Design drawings, manufacture, supply, delivery, installation, connections, testing and commissioning of floor standing motor control centre cabinets consisting of 2mm 3CR12 steel, powder coated, and each cabinet with dimension of not less than 2000mm high x 700mm wide x 600 mm deep and complete with internal sheet steel divisions, busbars, busbar supports, ventilation openings and gland plates for :				
3.17.1	Main incoming power panel for loads not exceeding 150A (complete assembly) (Supply Dwg. W0031-WTE/1)(test certificate in accordance with SANS 1765) (<10kA)	no	1	R	R
3.17.2	Main incoming power panel for loads from 150 to 450A, <u>excluding main circuit breaker</u> . (Supply to Dwg. W0031-WTE/2)(test certificate in accordance with SANS 1765)(<10kA)	no	1	R	R
3.17.3	Main incoming power panel for loads from 550 to 750A, <u>excluding main circuit breaker</u> . (Supply r to Dwg. W0031-WTE/2)(test certificate in accordance with SANS 1473)(>10kA)	no	1	R	R
3.17.4	Main incoming power panel for loads from 750 to 1500A, <u>excluding main circuit breaker</u> . (Supply to Dwg. W0031-WTE/2)(test certificate in accordance with SANS 1473)(>10kA)	no	1	R	R
3.17.5	DOL starter panel with <u>standard overload</u> for motors up to 11 kW (excluding motor mcb (miniature circuit breaker) and contactor)	no	1	R	R
3.17.6	DOL starter panel with <u>electronic overload</u> for motors up to 11 kW (excluding motor mcb, electronic overload and contactor)	no	1	R	R
3.17.7	Star-delta starter panel with <u>electronic overload</u> for motors from 15kW up to 22 Kw (excluding motor mcb, contactors & electronic overload relay)	no	1	R	R
3.17.8	Star-delta starter panel with <u>electronic overload</u> for motors from 30kW up to 55 Kw (excluding motor mcb, contactors & electronic overload relay)	no	1	R	R
3.17.9	Star-delta starter panel with <u>electronic overload</u> for motors from 90kW up to 132 Kw (excluding motor mcb, contactors & electronic overload relay)	no	1	R	R

3.17.10	Star-delta starter panel with <u>electronic overload</u> for motors from 150kW up to 220 Kw (excluding motor mcb, contactors & electronic overload relay)	no	1	R	R
3.17.11	Variable speed drive for motors from 22kW	no	1	R	R
	30kW	no	1	R	R
	37Kw				
	45kW	no	1	R	R
	55kW	no	1	R	R
	75kW	no	1	R	R
	90kW	no	1	R	R
3.17.12	Voltage Invertors from 220V up to 400V	no	1	R	R
3.17.13	Voltage Regulator 75kVA	no	1	R	R
3.18	<u>Drawing up and delivery of "As Built" drawings of boards to the Department for the following :</u>				
3.18.1	12 way power distribution board	no	1	R	R
3.18.2	24 way power distribution board	no	1	R	R
3.18.3	Motor control centre with main incoming panel and up to 2 starters	no	1		
3.18.4	Motor control centre with main incoming panel and up to 4 starters	no	1		
3.19	<u>Mark-up rates</u>				
3.19.1	Percentage mark-up on rates listed in term contracts	%	R	%	R
3.19.2	Percentage mark-up on items (with attached invoices) approved by the Employer or his representative for materials, (other than those set out in this list) used in the execution of work ordered by the Employer	%	R	%	R
3.20	<u>Tip Trucks</u>				
	(a) 6 m ³	H	1	R	R
	(b) 10 m ³	H	1	R	R
3.21	<u>Flat bed trucks</u>				
	(a) 5t	Km	1	R	R
	(b) 7t	Km	1	R	R
3.22	<u>LDV</u>				
PSA 15	(a) 2 x 4WD	Km	1	R	R
	(b) 4 x 4WD	Km	1	R	R
	Subtotal			R	R
	TOTAL OF SCHEDULE 2 CARRIED FORWARD TO SUMMARY			R	R

Schedule 3

SCHEDULE 3 : ELECTRICAL MOTORS

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
4.1	Megger testing of electric motors between phases and between phase and frame (earth) & report findings to Department.	no	1	R	R
4.2	Disconnection and removal of existing electric motors and placing in store of Department or delivery to position required by Department for:				
4.2.1	Motors of 5,5 and 7,5 kW	no	1	R	R
4.2.2	Motors of 11 up to 18,5 kW	no	1	R	R
4.2.3	Motors of 22 up to 37 kW	no	1	R	R
4.2.4	Motors of 45 up to 75 kW	no	1	R	R
4.2.5	Up to 110 kW	no	1	R	R
4.2.6	Up to 160 kW	no	1	R	R
4.2.7	Up to 200 Kw	no	1	R	R
4.2.8	Up to 260 Kw	no	1	R	R
4.2.9	Motor 220 Kw	no	1	R	R
4.3	<u>Installation and connection of existing motors</u> for pumps, including shaft alignment of motor for V-belts or pump coupling for:				
4.3.1	Motors of 5,5 and 7,5 kW, TEFC, foot mounted	no	1	R	R
4.3.2	Motors of 11 up to 18,5 kW, TEFC, foot mounted	no	1	R	R
4.3.3	Motors of 22 up to 37 kW, TEFC, foot mounted	no	1	R	R
4.3.4	Motors of 45 up to 75 kW, TEFC, foot mounted	no	1	R	R
4.3.5	Motors of 90 and 110 kW, TEFC, foot mounted	no	1	R	R
4.3.6	Motor 132 kW, TEFC, foot mounted	no	1	R	R
4.3.7	Motor 150 kW, TEFC, foot mounted	no	1	R	R
4.3.8	Motor 185 kW, TEFC, foot mounted	no	1	R	R
4.3.9	Motor 220 kW, TEFC, foot mounted	no	1	R	R
4.3.10	Motor 250 kW, TEFC, foot mounted				
4.3.11	Motor 400 kW, TEFC, foot mounted				
4.3.12	Motor 500 kW, TEFC, foot mounted				
4.3.13	Motor 660 kW, TEFC, foot mounted				
4.3.14	Motors of 5,5 and 7,5 kW, TEFC, flange mounted	no	1	R	R
4.3.15	Motors of 11 and 15 kW, TEFC, flange mounted	no	1	R	R
4.3.16	Motors of 18,5 and 22 kW, TEFC, flange mounted	no	1	R	R

4.4	Supply, installation, connection, testing and commissioning of new motors for pumps, including shaft alignment of motor for V-belts or pump coupling for:				
4.4.1	5,5 kW,400/230 V, TEFC, foot mounted	no	1	R	R
4.4.2	7,5 kW, 400/230 V, TEFC, foot mounted	no	1	R	R
4.4.3	11 kW, 400/230 V, TEFC, foot mounted	no	1	R	R
4.4.4	15 kW, 400/230 V, TEFC, foot mounted	no	1	R	R
4.4.5	18,5 kW, 400/230 V, TEFC, foot mounted	no	1	R	R
4.4.6	22 kW, 400/230 V, TEFC, foot mounted	no	1	R	R
4.4.7	30 kW, 400/230 V, TEFC, foot mounted	no	1	R	R
4.4.8	37 kW, 400/230 V, TEFC, foot mounted	no	1	R	R
4.4.9	45 kW, 400/230 V, TEFC, foot mounted	no	1	R	R
4.4.10	55 kW, 400/230 V, TEFC, foot mounted	no	1	R	R
4.4.11	75 kW, 400/230 V, TEFC, foot mounted	no	1	R	R
4.4.12	90 kW, 400/230 V, TEFC, foot mounted	no	1	R	R
4.4.13	110 kW, 400/230 V, TEFC, foot mounted	no	1	R	R
4.4.14	132 kW, 400/230 V, TEFC, foot mounted	no		R	R
4.4.15	185 kW, 400/230 V, TEFC, foot mounted	no	1	R	R
4.4.16	220 kW, 400/230 V, TEFC, foot mounted	no	1	R	R
4.4.17	5,5 kW,400/230 V, TEFC, flange mounted	no		R	R
4.4.18	7,5 kW, 400/230 V, TEFC, flange mounted	no	1	R	R
4.4.19	11 kW, 400/230 V, TEFC, flange mounted	no	1	R	R
4.4.20	15 kW, 400/230 V, TEFC, flange mounted	no	1	R	R
4.4.21	18,5 kW, 400/230 V, TEFC, flange mounted	no	1	R	R
4.4.22	22 kW, 400/230 V, TEFC, flange mounted	no	1	R	R
4.5	Disconnection, removal and transportation of existing motors to re-winders, rewinding of motors, replacement of bearings, testing of motor in factory, installation of motor on site, connection of motor, alignment of motor shaft for V-belts or pump coupling, testing of motor on site and commissioning for :			R	R
4.5.1	5,5 kW,400/230 V, TEFC, foot mounted	no	1	R	R

4.5.2	7,5 kW, 400/230 V, TEFC, foot mounted	no	1	R	R
4.5.3	11 kW, 400/230 V, TEFC, foot mounted	no	1	R	R
4.5.4	15 kW, 400/230 V, TEFC, foot mounted	no	1	R	R
4.5.5	18,5 kW, 400/230 V, TEFC, foot mounted	no	1	R	R
4.5.6	22 kW, 400/230 V, TEFC, foot mounted	no	1	R	R
4.5.7	30 kW, 400/230 V, TEFC, foot mounted	no	1	R	R
4.5.8	37 kW, 400/230 V, TEFC, foot mounted	no	1	R	R
4.5.9	45 kW, 400/230 V, TEFC, foot mounted	no	1	R	R
4.5.10	55 kW, 400/230 V, TEFC, foot mounted	no	1	R	R
4.5.11	75 kW, 400/230 V, TEFC, foot mounted	no	1	R	R
4.5.12	90 kW, 400/230 V, TEFC, foot mounted	no	1	R	R
4.5.19	11 kW, 400/230 V, TEFC, flange mounted	no	1	R	R
4.5.20	15 kW, 400/230 V, TEFC, flange mounted	no	1	R	R
4.5.21	18,5 kW, 400/230 V, TEFC, flange mounted	no	1	R	R
4.5.22	22 kW, 400/230 V, TEFC, flange mounted	no	1	R	R
4.6	<u>Mark-up rates</u>				
4.6.1	Percentage mark-up on rates listed in term contracts	%	R		%R
4.6.2	Percentage mark-up on items (with attached invoices) approved by the Employer or his representative for materials, (other than those set out in this list used in the execution of work ordered by the Employer	%	R		%R
4.70	<u>Tip Trucks</u>			R	
	(a) 6 m ³	H	1	R	R
	(b) 10 m ³	H	1	R	R
4.71	<u>Flat bed trucks</u>				
	(a) 5t	Km	1	R	R
	(b) 7t	Km	1	R	R
4.72	<u>LDV</u>				
PSA15	(a) 2 x 4WD	Km	1	R	R
	(b) 4 x 4WD	Km	1	R	R
TOTAL OF SCHEDULE 3 CARRIED FORWARD TO SUMMARY					

SCHEDULE 4 : BALL VALVES

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
5.	BALL VALVES Ball valve with split body; straight through pigable bore, ball supported by a double-offset bearing arrangement, with resilient seal. <u>Note:</u> Rates to include the cost of all staff required plus overheads where appropriate and the guarantee of all parts, materials and workmanship, but exclude the cost of spares unless the latter is specified.				
5.1	<u>Servicing and repair of existing valves in the following diameters:</u> <u>25 bar rating:</u>				
5.1.1	<u>Remove valve</u>				
	a) 150 DN	no	1	R	R
	b) 200 DN	no	1	R	R
5.1.2	<u>Transport from site</u>				
	a) 150 DN	no	1	R	R
	b) 200 DN	no	1	R	R
5.1.3	<u>Dismantle</u>				
	a) 150 DN	no	1	R	R
	b) 200 DN	no	1	R	R
5.1.4	<u>Blast</u>				
	a) 150 DN	no	1	R	R
	b) 200 DN	no	1	R	R
5.1.5	<u>Clean</u>				
	a) 150 DN	no	1	R	R
	b) 200 DN	no	1	R	R
5.1.6	<u>Inspect</u>				
	a) 150 DN	no	1	R	R
	b) 200 DN	no	1	R	R
5.1.7	<u>Submit inspection report</u>				
	a) 150 DN	no	1	R	R
	b) 200 DN	no	1	R	R
5.1.8	<u>Lap</u>				
	a) 150 DN	no	1	R	R
	b) 200 DN	no	1	R	R
5.1.9	<u>Re-blast</u>				
	a) 150 DN	no	1	R	R
	b) 200 DN	no	1	R	R
5.1.10	<u>Epoxy coat (min thickness 300 micron)</u>				
	a) 150 DN	no	1	R	R
	b) 200 DN	no	1	R	R
5.1.11	<u>Reassemble</u>				
	a) 150 DN	no	1	R	R

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
5.1.12	b) 200 DN	no	1	R	R
	<u>Pressure test</u>				
	a) 150 DN	no	1	R	R
	b) 200 DN	no	1	R	R
5.1.13	<u>Submit pressure test certificate</u>				
	a) 150 DN	no	1	R	R
	b) 200 DN	no	1	R	R
5.1.14	<u>Install</u>				
	a) 150 DN	no	1	R	R
	b) 200 DN	no	1	R	R
5.1.15	<u>Commission</u>				
	a) 150 DN	no	1	R	R
	b) 200 DN	no	1	R	R
5.2	Supply, install and commission the following completely new ball valves, flanged, gear operated with handwheel:				
	a) 150 DN PN 25 ref. no. Name of Manufacturer:	no	1	R	R
	b) 200 DN PN 25 ref. no. Name of Manufacturer:	no	1	R	R
5.3	<u>Mark-up rates</u>				
5.3.1	Percentage mark-up on rates listed on term contracts	%	R		%R
5.3.2	Percentage mark-up on items (with attached invoices) approved by the Employer or his representative for materials, (other than those set out in this list) used in execution of work ordered by the Employer.	%	R		%R
5.4	Tip trucks				
	(a) 6 m ³	h	1	R	R
	(b) 10 m ³	h	1	R	R
5.5	Flat bed trucks				
	(a) 5t	km	1	R	R
	(b) 7t	km	1	R	R
5.6	LDV				
	(a) 2 x 4WD	km	1	R	R
	(b) 4 x 4WD	km	1	R	R
TOTAL OF SCHEDULE 4 CARRIED FORWARD TO SUMMARY					

SCHEDULE 5 : BUTTERFLY VALVES (WAFER TYPE)

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
6.	BUTTERFLY VALVES (Wafer Type) Handlever or geared operator, with or without actuator. <u>Note:</u> Rates to include the cost of all staff required plus overheads where appropriate and the guarantee of all parts, materials and workmanship, but exclude the cost of spares unless the latter is specified.				
6.1	<u>Servicing and repair of existing valves in the following diameters and pressure ratings:</u>				
6.1.1	<u>Remove valve</u>				
	a) <u>100 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	b) <u>150 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
6.1.2	c) <u>200 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	<u>Dismantle</u>				
	a) <u>100 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	b) <u>150 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	c) <u>200 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
6.1.3	<u>Blast</u>				
	a) <u>100 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	b) <u>150 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	c) <u>200 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
6.1.4	<u>Clean</u>				

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
6.1.5	a) <u>100 DN</u> (i) PN 16 (ii) PN 25	no no	1 1	R R	R R
	(iii) PN 40	no	1	R	R
	b) <u>150 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	c) <u>200 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	<u>Inspect</u>				
	a) <u>100 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	b) <u>150 DN</u> (i) PN 16	no	1	R	R
	(ii) PN 25 (iii) PN 40	no no	1 1	R R	R R
	c) <u>200 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	<u>Submit inspection report</u>				
	a) <u>100 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	b) <u>150 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
6.1.7	c) <u>200 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	<u>Lap</u>				
	a) <u>100 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	b) <u>150 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	c) <u>200 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
6.1.8	<u>Re-blast</u>				
	a) <u>100 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	b) <u>150 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	c) <u>200 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
6.1.9	<u>Epoxy coat (min thickness 300 micron)</u>				
	a) <u>100 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	b) <u>150 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	c) <u>200 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
6.1.10	<u>Reassemble</u>				
	a) <u>100 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	b) <u>150 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	c) <u>200 DN</u> (i) PN 16	no	1	R	R

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
6.1.11	<u>Pressure test</u>				
	a) <u>100 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	b) <u>150 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	c) <u>200 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
6.1.12	<u>Submit pressure test certificate</u>				
	a) <u>100 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	b) <u>150 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	c) <u>200 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
6.1.13	<u>Install</u>				
	(iii) PN 40	no	1	R	R
	a) <u>100 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	b) <u>150 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	c) <u>200 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
6.1.14	<u>Commission</u>				
	a) <u>100 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	(iii) PN 40	no	1	R	R
b)	<u>150 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
c)	<u>200 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
6.2	Supply, install and commission the following completely new gear operated (with handwheel) wafer type butterfly valves:				
a)	<u>100 DN</u>				
	(i) PN 16 ref. no.	no	1	R	R
	(ii) PN 25 ref. no.	no	1	R	R
	(iii) PN 40 ref. no.	no	1	R	R
	Name of Manufacturer:				
b)	<u>150 DN</u>				
	(i) PN 16 ref. no.	no	1	R	R
	(ii) PN 25 ref. no.	no	1	R	R
	(iii) PN 40 ref. no.	no	1	R	R
	Name of Manufacturer:				
c)	<u>200 DN</u>				
	(i) PN 16 ref. no.	no	1	R	R
	(ii) PN 25 ref. no.	no	1	R	R
	(iii) PN 40 ref. no.	no	1	R	R
	Name of Manufacturer:				
6.3	<u>Mark-up rates</u>				
6.3.1	Percentage mark-up on rates listed on term contracts	%	R	%	R
6.3.2	Percentage mark-up on items (with attached invoices) approved by the Employer or his representative for materials, (other than those set out in this list) used in execution of work ordered by the Employer.	%	R	%	R
6.4	Tip trucks				
	(a) 6 m ³	h	1	R	R
	(b) 10 m ³	h	1	R	R
6.5	Flat bed trucks				
	(a) 5t	km	1	R	R
	(b) 7t	km	1	R	R
6.6	LDV				
	(a) 2 x 4WD	km	1	R	R
	(b) 4 x 4WD	km	1	R	R
	SUBTOTAL			R	R
	TOTAL SCHEDULE 5 CARRIED FORWARD TO SUMMARY			R	R

SCHEDULE 6 : BUTTERFLY VALVES (DOUBLE FLANGED)

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
7.	BUTTERFLY VALVES (Double Flanged) Gear operated, with or without actuator. <u>Note:</u> Rates to include the cost of all staff required plus overheads where appropriate and the guarantee of all parts, materials and workmanship, but exclude the cost of spares unless the latter is specified.				
7.1	<u>Servicing and repair of existing valves in the following diameters and pressure ratings:</u>				
7.1.1	<u>Remove valve</u>				
	a) <u>100 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	b) <u>150 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	c) <u>200 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	d) <u>250 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	e) <u>300 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	f) <u>350 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
7.1.2	<u>Dismantle</u>				
	a) <u>100 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	b) <u>150 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
7.1.3	c) <u>200 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	d) <u>250 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	e) <u>300 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	f) <u>350 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	<u>Blast</u>				
	a) <u>100 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	b) <u>150 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	c) <u>200 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	d) <u>250 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	e) <u>300 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	f) <u>350 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	7.1.4	<u>Clean</u> a) <u>100 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
7.1.5	b) <u>150 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R	
	c) <u>200 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R	
	d) <u>250 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R	
	e) <u>300 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R	
	f) <u>350 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R	
	<u>Inspect</u>					
	a) <u>100 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R	
	b) <u>150 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R	
	7.1.6	c) <u>200 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
		d) <u>250 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
		e) <u>300 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
		f) <u>350 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
<u>Submit inspection report</u>						
a) <u>100 DN</u>						

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	b) <u>150 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	c) <u>200 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	d) <u>250 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	e) <u>300 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	f) <u>350 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
7.1.7	<u>Lap</u>				
	a) <u>100 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	b) <u>150 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	c) <u>200 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	d) <u>250 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	e) <u>300 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	f) <u>350 DN</u>				
	(i) PN 16	no	1	R	R

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
7.1.8	<u>Re-blast</u>				
	a) <u>100 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	b) <u>150 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	c) <u>200 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	d) <u>250 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	e) <u>300 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	f) <u>350 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
7.1.9	<u>Epoxy coat (min thickness 300 micron)</u>				
	a) <u>100 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	b) <u>150 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	c) <u>200 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	d) <u>250 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	e) <u>300 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	(iii) PN 40	no	1	R	R
	f) <u>350 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
7.1.10	<u>Reassemble</u>				
	a) <u>100 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	b) <u>150 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	c) <u>200 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	d) <u>250 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	e) <u>300 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	f) <u>350 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
7.1.11	<u>Pressure test</u>				
	a) <u>100 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	b) <u>150 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	c) <u>200 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	d) <u>250 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	e) <u>300 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	f) <u>350 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
7.1.12	<u>Submit pressure test certificate</u>				
	a) <u>100 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	b) <u>150 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	c) <u>200 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	d) <u>250 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	e) <u>300 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	f) <u>350 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
7.1.13	<u>Install</u>				
	a) <u>100 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	b) <u>150 DN</u> (i) PN 16 (ii) PN 25 (iii) PN 40	no no no	1 1 1	R R R	R R R
	c) <u>200 DN</u>				

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	d) <u>250 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	e) <u>300 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	f) <u>350 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
7.1.14	<u>Commission</u>				
	a) <u>100 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	b) <u>150 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	c) <u>200 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	d) <u>250 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	e) <u>300 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
	f) <u>350 DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	(iii) PN 40	no	1	R	R
7.2	Supply, install and commission the following completely new gear operated (with handwheel) double flanged butterfly valves:				
	a) <u>100 DN</u>				

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
(a)	6 m ³	h	1	R	R
(b)	10 m ³	h	1	R	R
	Flat bed trucks				
(a)	5t	km	1	R	R
(b)	7t	km	1	R	R
	LDV				
(a)	2 x 4WD	km	1	R	R
(b)	4 x 4WD	km	1	R	R
Carried Forward				R	R

TOTAL OF SCHEDULE 6 CARRIED FORWARD TO SUMMARY

SCHEDULE 7 : WATERWORKS GATE VALVES

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
8.	Valves fitted with wedge gates. Valves in compliance with SABS 664, waterworks applications with plain thrust collar, non-rising spindle and flanged ends. <u>Note:</u> Rates to include the cost of all staff required plus overheads where appropriate and the guarantee of all parts, materials and workmanship, but exclude the cost of spares unless the latter is specified.				
8.1	<u>Servicing and repair of valves in the following diameters and pressure ratings:</u>				
8.1.1	<u>Remove valve</u>				
	a) 80 DN				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	b) 100 DN				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
8.1.2	<u>Transport from site</u>				
	a) <u>80 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	b) <u>100 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
8.1.3	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	<u>Dismantle</u>				
	a) <u>80 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
(iii) PN 25	no	1	R	R	
8.1.4	b) <u>100 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
(ii) PN 16	no	1	R	R	
(iii) PN 25	no	1	R	R	
8.1.5	<u>Blast</u>				
	a) <u>80 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	b) <u>100 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
(i) PN 10	no	1	R	R	
(ii) PN 16	no	1	R	R	
(iii) PN 25	no	1	R	R	
d) <u>200 DN</u>					
(i) PN 10	no	1	R	R	
(ii) PN 16	no	1	R	R	
(iii) PN 25	no	1	R	R	
<u>Clean</u>					
a) <u>80 DN</u>					
(i) PN 10	no	1	R	R	

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	b) <u>100 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
8.1.6	<u>Inspect</u>				
	a) <u>80 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	b) <u>100 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
8.1.7	<u>Submit inspection report</u>				
	a) <u>80 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	b) <u>100 DN</u>			R	
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
8.1.8	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	<u>Lap</u>				
	a) <u>80 DN</u>				
	(i) PN 10	no	1	R	R
(ii) PN 16	no	1	R	R	
(iii) PN 25	no	1	R	R	
8.1.9	b) <u>100 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	<u>Re-blast</u>				
a) <u>80 DN</u>					
(i) PN 10	no	1	R	R	
(ii) PN 16	no	1	R	R	
(iii) PN 25	no	1	R	R	
b) <u>100 DN</u>					
(i) PN 10	no	1	R	R	
(ii) PN 16	no	1	R	R	
(iii) PN 25	no	1	R	R	
c) <u>150 DN</u>					
(i) PN 10	no	1	R	R	
(ii) PN 16	no	1	R	R	
(iii) PN 25	no	1	R	R	
d) <u>200 DN</u>					
(i) PN 10	no	1	R	R	

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
8.1.10	<u>Epoxy coat (min thickness 300 micron)</u>				
	a) <u>80 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	b) <u>100 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
8.1.11	<u>Reassemble</u>				
	(iii) PN 25	no	1	R	R
	a) <u>80 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	b) <u>100 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
8.1.12	<u>Pressure test</u>				
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	a) <u>80 DN</u>				

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	b) <u>100 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
8.1.13	<u>Submit pressure test certificate</u>				
	a) <u>80 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	b) <u>100 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
8.1.14	<u>Transport to site</u>				
	a) <u>80 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	b) <u>100 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
8.1.15	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	<u>Install</u>				
	a) <u>80 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	b) <u>100 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R
8.1.16	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	<u>Commission</u>				
	a) <u>80 DN</u>				
	(i) PN 10	no		R	R
	(ii) PN 16	no		R	R
	(iii) PN 25	no		R	R
	b) <u>100 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
8.2	Supply, install and commission the following gate valves fitted with wedge gates. Valves to comply with SABS 664, waterworks applications with cap top, plain thrust collar, non-rising spindle, clockwise closing and having flanged ends:				
	a) <u>80 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	b) <u>100 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
8.3	<u>Specialist Dayworks (compulsory)</u>				
8.3.1	Dayworks labour by specialist valve subcontractor.	hr	1	R	R
8.4	<u>Mark-up rates</u>				
8.4.1	Percentage mark-up on rates listed on term contracts	%	R	%	R
8.4.2	Percentage mark-up on items (with attached invoices) approved by the Employer or his representative for materials, (other than those set out in this list) used in execution of work ordered by the Employer	%	R	%	R
8.5	Tip trucks				
	(a) 6 m ³	h	1	R	R
	(b) 10 m ³	h	1	R	R
8.6	Flat bed trucks				
	(a) 5t	km	1	R	R
	(b) 7t	km	1	R	R
8.7	LDV				
	(a) 2 x 4WD	km	1	R	R
	(b) 4 x 4WD	km	1	R	R
Carried Forward				R	R
TOTAL SCHEDULE 7 CARRIED FORWARD TO SUMMARY				R	

SCHEDULE 8 : RESILIENT SEAL GATE VALVES AND SUPPLY OF ALL MATERIAL

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
9.	WATERWORKS GATE VALVES Valves fitted with wedge gates. Valves in compliance with SABS 664, waterworks applications with plain thrust collar, non-rising spindle and flanged ends. <u>Note:</u> Rates to include the cost of all staff required plus overheads where appropriate and the guarantee of all parts, materials and workmanship, but exclude the cost of spares unless the latter is specified.				
9.1	<u>Servicing and repair of valves in the following diameters and pressure ratings:</u>				
9.1.1	<u>Remove valve</u>				
	a) <u>80 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	b) <u>100 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
9.1.2	<u>Dismantle</u>				
	a) <u>80 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	b) <u>100 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
9.1.3	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	<u>Blast</u>				
	a) <u>80 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	b) <u>100 DN</u>				
(i) PN 10	no	1	R	R	
9.1.4	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	<u>Clean</u>				
	a) <u>80 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
b) <u>100 DN</u>					
(i) PN 10	no	1	R	R	
9.1.5	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	<u>Inspect</u>				
	a) <u>80 DN</u>				
	(i) PN 10	no	1	R	R

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	b) <u>100 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
9.1.6	<u>Submit inspection report</u>				
	a) <u>80 DN</u>			R	R
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	b) <u>100 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
9.1.7	<u>La</u>				
	<u>p</u>				
	a) <u>80 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	b) <u>100 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
9.1.8	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	<u>Re-blast</u>				
	a) <u>80 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	b) <u>100 DN</u>				
(i) PN 10	no	1	R	R	
(ii) PN 16	no	1	R	R	
(iii) PN 25	no	1	R	R	
9.1.9	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	<u>Epoxy coat (min thickness 300 micron)</u>				
	a) <u>80 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	b) <u>100 DN</u>				
(i) PN 10	no	1	R	R	
(ii) PN 16	no	1	R	R	
(iii) PN 25	no	1	R	R	
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
9.1.10	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	<u>Reassemble</u>				
	a) <u>80 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	b) <u>100 DN</u>				
(i) PN 10	no	1	R	R	
9.1.11	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	<u>Pressure test</u>				
	a) <u>80 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	b) <u>100 DN</u>				
(i) PN 10	no	1	R	R	
(ii) PN 16	no	1	R	R	
(iii) PN 25	no	1	R	R	
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
9.1.12	<u>Submit pressure test certificate</u>				
	a) <u>80 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	b) <u>100 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
9.1.13	<u>Install</u>				
	a) <u>80 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
	b) <u>100 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	No	1	R	R
	(iii) PN 25	No	1	R	R
	c) <u>150 DN</u>				
	(i) PN 10	No	1	R	R
	(ii) PN 16	No	1	R	R
	(iii) PN 25	no	1	R	R
	d) <u>200 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R
9.1.14	<u>Commission</u>				
	a) <u>80 DN</u>				
	(i) PN 10	no	1	R	R
	(ii) PN 16	no	1	R	R
	(iii) PN 25	no	1	R	R

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
9.2	b) <u>100 DN</u> (i) PN 10	no	1	R	R	
	(ii) PN 16	no	1	R	R	
	(iii) PN 25	no	1	R	R	
	c) <u>150 DN</u> (i) PN 10	no	1	R	R	
	(ii) PN 16	no	1	R	R	
	(iii) PN 25	no	1	R	R	
	d) <u>200 DN</u> (i) PN 10	no	1	R	R	
	(ii) PN 16	no	1	R	R	
	(iii) PN 25	no	1	R	R	
	Supply, install and commission the following gate valves fitted with wedge gates. Valves to comply with SABS 664, waterworks applications with cap top, plain thrust collar, non-rising spindle, clockwise closing and having flanged ends:					
	a) <u>80 DN</u> (i) PN 10	no	1	R	R	
	(ii) PN 16	no	1	R	R	
	(iii) PN 25	no	1	R	R	
	(iii) PN 25	no	1	R	R	
	b) <u>100 DN</u> (i) PN 10	no	1	R	R	
(ii) PN 16	no	1	R	R		
(iii) PN 25	no	1	R	R		
c) <u>150 DN</u> (i) PN 10	no	1	R	R		
(ii) PN 16	no	1	R	R		
(iii) PN 25	no	1	R	R		
d) <u>200 DN</u> (i) PN 10	no	1	R	R		
(ii) PN 16	no	1	R	R		
(iii) PN 25	no	1	R	R		
9.3	Mark-up rates					
9.3.1	Percentage mark-up on rates listed on term contracts	%	R1		% R	
9.3.2	Percentage mark-up on items (with attached invoices) approved by the Employer or his representative for materials, (other than those set out in this list) used in execution of work ordered by the Employer	%	R		% R	
9.4	Tip trucks					
(a)	6 m ³	h	1	R	R	
(b)	10 m ³	h	1	R	R	

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
9.5	Flat bed trucks				
	(a) 5t	km	1	R	R
	(b) 7t	km	1	R	R
9.6	LDV				
	(a) 2 x 4WD	km	1	R	R
	(b) 4 x 4WD	km	1	R	R
TOTAL OF SCHEDULE 8 CARRIED FORWARD TO SUMMARY					

SCHEDULE 9 : WAFER PATTERN CHECK VALVES AND THE SUPPLY OF ALL MATERIAL

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
10.	WAFER PATTERN CHECK VALVES Compact, single door, wafer pattern check valves. <u>Note:</u> Rates to include the cost of all staff required plus overheads where appropriate and the guarantee of all parts, materials and workmanship, but exclude the cost of spares unless the latter is specified.			R	
10.1	<u>Servicing and repair of valves in the following diameters and pressure rating PN25</u>				
10.1.1	<u>Remove valve</u>				
	a) 100 DN	no	1	R	R
	b) 150 DN	no	1	R	R
	c) 200DN	no	1	R	R
10.1.2	<u>Dismantle</u>				
	a) 100 DN	no	1	R	R
	b) 150 DN	no	1	R	R
	c) 200DN	no	1	R	R
10.1.3	<u>Blast</u>				
	a) 100 DN	no	1	R	R
	b) 150 DN	no	1	R	R
	c) 200DN	no	1	R	R
10.1.4	<u>Clean</u>				
	a) 100 DN	no	1	R	R
	b) 150 DN	no	1	R	R
	c) 200DN	no	1	R	R
10.1.5	<u>Inspect</u>				
	a) 100 DN	no	1	R	R
	b) 150 DN	no	1	R	R
	c) 200DN	no	1	R	R
10.1.6	<u>Submit inspection report</u>				
	a) 100 DN	no	1	R	R
	b) 150 DN	no	1	R	R
	c) 200DN	no	1	R	R
10.1.7	<u>Epoxy coat (min thickness 300 micron)</u>				
	a) 100 DN	no	1	R	R
	b) 150 DN	no	1	R	R
	c) 200DN	no	1	R	R
10.1.8	<u>Reassemble</u>				
	a) 100 DN	no	1	R	R
	b) 150 DN	no	1	R	R
	c) 200DN	no	1	R	R
10.1.9	<u>Pressure test</u>				
	a) 100 DN	no	1	R	R
	b) 150 DN	no	1	R	R
	c) 200DN	no	1	R	R
10.1.10	<u>Submit pressure test certificate</u>				
	a) 100 DN	no	1	R	R

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
10.1.11	b) 150 DN	no	1	R	R
	c) 200DN	no	1	R	R
	<u>Install</u>				
	a) 100 DN	no	1	R	R
	b) 150 DN	no	1	R	R
	c) 200DN	no	1	R	R
10.1.12	<u>Commission</u>				
	a) 100 DN	no	1	R	R
	b) 150 DN	no	1	R	R
	c) 200DN	no	1	R	R
10.2	<p>Supply, install and commission the following completely new compact wafer pattern check valves, having a free unobstructed orifice when open. Valve to have a cast iron body, a <u>single stainless steel disc</u> with torsion spring and inserted seat with sealing O-ring. Valve suitable for installation between the specified flange pressure ratings.</p> <p>a) <u>100 DN</u> (i) PN 25 ref. no. (ii) PN 40 ref. no.</p> <p>Name of Manufacturer: </p> <p>b) <u>150 DN</u> (i) PN 25 ref. no. (ii) PN 40 ref. no.</p> <p>Name of Manufacturer: </p> <p>c) <u>200 DN</u> (i) PN 25 ref. no. (ii) PN 40 ref. no.</p> <p>Name of Manufacturer: </p>	no no no no no no	1 1 1 1 1 1	R R R R R R	R R R R R R
10.3	<u>Mark-up rates</u>				
10.3.1	Percentage mark-up on rates listed on term contracts	%			% R
10.3.2	Percentage mark-up on items (with attached invoices) approved by the Employer or his representative for materials, (other than those set out in this list) used in execution of work ordered by the Employer	%			% R
10.4	Tip trucks (a) 6 m ³	h	1	R	R

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
10.5	(b) 10 m ³	h	1	R	R
	Flat bed trucks				
	(a) 5t	km	1	R	R
10.6	(b) 7t	km	1	R	R
	LDV				
	(a) 2 x 4WD	km	1	R	R
	(b) 4 x 4WD	km	1	R	R
	SUBTOTAL			R	R
	TOTAL SCHEDULE 9 CARRIED FORWARD TO SUMMARY			R	

SCHEDULE 10 : HYDRAULIC FLOW CONTROL VALVES AND THE SUPPLY OF ALL MATERIAL

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
11.	HYDRAULIC FLOW CONTROL VALVES Hydraulically operated, Y-pattern body, flow rate control valve with double-chambered diaphragm actuator, complete with pitot tube, flow rate pilot valve and large control filter. <u>Note:</u> Rates to include the cost of all staff required plus overheads where appropriate and the guarantee of all parts, materials and workmanship, but exclude the cost of spares unless the latter is specified.				
11.1	<u>Servicing and repair of valves in the following diameters and pressure rating:</u>				
11.1.1	<u>Remove valve</u>				
	a) <u>100DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	b) <u>150DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	c) <u>200DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
11.1.2	<u>Dismantle</u>				
	a) <u>100DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	b) <u>150DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	c) <u>200DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
11.1.3	<u>Blast</u>				
	a) <u>100DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	b) <u>150DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	c) <u>200DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
11.1.4	<u>Clean</u>				
	a) <u>100DN</u>				
	(i) PN 16	no	1	R	R

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	(ii) PN 25	no	1	R	R
	b) <u>150DN</u> (i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	c) <u>200DN</u> (i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
11.1.5	<u>Inspect all wearing parts including pilot valve</u>				
	a) <u>100DN</u> (i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	b) <u>150DN</u> (i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	c) <u>200DN</u> (i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
11.1.6	<u>Submit inspection report</u>				
	a) <u>100DN</u> (i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	b) <u>150DN</u> (i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	c) <u>200DN</u> (i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
11.1.7	<u>Replace body seats</u>				
	a) <u>100DN</u> (i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	b) <u>150DN</u> (i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	c) <u>200DN</u> (i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
11.1.8	<u>Epoxy coat (min thickness 300 micron)</u>				
	a) <u>100DN</u>				

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	b) <u>150DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	c) <u>200DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
11.1.9	<u>Reassemble</u>				
	a) <u>100DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	b) <u>150DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	c) <u>200DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
11.1.10	<u>Pressure test and reset operation limits</u>				
	a) <u>100DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	b) <u>150DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
11.1.11	<u>Submit pressure test certificate and confirm correct setting of operation limits</u>				
	c) <u>200DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	a) <u>100DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	b) <u>150DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	c) <u>200DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
11.1.12	<u>Install</u>				
	a) <u>100DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	b) <u>150DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	c) <u>200DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
11.1.13	<u>Commission</u>				
	a) <u>100DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	b) <u>150DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
	c) <u>200DN</u>				
	(i) PN 16	no	1	R	R
	(ii) PN 25	no	1	R	R
11.2	Supply, install and commission the following completely new flanged, hydraulically operated, Y-pattern body, flow rate control valve with double-chambered diaphragm actuator, complete with pitot tube, flow rate valve and control tubing:				
	a) <u>100 DN</u>				
	(i) PN 16 ref. no.	no	1	R	R
	(ii) PN 25 ref. no.	no	1	R	R
	Name of Manufacturer:				
	b) <u>150 DN</u>				
	(i) PN 16 ref. no.	no	1	R	R
	(ii) PN 25 ref. no.	no	1	R	R
	Name of Manufacturer:				
	c) <u>200 DN</u>				
	(i) PN 16 ref. no.	no	1	R	R
	(ii) PN 25 ref. no.	no	1	R	R
	Name of Manufacturer:				
	Name of Manufacturer:				
Subtotal Carried Forward				R	

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
11.3	Mark-up rates				
11.3.1	Percentage mark-up on rates listed on term Contracts	%	R	%	R
11.3.2	Percentage mark-up on items (with attached invoices) approved by the Employer or his representative for materials, (other than those set out in this list) used in execution of work ordered by the Employer	%	R	%	R
11.4	Tip trucks				
	(a) 6 m ³	h	1	R	R
	(b) 10 m ³	h	1	R	R
11.5	Flat bed trucks				
	(a) 5t	km	1	R	R
	(b) 7t	km	1	R	R
11.5	LDV				
	(a) 2 x 4WD	km	1	R	R
	(b) 4 x 4WD	km	1	R	R
	SUBTOTAL			R	R
	TOTAL SCHEDULE 10 CARRIED FORWARD TO SUMMARY			R	

SCHEDULE 11 : SURGE ANTICIPATING CONTROL VALVE

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
12.	<u>HYDRAULICALLY OPERATED SURGE ANTICIPATING CONTROL VALVE</u> Hydraulically operated, Y-pattern body, surge anticipating control valve with double-chambered diaphragm actuator, complete with 3 way sustaining pilot, relief pilot, V-port throttling plug and large control filter. <u>Note:</u> Rates to include the cost of all staff required plus overheads where appropriate and the guarantee of all parts, materials and workmanship, but exclude the cost of spares unless the latter is specified.				
12.1	<u>Servicing and repair of valves in the following diameters and pressure rating:</u>				
12.1.1	<u>Remove valve</u>				
	a) 150DN PN 25	no	1	R	R
	b) 200DN PN 25	no	1	R	R
12.1.2	<u>Dismantle</u>				
	a) 150DN PN 25	no	1	R	R
	b) 200DN PN 25	no	1	R	R
12.1.3	<u>Blast</u>				
	a) 150DN PN 25	no	1	R	R
	b) 200DN PN 25	no	1	R	R
12.1.4	<u>Clean</u>				
	a) 150DN PN 25	no	1	R	R
	b) 200DN PN 25	no	1	R	R
12.1.5	<u>Inspect all wearing parts including pilot valve</u>				
	a) 150DN PN 25	no	1	R	R
	b) 200DN PN 25	no	1	R	R
12.1.6	<u>Submit inspection report</u>				
	a) 150DN PN 25	no	1	R	R
	b) 200DN PN 25	no	1	R	R
12.1.7	<u>Replace body seats</u>				
	a) 150DN PN 25	no	1	R	R
	b) 200DN PN 25	no	1	R	R
12.1.8	<u>Epoxy coat (min thickness 300 micron)</u>				
	a) 150DN PN 25	no	1	R	R
	b) 200DN PN 25	no	1	R	R
12.1.9	<u>Reassemble</u>				
	a) 150DN PN 25	no	1	R	R
	b) 200DN PN 25	no	1	R	R
12.1.10	<u>Pressure test and reset operation limits</u>				
	a) 150DN PN 25	no	1	R	R
	b) 200DN PN 25	no	1	R	R

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
12.1.11	<u>Submit pressure test certificate and confirm correct setting of operation limits</u> a) 150DN PN 25 b) 200DN PN 25	no no	1 1	R R	R R
12.1.12	<u>Install</u> a) 150DN PN 25 b) 200DN PN 25	no no	1 1	R R	R R
12.1.13	<u>Commission</u> a) 150DN PN 25 b) 200DN PN 25	no no	1 1	R R	R R
12.2	Supply, install and commission the following completely new flanged, hydraulically operated, Y-pattern body, surge anticipating control valve with double-chambered diaphragm actuator, complete with 3-way sustaining pilot, relief pilot, V-port throttling plug, large control filter and control tubing: a) <u>150 DN</u> (i) PN 16 ref. no. (ii) PN 25 ref. no. Name of Manufacturer: b) <u>200 DN</u> (i) PN 16 ref. no. (ii) PN 25 ref. no. Name of Manufacturer:	no no no no	1 1 1 1	R R R R	R R R R
12.3	<u>Mark-up rates</u>				
12.3.1	Percentage mark-up on rates listed on term contracts	%	R		%R
12.3.2	Percentage mark-up on items (with attached invoices) approved by the Employer or his representative for materials, (other than those set out in this list) used in execution of work ordered by the Employer	%	R		%R
12.4	Tip trucks (a) 6 m ³ (b) 10 m ³	h h	1 1	R R	R R
12.5	Flat bed trucks (a) 5t (b) 7t	km km	1 1	R R	R R
12.6	LDV (a) 2 x 4WD (b) 4 x 4WD	km km	1 1	R R	R R
	SUBTOTAL			R	R
	TOTAL SCHEDULE 11 CARRIED FORWARD TO SUMMARY			R	R

SCHEDULE 12 : PUMP (CENTRIFUGAL, AXIAL FLOW, VERTICAL OR HORIZONTAL SPLITS, MULTI STAGE)

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
13.	<u>PUMP</u> Centrifugal, axial flow, horizontal split case, dual stage, flow rate 100 l/s, motor rating 185 kW. <u>Note:</u> Rates to include the cost of all staff required plus overheads where appropriate and the guarantee of all parts, materials and workmanship, but exclude the cost of spares unless the latter is specified.				
13.1	<u>Servicing and repair of one pump:</u>				
13.1.1	Operate pumpset on site in its installed position, establish and record:				
	a) Current drawn on each phase	set	1	R	R
	b) Vibration tests on pump bearings	set	1	R	R
	c) Vibration tests on motor bearings	set	1	R	R
	d) Check alignment of pump and motor	set	1	R	R
13.1.2	Disconnect mechanical coupling between pump and motor and record: vibration tests on motor Bearings	set	1	R	R
13.1.3	Remove (on site) top half casing of pump, inspect and report	set	1	R	R
13.1.4	Uncouple shaft coupling and loose pipework	set	1	R	R
13.1.5	Remove pump	no	1	R	R
13.1.6	Dismantle pump in workshop	no	1	R	R
13.1.7	Clean pump	no	1	R	R
13.1.8	Inspect	no	1	R	R
13.1.9	Submit inspection report	no	1	R	R
13.1.10	Blast	no	1	R	R
13.1.11	Epoxy coat internally	no	1	R	R
13.1.12	Supply and replace shaft with new	no	1	R	R
13.1.13	Supply and replace 425 dia bronze suction impeller with new	no	1	R	R
13.1.14	Supply and replace 425 dia bronze delivery impeller with new	no	1	R	R
13.1.15	Supply and fit new shaft sleeves	set	1	R	R
13.1.16	Supply and fit new bearing (DE + NDE)	set	1	R	R
13.1.17	Supply and fit new neckrings and wearing rings	set	1	R	R

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
13.1.18	Supply and fit new water flingers	set	1	R	R
13.1.19	Balance rotating assembly and submit test report	no	1	R	R
13.1.20	Supply and replace packings	set	1	R	R
13.1.21	Reassemble pump	no	1	R	R
13.1.22	Coat pump externally to existing colour code	no	1	R	R
13.1.23	Supply test report	no	1	R	R
13.1.24	Install, connect and align	set	1	R	R
13.1.25	Test run and commission	set	1	R	R
13.1.26	Supply condition of plant report on all work done as well as alignment control sheet	set	1	R	R
13.1.27	Supply, installation, connection, testing and commissioning of new pumps, including shaft alignment of motor for V-belts or pump coupling for horizontal multistage pumps:				
	(i) 2 stage	no	1	R	R
	(ii) 3 stage	no	1	R	R
	(iii) 4 stage	no	1		
	(iv) 5 stage	no	1		
	(v) 6 stage			R	R
	(vi) 7 stage	no	1	R	R
	(vii) 11 stage	no	1		
	(viii) 14 stage				
13.1.28	Supply, installation, connection, testing and commissioning of new pumps, including shaft alignment of motor for V-belts or pump coupling for vertical multistage pumps:				
	(i) 0.5kW				
	(ii) 1.1kW				
	(iii) 5.5kW	no	1	R	R
	(iv) 7.5kW	no	1	R	R
	(v) 11kW	no	1	R	R
	(vi) 37kW	no	1	R	R
13.1.29	Supply, installation, connection, testing and commissioning of new pumps, including shaft alignment of motor or pump coupling and end-suction pumps:				
	(i) 065 – 40 - 160	no	1	R	R
	(ii) 065 – 40 - 250	no	1	R	R
	(iii) 065 – 40 - 315	no	1	R	R
	(iv) 065 – 50 - 200	no	1	R	R
	(v) 065 – 50 - 250	no	1	R	R
	(vi) 065 – 50 - 315	no	1	R	R
13.1.30	Supply, installation, connection, testing and commissioning of new pumps, including shaft alignment of motor or pump coupling and progressive cavity pumps:				
	(i) HD 7	no	1	R	R
	(ii) HD 10 H	no	1	R	R
	(iii) HD 20 H	no	1	R	R
	(iv) HD 45 H	no	1	R	R
	(v) HD 115 H	no	1	R	R

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
13.1.31	Supply, installation, connection, testing and commissioning of new pumps, including shaft alignment of motor or pump coupling and Split case pumps:				
	(i) Omega 100	no	1	R	R
	(ii) Omega 250	no	1	R	R
	(iii) EME 200 - 250	no	1	R	R
13.1.32	Supply, installation, connection, testing and commissioning of new pumps, including shaft alignment of motor or pump coupling and Submersible pumps:				
	(i) 0.5kW	no	1	R	R
	(ii) 1.1kW	no	1	R	R
	(iii) 2.2kW	no	1	R	R
	(iv) 3kW	no	1	R	R
	(v) 18Kw	no	1	R	R
	(vi) 22kW	no	1	R	R
	(vii) 30kW	no	1	R	R
	(viii) 37kW	no	1	R	R
13.2	<u>Mark-up rates</u>				
13.2.1	Percentage mark-up on rates listed on term contracts	%	R		% R
13.2.2	Percentage mark-up on items (with attached invoices) approved by the Employer or his representative for materials, (other than those set out in this list) used in execution of work ordered by the Employer	%	R		% R
13.3	Tip trucks				
	(a) 6 m ³	h	1	R	R
	(b) 10 m ³	h	1	R	R
13.4	Flat bed trucks				
	(a) 5t	km	1	R	R
	(b) 7t	km	1	R	R
13.5	LDV				
	(a) 2 x 4WD	km	1	R	R
	(b) 4 x 4WD	km	1	R	R
	SUBTOTAL			R	
	TOTAL SCHEDULE 12 CARRIED FORWARD TO SUMMARY			R	

Note: BID price must include value added tax.

SCHEDULE 13 : SCREENS (TRASH RACKS) AND THE SUPPLY OF ALL MATERIAL

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
15.	<u>SCREENS</u> Trash racks (repairs)			R	
	<u>Note:</u> Rates to include the cost of all staff required plus overheads where appropriate and the guarantee of all parts, materials and workmanship, but exclude the cost of spares unless the latter is specified.				
15.1	<u>Repairs to screens</u> Note: differentiation made between screened areas.				
15.1.1	<u>Remove screen</u>				
	a) up to 2,5m ²	no	1	R	R
	b) exceeding 2,5m ² up to 5m ²	no	1	R	R
	c) exceeding 5m ² up to 16m ²	no	1	R	R
15.1.2	<u>Dismantle</u>				
	a) up to 2,5m ²	no	1	R	R
	b) exceeding 2,5m ² up to 5m ²	no	1	R	R
	c) exceeding 5m ² up to 16m ²	no	1	R	R
15.1.3	<u>Remove algae growth and clean</u>				
	a) up to 2,5m ²	no	1	R	R
	b) exceeding 2,5m ² up to 5m ²	no	1	R	R
	c) exceeding 5m ² up to 16m ²	no	1	R	R
15.1.4	<u>Inspect and deliver report</u>				
	a) up to 2,5m ²	no	1	R	R
	b) exceeding 2,5m ² up to 5m ²	no	1	R	R
	c) exceeding 5m ² up to 16m ²	no	1	R	R
15.1.5	<u>Supply material and repair</u>				
	a) up to 2,5m ²	no	1	R	R
	b) exceeding 2,5m ² up to 5m ²	no	1	R	R
	c) exceeding 5m ² up to 16m ²	no	1	R	R
15.1.6	<u>Corrosion protection by hot-dip galvanizing</u>				
	a) up to 2,5m ²	no	1	R	R
	b) exceeding 2,5m ² up to 5m ²	no	1	R	R
	c) exceeding 5m ² up to 16m ²	no	1	R	R
15.1.7	<u>Assemble and transport to site</u>				
	a) up to 2,5m ²	no	1	R	R
	b) exceeding 2,5m ² up to 5m ²	no	1	R	R
	c) exceeding 5m ² up to 16m ²	no	1	R	R
15.1.8	<u>Install and test</u>				
	a) up to 2,5m ²	no	1	R	R
	b) exceeding 2,5m ² up to 5m ²	no	1	R	R
	c) exceeding 5m ² up to 16m ²	no	1	R	R
15.1.9	<u>Submit test reports</u>				

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	a) up to 2,5m ²	no	1	R	R
	b) exceeding 2,5m ² up to 5m ²	no	1	R	R
	c) exceeding 5m ² up to 16m ²	no	1	R	R
15.3	<u>Mark-up rates</u>				
15.3.1	Percentage mark-up on rates listed on term contracts	%	R		% R
15.3.2	Percentage mark-up on items (with attached invoices) approved by the Employer or his representative for materials, (other than those set out in this list) used in execution of work ordered by the Employer	%	R		% R
15.4	Tip trucks				
	(a) 6 m ³	h	1	R	R
	(b) 10 m ³	h	1	R	R
15.5	Flat bed trucks				
	(a) 5t	km	1	R	R
	(b) 7t	km	1	R	R
15.6	LDV				
	(a) 2 x 4WD	km	1	R	R
	(b) 4 x 4WD	km	1	R	R
	SUBTOTAL			R	R
	TOTAL SCHEDULE 13 CARRIED FORWARD TO SUMMARY			R	R

SCHEDULE 14 : DOSING (CHEMICAL) AND THE SUPPLY OF ALL MATERIAL

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE RATE	AMOUNT
16.	<u>DOSING (CHEMICAL)</u>				
	Chemical dosing equipment as installed in water treatment works.				
	<u>Note:</u> Rates to include the cost of all staff required plus overheads where appropriate and the guarantee of all parts, materials and workmanship, but exclude the cost of spares unless the latter is specified.				
16.1	<u>Repairs to chemical dosing equipment</u>				
16.1.1	Inspect operation of diaphragm actuated chemical dosing pump on site	set	1	R	R
16..2	Disconnect and remove	set	1	R	R
16.1.3	Dismantle, inspect and deliver report	set	1	R	R
16.1.4	Refurbish by the supply and installation of the following new spare parts:				
	a) motor drive unit; 3 ph; 0,09 Kw	no	1	R	R
	b) motor drive unit; 3 ph; 0,25 Kw	no	1	R	R
	c) PVC dosing head (max. capacity 100 l/h; max pressure 10 bar)	no	1	R	
	d) Stainless steel dosing head (max. capacity 100 l/h; max pressure 10 bar)	no	1	R	R
	e) Piston spring	no	1	R	R
	f) Diaphragm	no	1	R	R
	g) Diaphragm protection valve	no	1	R	R
	h) O-rings	set	1	R	R
16.1.5	Assemble and transport to site	set	1	R	R
16.1.6	Install and test	set	1	R	R
16.1.7	Submit test reports	set	1	R	R
16.2	Supply, install and commission the following completely new diaphragm actuated chemical dosing pumps:				
	a) with PVC dosing head (max. capacity 100 l/h; max. pressure 10 bar) and 0,25 kW drive motor (3 phase) Model reference: Manufacturer:	set	5	R	R
	b) with stainless steel dosing head (max. capacity 100 l/h; max pressure 10 bar) and 0,25 kW drive motor (3 phase) Model reference: Manufacturer:	set	5	R	R
16.3	<u>Mark-up rates</u>				
16.3.1	Percentage mark-up on rates listed on term contracts	%	R		% R

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
16.4.2	Percentage mark-up on items (with attached invoices) approved by the Employer or his representative for materials, (other than those set out in this list) used in execution of work ordered by the Employer	%	R	%	R
16.4	Tip trucks				
	(a) 6 m ³	h	1	R	R
	(b) 10 m ³	h	1	R	R
16.5	Flat bed trucks				
	(a) 5t	km	1	R	R
	(b) 7t	km	1	R	R
16.6	LDV				
	(a) 2 x 4WD	km	1	R	R
	(b) 4 x 4WD	km	1	R	R
	SUBTOTAL			R	R
	TOTAL SCHEDULE 14 CARRIED FORWARD TO SUMMARY			R	

SCHEDULE 15 : CHLORINATION SYSTEM AND THE SUPPLY OF ALL MATERIAL

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
17.	<u>CHLORINATION EQUIPMENT</u>				
	<u>Note:</u> Rates to include the cost of all staff required plus overheads where appropriate and the guarantee of all parts, materials and workmanship, but exclude the cost of spares unless the latter is specified.				
17.1	<u>Service and repair of chlorine gas dosing equipment</u>				
17.1.1	Disconnect and inspect the following chlorine gas dosing equipment (with capacity of 250 g/h) on site:				
	a) vacuum regulator	set	1	R	R
	b) dosing unit	set	1	R	R
	c) automatic change-over device	set	1	R	R
	d) Injector	set	1	R	R
17.1.2	Remove equipment on site	set	1	R	R
17.1.3	Dismantle in workshop and inspect:				
	a) vacuum regulator	set	1	R	R
	b) dosing unit	set	1	R	R
	c) automatic change-over device	set	1	R	R
	d) Injector	set	1	R	R
17.1.4	Supply and install the following new spare parts for the vacuum regulator and dosing unit:				
	a) contact manometer	no	1	R	R
	b) cylinder connection valve	no	1	R	R
	c) pressure spring	no	1	R	R
	d) diaphragm disc and ring	no	1	R	R
	e) O-ring	set	1	R	R
	f) Gaskets	set	1	R	R
	g) valve seat	no	1	R	R
17.1.5	Supply and install the following new spare parts for the injector:				
	a) Diffuser	no	1	R	R
	b) O-ring	set	1	R	R
	c) screw-in connection	no	1	R	R
	d) Diaphragm	no	1	R	R
	e) diaphragm disc and ring	set	1	R	R
	f) pressure spring	no	1	R	R
	g) Piston	no	1	R	R
17.1.6	Return the chlorination equipment to site and re-install the following:				
	a) vacuum regulator	set	1	R	R

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	b) dosing unit	set	1	R	R
	c) automatic change-over device	set	1	R	R
	d) Injector	set	1	R	R
17.1.7	Commission and test:				
	a) vacuum regulator	set	1	R	R
	b) dosing unit	set	1	R	R
	c) automatic change-over device	set	1	R	R
	d) Injector	set	1	R	R
17.2	Supply, install and commission one completely new chlorine gas dosing unit (with capacity of 250 g/h) Model: Manufacturer:	no	1	R	R
17.3	Mark-up rates				
17.3.1	Percentage mark-up on rates listed on term contracts	%	R		% R
17.3.2	Percentage mark-up on items (with attached invoices) approved by the Employer or his representative for materials, (other than those set out in this list) used in execution of work ordered by the Employer	%	R		% R
17.4	Tip trucks				
	(a) 6 m ³	h	1	R	R
	(b) 10 m ³	h	1	R	R
	Flat bed trucks				
	(a) 5t	km	1	R	R
	(b) 7t	km	1	R	R
	LDV				
	(a) 2 x 4WD	km	1	R	R
	(b) 4 x 4WD	km	1	R	R
	SUBTOTAL			R	R
	TOTAL SCHEDULE 15 CARRIED FORWARD TO SUMMARY			R	

SCHEDULE 16 : DAYWORKS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
18.1	DAYWORKS LABOUR				
	(a) Contractor's Representative	h	1	R	R
	(b) Surveyor	h	1	-	R
	(c) Qualified Artisan				
	(i) Plumber	h	1	R	R
	(ii) Boilermaker	h	1	R	R
	(iii) Bricklayer	h	1	R	R
	(iv) Plasterer	h	1	R	R
	(v) Welder with API 1104 Certificate	h	1	R	R
	(vi) Electrician	h	1	R	R
	(d) Foreman, leader-hand	h	1	R	R
	(e) Semi-skilled labourer	h	1	R	R
	(f) Labourer	h	1	R	R
	(g) Other				
	(i)	h	1	R	Rate only
	(ii)	h	1	R	Rate only
	(iii)	h	1	R	Rate only
	(iv)	h	1	R	Rate only
18.2	PLANTHIRE: WORK RATES ON SITE				
18.2.1	Crane 65 t - 80 t capacity	h	1	R	R
18.2.2	TLB 60 kW - 70 Kw	h	1	R	R
18.2.3	Crawler Excavator 140 kW - 150 Kw	h	1	R	R
18.2.4	Bulldozer 160 kW - 170 Kw	h	1	R	R
18.2.5	Wheel loader 140 kW - 150 Kw	h	1	R	R
18.2.6	Motor graders 150 kW - 160 kW	h	1	R	R
18.2.7	Wheel excavators 0,4 - 1,25 m ³ bucket size	h	1	R	R
18.2.8	Wheel tractor scrapers 15,0 - 16 m ³	h	1	R	R
18.2.9	Tow tractors 200 kW - 250 kW	h	1	R	R
18.2.10	(a) Water tankers 5 000 litre	h	1	R	R
	(b) Water tankers 10 000 litre	h	1	R	R
18.2.11	Dump trucks 10 - 15 m ³	h	1	R	R
18.2.12	Tip trucks				
	(a) 6 m ³	h	1	R	R
	(b) 10 m ³	h	1	R	R
18.2.13	Flat bed trucks				
	(a) 5t	km	1	R	R
	(b) 7t	km	1	R	R
18.2.14	LDV				
	(a) 2 x 4WD	km	1	R	R

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	(b) 4 x 4WD	km	1	R	R
18.2.15	Lowbed 50 ton	km	1	R	R
18.2.16	Plate compactors & tampers	h	1	R	R
18.2.17	Grid rollers. Ballasted mass 14 600 kg	h	1	R	R
18.2.18	Pneumatic tyred rollers 4 000 load/wheel kg	h	1	R	R
18.2.19	Self propelled vibrating roller (smooth) 7000 – 11 300 kg	h	1	R	R
18.2.20	Self propelled vibrating roller (padfoot) 5 900 – 12 000 kg	h	1	R	R
18.2.21	Walk-behind vibrating rollers				
	(a) 500 - 630 kg	h	1	R	R
	(b) 980 - 1 350 kg	h	1	R	R
18.2.22	Towed vibrating roller	h	1	R	R
18.2.23	Portable compressors - Diesel (9,0 - 10,0 m ³ /min.)	h	1	R	R
18.2.24	Concrete mixer (350 ℓ: diesel driven)	h	1	R	R
18.2.25	Concrete saw (self propelled) 10 - 15 kW	h	1	R	R
18.2.26	Concrete vibrators (35 - 60 mm DN)	h	1	R	R
18.2.27	Dumpers 0,5 m ³ (Hydraulic tip)	h	1	R	R
18.2.28	Water pump with 80 mm DN outlet (diesel driven)	h	1	R	R
18.2.29	Arc-welding unit (300 A)	h	1	R	R
18.2.30	Generating sets				
	(a) 1,5 kVA (petrol) 220V	h	1	R	R
	(b) 5 kVA (petrol) 220V	h	1	R	R
	(c) 30 kVA (diesel) 380V - 3ph	h	1	R	R
	(d) 50 kVA (diesel) 380V - 3ph	h	1	R	R
	(e) 100 kVA (diesel) 380V - 3ph	h	1	R	R
18.3	LABOUR BASED TOOLS				
	(a) Pick	day	1	R	R
	(b) Shovel	day	1	R	R
	(c) Crowbar	day	1	R	R
	(d) Bucket (10 ℓ)	day	1	R	R
	(e) Wheelbarrow	day	1	R	R
18.4	Percentage mark-up on items approved by the client or representative with attached invoices for material used.	%	R	R	R
	SUBTOTAL			R	R
	TOTAL SCHEDULE 16 CARRIED FORWARD TO SUMMARY			R	R

SUMMARY OF SCHEDULES

SCHEDULE 2	:	SMALL AND MEDIUM SIZE ELECTRICAL PANELS	R_____
SCHEDULE 3	:	ELECTRIC MOTORS	R_____
SUBTOTAL		SCHEDULES 2- 3,	R_____
SCHEDULE 4	:	BALL VALVES	R_____
SCHEDULE 5	:	BUTTERFLY VALVES (WAFER TYPE)	R_____
SCHEDULE 6	:	BUTTERFLY VALVES (DOUBLE FLANGED)	R_____
SCHEDULE 7	:	WATERWORKS GATE VALVES	R_____
SCHEDULE 8	:	RESILIENT SEAL GATE VALVES	R_____
SCHEDULE 9	:	WAFER PATTERN CHECK VALVES	R_____
SCHEDULE 10	:	HYDRAULIC FLOW CONTROL VALVES	R_____
SCHEDULE 11	:	SURGE ANTICIPATING CONTROL VALVE	R_____
SCHEDULE 12	:	PUMP (CENTRIFUGAL, AXIAL FLOW, HORIZONTAL SPLITS, DUAL STAGE)	R_____
SCHEDULE 13	:	SCREENS (TRASH RACKS)	R_____
SCHEDULE 14	:	DOSING (CHEMICAL)	R_____
SCHEDULE 15	:	CHLORINATION SYSTEM	R_____
SUBTOTAL SCHEDULES 4-15,			R_____
SUBTOTAL SCHEDULES 2-15 CARRIED FORWARD TO "FORM OF BID"			R_____
SCHEDULE 1	:	GENERAL (COMPULSORY)	R_____
SCHEDULE 16	:	DAYWORKS(COMPULSORY)	R_____
SUBTOTAL SCHEDULES 1, 16			<u>R_____</u>
TOTAL SCHEDULES 1-16			R_____

BOREHOLE EQUIPPING BOQ

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SCHEDULE 15	:	Diesel engines: Lister TR4	2
SUB SCHEDULE 1	:	Palisade Fencing	

SCHEDULE 4: HANDPUMPS

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
4.	Note: Supply & delivery of the equipment required for handpump installation				
4.1	Complete installation and commissioning	m	1	R	R
	(a) Helical Roter Positives Displacement + Vertical Hand Operated Type (various borehole depths).	m	1	R	R
	(b) Positive Displacement Hand operated piston Type (various borehole depths)	m	1	R	R
4.2	(a) Concrete pedestal for Helical positive Displacement vertical hand operated type including holding down bolts complete as per specification.	no	1	R	R
	(b) Concrete pedestal for Positive Displacement hand operated piston type including holding down bolts complete	no	1	R	R
4.3	Removal of existing Handpump	no	1	R	R
4.4	Mark-up rates				
	(a) Percentage mark-up on rates listed on term contracts	%	R	%	R
	(b) Percentage mark-up on items approved by the client or his representative with attached invoices for material used.	%	R	%	R
4.5	Tip trucks				
	(a) 6 m ³	h	1	R	R
	(b) 10 m ³	h	1	R	R
4.6	Flat bed trucks				
	(a) 5t	km	1	R	R
	(b) 7t	km	1	R	R
4.7	LDV				
	(a) 2x4WD	km	1	R	R
	(b) 4x4WD	km	1	R	R
	TOTAL SCHEDULE 4 CARRIED FORWARD TO SUMMARY			R	
Note: BID price must include value added tax.					

SCHEDULE 5: ELEVATED TANKS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
5.1	Sectional Pressed Steel Elevated Tanks				
5.1.1	Earthworks				
	(a) Excavate in all materials for concrete bases	m ³	1	R	R
	(b) Extra-over for items 6.1.1(a) for intermediate material	m ³	1	R	R
	(c) Extra-over for item 6.1.1(a) for hard rock	m ³	1	R	R
5.1.2	Concrete				
	(a) Bedding layer in 10 Mpa/19 mm concrete, 75 mm thick	m ²	1	R	R
	(b) Supply, mix and place Class 25/20 concrete for column bases	m ³	1	R	R
5.1.3	REINFORCEMENT				
5.1.3.1	Mild steel bars				
	(a) Diameter 25 mm: Basic price	kg	1	R	R
	(b) Extra over 6.1.3.1 (a) (Provisional quantities for bars of diameter)				
	(i) 8 mm	kg	1	R	R
	(ii) 10 mm	kg	1	R	R
	(iii) 12 mm	kg	1	R	R
5.1.3.2	High tensile steel bars				
	(a) Diameter 25 mm: Basic price	kg	1	R	R
	(b) Extra over 6.1.3.2 (a) (Provisional quantities for bars of diameter)				
	(i) 10 mm	kg	1	R	R
	(ii) 12 mm	kg	1	R	R
	(iii) 16 mm	kg	1	R	R
5.1.4	Formwork				
5.1.4.1	Rough formwork	m ²	1	R	R
5.1.4.2	Smooth formwork	m ²	1	R	R
5.1.4.3	Chamfer 30 x 30 mm	m	1	R	R
5.1.4.4	Uniformed surface finishes				
	(a) Woodfloated finish	m ²	1	R	R
	(b) Steelfloated finish	m ²	1	R	R
5.1.5	Sectional steel tank				
	Design, supply, fabrication, delivery to site and erection of the following sectional pressed steel tank with cover, access hatches, ventilator and pipework, all as specified in particular specification PE including surface dressing, surface preparation and hot dip galvanising, sterilising and water tightness test in the following sizes:				
	(a) 50 m ³	no	1	R	R
	(b) 100 m ³	no	1	R	R
	(c) 150 m ³	no	1	R	R
	(d) 200 m ³	no	1	R	R
	(e) 250 m ³	no	1	R	R
	(f) 300 m ³	no	1	R	R

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
5.1.6	Design, supply, fabricate, deliver to site and erection of the following structural steel stands for the sizes of pressed steel tanks indicated and heights as specified. Structural steel stands with associated access ladder, surface dressing, surface preparation, shop priming and 2 layers of site painting including holding down bolts: (a) For 50 m ³ tank volume on the following stand heights: (i) 10 m heights (ii) 15 m heights (iii) 20 m heights (b) For 100 m ³ tank volume on the following stand heights: (i) 10 m heights (ii) 15 m heights (iii) 20 m heights (c) For 150 m ³ tank volume on the following stand heights: (i) 10 m heights (ii) 15 m heights (iii) 20 m heights (d) For 200 m ³ tank volume on the following stand heights: (i) 10 m heights (ii) 15 m heights (iii) 20 m heights (e) For 250 m ³ tank volume on the following stand heights: (i) 10 m heights (ii) 15 m heights (iii) 20 m heights (f) For 300 m ³ tank volume on the following stand heights: (i) 10 m heights (ii) 15 m heights (iii) 20 m heights	no no no no no no no no no no no no no no no no no no no no no no no no	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	R R R R R R R R R R R R R R R R R R R R R	R R R R R R R R R R R R R R R R R R
5.2	Interlock paver - Heavy duty (80mm)	no	1	R	R
5.3	Mark-up rates (a) Percentage mark-up on rates listed on term contracts (b) Percentage mark-up on items approved by the client or his representative with attached invoices for material used	% %	R R	% %	R R
5.4	Tip trucks (a) 6 m ³ (b) 10 m ³	h h	1 1	R R	R R
5.5	Flat bed trucks (a) 5t (b) 7t	km km	1 1	R R	R R
5.6	LDV (a) 2x4WD (b) 4x4WD	km km	1 1	R R	R R
TOTAL SCHEDULE 5 CARRIED FORWARD TO SUMMARY				R	

Note: BID price must include value added tax.

SCHEDULE 6: PVC STORAGE TANK INSTALLATIONS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
6.	PVC STORAGE TANK INSTALLATIONS				
6.1	SITE CLEARANCE				
6.1.1	Clear and grub site	m ²	100	R	R
6.1.2	Remove and grub large trees and stumps of girth:				
	(a) Over 1 m and up to and including 2 m	no	1	R	R
	(b) Over 2 m and up to and including 3 m	no	1	R	R
6.1.3	Reclear surfaces (only on instructions from the Engineer)	m ²	1	R	R
6.1.4	Dismantle and remove pipelines with internal diameter up to 150 mm	m	1	R	R
6.1.5	Demolish and remove concrete structures:				
	(a) Unreinforced	m ³	1	R	R
	(b) Reinforced	m ³	1	R	R
6.1.6	Transport materials and debris to unspecified sites and dumps	m ³ /km	1	R	R
6.2	EARTHWORKS (SMALL WORKS)				
6.2.1	Restricted excavation				
	(a) Excavate for restricted foundations, footings, slabs and trenches in all materials and use for backfill or dispose	m ³	1	R	R
	(b) Extra-over item 20.2.1a for:				
	(i) Intermediate excavation	m ³	1	R	R
	(ii) Hard rock excavation	m ³	1	R	R
6.2.2	Overhaul				
	(a) Limited overhaul	m ³	1	R	R
	(b) Long overhaul	m ³ /km	1	R	R
6.2.3	Importing of materials from borrow pits	m ³	1	R	R
6.2.4	Topsoiling	m ²	1	R	R
6.3	CONCRETE (ORDINARY BUILDINGS)				
6.3.1	Formwork				
6.3.1.1	(a) Rough				
	(i) Horizontal	m ²	1	R	R
	(ii) Vertical	m ²	1	R	R
	(b) Normal				
	(i) Horizontal	m ²	1	R	R
	(ii) Vertical	m ²	1	R	R
	(c) Special smooth, rubbed				
	(i) Horizontal	m ²	1	R	R
	(ii) Vertical	m ²	1	R	R
6.3.1.2	Narrow widths				
	(a) Up to 300 mm	m	1	R	R
	(b) Exceeding 300 mm up to and including 600 mm	m	1	R	R
6.3.2	Reinforcement				

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	(a) Mild steel bars	t	1		
	(b) High tensile steel bars	t	1		
	(c) Welded mesh				
	(i) ref. 193	m ²	1	R	R
	(ii) ref. 245	m ²	1	R	R
	(iii) ref. 395	m ²	1	R	R
6.3.3	Concrete				
6.3.3.1	Prescribed mix 1:3:6 (38)	m ³	1	R	R
6.3.3.2	Strength mix (general works)				
	(a) Class 15/19	m ³	1	R	R
	(b) Class 20/19	m ³	1	R	R
	(c) Class 25/19	m ³	1	R	R
	(d) Class 30/19	m ³	1	R	R
6.3.3.3	Strength mix Class 25/19, including formwork, floated surface finish and mesh reinforcement and mild steel anchors in 150 mm thick concrete slab for:				
	(a) One tank (2900 x 3000)	no	1	R	R
	(b) two tank (2900 x 5500)	no	1	R	R
	(c) three tank (2900 x 8000)	no	1	R	R
	(d) four tank (2900 x 10500)	no	1	R	R
6.3.3.4	Blinding layer in class 15/19 concrete and 50 mm thick	m ²	1	R	R
6.3.3.5	Unformed concrete surface finishes				
	(a) Wood-floated finish	m ²	1	R	R
	(b) Steel-floated finish	m ²	1	R	R
6.3.3.5	Brickwork (stretcherbond) Foundation walling with clay bricks type NFX to SABS 227-1986 in:				
	(a) 230 mm walls	m ²	1	R	R
	(b) 345 mm walls	m ²	1	R	R
6.3.6	Extra-over item 20.3.5 for building in of miscellaneous walling materials:				
6.3.6.1	Brickforce in the following widths:				
	(a) 150 mm	m	1	R	R
	(b) 225 mm	m	1	R	R
6.4	Water tank (ground level installation) 10 000 ℓ polyethylene water tank (2980 mm high x 2 200 mm diameter) detailed supplied, installed and anchored	no	1	R	R
6.5	PIPES AND FITTINGS (ground level installation) Supply, install and test the pipework and fittings installation arrangements:				
	(a) One tank	set	1	R	R
	(b) Two tank	set	1	R	R
	(c) Three tank	set	1	R	R
	(d) Four tank	set	1	R	R
6.5	WATER TANK (elevated installation) 10 000 ℓ polyethylene water tank (2980 mm high x 2200 mm diameter), supplied, erected and anchored.	no	1	R	R
6.6	STEEL TANK STAND Supply and erect elevated tank stand in accordance with plan nos.:				
	(a) Painted	set	1	R	R

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	(b) Hot dip galvanised	set	1	R	R
6.7	PIPES AND FITTINGS (elevated tank installation)				
6.7.1	Supply, install and test the pipework and fittings for the single tank installation	set	1	R	R
6.7.2	Supply, install and test the pipework and fittings for the multiple tank installation:				
	(a) Two tank arrangement	set	1	R	R
	(b) Three tank arrangement	set	1	R	R
6.8	MARK-UP RATES				
6.8.1	(a) Percentage mark-up on rates listed on term contracts	%	R	%	R
6.8.2	(b) Percentage mark-up on items approved by the client or his representative with attached invoices for material used.	%	R	%	R
6.9	Tip trucks				
	(a) 6 m ³	h	1	R	R
	(b) 10 m ³	h	1	R	R
6.10	Flat bed trucks				
	(a) 5t	km	1	R	R
	(b) 7t	km	1	R	R
6.11	LDV				
	(a) 2x4WD	km	1	R	R
	(b) 4x4WD	km	1	R	R
TOTAL SCHEDULE 7 CARRIED FORWARD TO SUMMARY				R	
Note: BID price must include value added tax.					

SCHEDULE 7: POSITIVE DISPLACEMENT BOREHOLE PUMPS, COLUMN AND ANCILLIARY PIPEWORK INSTALLATION

Note: Supply and delivery of components required for borehole installations:

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
7.1	Remove existing pump and pipe work				
7.1.1	Removal of columns diameter, 25 mm - 100 mm up to 120 m	m	1	R	R
7.2	Installation of existing pump and pipework (excl. probe pipe) including the supply and applying of the STAG compound.				
7.2.1	Installation of columns diameter, 25 mm to 100 mm up to 120 m	m	1	R	R
7.3	Probe pipes				
7.3.1	Supply 25 mm class 10 HDPF pipe	m	1	R	R
7.3.2	Rate charged per meter for installation of 25 mm, class 10 HDPF	m	1	R	R
7.3.3	Rate charged per meter for installation of two 25 mm pipes with heavy duty cable ties 7,5 mm (both)	m	1	R	R
7.4	Supply and installation of ancillary pipework including non-return valve, flanged water meter, gate valves, pressure gauge and pipework.				
7.4.1	Complete 50 mm diameter installation	Set	1	R	R
7.4.2	Complete 65 mm diameter installation	Set	1	R	R
7.4.3	Complete 80 mm diameter installation	Set	1	R	R
7.4.4	Complete 100 mm diameter installation	Set	1	R	R
7.5	Name plates: Supply and installation of name plates according to SABS	No.	1	R	R
7.6	MARK-UP RATES				
7.6.1	Percentage mark-up on rates listed on term contracts	%	R	%	
7.6.2	Percentage mark-up on items approved by the client or his representative with attached invoices for material used.	%	R	%	
7.7	Tip trucks (a) 6 m ³ (b) 10 m ³	h h	1 1	R R	R R
7.8	Flat bed trucks (a) 5t (b) 7t	km km	1 1	R R	R R
7.9	LDV (a) 2x4WD (b) 4x4WD	km km	1 1	R R	R R
Total Schedule 7 carried forward to Summary				R	
Note: BID price must include value added tax.					

SCHEDULE 8: PUMPHOUSE INSTALLATION FOR BOREHOLES

Note: Supply and delivery of components required for borehole installations: Term contract rates are applicable.

ITEM NO	DESCRIPTION	UNIT	QUANT.	RATE	AMOUNT
8.	PUMPHOUSE INSTALALTION FOR BOREHOLES				
8.1	SITE CLEARANCE				
8.1.1	Clear and grub site	m ²	1	R	R
8.1.2	Remove and grub large trees and stumps of girth:				
	(a) Over 1 m and up to and including 2 m	no	1	R	R
	(b) Over 2 m and up to and including 3 m	no	1	R	R
8.1.3	Reclear surfaces (only on instructions from the Engineer)	m ²	1	R	R
8.1.4	Take down existing fences				
	(a) Stockproof fence	m	1	R	R
	(b) Security fence	m	1	R	R
8.1.5	Dismantle and remove pipelines with internal diameter up to 150 mm	m	1	R	R
8.1.6	Demolish and remove concrete structures:				
	(a) Unreinforced	m ³	1	R	R
	(b) Reinforced	m ³	1	R	R
8.1.7	Transport materials and debris to unspecified sites and dump	m ³ /km	1	R	R
8.2	EARTHWORKS (SMALL WORKS)				
8.2.1	Restricted excavation				
	(a) Excavate for restricted foundations, footings and trenches in all materials and use for backfill or dispose.	m ³	1	R	R
	(b) Extra-over item 18.2.1a for:				
	(i) intermediate excavation	m ³	1	R	R
	(ii) hard rock excavation	m ³	1	R	R
8.2.2	Overhaul				
	(a) Limited overhaul	m ³ /km	1	R	R
	(b) Long overhaul	m ³ /km	1	R	R
8.2.3	Importing of materials from borrow pits	m ³	1	R	R
8.2.4	Topsoiling	m ²	1	R	R
8.3	CONCRETE (ORDINARY BUILDINGS)				
8.3.1	Formwork				
8.3.1.1	(a) Rough				
	(i) Horizontal	m ²	1	R	R
	(ii) Vertical	m ²	1	R	R
	(b) Normal				
	(i) Horizontal	m ²	1	R	R
	(ii) Vertical	m ²	1	R	R
	(c) Special smooth, rubbed				
	(i) Horizontal	m ²	1	R	R
	(ii) Vertical	m ²	1	R	R
8.3.1.2	Narrow widths				
	(a) Up to 300 mm	m	1	R	R
	(b) Exceeding 300 mm up to and including 600 mm	m	1	R	R
8.3.2	Reinforcement				
	(a) Mild steel bars	t	1	R	R

ITEM NO	DESCRIPTION	UNIT	QUANT.	RATE	AMOUNT
	(b) High tensile steel bars	t	1	R	R
	(c) Welded mesh				
	(i) ref. 193	m ²	1	R	R
	(ii) ref. 245	m ²	1	R	R
	(iii) ref. 395	m ²	1	R	R
8.3.3	Concrete				
8.3.3.1	Prescribed mix 1:3:6 (38)	m ³	1	R	R
8.3.3.2	Strength mix (general works)				
	(a) Class 15/19	m ³	1	R	R
	(b) Class 20/19	m ³	1	R	R
	(c) Class 25/19	m ³	1	R	R
	(d) Class 30/19	m ³	1	R	R
8.3.3.3	Strength mix Class 25/19 to pumphouse floor, pump and engine foundations,				
	(a) Concrete floor 3000 x 3000 x 150 mm	no	1	R	R
	(b) Diesel engine foundation block (including formwork and anchor bolts)				
	(i) Size 2300 x 800 x 600 mm	no	1	R	R
	(ii) (Up to 5 kW max.)	no	1	R	R
	(iii) (From 6 kW to 25 kW)	no	1	R	R
	(c) Electric motor foundation block (including formwork and anchor bolts)				
	(i) Size 600 x 600 x 600 mm (up to 7 kW max.) (anchor bolts dia. M12 x 200 mm long)	no	1	R	R
	(ii) Size 800 x 800 x 600 mm (from 8 kW to 22 kW (5 anchor bolts dia M16 x 215 mm long)	no	1	R	R
8.3.3.4	Blinding layer in class 15/19 concrete and 50 mm thick	m ²	1	R	R
8.3.3.5	Unformed concrete surface finishes				
	(a) Wood-floated finish	m ²	1	R	R
	(b) Steel-floated finish	m ²	1	R	R
	(c) Power-floated finish	m ²	1	R	R
8.3.3.6	Concrete collar				
	(i) 150mm above floor	sum	1	R	R
8.4	BRICKWORK (strecherbond)				
8.4.1	Foundation walling with clay bricks type NFX to SABS 227-1986 in:				
	(a) 230 mm walls	m ²	1	R	R
	(b) 345 mm walls	m ²	1	R	R
8.4.2	Walling with clay stock bricks type NFP to SABS 227-1986 in:				
	(a) 115 mm walls	m ²	1	R	R
	(b) 230 mm walls	m ²	1	R	R
	(c) 345 mm walls	m ²	1	R	R
8.4.3	Walling with clay face bricks to SABS 227-1986 in:				
	(a) Type FBA				
	(i) 115 mm walls	m ²	1	R	R
	(ii) 230 mm walls	m ²	1	R	R
	(b) Type FBX				
	(i) 115 mm walls	m ²	1	R	R
	(ii) 230 mm walls	m ²	1	R	R
	(c) Type FBS				
	(i) 115 mm walls	m ²	1	R	R
	(ii) 230 mm walls	m ²	1	R	R
8.4.4	Extra-over items 18.4.1, 18.4.2 and 18.4.3 for building in of miscellaneous walling materials				
8.4.41	Brickforce in the following widths				
	(a) 75 mm	m	1	R	R
	(b) 150 mm	m	1	R	R

ITEM NO	DESCRIPTION	UNIT	QUANT.	RATE	AMOUNT
	(c) 225 mm	m	1	R	R
8.4.4.2	Wire ties				
	(a) Butterfly type wire tie	no	1	R	R
	(b) Modified PWD type wire tie	no	1	R	R
8.4.4.3	Mild steel (non-coiled) round bars				
	(a) 6 mm dia	m	1	R	R
	(b) 8 mm dia	m	1	R	R
8.4.4.4	Precast concrete lintels				
	(a) 110 mm wide	m	1	R	R
	(b) 225 x 50 mm cross section	m	1	R	R
	(c) 225 x 75 mm cross section	m	1	R	R
8.4.4.5	Damp proof sheeting to SABS 952-1985				
	(a) 375 micron polyolefin water proof sheeting under floor slabs and other positions instructed by the Engineer	m ²	1	R	R
	(b) 375 micron polyolefin water proof sheeting in walls and window cills:				
	(i) 110 mm wide	m	1	R	R
	(ii) 225 mm wide	m	1	R	R
	(iii) 375 mm wide	m	1	R	R
8.4.4.6	Soft board				
	(a) Plain				
	(i) 10 mm thick	m ²	1	R	R
	(ii) 13 mm thick	m ²	1	R	R
	(b) Bitumen impregnated				
	(i) 10 mm thick	m ²	1	R	R
8.4.4.7	Galvanised hoop iron	m	1	R	R
8.4.4.8	Galvanised wire				
	(a) 4 mm dia in 50 kg rolls	no	1	R	R
	(b) 3,15 mm dia in 50 kg rolls	no	1	R	R
8.4.4.9	Galvanised heavy duty door				
	(i) 120mm X 210mm				
8.4.4.10	Galvanised Louvers				
8.4.5	Extra-over items 18.4.1, 18.4.2 and 18.4.3 for forming of wall joints				
	(a) 10 mm square raked joint, measured per square metre of walling	m ²	1	R	R
	(b) 10 mm square raked and tooled joint, measured per square metre of walling	m ²	1	R	R
8.5	MODULAR PUMPHOUSE				
8.5.1	Remove old pumphouse and store temporarily for re-installation	no	1	R	R
8.5.2	Install removal pump house	no	1	R	R
8.5.3	Supply and install complete new modular pumphouse	no	1	R	R
8.5.4	Supply 50 mm padlock wit set of 3 keys	set	1	R	R
8.5.5	Supply and install precision made frame for pump and engine complete with a anchor bolt (500 mm long with 100 mm hook, diameter M20)				
	(a) Small diesel engine - frame size 500 x 2100 x 350 mm	set	1	R	R

ITEM NO	DESCRIPTION	UNIT	QUANT.	RATE	AMOUNT
	(b) Medium engines - frame size 600 x 2100 x 350 mm	set	1	R	R
	(c) Large engines - frame size 1000 x 2100 x 650 mm	set	1	R	R
8.6	TAPSTANDS				
	(a) Stand pipes - single type	no	1	R	R
	(b) Stand pipes - double type	no	1	R	R
8.7	NAME PLATES				
	Supply and installation of name plates	set	1	R	R
8.8	(a) Percentage mark-up on rates listed on term contracts	%	R	%	R
	(b) Percentage mark-up on items approved by the client or his representative with attached invoices for material used	%	R	%	R
8.9	Tip trucks				
	(a) 6 m ³	h	1	R	R
	(b) 10 m ³	h	1	R	R
8.10	Flat bed trucks				
	(a) 5t	km	1	R	R
	(b) 7t	km	1	R	R
8.11	LDV				
	(a) 2x4WD	km	1	R	R
	(b) 4x4WD	km	1	R	R
	TOTAL SCHEDULE 8 CARRIED TO SUMMARY				R
Note: BID price must include value added tax.					

SCHEDULE 9: SUBMERSIBLE PUMPS

ITEM NO	DESCRIPTION	UNIT	QUANT.	RATE	AMOUNT
9.	SUBMERSIBLE PUMPS				
9.1	Supply and delivery of stainless steel centrifugal submersible borehole pumps and motors complete for the following duty points: Manufacturer: _____				
9.1.1	(a) Head = 70 m Flow = 0,2-1 m ³ /h for 30 m pump installation (Model: _____)	no	1	R	R
	(b) Head = 70 m Flow = 0,2-1 m ³ /h for 50 m pump installation (Model: _____)	no	1	R	R
9.1.2	(a) Head = 110 m Flow = 0,2-1,3 m ³ /h for 30 m pump installation (Model: _____)	no	1	R	R
	(b) Head = 110 m Flow = 0,2-1,3 m ³ /h for 50 m pump installation (Model: _____)	no	1	R	R
	(c) Head = 110 m Flow = 0,2-1,3 m ³ /h for 80 m pump installation (Model: _____)	no	1	R	R
9.1.3	(a) Head = 60 m Flow = 1-2,2 m ³ /h for 30 m pump installation (Model: _____)	no	1	R	R
	(b) Head = 60 m Flow = 1-2,2 m ³ /h for 50 m pump installation (Model: _____)	no	1	R	R

ITEM NO	DESCRIPTION	UNIT	QUANT.	RATE	AMOUNT
9.1.4	(a) Head = 110 m Flow = 1-2,2 m ³ /h for 30 m pump installation (Model: _____)	no	1	R	R
	(b) Head = 110 m Flow = 1-2,2 m ³ /h for 50 m pump installation (Model: _____)	no	1	R	R
	(c) Head = 110 m Flow = 1-2,2 m ³ /h for 80 m pump installation (Model: _____)	no	1	R	R
9.1.5	(a) Head = 50 m Flow = 1,6-3,6 m ³ /h for 30 m pump installation (Model: _____)	no	1	R	R
9.1.6	(a) Head = 80 m Flow = 1,6-3,6 m ³ /h for 30 m pump installation (Model: _____)	no	1	R	R
	(b) Head = 80 m Flow = 1,6-3,6 m ³ /h for 50 m pump installation (Model: _____)	no	1	R	R
9.1.7	(a) Head = 110 m Flow = 1,6-3,6 m ³ /h for 30 m pump installation (Model: _____)	no	1	R	R
	(b) Head = 110 m Flow = 1,6-3,6 m ³ /h for 50 m pump installation (Model: _____)	no	1	R	R
	(c) Head = 110 m Flow = 1,0-3,6 m ³ /h for 80 m pump installation (Model: _____)	no	1	R	R
9.1.8	(a) Head = 60 m Flow = 2,5-6 m ³ /h for 30 m pump installation (Model: _____)	no	1	R	R
	(b) Head = 60 m Flow = 2,5-6 m ³ /h for 50 m pump installation (Model: _____)	no	1	R	R
9.1.9	(a) Head = 90 m Flow = 2,5-6 m ³ /h for 30 m pump installation (Model: _____)	no	1	R	R
	(b) Head = 90 m Flow = 2,5-6 m ³ /h for 50 m pump installation (Model: _____)	no	1	R	R
	(c) Head = 90 m Flow = 2,5-6 m ³ /h for 80 m pump installation (Model: _____)	no	1	R	R
9.1.10	(a) Head = 60 m Flow = 5-10 m ³ /h for 30 m pump installation (Model: _____)	no	1	R	R
	(b) Head = 60 m Flow = 5-10 m ³ /h for 50 m pump installation (Model: _____)	no	1	R	R
9.1.11	(a) Head = 90 m Flow = 5-10 m ³ /h for 30 m pump installation (Model: _____)	no	1	R	R
	(b) Head = 90 m Flow = 5-10 m ³ /h for 50 m pump installation (Model: _____)	no	1	R	R
	(c) Head = 90 m Flow = 5-10 m ³ /h for 80 m pump installation (Model: _____)	no	1	R	R
9.2	Supply, delivery and installation of stainless steel centrifugal submersible borehole pumps and motors complete for the following duty points: Manufacturer: _____			R	R
9.2.1	(a) Head = 70 m Flow = 0,2-1 m ³ /h for 30 m pump installation (Model: _____)	no	1	R	R
	(b) Head = 70 m Flow = 0,2-1 m ³ /h for 50 m pump installation (Model: _____)	no	1	R	R

ITEM NO	DESCRIPTION	UNIT	QUANT.	RATE	AMOUNT
9.2.2	(a) Head = 110 m Flow = 0,2-1,3 m ³ /h for 30 m pump installation (Model: _____)	no	1	R	R
	(b) Head = 110 m Flow = 0,2-1,3 m ³ /h for 50 m pump installation (Model: _____)	no	1	R	R
	(c) Head = 110 m Flow = 0,2-1,3 m ³ /h for 80 m pump installation (Model: _____)	no	1	R	R
9.2.3	(a) Head = 60 m Flow = 1-2,2 m ³ /h for 30 m pump installation (Model: _____)	no	1	R	R
	(b) Head = 60 m Flow = 1-2,2 m ³ /h for 50 m pump installation (Model: _____)	no	1	R	R
9.2.4	(a) Head = 110 m Flow = 1-2,2 m ³ /h for 30 m pump installation (Model: _____)	no	1	R	R
	(b) Head = 110 m Flow = 1-2,2 m ³ /h for 50 m pump installation (Model: _____)	no	1	R	R
	(c) Head = 110 m Flow = 1-2,2 m ³ /h for 80 m pump installation (Model: _____)	no	1	R	R
9.2.5	(a) Head = 50 m Flow = 1,6-3,6 m ³ /h for 30 m pump installation (Model: _____)	no	1	R	R
9.2.6	(a) Head = 80 m Flow = 1,6-3,6 m ³ /h for 30 m pump installation (Model: _____)	no	1	R	R
	(b) Head = 80 m Flow = 1,6-3,6 m ³ /h for 50 m pump installation (Model: _____)	no	1	R	R
9.2.7	(a) Head = 110 m Flow = 1,6-3,6 m ³ /h for 30 m pump installation (Model: _____)	no	1	R	R
	(b) Head = 110 m Flow = 1,6-3,6 m ³ /h for 50 m pump installation (Model: _____)	no	1	R	R
	(c) Head = 110 m Flow = 1,0-3,6 m ³ /h for 80 m pump installation (Model: _____)	no	1	R	R
9.2.8	(a) Head = 60 m Flow = 2,5-6 m ³ /h for 30 m pump installation (Model: _____)	no	1	R	R
	(b) Head = 60 m Flow = 2,5-6 m ³ /h for 50 m pump installation (Model: _____)	no	1	R	R
9.2.9	(a) Head = 90 m Flow = 2,5-6 m ³ /h for 30 m pump installation (Model: _____)	no	1	R	R
	(b) Head = 90 m Flow = 2,5-6 m ³ /h for 50 m pump installation (Model: _____)	no	1	R	R
	(c) Head = 90 m Flow = 2,5-6 m ³ /h for 80 m pump installation (Model: _____)	no	1	R	R
9.2.10	(a) Head = 60 m Flow = 5-10 m ³ /h for 30 m pump installation (Model: _____)	no	1	R	R
	(b) Head = 60 m Flow = 5-10 m ³ /h for 50 m pump installation (Model: _____)	no	1	R	R
9.2.11	(a) Head = 90 m Flow = 5-10 m ³ /h for 30 m pump installation (Model: _____)	no	1	R	R
	(b) Head = 90 m Flow = 5-10 m ³ /h for 50 m pump installation	no	1	R	R

ITEM NO	DESCRIPTION	UNIT	QUANT.	RATE	AMOUNT
	(Model: _____) (c) Head = 90 m Flow = 5-10 m ³ /h for 80 m pump installation (Model: _____)	no	1	R	R
9.3	(a) Percentage mark-up on rates listed on term contracts	%	R	%	R
	(b) Percentage mark-up on items approved by the client or his representative with attached invoices for material used for heads greater than 110m and depth greater than 80m	%	R	%	R
9.4	Tip trucks				
	(a) 6 m ³	h	1	R	R
	(b) 10 m ³	h	1	R	R
9.5	Flat bed trucks				
	(a) 5t	km	1	R	R
	(b) 7t	km	1	R	R
9.6	LDV				
	(a) 2x4WD	km	1	R	R
	(b) 4x4WD	km	1	R	R
SUBTOTAL SCHEDULE 9 CARRIED FORWARD				R	
Note: BID price must include value added tax.					

SCHEDULE 10 : ELECTRIC MOTORS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
10.1	Megger testing of electric motors between phases and between phase and frame (earth) & report findings to Department (per motor)	no	1	R	R
10.2	Disconnection and removal of electric motors and placing in store of Department or delivery to position required by Department for:				
10.2.1	Motors of 1.1 and 2.4 kW (per motor)	no	1	R	R
10.2.2	Motors of 3 and 4 kW (per motor)	no	1	R	R
10.2.3	Motors of 5,5 and 7,5 kW (per motor)	no	1	R	R
10.2.4	Motors of 11 and 15 kW (per motor)	no	1	R	R
10.2.5	Motors of 18,5 and 22 kW (per motor)	no	1	R	R
10.2.6	Motors of 30kW (per motor)	no	1	R	R
10.3	Installation and connection of existing motors for pumps, including shaft alignment of motor for V-belts or pump coupling for:				
10.3.1	Motors of 1.1 and 2.4 kW TEFC, foot mounted				
10.3.2	Motors of 3 and 4 kW TEFC, foot mounted				
10.3.3	Motors of 5,5 and 7,5 kW TEFC, foot mounted	no	1	R	R
10.3.4	Motors of 11 and 15 kW TEFC, foot mounted	no	1	R	R
10.3.5	Motors of 18,5 and 22 kW TEFC, foot mounted	no	1	R	R
10.3.6	Motors of 5,5 and 7,5 kW TEFC, flange mounted	no	1	R	R
10.3.7	Motors of 11 and 15 kW TEFC, flange mounted	no	1	R	R
10.3.8	Motors of 18,5 and 22 kW TEFC, flange mounted	no	1	R	R
10.3.9	Motors of 30kW TEFC, flange mounted	no	1	R	R
10.4	Supply, installation and connection of new motors for pumps, including shaft alignment of motor for V-belts or pump coupling for:				
10.4.1	1.1 kW, 380/220 V, TEFC, foot mounted				
10.4.2	2.4 kW, 380/220 V, TEFC, foot mounted				
10.4.3	3 kW, 380/220 V, TEFC, foot mounted				
10.4.4	4 kW, 380/220 V, TEFC, foot mounted				
10.4.5	5,5 kW, 380/220 V, TEFC, foot mounted	no	1	R	R
10.4.6	7,5 kW, 380/220 V, TEFC, foot mounted	no	1	R	R
10.4.7	11 kW, 380/220 V, TEFC, foot mounted	no	1	R	R
10.4.8	15 kW, 380/220 V, TEFC, foot mounted	no	1	R	R
10.4.9	18,5 kW, 380/220 V, TEFC, foot mounted	no	1	R	R
10.4.10	22 kW, 380/220 V, TEFC, foot mounted	no	1	R	R

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
10.4.11	30 kW, 380/220 V, TEFC, foot mounted	no	1	R	R
10.4.12	1.1 kW, 380/220 V, TEFC, flange mounted	no	1	R	R
10.4.13	2.4 kW, 380/220 V, TEFC, flange mounted	no	1	R	R
10.4.14	3 kW, 380/220 V, TEFC, flange mounted	no	1	R	R
10.4.15	4 kW, 380/220 V, TEFC, flange mounted	no	1	R	R
10.4.16	5,5 kW, 380/220 V, TEFC, flange mounted	no	1	R	R
10.4.17	7,5 kW, 380/220 V, TEFC, flange mounted	no	1	R	R
10.4.18	11 kW, 380/220 V, TEFC, flange mounted	no	1	R	R
10.4.19	15 kW, 380/220 V, TEFC, flange mounted	no	1	R	R
10.4.20	18,5 kW, 380/220 V, TEFC, flange mounted	no	1	R	R
10.4.21	22 kW, 380/220 V, TEFC, flange mounted	no	1	R	R
10.4.22	30 kW, 380/220 V, TEFC, flange mounted	no	1	R	R
10.5	Disconnection, removal and transport to re-winders, rewinding of existing motors, replacement of bearings, testing of motor in factory, installation of motor on site, connection of motor, alignment of motor shaft for V-belts or pump coupling, testing of motor on site and commissioning for:				
10.5.1	1.1 kW, 380/220 V, TEFC, foot mounted	no	1	R	R
10.5.2	2.4 kW, 380/220 V, TEFC, foot mounted	no	1	R	R
10.5.3	3 kW, 380/220 V, TEFC, foot mounted	no	1	R	R
10.5.4	4 kW, 380/220 V, TEFC, foot mounted	no	1	R	R
10.5.5	5,5 kW, 380/220 V, TEFC, foot mounted	no	1	R	R
10.5.6	7,5 kW, 380/220 V, TEFC, foot mounted	no	1	R	R
10.5.7	11 kW, 380/220 V, TEFC, foot mounted	no	1	R	R
10.5.8	15 kW, 380/220 V, TEFC, foot mounted	no	1	R	R
10.5.9	18,5 kW, 380/220 V, TEFC, foot mounted	no	1	R	R
10.5.10	22 kW, 380/220 V, TEFC, foot mounted	no	1	R	R
10.5.11	5,5 kW, 380/220 V, TEFC, flange mounted	no	1	R	R
10.5.12	7,5 kW, 380/220 V, TEFC, flange mounted	no	1	R	R
10.5.13	11 kW, 380/220 V, TEFC, flange mounted	no	1	R	R
10.5.14	15 kW, 380/220 V, TEFC, flange mounted	no	1	R	R
10.5.15	18,5 kW, 380/220 V, TEFC, flange mounted	no	1	R	R
10.5.16	22 kW, 380/220 V, TEFC, flange mounted	no	1	R	R
10.5.17	30 kW, 380/220 V, TEFC, flange mounted	no	1	R	R
10.6	General Callout Rates				

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
10.6.1	(a) Normal hours	hour	1	R	R
10.6.2	(b) After hours	hour	1	R	R
10.7	Make-up rates				
10.7.1	(a) Percentage mark-up on rates listed on term contracts	%	R		%
10.7.2	(b) Percentage mark-up on items (with attached invoices) approved by the Employer or his representative for materials, (other than those set out in this list) used in the execution of work ordered by the Employer	%	R		% R
10.8	Tip trucks				
	(a) 6 m ³	h	1	R	R
	(b) 10 m ³	h	1	R	R
10.9	Flat bed trucks				
	(a) 5t	km	1	R	R
	(b) 7t	km	1	R	R
10.10	LDV				
PSA15	(a) 2x4WD	km	1	R	R
	(b) 4x4WD	km	1	R	R
TOTAL SCHEDULE 11 CARRIED FORWARD TO SUMMARY					R
Note: BID price must include value added tax.					

SCHEDULE 11 : SMALL ELECTRICAL PANELS

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
11.1	<u>Testing of earthing installation for the electrical panel</u>				
11.1.1	Test earthing of distribution panel back to main earth point (per panel)	no	1	R	R
11.1.2	Testing of earth connections at light fittings, power point, motors and instrumentation (per circuit)	no	1	R	R
11.2	<u>Supply and installation of earthing materials to obtain proper earthing of installation from panel. Installation in conduit, wiring trunking, building trench or ground: (Excavations measured separately)</u>				
11.2.1	2,5 mm ² bare copper or insulated earth wire	m	1	R	R
11.2.2	4 mm ² bare copper or insulated earth wire	m	1	R	R
11.2.3	6 mm ² bare copper or insulated earth wire	m	1	R	R
11.2.4	10 mm ² bare copper or insulated earth wire	m	1	R	R
11.2.5	16 mm ² bare copper or insulated earth wire	m	1	R	R
11.2.6	25 mm ² bare copper or insulated earth wire	m	1	R	R
11.2.7	2,5 mm ² earth wire end, lugged and connected	no	1	R	R
11.2.8	4 mm ² earth wire end, lugged and connected	no	1	R	R
11.2.9	6 mm ² earth wire end, lugged and connected	no	1	R	R
11.2.10	10 mm ² earth wire end, lugged and connected	no	1	R	R
11.2.11	16 mm ² earth wire end, lugged and connected	no	1	R	R
11.2.12	25 mm ² earth wire end, lugged and connected	no	1	R	R
11.2.13	1,8 m copper clad steel core earth rod installed in ground, complete with clamp and connections (per earth assembly)	no	1	R	R
11.2.14	5 x 25 m copper earth strap installed on surface of structure or cable ladders, including fixings	m	1	R	R
11.3	<u>Supply and installation of 600/1 000 V, grade PVC PVC SWA PVC cable in trench or in ground.</u> Fixings or excavations as well as cable ends are measured elsewhere				
11.3.1	1,5 mm ² 3 or 4 core armoured	m	1	R	R
	2,5 mm ² 3 or 4 core armoured	m	1	R	R
	4 mm ² 4 core armoured	m	1	R	R
	6 mm ² 3 core armoured	m	1	R	R
	10 mm ² 4 core armoured	m	1	R	R
	16 mm ² 4 core armoured	m	1	R	R
	25 mm ² 3 core armoured	m	1	R	R

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	35 mm ² 4 core armoured	m	1	R	R
11.4	<u>Supply and installation of 600/1 000 V, grade PVC PVC SWA PVC cable ends complete with lugs, connections to motor terminals, stub bars, small terminals, etc. (include for labels and testing)</u>				
11.4.1	1,5 mm ² 3 or 4 - core armoured	m	1	R	R
11.4.2	2,5 mm ² 3 or 4 - core armoured	m	1	R	R
11.4.3	1,5 mm ² 7 - core armoured	m	1	R	R
11.4.4	4 mm ² 4 - core armoured	m	1	R	R
11.4.5	6 mm ² 3 - core armoured	m	1	R	R
11.4.6	10 mm ² 4 - core armoured	m	1	R	R
11.4.7	16 mm ² 4 - core armoured	m	1	R	R
11.4.8	25 mm ² 3 - core armoured	m	1	R	R
11.4.9	35 mm ² 4 - core armoured	m	1	R	R
11.5	<u>Cable Trenches</u> Excavation, laying 150 mm bedding, backfilling in 150 mm layers, and stabilising to original of cable trench (600 mm wide x 1 m deep):				
11.5.1	Hard rock	m ³	1	R	R
11.5.2	Soft rock	m ³	1	R	R
11.5.3	Soil	m ³	1	R	R
11.6	<u>General maintenance of electrical equipment as per Section 3 of the maintenance specification:</u>				
11.6.1	Clean inside and outside of each panel (per panel)	no	1	R	R
11.6.2	Tighten all connections in panel (per panel)	no	1	R	R
11.6.3	Tighten connections in lock stop button box (per box)	no	1	R	R
11.6.4	Tighten connections in remote stop-start station box (per box)	no	1	R	R
11.6.5	Tighten connections in motor connection box, including thermal sensor wiring terminals (per box)	no	1	R	R
11.6.6	Tighten connections at instrument terminals (per instrument)	no	1	R	R
11.6.7	Repair ends of damaged conductors due to overheating at circuit breakers, contactors, overloads or motor terminals, including installation of ferrules, lugs, heatshrink materials or insulated sleeving:				
	(a) Conductor size up to 16 mm ² , per terminal	no	1	R	R
	(b) Conductor sizes from 25 mm ² to 50 mm ² per terminal	no	1	R	R
11.6.8	Testing of single phase or three phase earth leakage unit	no	1	R	R
11.6.9	Testing of under/over-voltage relay or phase monitor relay per unit	no	1	R	R

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
11.6.10	Checking of all voltmeters and voltmeter switches for correct operation (per panel)	no	1	R	R
11.6.11	Logging of all motor running hour meter readings and trip data of electronic motor protection units on a site (per site)	no	1	R	R
11.6.12	Checking of all indicator lamps on panel (per panel)	no	1	R	R
11.6.13	<u>Replacement of indicator lamps as follows:</u>				
	(a) Incandescent lamps (per lamp)	no	1	R	R
	(b) LED type removable lamp	no	1	R	R
	(c) LED type, whole unit	no	1	R	R
11.6.14	Checking of all instrumentation fuses on a site (per site)	no	1	R	R
11.6.15	<u>Replacement of blown fuses as follows:</u>				
	(a) HRC up to 10A	no	1	R	R
	(b) HRC above 10A and up to 32A	no	1	R	R
11.6.16	Checking of all lightning arrestors on a site (per site)	no	1	R	R
11.6.17	<u>Replacing of lightning arrestors as follows:</u>				
	(a) Power surge arrestors - MOV type - 40 kA fault rating	no	1	R	R
	(b) Power surge arrestors - MOV type - 65 kA fault rating	no	1	R	R
	(c) Power surge arrestors - MOV type - 100 kA fault rating	no	1	R	R
	(d) Instrument signal surge arrestor - MOV type - 10 kA fault rating	no	1	R	R
	(e) Instrument signal surge arrestor - MOV type - 5 kA fault rating	no	1	R	R
11.7	<u>Megger testing of 600/1 000 V cables</u> with both ends of cables disconnected for the following sizes of cables:				
	(a) Cables with 3 to 7 cores up to 2,5 mm ² , per cable	no	1	R	R
	(b) Cables with 3 to 4 cores from 4 mm ² to 25 mm ² , per cable	no	1	R	R
	(c) Cables with 3 - 4 cores from 35 mm ² to 50 mm ² , per cable	no	1	R	R
11.8	Supply and installation of PVC warning tape in top 300 mm of trench backfill	no	1	R	R
11.9	Supply and fitting of cable labels on ends of cable with strap-on type label with up to 10 digits on label (per label)	no	1	R	R
11.10	<u>Testing and checking of motors</u> , all sizes, and comparing current readings with current rating of motor and logging of data as follows per motor:	no	1	R	R

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
11.10.1	Megger between phases and phases to earth and log data (per motor)	no	1	R	R
11.11	Maintenance of panels , executing the following various tasks per unit of equipment:				
11.11.1	Inspecting of circuit breakers and testing to see that circuit breakers can handle the current of the particular circuit without tripping under normal load conditions and under transient conditions of motor starting for all sizes and types of circuit breakers, single pole and triple pole, as well as checking for overheating of circuit breakers (per panel)	no	1	R	R
11.11.2	Inspecting contactors and measuring outgoing voltages to determine if contactors are closing properly and that one or more phase contacts are not malfunctioning or that the contactor is not overheating (per contactor)	no	1	R	R
11.11.3	Checking that overloads are of correct rating and that setting is correct for the rating of the motor protected with overload. Also check for malfunctioning of overload and nuisance tripping as well as overheating of overloads. Check that overload is not set for "Auto" reset (per panel)	no	1	R	R
11.11.4	Checking and setting of star-delta starter for proper changeover of star-to-delta (per timer)	no	1	R	R
11.12	Equipment Supply, installation, connection, testing and commissioning of the following equipment for distribution boards or motor controls:				
11.12.1	100 A TP on-load isolator	no	1	R	R
11.12.2	100 - 250 A TP on-load isolator	no	1	R	R
11.12.3	10 - 10 A SP mcb (5 kA)	no	1	R	R
11.12.4	15 - 100 A TP mcb (5 kA)	no	1	R	R
11.12.5	125 - 250 A TP mcb (10 kA) (with replaceable trip unit)	no	1	R	R
11.12.6	Replacing set of 3 contacts in the following sizes of contactors:				
	(a) 4 kW AC-3 rating contactor	set	1	R	R
	(b) 5,5 kW AC-3 rating contactor	set	1	R	R
	(c) 7,5 kW AC-3 rating contactor	set	1	R	R
	(d) 11 kW AC-3 rating contactor	set	1	R	R
	(e) 15 kW AC-3 rating contactor	set	1	R	R
	(f) 18,5 kW AC-3 rating contactor	set	1	R	R
	(g) 22 kW AC-3 rating contactor	set	1	R	R
	(h) 30 kW AC-3 rating contactor	set	1	R	R
11.12.7	Replacing coil in the following sizes of contactors:				
	(a) 4 kW AC-3 rating contactor	no	1	R	R
	(b) 5,5 kW AC-3 rating contactor	no	1	R	R

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	(c) 7,5 kW AC-3 rating contactor	no	1	R	R
	(d) 11 kW AC-3 rating contactor	no	1	R	R
	(e) 15 kW AC-3 rating contactor	no	1	R	R
	(f) 18,5 kW AC-3 rating contactor	no	1	R	R
	(g) 22 kW AC-3 rating contactor	no	1	R	R
11.12.8	<u>Replacing of complete contactor</u> for the following sizes of contactors, inclusive of removal of old unit and all re-connections:				
	(a) 2.4 kW AC-3 rating contactor	no	1	R	R
	(b) 3 kW AC-3 rating contactor	no	1	R	R
	(c) 4 kW AC-3 rating contactor	no	1	R	R
	(d) 5,5 kW AC-3 rating contactor	no	1	R	R
	(e) 7,5 kW AC-3 rating contactor	no	1	R	R
	(f) 11 kW AC-3 rating contactor	no	1	R	R
	(g) 15 kW AC-3 rating contactor	no	1	R	R
	(h) 18,5 kW AC-3 rating contactor	no	1	R	R
	(i) 22 kW AC-3 rating contactor	no	1	R	R
	(j) 30 kW AC-3 rating contactor	no	1	R	R
11.12.9	<u>Replacing of adjustable overloads</u> on contactors for the following sizes:				
	(a) 8 - 18 A	set	1	R	R
	(b) 17 - 40 A	set	1	R	R
	(c) 38 - 63 A	set	1	R	R
11.12.10	<u>Replace star-delta timer</u> for starter contactors as follows:				
	(a) Electronic type	no	1	R	R
	(b) Magnetic type	no	1	R	R
	(c) Vacuum type	no	1	R	R
11.12.11	Changeover switch				
	(i) 30A	no	1	R	R
	(ii) 40A	no	1	R	R
	(iii) 70A	no	1	R	R
	(iv) 80A	no	1	R	R
	(v) 100A	no	1	R	R
11.13	<u>As-built drawings</u> Drawing up and delivery of five sets of "As Built" drawings of panel to the Department for the following:				
11.13.1	12-way power distribution board (per board)	no	1	R	R
11.13.2	24-way power distribution board (per board)	no	1	R	R

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
11.13.3	Motor supply panel with main incoming panel and up to 2 starters (per panel)	no	1	R	R
11.13.4	Motor control centre with main incoming panel and up to 4 starters (per MCC)	no	1	R	R
11.14	<u>General call out rates</u>	hour	1	R	R
11.14.1	Normal hours	hour	1	R	R
11.14.2	After hours	hour	1	R	R
11.15	Mark-up rates				
11.15.1	Percentage mark-up on rates listed on term contracts	%	R	%	R
11.15.2	Percentage mark-up on items (with attached invoices) approved by the Employer or his representative for materials, (other than those set out in this list) used in the execution of work ordered by the Employer	%	R	%	R
11.16	Tip trucks				
	(a) 6 m ³	h	1	R	R
	(b) 10 m ³	h	1	R	R
11.17	Flat bed trucks				
	(a) 5t	km	1	R	R
	(b) 7t	km	1	R	R
11.18	LDV				
	(a) 2x4WD	km	1	R	R
	(b) 4x4WD	km	1	R	R
TOTAL SCHEDULE 12 CARRIED FORWARD TO SUMMARY				R	
Note: BID price must include value added tax.					

SCHEDULE 12: DIESEL ENGINES: LISTER LV1

NOTE: SUPPLY AND DELIVERY OF DIESEL ENGINES AND ACCESSORIES:

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
12.1	SERVICE				
	PART NUMBER (TERM CONTRACT)				
12.1.1	Fuel Filter	201-13117	Part	1	R
12.1.2	Oil Filter	N/A	Part	1	R
12.1.3	Air Filter	601-31350	Part	1	R
12.1.4	Labour		Hour		R
12.1.5	Lubrication		Sum		R
12.1.6	W/Shop Cons		Sum		R
	SUBTOTAL			R	
12.2	MAJOR SERVICE				
12.2.1	Gasket Set	657-28576	Part	1	R
12.2.2	Main Bearing Seal	601-35670	Part	1	R
12.2.3	Timing Cover Seal	601-39550	Part	1	R
12.2.4	Nozzle	601-37020	Part	1	R
12.2.5	Pump Element	660-14180	Part	1	R
12.2.6	Delivery Valve	660-14270	Part	1	R
12.2.7	Delivery Valve Washer		Part	1	R
12.2.8	Oil Pump Kit	601-50170	Part	1	R
12.2.9	Oil Filter		Part	1	R
12.2.10	Air Filter	601-31350	Part	1	R
12.2.11	Fuel Filter	201-13117	Part	1	R
	WORKSHOP LABOUR:				
12.2.12	Repair Pump/Injector		Sum	1	R
12.2.13	Strip & Assemble		Sum	1	R
12.2.14	Dyno Test		Hour	1	R
12.2.15	Respray Engine		Sum	1	R
	CONSUMABLES:				
	Workshop Material				
12.2.16	(Cloths etc.)		Sum	1	R
12.2.17	Engine Oil		Litre	1	R
12.2.18	Paint & Thinners		Sum	1	R
	SUBTOTAL			R	
12.3.1	Piston & Ring Set	601-51145	Part	1	R
12.3.2	Mains	601-30060/601-30061	Part	2	R
12.3.3	Big Ends	601-50420	Part	1	R
12.3.4	Thrust Washer	201-12380	Part	1	R
12.3.5	Cam Bearing	601-21670	Part	2	R
12.3.6	Small Ends	601-30150	Part	1	R
12.3.7	Gasket Set	657-28576	Part	1	R
12.3.8	Main Bearing Seal	601-35670	Part	1	R
12.3.9	Timing Cover Seal	601-39550	Part	1	R
12.3.10	Nozzle	601-37020	Part	1	R
12.3.11	Pump Element	660-14180	Part	1	R
12.3.12	Delivery Valve	660-14270	Part	1	R
12.3.13	Delivery Valve Washer		Part	1	R
12.3.14	Oil Pump Kit	601-50170	Part	1	R
12.3.15	Oil Filter		Part	1	R
12.3.16	Air Filter	601-31350	Part	1	R
12.3.17	Fuel Filter	201-13117	Part	1	R
12.3.18	Inlet Valve	601-30361	Part	1	R
12.3.19	Exhaust Valve	601-30372	Part	1	R
12.3.20	Valve Springs	601-30221	Part	2	R
12.3.21	Valve Guides	601-30402/601-30321	Part	2	R
	ENGINEERING WORKS:				
12.3.22	Grind Crankshaft		Sum	1	R

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
12.3.23	Polish Crankshaft	Sum	1	R	
12.3.24	Rebore/hone Block	Sum	1	R	
12.3.25	Face Valves	Sum	1	R	
12.3.26	Face Seats	Sum	1	R	
12.3.27	Fit Valve Guides	Sum	1	R	
12.3.28	Resize Conrods	Sum	1	R	
12.3.29	Fit & Match Small Ends	Sum	1	R	
12.3.30	Fit Cam Bushes	Sum	1	R	
12.3.31	Grind Valves	Sum	1	R	
12.3.32	Repair Pump/Injector	Sum	1	R	
	WORKSHOP LABOUR:				
12.3.33	Strip & Assemble	Sum	1	R	
12.3.34	Dyno-Test	Hour	1	R	
12.3.35	Respray Engine	Sum	1	R	
	CONSUMABLES:				
	Workshop Material				
12.3.36	(Cloths etc.)	Sum	1	R	
12.3.37	Engine oil	Litre	1	R	
12.3.38	Paint & thinners	Sum	1	R	
	SUBTOTAL			R	
	CLUTCHES (Overhaul clutch)				
	Materials Used				
12.3.39	Shoes	125-1003	Part	2	R
12.3.40	Springs	125-1201 (1000RPM)	Part	2	R
12.3.41	Workshop Labour		Hour	1	R
12.3.42	New clutch		Part	1	R
	SUBTOTAL			R	
12.4	MARK-UP RATES				
12.4.1	Percentage mark-up on rates listed on term contracts		%	R	
12.4.2	Percentage mark-up on items approved by the client or his representative with attached invoices for material used		%	R	
12.5	Tip trucks				
	(a) 6 m ³		h	1	
	(b) 10 m ³		h	1	
12.6	Flat bed trucks				
	(a) 5t		km	1	
	(b) 7t		km	1	
12.7	LDV				
PSA15	(a) 2x4WD		km	1	
	(b) 4x4WD		km		
TOTAL SCHEDULE 12 CARRIED FORWARD TO SUMMARY				R	
Note: BID price must include value added tax.					

SCHEDULE 13: DIESEL ENGINES: LISTER TR1

NOTE: SUPPLY AND DELIVERY OF DIESEL ENGINES AND ACCESSORIES: TERM CONTRACT RATES ARE APPLICABLE

ITEM NO.	DESCRIPTION	PART NUMBER (TERM CONTRACT)	UNIT	QTY	RATE	AMOUNT
13.1	SERVICE					
13.1.1	Fuel Filter	751-18100	Part	1	R	
13.1.2	Oil Filter	201-55370	Part	1	R	
13.1.3	Air Filter	366-06227	Part	1	R	
13.1.4	Labour		Hour		R	
13.1.5	Lubrication		Sum		R	
13.1.6	W/Shop Cons		Sum		R	
	SUBTOTAL				R	
13.2	MAJOR SERVICE					
13.2.1	Gasket Set	657-32681	Part	1	R	
13.2.2	Main Bearing Seal	201-41940	Part	1	R	
13.2.3	Timing Cover Seal	601-39550	Part	1	R	
13.2.4	Nozzle	201-47092	Part	1	R	
13.2.5	Pump Element	660-14260	Part	1	R	
13.2.6	Delivery Valve	660-14270	Part	1	R	
13.2.7	Delivery Valve Washer		Part	1	R	
13.2.8	Oil Pump Kit	570-32670	Part	1	R	
13.2.9	Oil Filter	201-5537 0	Part	1	R	
13.2.10	Air Filter	366-06227	Part	1	R	
13.2.11	Fuel Filter	751-18100	Part	1	R	
	WORKSHOP LABOUR:					
13.2.12	Repair Pump/Injector		Sum	1	R	
13.2.13	Strip & Assemble		Sum	1	R	
13.2.14	Dyno Test		Hour	1	R	
13.2.15	Respray Engine		Sum	1	R	
	CONSUMABLES:					
	Workshop Material					
13.2.16	(Cloths etc.)		Sum	1	R	
13.2.17	Engine Oil		Litre	1	R	
13.2.18	Paint & Thinner		Sum	1	R	
	SUBTOTAL				R	
13.3	OVERHEAUL ENGINE					
13.3.1	Piston & Ring Set	570-12840	Part	1		
13.3.2	Mains	570-30010/570-30011	Part	2		
13.3.3	Big Ends	570-31370	Part	1		
13.3.4	Thrust Washer	570-31360	Part	1		
13.3.5	Cam Bearing	201-30250/201-30670	Part	2		
13.3.6	Small Ends	201-441950	Part	1		
13.3.7	Gasket Set	657-32681	Part	1		
13.3.8	Main Bearing Seal	201-41940	Part	1		
13.3.9	Timing Cover Seal	601-39550	Part	1		
13.3.10	Nozzle	201-47092	Part	1		
13.3.11	Pump Element	660-14260	Part	1		
13.3.12	Delivery Valve	660-14270	Part	1		
13.3.13	Delivery Valve Washer		Part	1		
13.3.14	Oil Pump Kit	570-32670	Part	1		
13.3.15	Oil Filter	201-55370	Part	1		
13.3.16	Air Filter	366-06227	Part	1		
13.3.17	Fuel Filter	751-18100	Part	1		
13.3.18	Inlet Valve	201-30040	Part	1		
13.3.19	Exhaust Valve	201-30051	Part	1		
13.3.20	Valve Springs	201-300080	Part	2		
13.3.21	Valve Guides	201-30181/201-30171	Part	2		

ITEM NO.	DESCRIPTION	PART NUMBER (TERM CONTRACT)	UNIT	QTY	RATE	AMOUNT
	ENGINEERING WORKS:					
13.3.22	Grind Crankshaft		Sum	1		
13.3.23	Polish Crankshaft		Sum	1		
13.3.24	Rebore/hone block		Sum	1		
13.3.25	Face Valves	Each	Sum	1		
13.3.26	Face Seats	Each	Sum	1		
13.3.27	Fit Valve Guides	Each	Sum	1		
13.3.28	Resize Conrods	Each	Sum	1		
13.3.29	Fit & Match Small Ends	Each	Sum	1		
13.3.30	Fit Cam Bushes	Each	Sum	1		
13.3.31	Grind Valves	Each	Sum	1		
13.3.32	Repair Pump/Injector	Each	Sum	1		
	WORKSHOP LABOUR:					
13.3.33	Strip & Assemble		Sum	1		
13.3.34	Dyno-Test		Hour	1		
13.3.35	Respray Engine		Sum	1		
	CONSUMABLES:					
	Workshop Material					
13.3.36	(Cloths etc.)		Sum	1		
13.3.37	Engine Oil		Litre	1		
13.3.38	Paint & Thinners		Sum	1		
	CLUTCHES:					
	Overhaul clutch					
	Material used					
13.3.39	Shoes	125-1003	Part	2		
	SUBTOTAL	CARRIED FORWARD				R
		BROUGHT FORWARD				R
13.3.40	Springs	125-1201 (1000RPM)	Part	2		
13.3.41	Workshop Labour		Hour	1		
13.3.42	New clutch		Part	1		
	SUBTOTAL					R
13.4	MARKUP RATES					
13.4.1	Percentage mark-up on rates listed on term contracts	%	R	R		
13.4.2	Percentage mark-up on items approved by the client or his representative with attached invoices for material used	%	R	R		
13.5	Flat bed truck (a) 5t (b) 7t	km km	1 1	R R		
13.6 PSA 4	LDV (a) 2 x 4WD (b) 4 x 4WD	km km	1 1	R R		
	Total Schedule 14 carried forward to Summary		R			
TOTAL SCHEDULE 13 CARRIED FORWARD TO SUMMARY					R	
Note: BID price must include value added tax.						

SCHEDULE 14: DIESEL ENGINES: LISTER TR2

NOTE: SUPPLY AND DELIVERY OF DIESEL ENGINES AND ACCESSORIES: TERM CONTRACT RATES ARE APPLICABLE

14.1 DIESEL ENGINE LISTER TS2: SERVICE

ITEM NO.	DESCRIPTION	PART NUMBER (TERM CONTRACT)	UNIT	QTY	RATE	AMOUNT
14.1	SERVICE					
14.1.1	Fuel Filter	751-18100	Part	1	R	
14.1.2	Oil Filter	201-55370	Part	1	R	
14.1.3	Air Filter	366-06227	Part	1	R	
14.1.4	Labour		Hour		R	
14.1.5	Lubrication		Sum		R	
14.1.6	W/Shop Cons		Sum		R	
	SUBTOTAL				R	
SCHEDULE NO.	DESCRIPTION	PART NUMBER (TERM CONTRACT)	UNIT	QTY	RATE	
	PARTS:	BROUGHT FORWARD			R	
14.2	MAJOR SERVICE					
14.2.1	Gasket Set	567-29511	Part	1	R	
14.2.2	Main Bearing Seal	201-41920	Part	1	R	
14.2.3	Timing Cover Seal	601-39550	Part	1	R	
14.2.4	Nozzle	201-47092	Part	2	R	
14.2.5	Pump Element	660-14260	Part	2	R	
14.2.6	Delivery Valve	660-14270	Part	2	R	
14.2.7	Delivery Valve Washer		Part	2	R	
14.2.8	Oil Pump Kit	570-30680	Part	1	R	
14.2.9	Oil Filter	201-55370	Part	1	R	
14.2.10	Air Filter	366-06227	Part	1	R	
14.2.11	Fuel Filter	751-18100	Part	1	R	
	WORKSHOP LABOUR:					
14.2.12	Repair Pump/Injector		Sum	1	R	
14.2.13	Strip & Assemble		Sum	1	R	
14.2.14	Dyno Test		Hour	1	R	
14.2.15	Respray Engine		Sum	1	R	
	CONSUMABLES:					
14.2.16	Workshop Material					
14.2.17	(Cloths etc.)		Sum	1	R	
14.2.18	Engine Oil		Litre	1	R	
14.2.19	Paint & Thinners		Sum	1	R	
	SUBTOTAL				R	
SCHEDULE NO.	DESCRIPTION	PART NUMBER (TERM CONTRACT)	UNIT	QTY	RATE PER PART	
	PARTS:	BROUGHT FORWARD			R	
14.3	ENGINE OVERHAUL					
14.3.1	Piston & Ring Set	570-12840	Part	1	R	
14.3.2	Mains	570-20010/570-30011/570-2990	Part	1	R	
14.3.3	Big Ends	570-31370	Part	1	R	
14.3.4	Thrust Washer	570-30360	Part	1	R	
14.3.5	Cam Bearing	201-30250/201-50670/202-12070	Part	1	R	
14.3.6	Small Ends	201-44950	Part	1	R	
14.3.7	Gasket Set	657-29511	Part	1	R	
14.3.8	Main Bearing Seal	201-41940	Part	1	R	
14.3.9	Timing Cover Seal	601-39550	Part	1	R	
14.3.10	Nozzle	201-47092	Part	1	R	
14.3.11	Pump Element	660-14260	Part	1	R	
14.3.12	Delivery Valve	660-14270	Part	1	R	
14.3.13	Delivery Valve Washer		Part	1	R	
14.3.14	Oil Pump Kit	570-30680	Part	1	R	

ITEM NO.	DESCRIPTION	PART NUMBER (TERM CONTRACT)	UNIT	QTY	RATE	AMOUNT
14.3.15	Oil Filter	201-55370	Part	1	R	
14.3.16	Air Filter	366-06227	Part	1	R	
14.3.17	Fuel Filter	751-18100	Part	1	R	
14.3.18	Inlet Valve	751-18100	Part	1	R	
14.3.19	Exhaust Valve	201-30070	Part	1	R	
14.3.20	Valve Springs	201-30080	Part	1	R	
14.3.21	Valve Guides	201-30181/201-30171	Part	1	R	
	ENGINEERING WORKS:					
14.3.22	Grind Crankshaft		Sum	1	R	
14.3.23	Polish Crankshaft		Sum	1	R	
14.3.24	Rebore/hone block	Per cylinder	Sum	1	R	
14.3.25	Face Valves	Each	Sum	1	R	
14.3.26	Face Seats	Each	Sum	1	R	
14.3.27	Fit Valve Guides	Each	Sum	1	R	
14.3.28	Resize Conrods	Each	Sum	1	R	
14.3.29	Fit & Match Small Ends	Each	Sum	1	R	
14.3.30	Fit Cam Bushes	Each	Sum	1	R	
14.3.31	Grind Valves	Each	Sum	1	R	
14.3.32	Repair Pump/Injector	Each	Sum	1	R	
	WORKSHOP LABOUR:					
14.3.33	Strip & Assemble		Sum	1	R	
14.3.34	Dyno-Test		Hour	1	R	
14.3.35	Respray Engine		Sum	1	R	
	CONSUMABLES:					
	Workshop Material					
14.3.36	(Cloths etc.)		Sum	1	R	
14.3.37	Engine Oil		Litre	1	R	
14.3.38	Paint & Thinners		Sum	1	R	
	SUBTOTAL CARRIED FORWARD			R		
	CLUTCHES:	BROUGHT FORWARD		R		
	Overhaul Clutch					
	Material used					
14.3.39	Shoes	125-1090	Part	2	R	
14.3.40	Springs	125-1201 (1000RPM)	Part	2	R	
14.3.41	Workshop labour		Hour	1	R	
14.3.42	New clutch		Part	1	R	
	SUBTOTAL			R		
14.4	MARK-UP RATES					
14.4.1	Percentage mark-up on rates listed on term contracts		%	R	R	
14.4.2	Percentage mark-up on items approved by the client or his representative with attached invoices for material used		%	R	R	
14.5	Flat bed trucks (a) 5t (b) 7t		km km	1 1	R R	
14.6 PSA15	LDV (a) 2x4WD (b) 4x4WD		km km	1 1	R R	
TOTAL SCHEDULE 14 CARRIED FORWARD TO SUMMARY				R		
Note: BID price must include value added tax.						

SCHEDULE 15: DIESEL ENGINES: LISTER TR3

NOTE: SUPPLY AND DELIVERY OF DIESEL ENGINES AND ACCESSORIES: TERM CONTRACT RATES ARE APPLICABLE

ITEM NO.	DESCRIPTION	PART NUMBER (TERM CONTRACT)	UNIT	QTY	RATE	AMOUNT
15.1	SERVICE					
15.1.1	Fuel Filter	751-18100	Part	1	R	
15.1.2	Oil Filter	201-55370	Part	1	R	
15.1.3	Air Filter	366-07188	Part	1	R	
15.1.4	Labour		Hour		R	
15.1.5	Lubrication		Sum		R	
15.1.6	W/Shop Cons		Sum		R	
	SUBTOTAL				R	
15.2	MAJOR SERVICE					
15.2.1	Gasket Set	657-29531	Part	1	R	
15.2.2	Main Bearing Seal	201-41940	Part	1	R	
15.2.3	Timing Cover Seal	601-39550	Part	1	R	
15.2.4	Nozzle	201-47092	Part	1	R	
15.2.5	Pump Element	660-14260	Part	1	R	
15.2.6	Delivery Valve	660-14270	Part	1	R	
15.2.7	Delivery Valve Washer		Part	1	R	
15.2.8	Oil Pump Kit	570-30680	Part	1	R	
15.2.9	Oil Filter	201-55370	Part	1	R	
15.2.10	Air Filter	366-07188	Part	1	R	
15.2.11	Fuel Filter	751-18100	Part	1	R	
15.2.12	Inlet Valve	201-30040	Part	1	R	
15.2.13	Exhaust Valve	201-30051	Part	1	R	
15.2.14	Valve Spring	201-30080	Part	1	R	
15.2.15	Valve Guides	201-30181/201-30171	Part	1	R	
	WORKSHOP LABOUR:			1		
15.2.16	Repair Pump/Injector		Sum	1	R	
15.2.17	Strip & Assemble		Sum	1	R	
15.2.18	Dyno Test (After setting)		Hour	1	R	
15.2.19	Respray Engine		Sum	1	R	
	CONSUMABLES:			1		
	Workshop Material			1		
15.2.20	(Cloths etc.)		Sum	1	R	
15.2.21	Engine Oil		Litre	1	R	
15.2.22	Paint & Thinners		Sum	1	R	
	SUBTOTAL			1		
15.3	OVERHAUL			1		
15.3.1	Piston & Ring Set	570-12840	Part	1	R	
15.3.2	Mains	570-12990/570-30010/570-30011	Part	1	R	
15.3.3	Big Ends	570-31370	Part	1	R	
15.3.4	Thrust Washer	570-31360	Part	1	R	
15.3.5	Cam Bearing	201-30250/201-3067/202-12030	Part	1	R	
15.3.6	Small Ends	201-44950	Part	1	R	
15.3.7	Gasket Set	657-29531	Part	1	R	
15.3.8	Main Bearing Seal	201-41940	Part	1	R	
15.3.9	Timing Cover Seal	601-39550	Part	1	R	
15.3.10	Nozzle	201-47092	Part	1	R	
15.3.11	Pump Element	660-14260	Part	1	R	
15.3.12	Delivery Valve	660-14270	Part	1	R	
15.3.13	Delivery Valve Washer		Part	1	R	
15.3.14	Oil Pump Kit	570-30680	Part	1	R	
15.3.15	Oil Filter	201-55370	Part	1	R	

ITEM NO.	DESCRIPTION	PART NUMBER (TERM CONTRACT)	UNIT	QTY	RATE	AMOUNT
15.3.16	Air Filter	366-07188	Part	1	R	
15.3.17	Fuel Filter	751-18100	Part	1	R	
15.3.18	Inlet Valve	201-30040	Part	1	R	
15.3.19	Exhaust Valve	201-30051	Part	1	R	
15.3.20	Valve Springs	201-30080	Part	1	R	
15.3.21	Valve Guides	201-30181/201-30171	Part	1	R	
	ENGINEERING WORKS:			1		
15.3.22	Grind Crankshaft		Sum	1	R	
15.3.23	Polish Crankshaft		Sum	1	R	
15.3.24	Rebore/hone block	Per cylinder	Sum	1	R	
15.3.25	Face Valves	Each	Sum	1	R	
15.3.26	Face Seats	Each	Sum	1	R	
15.3.27	Fit Valve Guides	Each	Sum	1	R	
15.3.28	Resize Conrods	Each	Sum	1	R	
15.3.29	Fit & Match Small Ends	Each	Sum	1	R	
15.3.30	Fit Cam Bushes	Each	Sum	1	R	
15.3.31	Grind Valves	Each	Sum	1	R	
15.3.32	Repair Pump/Injector	Each	Sum	1	R	
	WORKSHOP LABOUR:			1		
15.3.33	Strip & Assemble		Sum	1	R	
15.3.34	Dyno-Test		Hour	1	R	
15.3.35	Respray Engine		Sum	1	R	
	CONSUMABLES:			1		
	Workshop Material			1		
15.3.36	(Cloths etc.)		Sum	1	R	
15.3.37	Engine Oil		Litre	1	R	
15.3.38	Paint & Thinners		Sum	1	R	
	CLUTCHES:			1		
	Overhaul clutch			1		
	Material used			1		
15.3.39	Shoes	125-1090	Part	1	R	
	SUBTOTAL CARRIED FORWARD				R	
15.3.40	Springs	125-1201 (1000RPM)	Part	1		R
15.3.41	Workshop labour		Hour	1		R
15.3.42	New clutch		Part	1		R
	SUBTOTAL				R	
15.4	MARK-UPS					
15.4.1	Percentage mark-up on rates listed on term contracts		%	R		R
15.4.2	Percentage mark-up on items approved by the client or his representative with attached invoices for material used		%	R		R
15.5	Flat bed trucks					
	(a) 5t		km	1		R
	(b) 7t		km	1		R
15.6	LDV					
PSA15	(a) 2x4WD		km	1		R
	(b) 4x4WD		km	1		R
TOTAL SCHEDULE 15 CARRIED FORWARD TO SUMMARY					R	
Note: BID price must include value added tax.						

SUB-SCHEDULE 1: PALISADE FENCING

ITEM NO	DESCRIPTION	UNIT	QUANT.	RATE	AMOUNT
	<u>SUPPLY, DELIVERY AND INSTALLATION OF SECURITY FENCING AND THE SUPPLY OF ALL MATERIALS</u>				
1.1	For work to be executed by nominated sub- <i>ORTDM SCMU---25/26: APPOINTMENT OF A PANEL OF SERVICE PROVIDERS FOR MECHANICAL & ELECTRICAL WORKS AND BOREHOLE EQUIPPING FOR 36 MONTHS (3 YEARS) CIDB GRADE 6ME AND 7ME</i> contractor (Specialised)	Sum	1	R300 000	R300 000
1.1.1	Overheads, charge and profit on item 1.1.	%	R150 000	%R	
1.2	SITE CLEARING Clear and grub the fence line, 2m wide strip PRECAST CONCRETE PALISADE FENCING WITH GATE (he required concrete compressive strength in all prefabricated prestressed elements shall be a minimum of 40 Mpa at 28 days, determined in accordance with SABS method 863. All steel used for reinforcements in prefabricated elements shall be high yield steel with a minimum characteristic strength of 410 Mpa, and shall be free of rust, loose scale, flux, grease or oil substances and shall in general comply with SABS 920 and BS 4482. Stated Name of supplier: _____	km	1	R	R
	(a) Palisade posts	No	1	R	R
	(b) Palisade beams	No	1	R	R
	(c) Palisade palos	No	1	R	R
	(d) 12 Dia x 120 mm bolts and nuts	No	1	R	R
	(e) Supply and install 2.4m high sliding security gate of 8000mm to match the fence	No	1	R	R
	(f) Razor wire on top of palisade fencing	m	1	R	R
	(g) Supply and install 2.4m high sliding security gate of 8000mm to match the fence	no	1	R	R
1.3	Percentage mark-up on items (with attached invoices approved by the Employer or his representative for material, (other than those set out in this list) used in execution of work ordered by the Employer.	%	R	%	R
1.4	Concrete Prescribed mix 1.3.6 (38)	m ³	1	R	R
1.5	Earthworks (small works) Restricted excavation				
1.5.1	(a) Excavate for restricted foundation, footlings and trenches in all materials and used for backfill or dispose	m ³	1	R	R

ITEM NO	DESCRIPTION	UNIT	QUANT.	RATE	AMOUNT
1.6	DAYWORKS LABOUR				
	(a) Contractor's Representative	hr	1	R	R
	(b) Foreman, leader-hand	hr	1	R	R
	(c) Semi-skilled labourer	hr	1	R	R
	(d) Labourer	hr	1	R	R
1.7	Tip trucks				
	(a) 6 m ³	h	1	R	R
	(b) 10 m ³	h	1	R	R
1.8	Flat bed trucks				
	(a) 5t	km	1	R	R
	(b) 7t	km	1	R	R
1.9	LDV				
	(a) 2 x 4 WD	km	1	R	R
	(b) 4 x 4 WD	km	1	R	R
TOTAL PALISADE FENCING CARRIED FORWARD TO SUMMARY (AGRICULTURE)				R	

Note: BID price must include value added tax

SBD 7.5
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ITEM NO	DESCRIPTION	UNIT	QUANT.	RATE	AMOUNT
	SUPPLY, DELIVERY AND INSTALLATION OF SECURITY FENCING AND THE SUPPLY OF ALL MATERIALS				
1.1	For work to be executed by nominated sub-contractor (Specialised)	Sum	1	R300 000	R300 000
1.1.1	Overheads, charge and profit on item 1.1.	%	R150 000	%R	
1.2	SITE CLEARING Clear and grub the fence line, 2m wide strip	km	1	R	R
	STEEL PALISADE FENCING WITH GATE (ALL MATERIAL AND WORKMANSHIP MUST COMPLY WITH THE REQUIREMENTS OF THE LATEST RELEVANT SANS SPECIFICATIONS. STRUCTURAL STEEL SHALL BE GRADE 300W UNLESS OTHERWISE INDICATED OR SPECIFIED. COLD FORMED SECTIONS SHALL BE MADE FROM COMMERCIAL QUALITY STEEL UNLESS OTHERWISE SPECIFIED. MATERIAL: LOW CARBON STEEL, STAINLESS STEEL. SURFACE TREATMENT: GALVANIZED, POWDER COATED. COMMON COLOR: BLACK, GREEN, BLUE, RED. FENCE PANEL LENGTH (POST CENTER): 2.75 M. MAXIMUM PALE SPACING: 155 MM FOR CORRUGATED PALES; 135 MM FOR ANGLE PALES. CORRUGATED PALE TYPE: W SECTION PALE, D SECTION PALE. FENCE GATE: SINGLE LEAF GATE OR DOUBLE LEAVES GATE. ACCESSORIES: FISHPLATES, POST CLAMPS, POST BRACKET, BOLTS AND NUTS.) Stated Name of supplier: _____				
	(a) Palisade posts	No	1	R	R

ITEM NO	DESCRIPTION	UNIT	QUANT.	RATE	AMOUNT
	(b) Palisade beams	No	1	R	R
	(c) Palisade palos	No	1	R	R
	(d) 12 Dia x 120 mm bolts and nuts	No	1	R	R
	(e) Supply and install 2.4m high sliding security gate of 8000mm to match the fence	No	1	R	R
	(f) Razor wire on top of palisade fencing	m	1	R	R
	(g) Supply and install 2.4m high sliding security gate of 4000mm to match the fence	no	1	R	R
1.3	Percentage mark-up on items (with attached invoices approved by the Employer or his representative for material, (other than those set out in this list) used in execution of work ordered by the Employer.	%	R	%	R
1.4	Concrete Prescribed mix 1.3.6 (38)	m ³	1	R	R
1.5	Earthworks (small works) Restricted excavation				
1.5.1	(a) Excavate for restricted foundation, footlings and trenches in all materials and used for backfill or dispose	m ³	1	R	R
1.6	DAYWORKS LABOUR (a) Contractor's Representative (b) Foreman, leader-hand (c) Semi-skilled labourer (d) Labourer	hr hr hr hr	1 1 1 1	R R R R	R R R R
1.7	Tip trucks (a) 6 m ³ (b) 10 m ³	h h	1 1	R R	R R
1.8	Flat bed trucks (a) 5t (b) 7t	km km	1 1	R R	R R
1.8.1	Supply and install a 2.4m high security Clear vu or similar fencing with the following specification or similar on Steep Slope 76.2mm x 12.7mm mesh aperture Wire diameter of 3mm horizontal and 4mm Vertical 4 Stiffening wire bend Galvanised coating after welding 600mm deep hole with 25Mpa Concrete	m	1	R	R
1.8.2	Supply and install 2.4m high sliding security gate of 8000mm to match the fence	no	1	R	R
1.8.3.	Supply and install 2.4m high sliding security gate of 4000mm to match the fence	no	1	R	R
1.9	LDV (a) 2 x 4 WD (b) 4 x 4 WD	km km	1 1	R R	R R
TOTAL PALISADE FENCING CARRIED FORWARD TO SUMMARY					R
Note: BID price must include value added tax					

SECTION 5

**SUMMARY OF PRICE SCHEDULES
(TO BE CARRIED FORWARD TO FORM OF BID)**

Schedule 3	:	Small diameter Clearwater supply pipelines	R_____
Schedule 4	:	Hand-pumps	R_____
Schedule 5	:	Elevated tanks	R_____
Schedule 6	:	PVC storage tank installations	R_____
Schedule 7	:	Positive displacement borehole pumps, Column and ancillary pipework installation	R_____
Schedule 8	:	Pump-house installation for boreholes	R_____
Schedule 9	:	Submersible pumps	R_____
Schedule 10	:	Electric motors	R_____
Schedule 11	:	Small electrical panels	R_____
SUBTOTAL PRICE SCHEDULES 3-11			R_____
Schedule 12	:	Diesel engines: Lister LV1	R_____
Schedule 13	:	Diesel engines: Lister TR1	R_____
Schedule 14	:	Diesel engines: Lister TR2	R_____
Schedule 15	:	Diesel engines: Lister TR3	R_____
Schedule 16	:	Diesel engines: Lister TR4	R_____
TOTAL (PRICE SCHEDULE 3-19) CARRIED FORWARD TO FORM OF BID			R_____
Schedule 1	:	General (Rate only)	R_____
Schedule 2	:	Dayworks (Rate only)	R_____
TOTAL RATE SCHEDULE 1 AND 2 (NOT CARRIED FORWARD TO FORM OF BID)			R_____

CONTRACTOR: _____

SIGNATURE: _____

SUB-SCHEDULE :	1	PALISADE FENCING	R
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CONTRACTOR: _____

SIGNATURE: _____

