KOUGA
local municipality
Good Governance through Service Excellence

KWANOMZAMO BULK WATER: NEW WATER MAIN FROM HUMANSDORP WATER TREATMENT WORKS TO KWANOMZAMO

CONTRACT NO: 68/2026

6CE CIDB Grading Required

MARCH 2026

VOLUME 1

SERVICE PROVIDER		
TELEPHONE / FACSIMILE		
CLOSING DATE	MONDAY, 13 APRIL 2026 AT 12:00	

ISSUED BY:

Kouga Local Municipality
Physical Address:
16 Woltemade Street
Jeffreys Bay

Postal Address:
P O Box 21
Jeffrey Bay
6330

Contact Person: Mr Jacques du Toit
Tel: 042 – 200 2200 / 042 - 200 8300

PREPARED BY:

Engineering Advice & Services (Pty) Ltd
73 Heugh Road
Walmer
Gqeberha

Contact Person: Mr Pieter Joubert
Tel: 041 – 581 2421

KWANOMZAMO BULK WATER: NEW WATER MAIN FROM HUMANSDORP WATER TREATMENT WORKS TO KWANOMZAMO

GENERAL TENDER INFORMATION

TENDERS INVITED	:	13 March 2026
ESTIMATED CIDB CONTRACTOR GRADING	:	6CE or higher
CLARIFICATION MEETING	:	A compulsory clarification meeting to be held on **Wednesday, 25 March 2026 @14:00pm** as per the details on the Tender Advert
VENUE FOR CLARIFICATION MEETING & SITE VISIT	:	Virtual – See link in Tender Notice and Invitation to Tender
CLOSING DATE	:	**13 April 2026**
CLOSING TIME	:	12:00:00 PM / 12H00
CLOSING VENUE	:	Tender Box at the Municipal Office, Room 122 16 Woltemade Street (front) / 21 St. Croix Street (back), Jeffreys Bay
VALIDITY PERIOD OF TENDER	:	90 days
TENDER BOX	:	The Tender Documents (which includes the Form of Offer and Acceptance) completed in all respects, plus any additional supporting documentation required, must be submitted in a sealed envelope with the name and address of the tenderer, the tender No. and title and the closing date indicated on the envelope. The sealed envelope must be inserted into the appropriate official tender box before closing time. The onus remains with the tenderer to ensure that the tender is placed in the correct tender box.

KOUGA LOCAL MUNICIPALITY

BID No.: 68/2026

KWANOMZAMO BULK WATER: NEW WATER MAIN FROM HUMANSDORP WATER TREATMENT WORKS TO KWANOMZAMO

PARTICULARS OF BIDDER

Name of Bidder		
Contact Person:		
Postal Address		
Street Address		
Telephone Number	Code:	Number:
Cell phone Number		
Facsimile Number	Code:	Number:
E-Mail Address		
CSD Supplier Number (National Treasury)		
CIDB CRS Number		
Vat Registration Number		

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THE TENDER

PART 1 (OF 2): TENDERING PROCEDURES

T1.1 Tender Notice and Invitation to Tender

T1.2 Tender Data

T1.1: TENDER NOTICE AND INVITATION TO TENDER

KOUGA LOCAL MUNICIPALITY (EC108)
DIRECTORATE: WATER & SANITATION
NOTICE NO: 68/2026

KWANOMZAMO BULK WATER: NEW WATER MAIN FROM HUMANSDORP WATER TREATMENT WORKS TO KWANOMZAMO

Suitably qualified, capable and experienced Contractors are hereby invited to submit tenders for the Implementation of a new bulk water main from Humansdorp water treatment works to Kwanomzamo for Kouga Municipality.

Tenders

An electronic copy of the tender document will be available on E-Tender portal www.etender.gov.za or the municipal website www.kouga.gov.za as from **Friday, 13 March 2026**. After downloading the tender document from the website each prospective bidder **MUST** ensure that all the pages of the tender document are printed.

A **Compulsory Clarification Session** will be arranged for **Wednesday, 25 March 2026 @14h00pm.** Prospective bidders can use the link below which is direct from this advert to access the meeting. **Please take note that no attendee arriving 10 minutes late or more** will be allowed to attend the clarification meeting.

Join Teams Meeting:	https://teams.microsoft.com/meet/33369549382790?p=vmdNRuOXGpvxo09QlZ
Meeting ID:	333 695 493 827 90
Passcode:	bp67zH7u

Please note:

- Telegraphic, telephonic, telex, facsimile, email or late tenders will not be accepted.
- This contract will be evaluated on the 80 (price).
- The specific goals would be for a maximum of 20 points. To claim for specific goals prospective bidders MUST submit proof/required documents.
- **An electronic copy of the completed tender document with returnable documents must be submitted with tender submission saved a in a flash drive or CD. Failure to submit AN ORIGINAL HARD COPY AND A COPY ON EITHER USB or CD will deem the bid non-responsive. One electronic device must be submitted per contract**
- **An estimated contractor CIDB Grading of 6CE or higher is required.**
- **A minimum functional assessment score of 70% will apply to this contract.**
- **Bidders must note that the Municipality may make use of additional vetting methods to further qualify capacity of bidders to eliminate delays during project implementation.**
- A valid Tax compliance Status pin must be submitted.
- Prospective Service Providers must register on Kouga Municipality's Supplier database as per the registration requirements.
- The National Treasury Central Supplier Database Summary report must be submitted.
- The Council reserves the right to accept any tender and, or part thereof, appoint more than one contractor, and does not bind itself to accept the lowest or any tender. The Council reserves the right to appoint any contractor.
- The validity period for submission will be 90 days from the closing date.
- Tenders that are deposited in the incorrect box or delivered to any other venue will not be considered.

Any inquiries relating to this tender must be submitted in writing via e-mail to tenders@kouga.gov.za and copied to jdutoit@kouga.gov.za

Completed documents in a sealed envelope endorsed "**NOTICE NO: 68/2026: "KWANOMZAMO BULK WATER: NEW WATER MAIN FROM HUMANSDORP WATER TREATMENT WORKS TO KWANOMZAMO"** must be placed in the Tender Box at 16 Woltemade Street (front entrance), Jeffrey's Bay, Room 122 on or before **Monday, 13 April 2026 at 12:00.**

C. DU PLESSIS

MUNICIPAL MANAGER

P.O. Box 21

JEFFREYS BAY
6330

For Placement:
Herald/Municipal Website/ Municipal Notice Boards in all offices/areas – 13 March 2026

PART A

INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE KOUGA LOCAL MUNICIPALITY					
BID NUMBER:	**68/2026**	CLOSING DATE:	**13/04/2026**	CLOSING TIME:	**12h00**
DESCRIPTION	**KWANOMZAMO BULK WATER: NEW WATER MAIN FROM HUMANSDORP WATER TREATMENT WORKS TO KWANOMZAMO**				

THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (MBD7).
BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE TENDER BOX SITUATED AT:
KOUGA LOCAL MUNICIPALITY, 16 WOLTEMADE STREET, JEFFREYS BAY – ROOM 122

SUPPLIER INFORMATION					
NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
TAX COMPLIANCE STATUS	TCS PIN:		**OR**	CSD No:	
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE [TICK APPLICABLE BOX]	☐ Yes ☐ No		B-BBEE STATUS LEVEL SWORN AFFIDAVIT	☐ Yes ☐ No	

[A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE/ SWORN AFFIDAVIT (FOR EMES & QSEs) MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE]

1. ARE YOU THE ACCREDITED REPRESENTATIVE **IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?**	☐Yes ☐No [IF YES ENCLOSE PROOF]	**2.** ARE YOU A FOREIGN BASED SUPPLIER FOR **THE GOODS /SERVICES /WORKS OFFERED?**	☐Yes ☐No [IF YES, ANSWER PART B:3]
3. TOTAL NUMBER OF ITEMS OFFERED		**4. TOTAL BID PRICE**	
5. SIGNATURE OF BIDDER	……	**6. DATE**	
7. CAPACITY UNDER WHICH THIS BID IS SIGNED			

BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO:		**TECHNICAL INFORMATION MAY BE DIRECTED TO:**	
DEPARTMENT	Supply Chain Management	CONTACT PERSON	Mr. J Du Toit
TELEPHONE NUMBER	042 200 2200	TELEPHONE NUMBER	067 106 3691
E-MAIL ADDRESS	tenders@kouga.gov.za and copied to jdutoit@kouga.gov.za	E-MAIL ADDRESS	jdutoit@kouga.gov.za

T1.2: TENDER DATA

The conditions of tender are the Standard Conditions of Tender as contained in the CIDB Standard for Uniformity in Engineering and Construction Works Contracts as published in Board Notice 423 of 2019 of 08 August 2019.
(See www.cidb.org.za).

The Standard Conditions of Tender make several references to the Tender Data for details that apply specifically to this tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the Standard Conditions of Tender.

"Bid" should read "tender," and vice versa, throughout the document – implying both words have the same meaning.

Each item of data given below is cross-referenced to the clause in the Standard Conditions of Tender to which it mainly applies.

Clause Number **Tender Data**

C.1 General

C.1.1 Actions

The Employer is **KOUGA LOCAL MUNICIPALITY**.

C.1.1.2 Tenderers shall declare any perceived, known and potential conflict of interest under Returnable Documents, Form 1D: Declaration of Intent of Persons in Service of State and Form 1F: Declaration of Tenderers Supply Chain Management Practices.

C.1.2 Tender Documents

Add the following:

The following documents form part of this tender:

A. Available from the S.A. Federation of Civil Engineering Contractors, the S.A. Institute of Civil Engineering, the S.A. Bureau of Standards and the Government printers, as applicable:

1. Annex C, of the Standard Conditions of Tender of Government Gazette No. 42622 dated 8 August 2019.
2. The General Conditions of Contract for Construction Works 2015, as amended by the Contract Data.
3. S.A. Bureau of Standards Standardised Specifications for Civil Engineering Construction as amended by the Specification Data.

The Tender Documents issued by the Employer comprise:

VOLUME 1: The Tender Document (this document), in which are bound:

THE TENDER
Part T1: Tendering Procedures
T1.1 Tender Notice and Invitation to Tender
T1.2 Tender Data

Part T2: Returnable documents
T2.1 List of Returnable Documents and Schedules
T2.2 Returnable Documents and Schedules

THE CONTRACT
Part C1: Agreements and Contract Data
C1.1 Form of Offer and Acceptance
C1.2 Contract Data
C1.3 Form of Performance Guarantee
C1.4 Occupational Health and Safety Agreement
C1.5 Disclosure Statement
C1.6 Adjudication Board Member Agreement

Part C2: Pricing data
C2.1 Pricing Instructions
C2.2 Bill of Quantities
C2.3 Summary Page of Bill of Quantities

Part C3: Scope of Work
C3.1 Description of the Works
C3.2 Engineering
C3.3 Procurement
C3.4 Construction
C3.5 Management
C3.6 Specification Data

Part C4 : Site Information
C4.1 Scope

Appendix A: List of Tender Drawings

C.1.3 Interpretation

C.1.3.1 *Add the following at the end of this subclause:*

These conditions of tender, the tender data and tender schedules which are required for tender evaluation purposes, shall form part of any contract arising from the invitation to tender.

C.1.4 Communication and employer's agent

Delete the first sentence of the clause and replace with the following:

Verbal or any other form of communication, from the Employer, its employees, agents, or advisors during site visits/clarification meetings or at any other time prior to the award of the Contract, will not be regarded as binding on the Employer, unless communicated by the Employer in writing to suppliers by its Director: Supply Chain Management or his nominee.

The Employer's Agent, for the purposes of any communication between the Employer and Tenderer is:

Name	:	Engineering Advice & Services Pty (Ltd)
Represented By	:	Pieter Joubert
Address	:	73 Heugh Road, Walmer, Gqeberha
Telephone	:	041 581 2421

C.1.5 Cancellation and Re-Invitation of Tenders

Delete the full stop at the end of C.1.5.1 c) and add the following after C.1.5.1 c):

d) there is a material irregularity in the tender process.

C.1.6 Procurement procedures

C.1.6.2 Competitive negotiation procedure

A competitive negotiation procedure will not be followed.

C.1.6.3 Proposal procedure using the two-stage system

A two-stage system will not be followed.

Add the following clauses after C.1.6.3.2.2

C.1.6.4 Objections, complaints, queries, and disputes or appeals in terms of Section 62 of the Systems Act / Access to court

C.1.6.4.1 Disputes, objections, complaints, and queries

In terms of Regulations 49 and 50 of the Local Government: Municipal Finance Management Act, 56 of 2003 – Municipal Supply Chain Management Regulations (Board Notice 868 of 2005):

a) Persons aggrieved by decisions or actions taken by the Kouga Local Municipality in the implementation of its supply chain management system, may lodge within fourteen (14) days of the decision or action, a written objection or complaint or query or dispute against the decision or action.

C.1.6.4.2 Appeals

a) In terms of Section 62 of the Local Government: Municipal Systems Act, 32 of 2000 a person whose rights are affected by a decision taken by the Municipality, may appeal against that decision by giving written notice of the appeal and reasons to the Municipal Manager within 21 days of the date of the notification of the decision.
b) An appeal must contain the following:
    i) Must be in writing
    ii) It must set out the reasons for the appeal
    iii) It must state in which way the Appellant's rights were affected by the decision.
    iv) It must state the remedy sought; and
    v) It must be accompanied with a copy of the notification advising the person of the decision

C.1.6.4.3 Right to approach the courts and rights in terms of Promotion of Administrative Justice Act, 3 of 2000 and Promotion of Access to Information Act, 2 of 2000

The sub- clauses above do not influence any affected person's rights to approach the High Court at any time or its rights in terms of the Promotion of Administrative Justice Act and Promotion of Access to Information Act.

C.1.6.4.4 All requests referring to sub clauses C.1.6.4.1 and C.1.6.4.2 must be submitted in writing to:

The Municipal Manager, Kouga Local Municipality, PO Box 21, Jeffreys Bay, 6330.

C.1.6.4.5 All requests referring to clause C.1.6.4.3 regarding access to information or reasons must be submitted in writing to:

The Municipal Manager, Kouga Local Municipality, PO Box 21, Jeffreys Bay, 6330.

C.1.7 Kouga Local Municipality Supplier Database Registration

Tenderers are required to be registered on the Kouga Local Municipality's Supplier Database as a service provider. Tenderers must register as such upon being requested to do so in writing and within the period contained in such a request, failing which no orders can be raised or payments processed from the resulting contract. In the case of Joint Venture partnerships this requirement will apply individually to each party of the Joint Venture.

Tenderers who wish to register on the Kouga Local Municipality's Supplier Database may collect registration forms from the Supplier Management Unit located within the Supplier Management / Registration Office, *16 Woltemade Road, Jeffreys Bay*.

C.1.8 National Treasury Web Based Central Supplier Database (CSD) Registration

Tenderers are required to be registered on the National Treasury Web Based Central Supplier Database (CSD) as a service provider. Tenderers must register as such upon being requested to do so in writing and within the period contained in such a request, failing which no orders can be raised or payments processed from the resulting contract. In the case of Joint Venture partnerships this requirement will apply individually to each party of the Joint Venture.

Tenderers who wish to register on the National Treasury Web Based Central Supplier Database (CSD) may do so via the web address **https://secure.csd.gov.za**.

It is each tenderer's responsibility to keep all the information on the National Treasury Web Based Central Supplier Database (CSD) updated.

C.2 Tenderer's obligations

C.2.1 Eligibility

C.2.1.1 *Delete the clause and replace with the following:*

Tenderers must submit a tender offer that complies in all aspects to the conditions as detailed in this document. Only those tenders that comply in all aspects with the tender conditions, specifications, pricing instructions and contract conditions, and the tenderer, or any of its principals, is not under any restriction to do business with the Employer or the State, will be declared responsive.

Add the following to C.2.1.2:

C.2.1.2 Only those tender submissions from which it can be established that a clear and unambiguous offer has been made to the Employer, by whom the offer has been made and what the offer constitutes, will be declared responsive.

Add the following clauses after C.2.1.2:

C.2.1.3 Only those tenders that satisfy the following criteria will be declared responsive:

C.2.1.3.1 Construction Industry Development Board (CIDB) Registration

Only those tenders submitted by tenderers who are registered, or capable of being registered, with an active status with the CIDB, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25 (7A) of the Construction Industry Development Regulations, for a CE and/or ME class of construction work, will be declared responsive. Tenderers must obtain such active status upon being requested to do so in writing and within the period contained in such a request, failing which their tenders will be declared non-responsive.

Joint Ventures are eligible to submit tenders provided that:

a) every member of the joint venture is registered with an active status with the CIDB.
b) the lead partner has a contractor grading designation of not lower than one level below the required grading designation in the CE class of construction work: and
c) the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a 6CE class of construction work or a value determined in accordance with Regulation 25 (1B) or 25 (7A) of the Construction Industry Development Regulations.

For alpha-numeric associated with the contractor Grading Designations see Table 1 in Annexure C included.

C.2.1.3.2 Compliance with requirements of Kouga Local Municipality's SCM Policy and procedures

Only those tenders that are compliant with the requirements below will be declared responsive:

a) Full name of entity submitting tender to be provided.
b) Identification number or company or other registration number to be provided.
c) Tax reference number to be provided.
d) VAT registration number to be provided.
e) A completed **Certificate of Authority for Partnerships/ Joint Ventures/ Consortiums** to be provided authorising the tender to be made and the signatory to sign the tender on the partnership / joint venture / consortium's behalf (applicable schedule to be completed).
f) A copy of the partnership / joint venture / consortium agreement to be provided.
g) A completed **Declaration of Interest – State Employees** to be provided and which does not indicate any non-compliance with the legal requirements relating to state employees (applicable schedule to be completed).
h) A completed **Declaration – Conflict of Interest** and **Declaration of Bidder's past Supply Chain Management Practices** to be provided and which does not indicate any conflict or past practises that renders the tender non-responsive (applicable schedules to be completed).
i) A completed **Certificate of Independent Bid Determination** to be provided and which does not indicate any non-compliance with the requirements of the schedule (applicable schedule to be completed).
j) The tenderer (including any of its directors or members), has not been restricted in terms of abuse of the Supply Chain Management Policy.
k) The tenderer's tax matters with SARS are in order.
l) The tenderer is not an advisor or consultant contracted with the Employer.
m) The tenderer is not a person, advisor, corporate entity, or a director of such corporate entity, involved with the bid specification committee.

C.2.1.3.3 Minimum score for functionality compliance

In order to be considered for a contract in terms of this tender, tenderers must achieve the minimum score for functionality as stated below. Verifiable proof of similar Scope of Work contracts successfully completed in the past 5 years, must be submitted in the applicable Returnable Schedule. These must be substantiated with completion certificates and the most recent contact information of the issuer of the certificate. The submitted completed contract information should contain details of both the Employer and Employer's Agent appointed. Tenderers are to ensure that all completion certificates submitted provide all the relevant information in order to claim the points. Failure to submit completion certificates with complete information may result in the tenderer scoring no points for the particular item.

The description of the functionality criteria and the maximum possible score for each is shown in the table below. The score achieved for functionality will be the sum of the scores achieved, in the evaluation process, for the individual criteria.

CRITERIA	APPLICATION OF THE CRITERIA	WEIGHT
Company Experience Schedule 1G	Tenderers to demonstrate experience in the following projects: Installation of water pipelines larger than or equal to 250mm Ø Relevant Experience: - 3 x completed projects > R10m - 2 x completed projects > R10m - 1 x completed projects > R10m	(Max 30 points) 30 points 20 points 10 points

CRITERIA	APPLICATION OF THE CRITERIA	WEIGHT
	Projects must have been completed in the past seven (7) years. Reference Letters and completion certificates, with contactable references to be included as part of Tender submission	
Key Personnel Schedule O-1	**Contracts Manager** Minimum Qualification B Sc Eng / B Eng / B Tech (0 points if minimum requirement not met) <u>Relevant Experience:</u> • 10+ years • 7 – 9 years • 3 – 6 years • 0 - 2 years	(Max 10 points) 10 points 8 points 5 points 0 points
Key Personnel Schedule O-2	**Construction Manager (Site Agent)** Minimum Qualification BSc Eng / B.Eng / BTech / N.Dip (0 points if minimum requirement not met) <u>Relevant Experience:</u> • 10+ years • 7 – 9 years • 3 – 6 years • 0 - 2 years	(Max 15 points) 15 Points 10 Points 5 Points 0 Points
Key Personnel Schedule O-3	**Pipe Laying Foreman** <u>Relevant Experience:</u> • 10+ years • 6 - 10 years • 3 - 5 years • 1 - 2 years	(Max 15 points) 15 Points 10 Points 5 Points 0 Points
Key Personnel Schedule O-4	**OH&S Officer (SACPCMP Registered – Proof required)** <u>Relevant Experience:</u> • 10+ years • 6 - 10 years • 3 - 5 years • 1 - 2 years	(Max 5 points) 5 Points 3 Points 2 Points 1 Points
Equipment Schedule 1P	**20 ton Excavator** **(Proof of Ownership / Rental Agreement required)** <u>Number Available for use on this project:</u> • 2 No or more • 1 No • 0 No	(Max 5 points) 5 points 3 points 0 points
Maximum possible score for Functionality		**80 points**

The minimum score for functionality is 70% i.e. minimum of 56 points. Tenderers that fail to achieve the minimum score for functionality will be declared as non-Responsive.

CV's for all Key Personnel to be provided on the supplied KLM template.

Where the entity tendering is a Joint Venture, the tender must be accompanied by a statement describing exactly what aspects of the work will be undertaken by each party to the joint venture (appended to Schedule 10, Part T2.2: Returnable Schedules).

Where the tenderer intends to sub-contract any of the work components listed above, full details of the intended sub-contractor and portions of work to be undertaken by them shall be provided with the tender. The verifiable experience of the sub-contractor relevant to the component of work to be performed by them will be taken into consideration when allocating scores. A letter of intent to go into sub-consultancy agreement must be included, else no points will be scored.

Tenderers shall ensure that all relevant information has been submitted with the tender offer in the prescribed format to ensure optimal scoring of functionality points for each Evaluation Criteria. Failure to provide all information **IN THIS TENDER SUBMISSION** could result in the tenderer not being able to achieve the specified minimum scoring.

C.2.1.3.4 Compulsory clarification meeting

Tenderers are required to attend a compulsory clarification meeting and site visit at which they may familiarise themselves with aspects of the proposed work, services or supply and pose questions.

Details of the meeting(s) are stated in the General Tender Information.

Only those tenders submitted by tenderers who have signed the attendance register will be declared responsive.

C.2.1.4.6 Good Standing with Bargaining Council

Only those tenders submitted by tenderers who are in good standing with the Bargaining Council for the Civil Engineering Industry (BCCEI) at the time of the tender award will be declared responsive. Tenderers must attach such proof to the schedule titled Declaration in Respect of Compliance with Labour Legislation or obtain such upon being requested to do so in writing and within the period contained in such a request, failing which their tenders will be declared non-responsive. Refer to Schedule 1O of the Returnable Schedules

C.2.3 Check documents

C.2.3 *Amend the clause to read:*

".....and notify the Employer's **Agent** of any discrepancy....."

Tenderers must examine the documents upon receipt to ensure that all pages and drawings (if applicable) are included and are to report any missing pages or drawings. Drawings which are illegible or indistinct, and errors or ambiguities in the Specifications, Schedule of Rates and Drawings or any contradictions between the specifications, Schedule of Rates and Drawings in order to obtain rulings on such errors, ambiguities or discrepancies. No claim for extras based on such errors, ambiguities or discrepancies will be considered after the opening of Tenders. Tenderers having any queries relating to discrepancies in, or omissions from the document shall contact the Employer or Employer's Agent immediately.

C.2.7 Clarification meeting

Add the following after the second sentence:

The arrangements for the compulsory site visit/clarification meeting are as stated on the General Tender Information page and in the Responsiveness Criteria (if applicable).

Tenderers should be represented at the site visit/clarification meeting by a person who is suitably qualified and experienced to comprehend the implications of the work involved.

Tender documents will not be made available at the site visit and/or clarification meeting.

Tenderers must sign the attendance list in the name of the tendering entity. Only Certificates of Attendance of Tenderers that attended the compulsory clarification meeting will be signed by the Employer or Employer's representative, after the compulsory clarification meeting has been completed. Addenda may be issued to and **tenders will be received only from those tendering entities appearing on the attendance list if their Certificate of Attendance was signed by the Employer or Employer's representative at the compulsory clarification meeting.**

Tender documents will not be made available at the site visit and/or clarification meeting.

C.2.8 Seek Clarification

Add the following after the first sentence:

The tenderer warrants that it has:

a) inspected the Specifications and read and fully understood the Conditions of Contract.
b) read and fully understood the whole text of the Specifications and Price Schedule and thoroughly acquainted itself with the nature of the goods proposed and generally of all matters which may influence the Contract.
c) visited the site(s) where delivery of the proposed works will take place, carefully examined existing conditions, the means of access to the site(s), the conditions under which the delivery is to be made, and acquainted itself with any limitations or restrictions that may be imposed by the Municipal or other Authorities in regard to access and transport of materials, plant and equipment to and from the site(s) and made the necessary provisions for any additional costs involved thereby.
d) requested the Employer to clarify the requirements contained in the Specifications and Price Schedule, the exact meaning or interpretation of which is not clearly intelligible to the tenderer.
e) received any notices to the tender documents which have been issued in accordance with the Employer's SCM Policy.

The Employer will therefore not be liable for the payment of any extra costs resulting from any claim submitted by the tenderer arising from any alleged ambiguity or uncertainty contained in the tender document.

C.2.11 Alterations to documents

Add the following to the clause:

"In the event of a mistake having been made on the Schedule of Rates, it shall be crossed out in non-erasable ink and be accompanied by a full signature of each signatory to the Tender at each and every price alteration."

Correction fluid shall not be used in the Schedule of Rates where prices are calculated to derive a total amount. If correction fluid has been used, the tender as a whole will be classified **non-responsive** and not be considered.

The Employer will reject and classify the tender **non-responsive** if corrections are not made in accordance with the above."

C.2.12 Alternative tender offers

C.2.12.1 *Add the following to C.2.12.1 at the end of the first sentence:*

If a tenderer wishes to submit an alternative tender offer, he shall do so as a separate offer on a separate set of tender documents. The alternative tender offer shall be submitted in a separate sealed envelope on a separate Form of Offer, both clearly marked "Alternative Tender" in order to distinguish it from the main tender offer.

While it is not necessary to duplicate all parts of the main tender offer, the alternative tender offer shall be supported by the following documents as applicable:

a) the schedule that compares the alternative(s) offered with the requirements of the issued tender documents
b) preliminary designs, calculations, drawings and all other pertinent technical information and characteristics must be submitted with the alternative tender offer, in order to enable the Employer to evaluate the efficacy of the alternatives proposed
c) revised Bills of Quantities, or parts thereof, highlighting the changes made, together with a revised Summary, the total of which has been carried to the Form of Offer
d) details of any proposed amendments to the Pricing Assumptions

C.2.12.3 *Add the following to C.2.12.3 at the end of the first sentence:*

An alternative of the highest ranked acceptable main tender offer that is priced higher than the main tender offer may be recommended for award, provided that the ranking of the alternative tender offer is higher than the ranking of the next ranked acceptable main tender offer.

The Employer's costs in confirming the acceptability of the alternative offer will be, *inter alia*, taken into account in considering the alternative offer.

The Employer will not be bound to consider alternative tenders and shall have sole discretion in this regard.

In the event that the alternative is accepted, the Contractor shall accept full responsibility that the alternative offer complies in all respects with the Employer's standards and requirements.

C.2.13 Submitting a tender offer

Add the following to C.2.13.1 at the end of the first sentence:

C.2.13.1 Where the tendering entity is a joint venture it is recommended that the standard CIDB Joint Venture Agreement be used.

Add the following to C.2.13.3 at the end of the first sentence:

C.2.13.3 Each Tenderer is required to return the original completed tender documents, including drawings with all the required information supplied, duly completed in non-erasable ink in all respects together an electronic copy of the completed tender document with returnable documents must be submitted with the tender submission saved on a flash drive or CD. **Failure to submit AN ORIGINAL HARD COPY AND A COPY ON EITHER USB or CD will deem the bid non-responsive. One electronic device must be submitted per contract.**

An original Bill of Quantities and Form of Offer and Acceptance (Form C1.1), duly completed and signed by the tenderer, must be returned in respect of the project for which a tender is submitted.

C.2.13.4 Add the following to clause C.2.13.4:

"Only authorised signatories may sign the original and all copies of the tender offer where required in terms of C.2.13.3

In the case of a **ONE-PERSON CONCERN** submitting a tender, this shall be clearly stated.

In case of a **COMPANY** submitting a tender, include a copy of a **resolution by its board of directors** authorising a director or other official of the company to sign the documents on behalf of the company.

In the case of a **CLOSE CORPORATION** submitting a tender, include a copy of a **resolution by its members** authorising a member or other official of the corporation to sign the documents on each member's behalf.

In the case of a **PARTNERSHIP** submitting a tender, **all the partners** shall sign the documents, unless one partner or a group of partners has been authorised to sign on behalf of each partner, in which case **proof of such authorisation** shall be included in the Tender.

In the case of a **JOINT VENTURE/CONSORTIUM** submitting a tender, include **a resolution** of each company of the Joint Venture together with a resolution by its members authorising a member of the Joint Venture to sign the documents on behalf of the Joint Venture.

Accept that failure to submit proof of authorisation to sign the tender, shall result in a Tender Offer being regarded as non-responsive."

Add the following to C.2.13.5 at the end of the first sentence:

C.2.13.5 The Employer's address for delivery of tender offers and identification details to be shown on each tender offer package are:

Employer:	Kouga Local Municipality.
Physical address:	16 Woltemade Street, Jeffreys Bay.
Identification details:	Bid Number: 68/2026 Title of Contract: **KWANOMZAMO BULK WATER: NEW WATER MAIN FROM HUMANSDORP WATER TREATMENT WORKS TO KWANOMZAMO**

Sealed tenders with the Tenderer's name and address and the endorsement "**BID NO. 68/2026 KWANOMZAMO BULK WATER: NEW WATER MAIN FROM HUMANSDORP WATER TREATMENT WORKS TO KWANOMZAMO** " on the envelope, must be placed in the appropriate official tender box at the abovementioned address.

Add the following to C.2.13.6:

C.2.13.6 A two-envelope procedure will **not** be followed (C.3.5).

Add the following to C.2.13.9:

C.2.13.9 Telephonic, telegraphic, telex, facsimile, e-mailed or posted tender offers will not be accepted.

Add the following subclauses after C.2.13.9:

C.2.13.10 By signing the offer part of C1.1 Form of Offer and Acceptance the tenderer declares that all information provided in the tender submission is true and correct.

C.2.13.11 The Employer may formally issue tender documents in electronic/hard copy format. An electronic version of the issued tender documents may be made available to the tenderer, upon written request in terms of this clause, subject to the following:

a) electronic copies of the issued tender documents, or parts thereof, will only be provided to tenderers who have been issued with the tender documents as contemplated in C.1.2 in hardcopy.
b) The electronic version shall not be regarded as a substitute for the issued tender documents.
c) The Employer shall not accept tenders submitted in electronic format. Only those tenders that have been completed on the issued hard copy tender document shall be considered, provided that printed

Bills of Quantities, in the same format (that is, layout, billed items and quantities) as those issued electronically by the Employer, may be submitted with the tender as stated in C.2.13.2.

d) Where Addenda have been issued which amend the Bills of Quantities, then the printed Bills of Quantities shall take these into account. The pages of the issued Bills of Quantities should not be removed from the tender document.
e) The Employer accepts no responsibility or liability arising from any reliance on or use of the electronic version provided in terms of this clause. Tenderers are alerted to the fact that electronic versions of the tender documents may not reflect any notices or addenda that amend the tender document.
f) Any non-compliance with these provisions, including effecting any unauthorised alterations to the tender documents as contemplated in C.2.11, shall render the tender non-responsive. The Employer reserves the right to take any action against such tenderer allowed in law including, in circumstances where the tender had already been awarded, the right to cancel the contract.
g) In requesting the electronic version of the tender documents or parts thereof, the tenderer is deemed to have read, understood, and accepted all the above conditions.

C.2.15 Closing time

C.2.15.1 The closing time for submission of tender offers is as stated in the Tender Notice and Invitation to Tender.

C.2.16 Tender offer validity

C.2.16.1 The tender offer validity period is **(90 calendar days)**.

Add the following to C.2.16.2:

C.2.16.2 Any further conditions introduced by the tenderer will be considered at the sole discretion of the Employer.

C.2.17 Clarification of tender offer after submission

Add the following to C.2.17 at the end of the third sentence:

A tender will be rejected as non-responsive if the tenderer fails to provide any clarification or supporting documents requested by the Employer within the time for submission stated in the Employer's written request for such clarification or documents.

C.2.18 Provide other material

Delete the following word in the first sentence of C.2.18.1:

C.2.18.1 notarized

Add the following to C.2.18.1 at the end of the first paragraph:

Provide, on written request by the Employer, where the transaction value (tendered amount) inclusive of VAT **exceeds R 10 million**:

a) audited annual financial statement for the past 3 years, or for the period since establishment if established during the past 3 years, if required by law to prepare annual financial statements for auditing.
b) a certificate signed by the tenderer certifying that the tenderer has no undisputed commitments for municipal services towards a municipality or other service provider in respect of which payment is overdue for more than 30 days.
c) particulars of any contracts awarded to the tenderer 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.
d) a statement indicating whether any portion of the goods or services are expected to be sourced from outside the Republic, and, if so, what portion and whether any portion of payment from the municipality or municipal entity is expected to be transferred out of the Republic.

Each party to a Consortium/Joint Venture shall submit separate certificates/statements in the above regard.

Add the following subclause after C.2.18.2:

C.2.18.3 Tenderers shall fully cooperate with the Employer's external service provider appointed to perform a due diligence review and risk assessment upon receipt of such written instruction from the Employer.

Failure to fully cooperate could result in a tender being declared as non-responsive.

C.2.18.4 Compliance with Occupational Health and Safety Act, 85 of 1993

Tenderers are to note the requirements of the Occupational Health and Safety Act, 85 of 1993 and the Construction Regulations, 2014 issued in terms of Section 43 of the Act. The Tenderer shall be deemed to have read and fully understood the requirements of the above Act and Regulations and to have allowed for all costs in compliance therewith.

In this regard the Tenderer shall submit with his tender or upon request, appended to Schedule 16: Health and Safety Plan in T2.2: Returnable Schedules, a draft Health and Safety Plan in respect of the Works in sufficient detail to demonstrate the necessary competencies and resources to perform the construction work all in accordance with the Act, Regulations and Health and Safety Specification in Part C3.7 Health and Safety Specifications for the works detailed in Part C3 Scope of Work.

C.2.20 Submit securities, bonds and policies

The successful Tenderer will be required to submit a Performance Guarantee in the prescribed format from an approved insurer or financial institution prior to the commencement of work on this contract.

C.2.23 Certificates

Add the following after the first sentence:

The tenderer is required to submit the following:

C.2.23.1 Evidence of tax compliance

Tenderers shall be registered with the South African Revenue Service (SARS) and their tax affairs must be in order and they must be tax compliant. In this regard, it is the responsibility of the Tenderer to submit evidence in the form of a valid Tax Clearance Certificate issued by SARS to the Employer at the Supplier Management Unit located within the Supplier Management / Registration Office, *16 Woltemade Street, Jeffreys Bay*, or included with this tender. The tenderer must also provide its Tax Compliance Status PIN number on the **Compulsory Enterprise Questionnaire**

Each party to a Consortium/Joint Venture shall submit a separate Tax Clearance Certificate.

Tenderers are to note that the Employer will not award a contract to a Tenderer whose tax matters are not in order.

C.2.23.2 Broad-Based Black Economic Empowerment Status Level Documentation

In order to qualify for preference points, it is the responsibility of the tenderer to submit documentary proof, either as certificates, sworn affidavits or any other requirement prescribed in terms of the B-BBEE Act, of its B-BBEE status level of contribution in accordance with the applicable Codes of good practise as issued by the Department of Trade and Industry, to the Kouga Local Municipality at the Supplier Management Unit located within the Supplier Management / Registration Office, *16 Woltemade Street, Jeffreys Bay* or included with the tender submission.

Consortiums/Joint Ventures will qualify for preference points, provided that the **entity** submits the relevant certificate/scorecard in accordance with the applicable codes of good practise. Note that, in the case of

unincorporated entities, a verified consolidated B-BBEE scorecard must be submitted in the form of a certificate with the tender.

Tenderers are further referred to the content of the **Preference Schedule** for the full terms and conditions applicable to the awarding of preference points.

The applicable code for this tender is the **Amended Codes for Measuring Broad-Based Black Economic Empowerment in the Construction Sector) unless in possession of a valid certificate in terms of the transitional arrangements contained in these Codes.**

The tenderer shall indicate in Section 4 of the **Preference Schedule** the Level of Contribution in respect of the enterprise status or structure of the tendering entity (the supplier).

Add the follow new clauses after C.2.23.2

C.2.24 Proposed Deviations and Qualifications

Where the tenderer cannot tender in all respects in accordance with the provisions contained in the tender documents, all deviations therefrom shall be clearly and separately listed in the schedule titled **Proposed Deviations and Qualifications by Tenderer** in T2.2 Returnable Schedules, or in a tenderer's covering letter expressly referenced in this schedule.

The tenderer accepts that the Employer will examine such deviations in terms of clause C.3.8.2 and shall not be bound to accept any such deviations or qualifications.

It must be clearly stated by the tenderer whether the sum tendered in the Tender Offer includes for all such deviations or qualifications listed or referred to in the schedule titled **Proposed Deviations and Qualifications by Tenderer** or not.

C.2.25 Employment Contracts

Accept that successful tenderers shall be obliged to conclude employment contracts with their employees, failing which the Municipality reserves the right to terminate the awarded contract.

C.2.26 Remuneration

Accept that successful tenderers shall pay their workers in accordance with SAFCEC rates or Civil Engineering Bargain Council rates.

C.2.27 Scope of Mandatory Subcontract Works

As per Part C3: Scope of Works, Section C3.3: Procurement

C.3 The Employer's undertakings

C.3.2 Issue Addenda

Delete the words "three days" from the first sentence and replace with:

"Five working days where possible"

Add the following to C.3.2 at the end of the paragraph:

Notwithstanding any requests for confirmation of receipt of` Addenda issued, the tenderer shall be deemed to have received such addenda if the employer can show proof of transmission thereof (or a notice in respect thereof) via electronic mail, facsimile, or registered post.

C3.4 Opening of tender submissions

Add the following to C.3.4.2 at the end of the paragraph:

The location for opening of the tender offers is the Tender Submission Office at the address as stated on the General Tender Information page.

C.3.8 Test for responsiveness

C.3.8.2 *Delete par C.3.8.2 (c)*

Replace the final sentence of C.3.8.2 with the following:

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

Add the following after clause C.3.8.2

C.3.8.3 The Employer reserves the right to accept a tender offer which does not, in the Employer's opinion, materially and/or substantially deviate from the terms, conditions, and specifications of the tender documents.

C.3.9 Arithmetical errors, omissions, and discrepancies

Add the following subclause after C.3.9.4

C.3.9.5 In the event of tendered rates or lump sums being declared by the Employer to be unacceptable to it because they are not priced, either excessively low or high, or not in proper balance with other rates or lump sums, the Tenderer may be required to produce evidence and advance arguments in support of the tendered rates or lump sums objected to. If, after submission of such evidence and any further evidence requested, the Employer is still not satisfied with the tendered rates or lump sums objected to, it may request the tenderer to amend these rates and lump sums along the lines indicated by it.

The Tenderer will then have the option to alter and/or amend the rates and lump sums objected to and such other related amounts as are agreed on by the Employer, but this shall be done without altering the tender offer in accordance with this clause.

Should the Tenderer fail to amend his tender in a manner acceptable to and within the time stated by the Employer, the Employer may declare the tender as non-responsive.

C.3.10 Clarification of a tender offer

Delete the clause and replace with the following:

C.3.10 The Employer may, after the closing date, request additional information or clarification from tenderer, in writing on any matter affecting the evaluation of the tender offer or that could give rise to ambiguity in a contract arising from the tender offer.

C.3.11 Evaluation of tender offers

C.3.11.1 General

Add the following subclause to C.3.11.1:

C.3.11.1.1 Specific goals

Up to 100 minus $\mathbf{W_1}$ tender evaluation points will be awarded to tenderers on the basis of the data supplied in Part 2: Returnable Documents of the Tender Portion.

Tenders shall be evaluated in terms of the Preferential Procurement Regulations 2017. The value of the tender is estimated not to exceed R50 000 000-00 and therefore the **80/20** system shall be applicable. The financial offer will be scored using Formula 2 (Option 1) where the value of W1 is 80 points. Up to a

maximum of 20 points for this tender will be awarded in terms of the points score by tenderers for B-BBEE and other specific goals.

Preference points shall be scored in accordance with Regulation 6 (2) or 7 (2) of the Preferential Procurement Regulations, 2017 therefore preference points will be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table below, but **points can only be obtained by submitting a certified B-BBEE Certificate**:

The value of this bid is estimated not to exceed R50 000 000.00 and therefore the (80/20) system shall be applicable

B-BBEE Status Level of Contributor	Number of Points for Preference (80/20)	Number of Points for Preference (90/10)
1	10	5
2	8	4
3	6	3
4	4	2
5	3	1
6	2	1
7	2	1
8	2	1
Non-compliant contributor	0	0

A trust, consortium or joint venture will qualify for points for their B-BBEE status level as a Legal entity, provided that the entity submits their B-BBEE status level certificate.

A trust, consortium or joint venture will qualify for points for their B-BBEE status level as an unincorporated entity, provided that the entity submits their consolidated B-BBEE scorecard as if they were a group structure and that such a consolidated B-BBEE scorecard is prepared for every separate tender.

No	Specific Goals Categories	Max points allocation	Evaluation Indicators
1	B-BBE Status Level Contributor	10	As for B-BBEE points allocation table above.
2	The promotion of enterprises located in a specific locality for work to be done or services to be rendered in that locality.	10	Located within the boundaries of the Kouga Local Municipality = 10 points
			Located within the boundaries of Sarah Baartman District Municipality = 6 points
			Located within the boundaries of the Eastern Cape = 4 points
			Outside of the boundaries of the Eastern Cape = 1 point
Bidders MUST submit valid B-BBEE sworn affidavit/ certificate AND Latest Municipal Billing Clearance Certificate/ Copy of Municipal Account / Rental Documentation in the name of the bidding entity, to claim points for specific goals. Virtual offices will not be accepted.			

Annex C
(normative)
Standard Conditions of Tender

Standard Conditions of Tender

C.1 General

C.1.1 Actions

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

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

Note: 1) A conflict of interest may arise due to a conflict of roles which might provide an incentive for improper acts in some circumstances. A conflict of interest can create an appearance of impropriety that can undermine confidence in the ability of that person to act properly in his or her position even if no improper acts result.
2) Conflicts of interest in respect of those engaged in the procurement process include direct, indirect or family interests in the tender or outcome of the procurement process and any personal bias, inclination, obligation, allegiance or loyalty which would in any way affect any decisions taken.

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

C.1.2 Tender Documents
The documents issued by the employer for the purpose of a tender offer are listed in the tender data.

C.1.3 Interpretation

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

C.1.3.2 These conditions of tender, the tender data and tender schedules which are required for tender evaluation purposes, shall form part of any contract arising from the invitation to tender.

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

a) **conflict of interest** means any situation in which:
i) someone in a position of trust has competing professional or personal interests which make it difficult to fulfil his or her duties impartially;
ii) an individual or tenderer is in a position to exploit a professional or official capacity in some way for their personal or corporate benefit; or
iii) incompatibility or contradictory interests exist between an employee and the tenderer who employs that employee.

b) **comparative offer** means the price after the factors of a non-firm price and all unconditional discounts it can be utilised to have been taken into consideration;
c) **corrupt practice** means the offering, giving, receiving or soliciting of anything of value to influence the action of the employer or his staff or agents in the tender process;

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

C.1.4 Communication and employer's agent

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

C.1.5 Cancellation and Re-Invitation of Tenders

C.1.5.1 An employer may, prior to the award of the tender, cancel a tender if-
a) due to changed circumstances, there is no longer a need for the Employer's Agenting and construction works specified in the invitation;
b) funds are no longer available to cover the total envisaged expenditure; or
c) no acceptable tenders are received.
d) there is a material irregularity in the tender process.

C.1.5.2 The decision to cancel a tender invitation must be published in the same manner in which the original tender invitation was advertised

C.1.5.3 An employer may only with the prior approval of the relevant treasury cancel a tender invitation for the second time.

C.1.6 Procurement procedures

C.1.6.1 General

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

C.1.6.2 Competitive negotiation procedure

C.1.6.2.1 Where the tender data require that the competitive negotiation procedure is to be followed, tenderers shall submit tender offers in response to the proposed contract in the first round of submissions. Notwithstanding the requirements of C.3.4, the employer shall announce only the names of the tenderers who make a submission. The requirements of C.8 relating to the material deviations or qualifications which affect the competitive position of tenderers shall not apply.

C.1.6.2.2 All responsive tenderers or at least a minimum of not less than three responsive tenderers that are highest ranked in terms of the evaluation criteria stated in the tender data shall be invited to enter into competitive negotiations based on the principle of equal treatment, keeping confidential the proposed solutions and associated information.

Notwithstanding the provisions of C.2.17, the employer may request that tenders be clarified, specified and fine-tuned in order to improve a tenderer's competitive position provided that such clarification, specification, fine-tuning or additional information does not alter any fundamental aspects of the offers or impose substantial new requirements which restrict or distort competition or have a discriminatory effect.

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

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

C.1.6.3 Proposal procedure using the two stage-system

C.1.6.3.1 Option 1

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

C.1.6.3.2 Option 2

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

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

C.2 Tenderer's obligations

C.2.1 Eligibility

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

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

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C.2.2 Cost of tendering

C.2.2.1 Accept that, unless otherwise stated in the tender data, the employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer complies with requirements.

C.2.2.2 The cost of the tender documents charged by the employer shall be limited to the actual cost incurred by the employer for printing the documents. Employers must attempt to make available the tender documents on its website so as not to incur any costs pertaining to the printing of the tender documents.

C.2.3 Check documents

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

C.2.4 Confidentiality and copyright of documents

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

C.2.5 Reference documents

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

C.2.6 Acknowledge addenda

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

C.2.7 Clarification meeting

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

C.2.8 Seek clarification

Request clarification of the tender documents, if necessary, by notifying the employer at least five (5) working days before the closing time stated in the tender data.

C.2.9 Insurance

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

C.2.10 Pricing the tender offer

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

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

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

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

C.2.11 Alterations to documents

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

C.2.12 Alternative tender offers

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

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

C.2.12.3 An alternative tender offer must only be considered if the main tender offer is the winning tender.

C.2.13 Submitting a tender offer

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

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

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

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

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

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

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

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

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

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

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

C.2.15 Closing time

C.2.15.1 Ensure that the employer receives the tender offer at the address specified in the tender data not later than the closing time stated in the tender data. Accept that proof of posting shall not be accepted as proof of delivery.
C.2.15.2 Accept that, if the employer extends the closing time stated in the tender data for any reason, the requirements of these conditions of tender apply equally to the extended deadline.

C.2.16 Tender offer validity

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

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

C.2.16.3 Accept that a tender submission that has been submitted to the employer may only be withdrawn or substituted by giving the employer’s agent written notice before the closing time for tenders that a tender is to be withdrawn or substituted. If the validity period stated in C.2.16 lapses before the employer evaluating tender, the contractor reserves the right to review the price based on Consumer Price Index (CPI).

C.2.16.4 Where a tender submission is to be substituted, a tenderer must submit a substitute tender in accordance with the requirements of C.2.13 with the packages clearly marked as “SUBSTITUTE”.

C.2.17 Clarification of tender offer after submission

Provide clarification of a tender offer in response to a request to do so from the employer during the evaluation of tender offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors by the adjustment of certain rates or item prices (or both). No change in the competitive position of tenderers or substance of the tender offer is sought, offered, or permitted.
Note: *Sub-clause C.2.17 does not preclude the negotiation of the final terms of the contract with a preferred tenderer following a competitive selection process, should the Employer elect to do so.*

C.2.18 Provide other material

C.2.18.1 Provide, on request by the employer, any other material that has a bearing on the tender offer, the tenderer's commercial position (including notarized joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the employer for the purpose of a full and fair risk assessment.
Should the tenderer not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the employer's request, the employer may regard the tender offer as non-responsive.
C.2.18.2 Dispose of samples of materials provided for evaluation by the employer, where required.

C.2.19 Inspections, tests and analysis

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

C.2.20 Submit securities, bonds and policies

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

C.2.21 Check final draft

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

C.2.22 Return of other tender documents

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

C.2.23 Certificates
Include in the tender submission or provide the employer with any certificates as stated in the tender data.

C.3 The employer's undertakings

C.3.1 Respond to requests from the tenderer

C.3.1.1 Unless otherwise stated in the tender Data, respond to a request for clarification received up to five (5) working days before the tender closing time stated in the Tender Data and notify all tenderers who collected tender documents.

C.3.1.2 Consider any request to make a material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used to prequalify a tenderer to submit a tender offer in terms of a previous procurement process and deny any such request if as a consequence:
a) an individual firm, or a joint venture as a whole, or any individual member of the joint venture fails to meet any of the collective or individual qualifying requirements;
b) the new partners to a joint venture were not prequalified in the first instance, either as individual firms or as another joint venture; or
c) in the opinion of the Employer, acceptance of the material change would compromise the outcome of the prequalification process.

C.3.2 Issue Addenda

If necessary, issue addenda that may amend or amplify the tender documents to each tenderer during the period from the date that tender documents are available until three (3) working days before the tender closing time stated in the Tender Data. If, as a result a tenderer applies for an extension to the closing time stated in the Tender Data, the Employer may grant such extension and, shall then notify all tenderers who collected tender documents.

C.3.3 Return late tender offers

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

C.3.4 Opening of tender submissions

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

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

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

C.3.5 Two-envelope system

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

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

C.3.6 Non-disclosure

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

C.3.7 Grounds for rejection and disqualification

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

C.3.8 Test for responsiveness

C.3.8.1 Determine, after opening and before detailed evaluation, whether each tender offer properly received:
a) complies with the requirements of these Conditions of Tender,
b) has been properly and fully completed and signed, and
c) is responsive to the other requirements of the tender documents.

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

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

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

C.3.9 Arithmetical errors, omissions, and discrepancies

C.3.9.1 Check responsive tenders for discrepancies between amounts in words and amounts in figures. Where there is a discrepancy between the amounts in figures and the amount in words, the amount in words shall govern.

C.3.9.2 Check the highest ranked tender or tenderer with the highest number of tender evaluation points after the evaluation of tender offers in accordance with C.3.11 for:

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

C.3.9.3 Notify the tenderer of all errors or omissions that are identified in the tender offer and either confirm the tender offer as tendered or accept the corrected total of prices.

C.3.9.4 Where the tenderer elects to confirm the tender offer as tendered, correct the errors as follows:

a) If bills of quantities or pricing schedules apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total shall govern and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted shall govern, and the unit rate shall be corrected.

b) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total of the prices shall govern and the tenderer will be asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices.

C.3.10 Clarification of a tender offer

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

C.3.11 Evaluation of tender offers

The Standard Conditions of Tender standardize the procurement processes, methods and procedures from the time that tenders are invited to the time that a contract is awarded. They are generic in nature and are made project specific through choices that are made in developing the Tender Data associated with a specific project.

Conditions of tender are by definition the document that establishes a tenderer's obligations in submitting a tender and the employer's undertakings in soliciting and evaluating tender offers. Such conditions establish the rules from the time a tender is advertised to the time that a contract is awarded and require employers to conduct the process of offer and acceptance in terms of a set of standard procedures. **The CIDB Standard Conditions of Tender are based on a procurement system that satisfies the following system requirements:**

Requirement	Qualitative interpretation of goal
Fair	The process of offer and acceptance is conducted impartially without bias, providing simultaneous and timely access to participating parties to the same information.
Equitable	Terms and conditions for performing the work do not unfairly prejudice the interests of the parties.
Transparent	The only grounds for not awarding a contract to a tenderer who satisfies all requirements are restrictions from doing business with the employer, lack of capability or capacity, legal impediments and conflicts of interest.
Competitive	The system provides for appropriate levels of competition to ensure cost effective and best value outcomes.

The activities associated with evaluating tender offers are as follows:

a) Open and record tender offers received
b) Determine whether or not tender offers are complete
c) Determine whether or not tender offers are responsive
d) Evaluate tender offers
e) Determine if there are any grounds for disqualification
f) Determine acceptability of preferred tenderer
g) Prepare a tender evaluation report
h) Confirm the recommendation contained in the tender evaluation report

C.3.11.1 General

The employer must appoint an evaluation panel of not less than three persons conversant with the proposed scope of work to evaluate each responsive tender offer using the tender evaluation methods and associated evaluation criteria and weightings that are specified in the tender data.

C.3.12 Insurance provided by the employer

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

C.3.13 Acceptance of tender offer

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

a) is not under restrictions, or has principals who are under restrictions, preventing participating in the employer's procurement;
b) can, as necessary and in relation to the proposed contract, demonstrate that he or she possesses the professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and reputation, expertise and the personnel, to perform the contract;
c) has the legal capacity to enter into the contract;
d) is not; insolvent, in receivership, under Business Rescue as provided for in chapter 6 of the Companies Act No. 2008, bankrupt or being wound up, has his/her affairs administered by a court or a judicial officer, has suspended his/her business activities or is subject to legal proceedings in respect of any of the foregoing;
e) complies with the legal requirements, if any, stated in the tender data; and
f) is able, in the opinion of the employer, to perform the contract free of conflicts of interest.

C.3.14 Prepare contract documents

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

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

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

C.3.15 Complete adjudicator's contract

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

C.3.16 Registration of the award

An employer must, within twenty-one (21) working days from the date on which a contractor's offer to perform a construction works contract is accepted in writing by the employer, register and publish the award on the cidb Register of Projects.

C.3.17 Provide copies of the contracts

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

C.3.18 Provide written reasons for actions taken

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

Alpha-numerics associated with the Contractor Grading Designations

Table 1: Contractor grading designations and associated parameters, as per Government Notice 357 of 2019 [Notice No.42561], dated 05 July 2019.

Contractor Grading Designation	Tender Value Range designation	Maximum value of contract that a contractor is considered capable of performing (R)
1 (class of construction works)	1	R0 - R500 000
2 (class of construction works)	2	≤R1 000 000
3 (class of construction works)	3	≤R 3 000 000
4 (class of construction works)	4	≤R 6 000 000
5 (class of construction works)	5	≤R 10 000 000
6 (class of construction works)	6	≤R 20 000 000
7 (class of construction works)	7	≤R 60 000 000
8 (class of construction works)	8	≤R 200 000 000
9 (class of construction works)	9	>R 200 000 000 - No Limit

THE TENDER

PART 2 (OF 2): RETURNABLE DOCUMENTS

T2.1 List of Returnable Documents and Schedules

T2.2 Returnable Documents and Schedules

T2.1: LIST OF RETURNABLE DOCUMENTS AND SCHEDULES

The original completed tender document (refer clauses 3.2 and 4.13 of the Tender Data), excluding Drawings, shall be returned with all the required information supplied, duly completed in non-erasable ink in all aspects.

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

1. RETURNABLE SCHEDULES REQUIRED FOR TENDER EVALUATION PURPOSES

1A Status of Concern Submitting Tender
1B Authority for Signatory
1C Declaration of Interest in Tender of Persons in Service of the State
1D Compulsory Enterprise Questionnaire
1E Declaration of Tenderer's Past Supply Chain Management Practises
1F Form MBD6: Preference Points Claim Form in Terms of the Preferential Procurement Regulations 2022
1G Schedule of Work Satisfactorily carried out by the Tenderer for Private Clients or Organs of State
1H Schedule of Contracts Awarded to Tenderer by Organs of State
1I Company Information Required for Tenders greater than R 10 million
1J Certificate of Independent Bid Determination
1K Proposed Amendments
1L Proof or Registration and good standing with the Construction Industry Development Board (CIDB)
1M Proof of Registration with the Supplier Database
1N Proof of registration and good standing with the Civil Engineering Bargaining Council
1O Available personnel for this project: Details of Experience and Qualifications for Contracts Manager, Construction Manager, Pipe Laying Foreman and OH&S Officer
1P Available plant and equipment for this project: Details regarding the available plant and equipment for the project
1Q Preliminary Project Methodology, Program and Cashflow

2. RETURNABLE DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

2A Original Valid Tax Clearance Certificate/ Tax Pin
2B Municipal Billing Clearance Certificate
2C B-BBEE Status Level Certificates / Consolidated Scorecard

3. RETURNABLE SCHEDULES THAT WILL BE INCORPORATED INTO THE CONTRACT

3A Record of Addenda to Tender Documents
3B Personnel Schedule
3C Declaration Concerning Fulfilment of the Construction Regulations
3D Schedule of Proposed Subcontractors
3E Subcontractor Payment Declaration

4. OTHER SCHEDULES AND DOCUMENTS THAT WILL BE INCORPORATED INTO THE CONTRACT

C1.1 Form of Offer and Acceptance
C1.2 Contract Data
C2.2 Bill of Quantities

T2.2: RETURNABLE DOCUMENTS AND SCHEDULES

1A: STATUS OF CONCERN SUBMITTING TENDER

1. General

State whether the tenderer is a company, a closed corporation, a partnership, a sole practitioner or a joint venture:

(Mark the appropriate option below)

Public Company	
Private Company	
Closed Corporation	
Partnership	
Sole Proprietary	
Joint Venture	
Co-operative	

2. Information to be provided (Attached to the tender)

If the Tendering Entity is a:		Documentation to be submitted with the tender
1	Closed Corporation, incorporated under the Close Corporation Act, 1984, Act 69 of 1984	CIPRO CK1 or CK2 (Copies of the founding statement) and list of members
2	Private Company incorporated with share capital, under the companies Act, 1973, Act 61 of 1973 (Including Companies incorporated under Art 53 (b))	Copies of: a) CIPRO CM 1 – Certificate of Incorporation b) CIPRO CM 29 – Contents of Register of Directors, Auditors and Officers c) CIPRO CM 39 – Notice of Change of Directors for private companies d) Shareholders Certificates of all Members of the Company.
3	Private Company incorporated with share capital, under the companies Act, 1973, Act 61 of 1973 in which any, or all, shares are held by another Closed Corporation or company with, or without, share capital	Copies of documents referred to in 1 and/or 2 above in respect of all such Closed Corporations and/or Companies.
4	Public Company incorporated with share capital, under the companies Act, 1973, Act 61 of 1973 (Including Companies incorporated under Art 21)	A signed statement by the Company's Secretary confirming that the Company is a Public Company. Copy of CM 29
5	Sole Proprietary or a Partnership	Certified Copy of the Identity Document of: a) Such Sole Proprietary, or b) Each of the Partners in the Partnership c) Copy of the Partnership agreement
6	Co-operative	CIPRO CR 2 – Copies of Company registration document. (The percentage of work to be done by each partner

If the Tendering Entity is a:		Documentation to be submitted with the tender
		must clearly be indicated on Form RDB 1 (or RDB 2 as applicable) of the tender document: MBD 6 Preference Points Claim Form in terms of the Preferential Procurement Regulations 2022).
7	Joint Venture	All the documents (as described above) as applicable to each partner in the JV as well as a copy of the Joint Venture agreement. (The percentage of work to be done by each partner of the joint venture must clearly be indicated in the Joint Venture Agreement).

Note:

(i) If the shares are held in trust provide a copy of the Deed of Trust (only the front page and pages listing the trustees and beneficiaries are required) as well as the Letter of Authority as issued by the Master of the Supreme Court, wherein trustees have been duly appointed and authorised, must be provided.

(ii) Include a copy of the Certificate of Change of Name (CM 9) if applicable. No. CM 9: name change certificate will be accepted as proof alone, for registration.

3. Bidders Must Register for VAT or be Registered for VAT Purposes in Terms of the Value-Added Tax Act, (Act No. 89 of 1991)

(Make an X in the appropriate space below)

Yes	
No	

REGISTRATION NO: ……

1B: AUTHORITY FOR SIGNATORY

Indicate the status of the tenderer by ticking the appropriate box hereunder. The tenderer must complete the certificate set out below for the relevant category.

A Company	B Partnership	C Joint Venture / Consortium	D Sole Proprietor	E Close Corporation

A Certificate for Company

I, ……., chairperson of the board of directors of ……, hereby confirm that by resolution of the board (copy attached) taken on ……. 20……....., * Mr / Ms …….. acting in the capacity of ……, and who will sign as follows: ……. be, and is hereby authorized to sign the tender and all documents and correspondences in connection with this tender as well as any contract resulting from it on behalf of the company.

NAME	CAPACITY	SIGNATURE

Note:
* Delete which is not applicable.
This resolution must be signed by all the Directors / Members / Partners of the Bidding Enterprise.
Should the number of Directors / Members / Partners exceed the space available above, additional names and signatures must be supplied on a separate page.

As witnesses:

1. ……..... Chairman: ……....

2. ……..... Date: ……....

B Certificate for Partnership

We, the undersigned, being the key partners in the business trading as ……, hereby authorize * Mr / Ms ……..., acting in the capacity of ……, and who will sign as follows: …….. be, and is hereby authorized to sign the tender and all documents and correspondences in connection with this tender as well as any contract resulting from it on behalf of the company.

NAME	ADDRESS	SIGNATURE	DATE

Note:
* Delete which is not applicable.
This resolution must be signed by all the Directors / Members / Partners of the Bidding Enterprise.
Should the number of Directors / Members / Partners exceed the space available above, additional names and signatures must be supplied on a separate page.

As witnesses:

……..... Signature: ……....

……..... Date: ……....

C Certificate for Joint Venture or Consortia

We, the undersigned, are submitting this tender offer in a * Joint Venture / Consortium and hereby authorise * Mr / Ms ……., acting in the capacity of lead partner, and who will sign as follows: ……..……..…….. be, and is hereby authorized to sign the tender and all documents and correspondences in connection with this tender as well as any contract resulting from it on behalf of the company.

This authorisation is evidenced by the attached power of attorney signed by legally authorised signatories of all partners to the * Joint Venture / Consortium.

NAME OF FIRM	ADDRESS	% OF CONTRACT VALUE	AUTHORISING SIGNATURE, NAME AND CAPACITY
(Lead Partner):			

Note:
* Delete which is not applicable.
This resolution must be signed by all the Members / Partners of the Bidding Enterprise.
Should the number of Members / Partners exceed the space available above, additional names and signatures must be supplied on a separate page.

As witnesses:

……..... Signature: ……....

……..... Date: ……....

D Certificate for Sole Proprietor

I, ……., hereby confirm that I am the sole owner of the business trading as ……

As witnesses:

1. ……..... Signature: …….....

2. ……..... Date: …….....

E. Certificate for Close Corporation

We, the undersigned, being the key members in the business trading as ……..……..……,

hereby authorize * Mr / Mrs ……, acting in the capacity of ……, to sign all documents in connection with this tender and any contract resulting from it on our behalf.

NAME	ADDRESS	SIGNATURE	DATE

Note:
* Delete which is not applicable.
This resolution must be signed by all the Directors / Members / Partners of the Bidding Enterprise.
Should the number of Directors / Members / Partners exceed the space available above, additional names and signatures must be supplied on a separate page.

As witnesses:

1. ……..... Chairman: ……....

2. ……..... Date: ……....

1C: DECLARATION OF INTEREST IN TENDER OF PERSONS IN SERVICE OF THE STATE

1. Where the tenderer is a natural person, state / declare whether the tenderer or an employee is in the service of the state, or has been in the service of the state during the past twelve months.

YES / NO (INDICATE)

If so, state particulars:

……

If so and where applicable, state the date of resignation:

……

2. Where the tenderer is not a natural person, state / declare whether any of its directors, managers, principal shareholders or stakeholders is in the service of the state, or have been in the service of the state during the past twelve months.

YES / NO (INDICATE)

If so, state particulars:

……

3. State / declare whether a spouse, child or parent of the tenderer or any of its directors, managers, shareholders or stakeholders referred to in subparagraph 2 is in the service of the state, or have been in the service of the state during the past twelve months.

YES / NO (INDICATE)

If so, state particulars:

……

4. State / declare whether the tenderer or any of its directors, managers, shareholders, stakeholders or employees referred to in subparagraph 2 is a person who is an advisor or consultant contracted with the municipality or municipal entity.

YES / NO (INDICATE)

If so, state particulars:

……

5. State / declare whether the tenderer or any of its directors, managers, shareholders or stakeholders referred to in subparagraph 2 is involved in another entity for this particular tender.

YES / NO (INDICATE)

If so, state particulars:

……

I, the undersigned, warrant that I am duly authorised to do so on behalf of the enterprise and confirm that the contents of this schedule are, to my personal knowledge and best belief, both true and correct.

Signed …….. Date ……..…….

Name ……..….. Position …….

Tenderer …….

1D: COMPULSORY ENTERPRISE QUESTIONNAIRE

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

SECTION 1: NAME OF ENTERPRISE: ……

SECTION 2: VAT REGISTRATION NUMBER, IF ANY ……..

SECTION 3: CIDB REGISTRATION NUMBER, IF ANY: ……

SECTION 4: PARTICULARS OF SOLE PROPRIETORS AND PARTNERS IN PARTNERSHIPS

Name*	Identity Number*	Personal Income Tax Number*

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

SECTION 5: PARTICULARS OF COMPANIES AND CLOSE CORPORATIONS

Company registration number ……

Close corporation number ……

Tax reference number ……

SECTION 6: RECORD OF SERVICE OF THE STATE

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

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

If any of the above boxes are marked, disclose the following: (insert separate page if necessary)

Name of Sole Proprietor, Partner, Director, Manager, Principal Shareholder or Stakeholder	Name of Institution, Public Office, Board or Organ of State and Position held	Status of Service (tick appropriate column)	
		Current	Within last 12 months

*Insert separate page if necessary

SECTION 7: RECORD OF SPOUSES, CHILDREN AND PARENTS IN THE SERVICE OF THE STATE

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

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

Name of Spouse, Child or Parent	Name of Institution, Public Office, Board or Organ of State and Position held	Status of Service (tick appropriate column)	
		Current	Within last 12 months

*Insert separate page if necessary

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

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

I, the undersigned, warrant that I am duly authorised to do so on behalf of the enterprise and confirm that the contents of this schedule are, to my personal knowledge and best belief, both true and correct.

Signed …….. Date …….

Name ……..... Position …….

Enterprise name …….

1E: DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTISES

1. This form serves as a declaration to be used by the Employer 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.

2. The tender of any Tenderer may be rejected if that Tenderer, or any of its directors have:

   a) abused the Municipality's / Municipal entity's supply chain management system or been guilty of any improper conduct in relation to such system;
   b) been convicted for fraud or corruption during the past five years;
   c) wilfully neglected, reneged on or failed to comply with any government, Municipal or other public sector contract during the past five years; or
   d) been listed in the Register for Tender Defaulters in terms of Section 29 of the Prevention and Combating of Corrupt Activities Act, 2004 (Act 12 of 2004).

3. In order to give effect to the above, this form and the questionnaire must be completed in full and signed. Failure to comply will result in the tender being declared non-responsive.

ITEM	QUESTION	RESPONSE	
4.1	**Is the Tenderer or any of its directors listed on the National Treasurer's database as a company or persons prohibited from doing business with the public sector?** (Companies for persons who are listed on this database were informed in writing of this restriction by the National Treasury after the *audi alteram partem* rule was applied) The Database of Restricted Suppliers now resides on the National Treasury's website(www.treasury.gov.za)	Yes	No
	If so, furnish particulars:		
4.2	**Is the Tenderer 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, 2004 (Act 12 of 2004)?** (To access this Register enter the National Treasury's website, www.treasury.gov.za, click on the icon "Register for Tender Defaulters" or submit your written request for a hard copy of the Register to facsimile number 012-326-5445)	Yes	No
	If so, furnish particulars:		

ITEM	QUESTION	RESPONSE	
	Was the Tenderer 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	If so, furnish particulars:		
	Was any contract between the Tenderer and the Municipality / Municipal entity or any other organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes	No
4.4	If so, furnish particulars:		
	Does the tenderer 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
4.5	If so, furnish particulars:		

I, the undersigned, warrant that I am duly authorised to do so on behalf of the enterprise and confirm that the contents of this schedule are, to my personal knowledge and best belief, both true and correct.

Signed …….. Date ……..…….

Name ……..….. Position …….

Tenderer …….

1F: FORM MDB 6.1 – 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

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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

1.2 To be completed by the organ of state

(*delete whichever is not applicable for this tender*).

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/highest acceptable tender will be used to determine the accurate system once tenders are received

B-BBEE Status Level of Contributor	Number of Points for Preference (80/20)
1	10
2	8
3	6
4	4
5	3
6	2
7	2
8	2
Non-compliant contributor	0

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

SPECIFIC GOALS

No	Specific Goals Categories	Max points allocation	Evaluation Indicators
1	B-BBE Status Level Contributor	10	As for B-BBEE points allocation table above.
2	The promotion of enterprises located in a specific province for work to be done or services to be rendered in that province.	10	10 Points= Located within the boundaries of the Kouga Local Municipality
			6 Points- Located within the boundaries of Sarah Baartman District Municipality
			4 Points- Located within the boundaries of the Eastern Cape
			1 Point- Outside of the boundaries of the Eastern Cape
Bidders MUST submit valid B-BBEE sworn affidavit/ certificate AND Latest Municipal Billing Clearance Certificate/ Copy of Municipal Account / Rental Documentation in the name of the bidding entity, to claim points for specific goals. Virtual offices will not be accepted.			

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:

80/20 **or** **90/10**

$$Ps = 80\left(1 - \frac{Pt - P\,min}{P\,min}\right) \text{ or } \quad Ps = 90\left(1 - \frac{Pt - P\,min}{P\,min}\right)$$

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmin = 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:

80/20 **or** **90/10**

$$Ps = 80\left(1 + \frac{Pt - P\,max}{P\,max}\right) \text{ or } \quad Ps = 90\left(1 + \frac{Pt - P\,max}{Pmax}\right)$$

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

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.)

B-BBEE Status Level of Contributor	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points claimed (80/20 system) (To be completed by the tenderer)
1	10	
2	8	
3	6	
4	4	
5	3	
6	2	
7	2	
8	2	
Non-compliant contributor	0	
Specific Goals	**Number of Points Allocated (To be completed by the organ of state)**	**Number of points claimed (To be completed by the tenderer)**
Located within the boundaries of the Kouga Local Municipality	10	
Located within the boundaries of Sarah Baartman District Municipality	6	
Located within the boundaries of the Eastern Cape	4	
Outside of the boundaries of the Eastern Cape	1	
TOTAL POINTS	**20**	

5. DECLARATION WITH REGARD TO COMPANY/FIRM

5.1. Name of company/firm…….

5.2. Company registration number: ……...

5.3. 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]

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

i) The information furnished is true and correct;

ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;

iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;

iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –

(a) disqualify the person from the tendering process;

(b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;

(c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;

(d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and

(e) forward the matter for criminal prosecution, if deemed necessary.

……
SIGNATURE(S) OF TENDERERS(S)

SURNAME AND NAME: ……

DATE: ……

ADDRESS ……

……

1G: SCHEDULE OF WORK SATISFACTORILY CARRIED OUT BY THE TENDERER FOR PRIVATE CLIENTS OR ORGANS OF STATE

(Organs of State include any Local, Provincial or National Government Authority)

The following is a statement of **similar work as detailed in the Tender Data: Functionality Scoring** successfully executed by myself/ourselves:

Employer, Contact Person and Telephone Number	Description of Contract	Value of Work Inclusive of VAT (Rand)	Date Completed (State current if not yet complete)

Please note that the above needs to be supported by:

a) Copy of Appointment Letter
b) Copy of Completion Certificate
c) Contact details of the Employer or Employer's Agent. If the Reference cannot be contacted, to verify the information supplied, the Contract will not be considered.

I, the undersigned, warrant that I am duly authorised to do so on behalf of the enterprise and confirm that the contents of this schedule are, to my personal knowledge and best belief, both true and correct.

Signed …….. Date ……..…….

Name ……..….. Position …….

Tenderer …….

1H: SCHEDULE OF CONTRACTS AWARDED TO THE TENDERER BY ORGANS OF THE STATE
(Organs of State include any Local, Provincial or National Government Authority)

In terms of Clause 21(d)(iii) of the Supply Chain Management Policy, the tenderer shall list hereunder, particulars of contracts awarded to him by any Organ of State, during the past 5 years. **Any material non-compliance or dispute concerning the execution of any of these contracts must be mentioned.**

Include only those contracts where the tenderer identified in the signature block below was directly contracted by the Employer. Tenderers must not include services provided in terms of a sub-contract agreement. Where contracts were awarded in the name of a joint venture and the tenderer formed part of that joint venture, indicate in the column entitled "Title of the contract for the service" that the contract was in joint venture and provide the name of the joint venture that contracted with the employer. In the column for the value of the contract for the service, record the value of the portion of the contract performed (or to be performed) by the tender.

Organ of state, i.e. national or provincial department, public entity, municipality or municipal entity	Title of contract for the service	Value of Work Inclusive of VAT (Rand)	Date Completed (State current if not yet complete)

Any material non-compliance or dispute concerning the execution of any of these contracts?	Yes	No
If so, furnish particulars:		

Please note that the above needs to be supported by:

a) Copy of Appointment Letter
b) Copy of Completion Certificate
c) Contact details of the Employer or Employer's Agent. If the Reference cannot be contacted, to verify the information supplied, the Contract will not be considered.

I, the undersigned, warrant that I am duly authorised to do so on behalf of the enterprise and confirm that the contents of this schedule are, to my personal knowledge and best belief, both true and correct.

Signed …….. Date ……..…….

Name ……..….. Position …….

Tenderer …….

1I: COMPANY INFORMATION REQUIRED FOR TENDERS GREATER THAN R 10 MILLION

1. Is the tenderer is required by law to prepare audited annual financial statements? YES / NO

2. If so, provide audited annual financial statements:

   - for the past three years; or
   - since their establishment if established during the past three years.

Indicate whether these have been included in the tender. YES / NO

3. If answer for Question No.1 is NO, does the tenderer have annual financial statements? YES / NO

4. If so, provide audited annual financial statements:

   - for the past three years; or
   - since their establishment if established during the past three years.

Indicate whether the annual financial statements have been included in the tender. YES / NO

5. If answer for Question No.1 is NO, the tenderer shall attach to this form a letter from the tenderer's bank; in which the bank declares how the tenderer conducts its account. The contents of the bank's letter must state the credit rating that it accords to the tenderer for the business envisaged by this tender. The minimum acceptable credit rating applicable to tenderers for this tender is a C credit rating. The value of the bank rating must be calculated and checked with R2.5 million. Failure to provide the required letter with the tender submission may render the tenderer's offer unresponsive in terms of Clause 5.8 of the tender condition.

Indicate whether a credit rating letter from the bank has been included in the tender. YES / NO

6. Does the tenderer have any undisputed commitments for Municipal services towards a municipality or other service provider in respect of which payment is overdue for more than 30 days?

   YES / NO

If so, state particulars:

……

……

……

7. Has any contracts been awarded to the tenderer by an organ of state during the past five years?

   YES / NO

If so, state particulars:

……

……

……

8. Has there been any material non-compliance or dispute concerning the execution of such contract?

YES / NO

If so, state particulars:

……

……

……

9. Is any portion of the goods or services expected to be sourced out from outside the Republic?

YES / NO

If so, state what portion and whether any portion of payment from the Municipality is expected to be transferred out of the Republic.

……

……

……

……

I, the undersigned, warrant that I am duly authorised to do so on behalf of the enterprise and confirm that the contents of this schedule are, to my personal knowledge and best belief, both true and correct.

Signed …….. Date ……..…….

Name ……..….. Position …….

Tenderer …….

1J: CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

……
(Bid Number and Description)

in response to the invitation for the bid made by:

……
(Name of Municipality / Municipal Entity)

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

I certify, on behalf of …… that:
(Name of Bidder)

1. I have read and I understand the contents of this Certificate;

2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;

3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;

4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign, the bid, on behalf of the bidder;

5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:

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

6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium* will not be construed as collusive bidding.

7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:

   (a) prices;
   (b) geographical area where product or service will be rendered (market allocation)
   (c) methods, factors or formulas used to calculate prices;
   (d) the intention or decision to submit or not to submit, a bid;
   (e) the submission of a bid which does not meet the specifications and conditions of the bid; or
   (f) bidding with the intention not to win the bid.

8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.

*** 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.**

9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.

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.

Signed …….. Date ……..…….

Name ……..….. Position …….

Tenderer …….

1K: PROPOSED AMENDMENTS

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

The Tenderer's attention is drawn to Clause 3.8 of the Standard Conditions of Tender referenced in the Tender Data regarding the Employer's handling of material deviations and qualifications.

No amendment or deviation shall be binding in any way whatsoever unless recorded in the Schedule of Deviations signed by both parties to the Contract.

Page Number	Clause / Item	Proposal

I, the undersigned, warrant that I am duly authorised to do so on behalf of the enterprise and confirm that the contents of this schedule are, to my personal knowledge and best belief, both true and correct.

Signed …….. Date ……..…….

Name ……..….. Position …….

Tenderer …….

1L: PROOF OF REGISTRATION WITH THE CONSTRUCTION INDUSTRY DEVELOPMENT BOARD

Tenderers must attach to this page, proof of registration and good standing with the CIDB. (In the case of Joint Ventures, proof must be provided for each partner).

1M: PROOF OF REGISTRATION WITH THE CENTRAL SUPPLIER DATABASE (CSD)

All existing and prospective service providers/creditors to the Kouga Municipality's supplier database should note that registration with the electronic Central Suppliers Database (CSD www.csd.gov.za for self-registering), developed by National Treasury, is a requirement.

Prospective tenderers are to attach the ***Certificate of Registration with CSD*** to this page.

1N: DECLARATION IN RESPECT OF COMPLIANCE WITH LABOUR LEGISLATION

Only those tenders submitted by tenderers who are in good standing with the Bargaining Council for the Civil Engineering Industry (BCCEI) at the time of the tender award will be declared responsive. **Tenderers must attach such proof of good standing with the Civil Engineering Bargaining Council to this schedule.**

1O: DETAILS OF EXPERIENCE AND QUALIFICATIONS FOR CONTRACTS MANAGER, CONSTRUCTION MANAGER (SITE AGENT), GENERAL FOREMAN AND OH&S AGENT

Tenderers shall set out in the Schedules hereunder details of the Experience and Qualifications for the **Contract Manager**, the **Construction Manager (Site Agent)**, **General Foreman and the OHS Safety Officer Experience** in work of a similar nature to that for which their Tender is submitted.

The tenderer is reminded that the information provided with this Schedule shall be used in terms of Clauses C.2.1.4.3 in Part T.1.2 Tender Data to confirm the tendering entity's responsiveness of the Tender submitted. The tenderer is therefore required to supply detailed information relating to previous projects, and projects to date, to clearly illustrate that the tendering entity meets key staff experience requirements stipulated in Clause C.2.1.4.3.

Note: Only the information provided on this Schedule, or attached hereto, will be considered. Failure to complete this Schedule, with supporting documents (Qualification or Registration with Professional Institution), may result in the tender being non-responsive.

RETURNABLE SCHEDULE O-1 CONTRACTS MANAGER	NAME & SURNAME : …… YEARS ACCRUED RELEVANT EXPERIENCE: …… QUALIFICATIONS :……..				
CONTRACT & CLIENT	**NATURE OF WORK**	**POSITION HELD**	**VALUE OF WORK R(m)**	**DATE COMPLETED**	**EMPLOYER AND CONSULTING EMPLOYER'S AGENT (NAME, TEL No.)**

NOTE : Attach CV and Proof of Qualifications as per Tender's Obligations clause C2.1.4.3, in order to score ANY Functionality Points. The CV should confirm that the person is <u>currently</u> employed by the Bidder, alternatively the CV should be accompanied by an Employment Contact between the parties.

Also add this person to the Company's Organogram structure.

Number of sheets appended by the tenderer to this Schedule ..... (If nil, enter NIL).

RETURNABLE SCHEDULE O-2 CONSTRUCTION MANAGER (SITE AGENT)	NAME & SURNAME : …… YEARS ACCRUED RELEVANT EXPERIENCE : …… QUALIFICATIONS :……..				
CONTRACT & CLIENT	**NATURE OF WORK**	**POSITION HELD**	**VALUE OF WORK R(m)**	**DATE COMPLETED**	**EMPLOYER AND CONSULTING EMPLOYER'S AGENT (NAME, TEL No.)**

NOTE : Attach CV and Proof of Qualifications as per Tender's Obligations clause C2.1.4.3, in order to score ANY Functionality Points. The CV should confirm that the person is currently employed by the Bidder, alternatively the CV should be accompanied by an Employment Contact between the parties.

Also add this person to the Company's Organogram structure.

Number of sheets appended by the tenderer to this Schedule ..... (If nil, enter NIL).

RETURNABLE SCHEDULE O-3 GENERAL FOREMAN	NAME & SURNAME : …… YEARS ACCRUED RELEVANT EXPERIENCE : …… QUALIFICATIONS :……..				
CONTRACT & CLIENT	**NATURE OF WORK**	**POSITION HELD**	**VALUE OF WORK R(m)**	**DATE COMPLETED**	**EMPLOYER AND CONSULTING EMPLOYER'S AGENT (NAME, TEL No.)**

NOTE : Attach CV and Proof of Qualifications as per Tender's Obligations clause C2.1.4.3, in order to score ANY Functionality Points. The CV should confirm that the person is currently employed by the Bidder, alternatively the CV should be accompanied by an Employment Contact between the parties.

Also add this person to the Company's Organogram structure.

Number of sheets appended by the tenderer to this Schedule ..... (If nil, enter NIL).

RETURNABLE SCHEDULE O-4 OHS SAFETY OFFICER	NAME & SURNAME : …… YEARS ACCRUED EXPERIENCE AS OHS **SAFETY OFFICER** : …… QUALIFICATIONS :…….. SACPCMP REGISTRATION NO :……				
CONTRACT & CLIENT	**NATURE OF WORK**	**POSITION HELD**	**VALUE OF WORK R(m)**	**DATE COMPLETED**	**EMPLOYER AND CONSULTING EMPLOYER'S AGENT (NAME, TEL No.)**

NOTE : Attach CV and Proof of Qualifications as per Tender's Obligations clause C2.1.4.3, in order to score ANY Functionality Points. The CV should confirm that the person is currently employed by the Bidder, alternatively the CV should be accompanied by an Employment Contact between the parties.

Also add this person to the Company's Organogram structure.

Number of sheets appended by the tenderer to this Schedule ..... (If nil, enter NIL).

1P: DETAILS OF AVAILABLE CONSTRUCTION EQUIPMENT AND PLANT

Tenderers shall set out in the Schedules hereunder details of the available construction and equipment and plant available for use on this project.

The tenderer is reminded that the information provided with this Schedule shall be used in terms of Clauses C.2.1.4.3 in Part T.1.2 Tender Data to confirm the tendering entity's responsiveness of the Tender submitted. The tenderer is therefore required to supply detailed information relating to previous projects, and projects to date, to clearly illustrate that the tendering entity meets key staff experience requirements stipulated in Clause C.2.1.4.3.

Note: Only the information provided on this Schedule, or attached hereto, will be considered. Failure to complete this Schedule, with supporting documents (Proof of ownership and/or rental agreements), may result in the tender being non-responsive.

Proof of ownership in the form of NaTIS documentation should be attached if the plant is owned. If plant will be leased, an intention to lease or lease agreement should be attached.

The following are lists of major items of relevant equipment that I/we **presently** own or lease and will have available for this contract or will acquire or hire for this contract if my/our tender is accepted.

(a) Details of major equipment that is owned by and immediately available for use on this Contract should my / our tender be accepted.

RETURNABLE SCHEDULE 1P					
TYPE OF PLANT	**MODEL**	**REGISTRATION NUMBER**	**DETAILS**	**OWNED / LEASED**	**PROOF ATTACHED**

Number of sheets appended by the tenderer to this Schedule ..... (If nil, enter NIL).

(b) Details of major equipment that will be hired in, or acquired, for use on the Contract should my / our tender be accepted.

RETURNABLE SCHEDULE 1P					
TYPE OF PLANT	**MODEL**	**REGISTRATION NUMBER**	**DETAILS**	**OWNED / LEASED**	**PROOF ATTACHED**

Details as per Tender's Obligations in terms of clause C2.1.4.3 should be attached, in order to score ANY Functionality Points.

Attach additional pages if more space is required.

I, the undersigned, warrant that I am duly authorised to do so on behalf of the enterprise and confirm that the contents of this schedule are, to my personal knowledge and best belief, both true and correct.

Signed …….. Date ……..…….

Name ……..….. Position …….

Tenderer …….

1Q: PROJECT METHODOLOGY, PROGRAM AND CASHFLOW

Tenderers **must attach to this page**, a detailed works **methodology together with a preliminary works programme** and **project cashflow projections** for the project duration that align with the methodology.

The programme should clearly indicate the Contractor's intention to complete the project in the phases as indicated in the Contract Data.

Failure to submit a detailed methodology, together with the preliminary works programme and project cashflow projections will be grounds for rejection of the tender offer.

2A: ORIGINAL VALID TAX CLEARANCE CERTIFICATE

In terms of Clause 43 of the Municipal Supply Chain Management Policy, tenderers must ensure that they are up-to-date with their payments of taxes.

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

The tenderer must attach to this page an **original(s)** of a **valid** Tax Clearance Certificate(s) and the Tax compliance Status pin must be submitted.

Note:

1. In order to meet this requirement bidders are required to complete in full the form TCC 001 "Application for a Tax Clearance Certificate" and submit it to any SARS branch office nationally. The Tax Clearance Certificate Requirements are also applicable to foreign bidders / individuals who wish to submit bids.

2. SARS will then furnish the bidder with a Tax Clearance Certificate that will be valid for a period of 1 (one) year from the date of approval.

3. The original Tax Clearance Certificate must be submitted together with the bid. Failure to submit the original and valid Tax Clearance Certificate will result in the invalidation of the bid. Certified copies of the Tax Clearance Certificate will not be acceptable.

4. In bids where Consortia / Joint Ventures / Sub-contractors are involved, each party must submit a separate Tax Clearance Certificate.

5. Copies of the TCC 001 "Application for a Tax Clearance Certificate" form are available from any SARS branch office nationally or on the website www.sars.gov.za

6. Applications for the Tax Clearance Certificates may also be made via eFiling. In order to use this provision, taxpayers will need to register with SARS as eFilers through the website www.sars.gov.za

2B: MUNICIPAL BILLING CLEARANCE CERTIFICATE

In terms of Clause 38 of the Municipal Supply Chain Management Policy, tenderers must ensure that they are up-to-date with their payments of municipal accounts.

The tenderer shall attach to this page a Municipal Billing Clearance Certificate, which provides proof that his payment of Municipal accounts is up-to-date.

These certificates are obtainable from:

Kouga Local Municipality
33 Da Gama Road
Jeffreys Bay.

Should the tenderer not be based in the Kouga Local Municipality, he shall submit a Municipal Billing Clearance Certificate issued by the municipality in which he is based.

In the case where a tenderer leases premises, a sworn affidavit to this effect that gives details of the premises, name, address and contact details of the property owner or leasing agent must be submitted in place of a Municipal Billing Clearance Certificate.

2C: B-BBEE STATUS LEVEL CERTIFICATES / CONSOLIDATED B-BBEE SCORECARD

Bidders who qualify as EMEs in terms of the B-BBEE Act shall submit and attach to this page a certificate issued by an Accounting Officer as contemplated in the CCA or a Verification Agency accredited by SANAS or a Registered Auditor. Registered auditors do not need to meet the prerequisite for IRBA's approval for the purpose of conducting verification and issuing EMEs with B-BBEE Status Level Certificates.

Bidders other than EMEs shall submit and attach to this page their original and valid B-BBEE status level verification certificate or a certified copy thereof, substantiating their B-BBEE rating issued by a Registered Auditor approved by IRBA or a Verification Agency accredited by SANAS.

A trust, consortium or joint venture acting as a legal entity shall submit and attach to this page their B-BBEE status level certificate.

A trust, consortium or joint venture acting as an unincorporated entity shall submit and attach to this page their consolidated B-BBEE scorecard as if they were a group structure and such a consolidated B-BBEE scorecard shall be prepared for every separate bid.

Tertiary institutions and public entities shall submit and attach to this page their B-BBEE status level certificates in terms of the specialized scorecard contained in the B-BBEE Codes of Good Practice.

All EME / B-BBEE certificates must reflect the B-BBEE status level of the bidder and must be certified.

3A: RECORD OF ADDENDA TO TENDER DOCUMENTS

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

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

Attach additional pages if more space is required.

I, the undersigned, warrant that I am duly authorised to do so on behalf of the enterprise and confirm that the contents of this schedule are, to my personal knowledge and best belief, both true and correct.

Signed …….. Date ……..…….

Name ……..….. Position …….

Tenderer …….

3B: PERSONNEL SCHEDULE

The tenderer shall insert the number of personnel he proposes to employ on this tender/Contract:

JOB DESCRIPTION	NON-LOCAL (Key Personnel) (Permanently employed by Contractor	LOCAL			
		Women	Men	Youth	SMME
Contract Manager**					
Site Agent**					
OH&S Officer**					
Quantity Surveyor					
Surveyor					
General Foreman**					
Concrete Foreman**					
Pipe Laying Foremen**					
Excavator/TLB Operators**					
Bricklayers**					
Mechanics					
Electricians					
Watchmen					
Gang Bosses					
Pipe Layers**					
Labourers					
* Other					
Total					

* To be filled in / completed by tenderer.

****CV's must be attached, in which they highlight their previous experience.**

I, the undersigned, warrant that I am duly authorised to do so on behalf of the enterprise and confirm that the contents of this schedule are, to my personal knowledge and best belief, both true and correct.

Signed …….. Date ……..…….

Name ……..….. Position …….

Tenderer …….

3C: DECLARATION CONCERNING FULFILMENT OF THE CONSTRUCTION REGULATIONS

In terms of Regulation 4(3) of the Construction Regulations (2014), hereinafter referred to as the Regulations, promulgated on 7 February 2014 in terms of Section 43 of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993), the Employer shall not appoint a Contractor to perform construction work unless the Contractor can satisfy the Employer that his/her firm has the necessary competencies and resources to carry out the work safely and has allowed adequately in his/her tender for the due fulfilment of all the applicable requirements of the Act and the Regulations.

Tenderers shall answer the questions below:

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

	(Tick)
Yes	
No	

2. Indicate which approach shall be employed to achieve compliance with the Regulations.

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

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

……

……

……

……

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

……

……

……

……

……

5. List potential key risks identified and measures for addressing risks:

……

……

……

……

……

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

	(Tick)
Yes	
No	

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

1. …….. ID NO: ……
(Name in Print):

2. …….. ID NO: ……
(Name in Print):

3D: SCHEDULE OF PROPOSED SUBCONTRACTORS

We notify you that it is our intention to employ the following Subcontractors to work on this Contract.

If we are awarded a Contract we agree that this notification does not change the requirement for us to submit the names of proposed Subcontractors in accordance with requirements in the Contract for such appointments. If there are no such requirements in the Contract, then your written acceptance of this list shall be binding between us.

Name and Address of Proposed Subcontractor	Nature and Extent of Work	Previous Experience with Subcontractor	CIDB Grading of Subcontractor

Tenderers may attach a separate page providing details of the proposed subcontractors if there is insufficient space on this form.

The Company Profile of all proposed Sub Contractors are to be submitted.

I, the undersigned, warrant that I am duly authorised to do so on behalf of the enterprise and confirm that the contents of this schedule are, to my personal knowledge and best belief, both true and correct.

Signed …….. Date ……..…….

Name ……..….. Position …….

Tenderer …….

3E: SUBCONTRACTOR PAYMENT DECLARATION

Contractors are required to confirm work performed by SMMEs prior to an invoice being submitting by the SMMEs. Once the SMMEs submit the invoice, the Contractor must pay the SMMEs within 7 days of receipt of the invoices.

If we are awarded a Contract we agree to the payment terms stipulated above. We understand and confirm that we will:

1) Confirm work performed by SMMEs prior to an SMME invoice being processed
2) Provide payment of the SMME invoice within 7 days of receipt of the invoice, regardless of whether this has been claimed/paid by the Employer.

We warrant that we have sufficient cash flow to facilitate this request.

I, the undersigned, warrant that I am duly authorised to do so on behalf of the enterprise and confirm that this declaration is binding and shall form part of the Contract agreement.

Signed……. Date: ……..……

Name…….. Position: ……

Tenderer ……

CONTRACT

PART 1 (OF 4): AGREEMENT AND CONTRACT DATA

C1.1 Form of Offer and Acceptance

C1.2 Contract Data

C1.3 Form of Guarantee

C1.4 Health and Safety Agreement

C1.5 Disclosure Statement

C1.6 Adjudication Board Member Agreement

C1.1: FORM OF OFFER AND ACCEPTANCE

(Agreement)

1. OFFER

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

TENDER NO 68/2026: KWANOMZAMO BULK WATER: NEW WATER MAIN FROM HUMANSDORP WATER TREATMENT WORKS TO KWANOMZAMO

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

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

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

……

……

……

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

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

For the **Tenderer:**

……..
Signature

……..
Name

……..
Capacity

Name and Address of Organisation:

……..

……..

……..

……..

……..

Signature and Name of Witness:

……..
Signature

……..
Name

Date: ……..……..

2. ACCEPTANCE

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

The terms of the contract are contained in

Part C1: Agreements and Contract Data (which includes this Agreement)

Part C2: Pricing Data

Part C3: Scope of Work

Part C4: Site Information

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

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

The tenderer shall within two weeks after receiving a completed copy of this Agreement, including the Schedule of Deviation (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 the 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 (5) 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.

For the **Employer:**

……..
Signature

……..
Name

……..
Capacity

Name and Address of Organisation:

……..

……..

……..

……..

Signature and Name of Witness:

……..
Signature

……..
Name

Date: ……..……..

3. SCHEDULE OF DEVIATIONS

Notes:

1. The extent of deviations from the tender documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender.

2. A Tenderer's covering letter shall not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid, become the subject of agreements reached during the process, of offer and acceptance, the outcome of such agreement shall be recorded here.

3. Any other matter arising from the process of offer and acceptance, either as a confirmation, clarification or change to the tender documents, and which it is agreed by the Parties becomes an obligation of the contract, shall also be recorded here.

4. Any change or addition to the tender documents arising from the above agreements and recorded here, shall also be incorporated into the final draft of the Contract.

1. Subject: ……

   Details: ……

2. Subject: ……

   Details: ……

3. Subject: ……

   Details: ……

4. Subject: ……

   Details: ……

5. Subject: ……

   Details: ……

6. Subject: ……

   Details: ……

7. Subject: ……

   Details: ……

By the duly authorised representatives signing this Schedule of Deviations, the Employer and the Tenderer agree to and accept the foregoing Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and Addenda thereto as listed in the Tender Schedules, as well as any confirmation, clarification or changes to the terms of the offer agreed by the Tenderer and the Employer during this process of offer and acceptance.

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

For the Tenderer:		**For the Employer:**
.....	Signature	.....
.....	Name	.....
.....	Capacity	.....
Name and Address of Organisation		Name and Address of Organisation
.....		.....
.....		.....
.....		.....
.....		.....
.....		.....
.....		.....
.....	Witness Signature	.....
.....	Witness Name	.....
.....	Date	.....

4. CONFIRMATION OR RECEIPT

The Tenderer, (now Contractor), identified on the Offer part of this Agreement, hereby confirms receipt from the Employer, identified in the Acceptance part of this Agreement, of one fully completed original copy of this Agreement for Contract no. 68/2026, including the Schedule of Deviations (if any) today:

the ……..…….. (day)

of ……..…….. (month)

20 …… (year)

at …….. (place)

For the **Contractor**:

……..
Signature

……..
Name

……..
Capacity

Signature and Name of Witness:

……..
Signature

……..
Name

C1.2: CONTRACT DATA

The General Conditions of Contract for Construction Works, Third Edition, (2015) published by the South African Institution of Civil Employer's Agents (SAICE), Private Bag X200, Halfway House, 1685, are applicable to this Contract and are obtainable from www.saice.org.za.

Copies of these Conditions of Contract may be obtained on the tenderer's own cost from the South African Institution of Civil Engineering (SAICE). (Tel: 011 – 055 947).

PART 1: DATA PROVIDED BY THE EMPLOYER

The following amendments and additions to the Clauses are the contract specific data applicable to this Contract:

Clause	Description / Wording
1.1.1.5	The commencement date for each phase, as described in **C3.1: DESCRIPTION OF THE WORKS,** shall be the date as agreed during the first contractual meeting between the Client, the Client's representative for each phase, subject to on the Contractor having received a copy of the signed form of offer and acceptance and schedule of deviations if applicable by the agreed date.
1.1.1.13	The Defects Liability Period is 12 months, measured from the date of the Certificate of Completion for Phase 1 and Phase 2. Thus, separate Defects Liability Periods will be applicable for work completed as part of Phase 1 and Phase 2.
1.1.1.14	The time for achieving Practical Completion is: **Phase 1:** Work to be completed with funding made available for the 2026/2027 Financial Year - **7 months**, calculated from the Commencement Date for the phase. **Phase 2:** Work to be completed with funding made available for the 2027/2028 Financial Year - **3 months**, calculated from the Commencement Date for the phase Separate Practical completion certificates (and Completion Certificates) will be issued per phase indicated above. Also see Clause 5.5.1
1.1.1.15	The Employer is the **Kouga Local Municipality, represented by Mr. J du Toit** and/or such other person or persons duly authorised thereto by the Employer in writing.
1.1.1.16	The Employer's Agent is **Engineering Advice & Services (Pty) Ltd**, hereinafter also refer to as "**EAS**", represented by an employee duly authorised thereto in writing. Any reference to the term "Engineer" in this Contract shall mean "Employer's Agent" and vice versa.
1.1.1.17	Any reference to the term "Engineers Representative" in the Contract shall mean "Employers Agent Representative" and vice versa.
1.1.1.26	The Pricing Strategy is: **Re-measurable Contract**
1.2.1.2	The Employer's address for receipt of communications is: 33 Da Gama Road Jeffreys Bay Postal Address: P O Box 21

Clause	Description / Wording
	Jeffrey Bay 6330 Telephone: 042 200 2200 email: tenders@kouga.gov.za
1.2.1.2	The Employer's Agent's address for receipt of communications and notices is: Engineering Advice & Services (Pty) Ltd 73 Heugh Road Walmer Gqeberha 6070 Telephone: 041 581 2421
3.2.3	The Employer's Agent shall obtain specific approval from the Employer before executing any of his functions or duties according to the following Clauses of the General Condition of Contract: 1. **New Clause 3.2.3.1** "For expenditure on the Contract to exceed the Contract Sum"; 2. **Existing Clauses:** 3.3.1 - Nomination of person as Employer's Agent's Representative. 5.7.2 - Work at night as well as by day 5.8 - Non-working times 5.12 - Granting of extension of time excluding Clause 5.12.2.2 (Abnormal climatic conditions) 5.13 - Reduction of penalty for delay. 5.14.2 - The issue of a Certificate of Practical Completion. 5.14.4 - The issue of a Certificate of Completion. 5.16.1 - The issue of a Final Approval Certificate. 6.3 - Variation Orders which may exceed R 20 000 6.6 - Instruction to expend on Provisional and Prime Cost Sums 8.2.2.2 - Order to repair and make good damage arising from any "excepted" risk.
3.2.4	The Employer's Agent has been appointed as Agent on this contract, in terms of Clause 5 of the Construction Regulations, 2014 as promulgated in terms of Section 43 of the Occupational Health and Safety Act, 1993. The duly appointed H&S Officials has been appointed as Client Agents on this contract, in terms of Clause 5 of the Construction Regulations, 2014 as promulgated in terms of Section 43 of the Occupational Health and Safety Act, 1993. The Principal Contractor shall perform a preliminary assessment of the project generated H&S plan and submit such to the Employer's Agent for legal compliance reassessment & verification / approval prior to any works commencing. The duly appointed H&S Officials will be responsible for further monitoring and the auditing of the approved H&S plan for legal compliance.
4.1.3	*Add the following new clauses at the end of clause 4.1.2:* "The Employer and the Contractor hereby agree, in terms of the provisions of Section 37(2) of the Occupational Health and Safety Amendment Act, 1993 (Act 85 of 1993), hereinafter referred to as 'the

Clause	Description / Wording
	Act', that the following arrangements and procedures shall apply between them to ensure compliance by the Contractor with the provisions of the Act: (i) The Contractor undertakes to acquaint the appropriate officials and employees of the Contractor with all relevant provisions of the Act and the Regulations promulgated in terms of the Act. (ii) The Contractor undertakes that all relevant duties, obligations and prohibitions imposed in terms of the Act and Regulations on the Contractor will be fully complied with. (iii) The Contractor accepts sole liability for such due compliance with the relevant duties, obligations and prohibitions imposed by the Act and Regulations and expressly absolves the Employer from himself being obliged to comply with any of the aforesaid duties, obligations and prohibitions, with the exception of such duties, obligations and prohibitions expressly assigned to the Employer in terms of the Act and its associated Regulations. (iv) The Contractor agrees that any duly authorised officials of the Employer shall be entitled, although not obliged, to take such steps as may be necessary to monitor that the Contractor has conformed to his undertakings as described in paragraphs (i) and (ii) above, which steps may include, but will not be limited to, the right to inspect any appropriate site or premises occupied by the Contractor, or any appropriate records or safety plans held by the Contractor. (v) The Contractor shall be obliged to report forthwith to the Employer and Employer's Agent any investigation, complaint or criminal charge which may arise as a consequence of the provisions of the Act and Regulations, pursuant to work performed in terms of this Contract, and shall, on written demand, provide full details in writing, to the Employer and Employer's Agent, of such investigation, complaint or criminal charge
4.1.4	The Contractor shall furthermore, in compliance with Constructional Regulations 2014 to the Act: (i) Acquaint himself with the requirements of the Employer's health and safety specification as laid down in regulation 5(1)(b) of the Construction Regulation 2014, and prepare a suitably and sufficiently documented health and safety plan as contemplated in regulation 7(1)(a) of the Construction Regulation 2014 for approval by the Employer or his assigned agent. The Contractor's health and safety plan and risk assessment shall be submitted to the Employer for approval within fourteen (14) days after receiving a completed copy of the Agreement and shall be implemented and maintained from the Commencement of the Works. (ii) The Employer, or his assigned agent, reserves the right to conduct periodic audits, as contemplated in the Construction Regulations, 2014, to ensure that the Contractor is compliant in respect of his obligations. Failure by the Contractor to comply with the requirements of these Regulations shall entitle the Employer's Agent, at the request of the Employer or his agent, to suspend all or any part of the Works, with no recourse whatsoever by the Contractor for any damages incurred as a result of such suspension, until such time that the Employer or his agents are satisfied that the issues in which the Contractor has been in default have been rectified."
4.3.1	*Add the following to the clause:* "The Contractors attention is drawn to the following: • The Basic Conditions of Employment Act of 1997 (Act No 75 of 1997); • The National Environmental Management Act (NEMA), Act 107 of 1998; • Basic Conditions of Employment Act of 1997 (Act No 75 of 1997) as per Government Notice R63 of 25 January 2002, shall apply to works described in the Scope of Work as being labour intensive and which are undertaken by unskilled or semi-skilled workers; • Occupational Health and Safety Act of 1993 (Act No 85 of 1993); • The Occupational Health and Safety Specification prepared by the Employer in terms of the Construction Regulations, 2014 promulgated in terms of Section 43 of the Occupational Health and Safety Act (Act No. 85 of 1993); • Construction Regulation 2014; • All other relevant applicable laws, regulations, statutory provisions and agreements.

Clause	Description / Wording
	Without limiting the Contractor's obligations in terms of the Contract, the Contractor shall before commencement of the Works or any part thereof, be in the possession of an approved Health and Safety Plan, Waste License, Construction Works Permit, etc."
4.3	*Add the following at the end of Clause 4.3:* "4.3.3 The Employer and the Contractor hereby agree, in terms of the provisions of Section 37(2) of the Occupational Health and Safety Amendment Act, 1993 (Act 85 of 1993), hereinafter referred to as 'the Act', that the following arrangements and procedures shall apply between them to ensure compliance by the Contractor with the provisions of the Act: (i) The Contractor undertakes to acquaint the appropriate officials and employees of the Contractor with all relevant provisions of the Act and the Regulations promulgated in terms of the Act. (ii) The Contractor undertakes that all relevant duties, obligations and prohibitions imposed in terms of the Act and Regulations on the Contractor will be fully complied with. The Contractor accepts sole liability for such due compliance with the relevant duties, obligations and prohibitions imposed by the Act and Regulations and expressly absolves the Employer from himself being obliged to comply with any of the aforesaid duties, obligations and prohibitions, with the exception of such duties, obligations and prohibitions expressly assigned to the Employer in terms of the Act and its associated Regulations. (iii) The Contractor agrees that any duly authorised officials of the Employer shall be entitled, although not obliged, to take such steps as may be necessary to monitor that the Contractor has conformed to his undertakings as described in paragraphs (i) and (ii) above, which steps may include, but will not be limited to, the right to inspect any appropriate site or premises occupied by the Contractor, or any appropriate records or safety plans held by the Contractor. (iv) The Contractor shall be obliged to report forthwith to the Employer and Employer's Agent any investigation, complaint or criminal charge which may arise as a consequence of the provisions of the Act and Regulations, pursuant to work performed in terms of this Contract, and shall, on written demand, provide full details in writing, to the Employer and Employer's Agent, of such investigation, complaint or criminal charge. 4.3.4 The Contractor shall furthermore, in compliance with Constructional Regulations 2014 to the Act: (i) Acquaint himself with the requirements of the Employer's health and safety specification as laid down in regulation 5(1)(b) of the Construction Regulation 2014, and prepare a suitably and sufficiently documented health and safety plan as contemplated in regulation 7(1)(b) of the Construction Regulation 2014 for approval by the Employer or his assigned agent. The Contractor's health and safety plan and risk assessment shall be submitted to the Employer for approval within fourteen (14) days after **the Commencement Date of each phase as descrived** and shall be implemented and maintained from the Commencement of the Works. (ii) The Employer, or his assigned agent, reserves the right to conduct periodic audits, as contemplated in the Construction Regulations 2014, to ensure that the Contractor is compliant in respect of his obligations. Failure by the Contractor to comply with the requirements of these Regulations shall entitle the Employer's Agent, at the request of the Employer or his agent, to suspend all or any part of the Works, with no recourse whatsoever by the Contractor for any damages incurred as a result of such suspension, until such time that the Employer or his agents are satisfied that the issues in which the Contractor has been in default have been rectified."
5.3.1	The documentation required before the commencement of the Works is (Prior to the commencement of each phase as described): **a) Health and Safety Plan (Refer Clause 4.3)** The Contractor shall deliver his health and safety plan, complete with Risk Assessment, in terms of

Clause	Description / Wording
	Regulation 5(1) of the Construction Regulations (2014). **b) Initial Programme (Refer Clause 5.6) including Cash Flow forecast** The Contractor shall deliver his Initial Programme of carrying out the Works. **c) Security (Refer Clause 6.2)** The Contractor shall submit a Performance Guarantee from a South African Insurance Company or Bank to be jointly and severally bound with the Contractor, in accordance with the provisions of the Form of Guarantee, in a sum equal to the following: **Phase 1 – R 950 000.00** **Phase 2 – R 450 000.00** The wording of the Guarantee shall be identical to the pro-forma provided under Clause C1.3: Form of Guarantee of the Contract Data. **d) Insurance (Refer Clause 8.6)** The Contractor shall submit a "Letter of Confirmation" from the approved Insurance Company certifying that: i) that the applicable Contractor complies in full with all the requirements and stipulations of Clause 8.6 of the Conditions of Contract, as amended in the Contract Data and, ii) the Insurance Company will immediately notify the Employers Agent of any changes or amendments to the policy / policies and, iii) the Insurance Company will immediately notify the Employers Agent of any non-payment or default relating to the premiums and or policy / policies and, iv) the Insurance Company will immediately notify the Employers Agent should any of the applicable insurances expire or be cancelled before the issue of the "Certificate of Completion" or the "Final Approval Certificate", as the case may be." v) Letter of Good Standing from the Compensation Commissioner (if not insured with a Licensed Compensation Insurer) also be submitted, and vi) A copy of the Health and Safety Mandatory Agreement required in terms of Section 37(2) of the Occupational Health and Safety Act 85 of 1993 as amended, per the proforma in C1.4 **e) Letter of Good standing with the Building Industry Bargain Council** The Contractor shall commence executing the Works within twenty-one (21) days after the Commencement Date, provided all the above documentation has been submitted and approved. **Please note that all above shall be submitted prior to the commencement of each phase as described. Approval to commence shall not be provided, should the above not be submitted within the stipulated timeframe.**
5.3.2	The documentation shall be submitted within 14 days from the Commencement Date, as described in 1.1.1.5.
5.3.3	*Add the following to Clause 5.3.3 after the last sentence:* "The Contractor shall not commence working until they have an approved project specific health and safety plan in terms of the Occupational Health and Safety Act 1993: Construction Regulations 2014 and complied with the initial requirements thereof, and a Construction Works Permit." A separate health and safety file shall be submitted for Phase 1 and Phase 2, respectively.

Clause	Description / Wording
5.4.1	Between the wording "… Site," and "the location …." In the third line, add the following: "subject to the Contractor having an approved project specific health and safety plan in terms of the Occupational Health and Safety Act 1993: Construction Regulations 2014 and complied with the initial requirements thereof, and a Construction Works Permit."
5.4.2	Access to and possession of Site shall not be exclusive to the Contractor but as set out in the Scope of Work and Site Information.
5.5.1	It is the Client's wish to construct the proposed scope of works as one package, however due to funding constraints, the Project will be implemented over two (2) financial years namely, 2026/2027 (Phase 1), & 2027/2028 (Phase 2). Each phase shall therefore comprise of a work package (Phase) for that financial year, with a total of two work packages (Phases), all within the same Contract. The project is spread over the length of the town of Humansdorp, starting at the Water Treatment Works and terminating in the proposed Geelhout Development in Kwanomzamo. **Phase 1** - Clear start and completion positions for Phase 1 will be determined and agreed between the Client and the appointed Contractor, prior to commencement on site, based on submitted rates and the funding amount available for the applicable year, which will be utilised as the end point of Phase 1. Currently it is proposed that the works commence at the Water Treatment Works and that Phase 1 will end at the entrance to Kwanomzamo at the corner of the R330 and Nanto Street. **Phase 2** will commence from the end point of Phase 1 and end at the end of the pipeline, within Kwanomzamo, as detailed on the drawings. It will be required that all works be completed on the section of pipeline to be completed within each phase. This includes testing and commissioning of the pipeline as per the drawings, complete. At the end of year 1, once the Contractor has completed the works for that financial year, the Contractor will be allowed to stop work, de-establish site and wait until the funds have become available at the beginning of the second financial year (2027/2028). Once the funds are available the Contractor may re-establish on site. Effectively, the Contractor will be appointed for a 24-month period, but work will only be undertaken for an anticipated 7 and 3-month period at a time within each financial year indicated. **In terms of the Contract Adjudication, the Combined Price for all works will be taken into consideration**. Upon Successful completion of work for the completed phase, for each financial year, the Contractor shall be able to apply for a Certificate of Practical completion, and once the associated requirements are completed, the Contractor shall then be allowed to apply for an interim certificate of completion. Once the project in its entirety is complete, i.e Phase 1 and 2, the Contractor may apply for a Certificate of Completion as per Clause 5.14 of the General Conditions of Contract 2015. (i.e. the Contractor shall receive a total of two (2) interim Completion Certificates and one (1) final Certificate of Completion). The offer of validity for the works as set out for year 2, will remain valid with the applicable escalation to be applied in Phase 2. In the event that the funds are not secured within 6 months from the Completion Date of the works in Phase 1, the Client will go to re-tender for the works to be done in Phase 2 when funds are available and the Contractor (who constructed the works in Phase 1) will have no claim against the Kouga Local Municipality in any shape or form, for loss of work or profit or any other damages.

Clause	Description / Wording
5.6.1	The Contractor shall deliver his Works programme within fourteen (14) days after the Commencement Date of each phase.
5.8.1	*Delete the words* "between sunset and sunrise" in the first line and replace with "outside normal working hours". Normal working hours shall be between 07:00 and 17:00 on week days, and between 07:00 and 13:00 on Saturdays only if work is allowed on Saturdays. Non-working days are Saturdays and Sundays. Special non-working days are all applicable gazetted public holidays, election day of the local government elections and national elections (when applicable) and the year-end break. For the purposes of this Contract the year-end break shall be as declared by SAFCEC. The work done by the Contractor should be done at hours of the day so as not to influence the normal operation of the existing infrastructure in any manner.
5.8.3	*Add the following new Clause:* "5.8.3 The additional cost of supervision and monitoring by the Employers Agent or his representatives, outside non-working times, in accordance with Clause 5.8.1 shall be for the Contractor's account."
5.9.3	*Add the following to Clause 5.9.3:* The minimum time required for written notice to the Employer's Agent shall be not less than 5 working days.
5.12.2.2	*Add the following to Clause 5.12.2.2:* The time period specified as the time for completion includes allowances for delays and days on which it is expected that work, on the critical path items of the Works, would be prevented due to normal weather conditions such as wind, rainfall or the subsequent waterlogged condition. Based on average weather conditions of wind, rain and sunshine the allowances are actual and consequential delays shall be as follows: • 3 working days per month for the months of May to October • 2 working days per month for the months of November to April If the Contractor has been prevented by these weather conditions from working on the critical path items of the works, then he must notify the Employer's Agent in writing. The submission shall be made within five calendar days of the resumption of work. The Employer's Agent shall upon considering all the relevant factors determine the extension of time to be granted on the basis that an extension of time to the contract will only be granted if the total number of days upon which work on the critical items was prevented, exceeds the total number of days calculated in terms of the above allowance and considering the official contract period as a whole. The tendered sums of the appropriate time-related items shall be increased to take account of the extensions of time granted.
5.12.2.4	In the event of any disruption which is entirely beyond the Contractor's control, the only compensation will be under the rates tendered for under items A2.21 through to A2.24.

Clause	Description / Wording
5.12.5	*Add the following to Clause 5.12* 5.12.5 Critical Path Provision A delay in so far as extension of time is concerned, will be regarded as a delay only if, on a claim by the Contractor in accordance with the General Conditions of Contract, the Employer's Agent rules that all progress on an item or items of work on the critical path of the approved programme for the execution of the Works by the Contractor, has been brought to a halt. Delays on normal working days only, based on a working week, of five normal working days, will be taken in account for the extension of time. Should the approved programme not indicate a clear critical path, a claim for extension of time may be rejected.
5.13.1	The penalty for failing to complete the Works as agreed for each phase is R6 000 per day.
5.14.1	The requirements for Practical Completion are that the Works reach a state of readiness, fit for the intended purpose and occupation without danger or undue inconvenience or consequence to the Employer or public. Please see clause 5.5.1 for the anticipated roll-out of each phase of the project. It is required that all works be completed within the start and end point of the pipeline (as per the agreed start and end points of the phases), before practical completion can be issued.
5.14.2	Issue of Certificate of Practical Completion Replace "the Employer's Agent" in the second line with the following: ", the Contractor shall notify the Employer's Agent, who shall inspect the works and the Employer's Agent"
5.14.4	*Add the following to Clause 5.14.4:* "The work listed in terms of Clause 5.14.2 shall however be completed within 21 days from the date of issue of the Certificate of Practical Completion. Should the Contractor fail to complete all the work so listed within the stated period of 21 days, the date of issue of the Certificate of Practical Completion shall be amended and extended in respect of the outstanding work by the amount of additional time taken by the Contractor to complete all such work."
5.14.5.5	*Delete the contents of Clause 5.14.5.5 and replace with:* "Insurance of the Works shall continue until the expiration of the Defects Liability Period for the applicable phase, in terms of the amended Clause 8.6 contained in this Contract Data".
5.16.3	The latent defect period is 10 years and shall commence on the date of the Final Completion Certificate of each phase, as described.

Clause	Description / Wording
6.2.1	*Replace the wording* "as selected" in Clause 6.2.1 with "as stated". The security to be provided by the Contractor shall be: • A Performance Guarantee from a South African Insurance Company or Bank to be jointly and severally bound with the Contractor, in accordance with the provisions of the Form of Guarantee, in a sum equal to the following: **Phase 1 – R 950 000.00** **Phase 2 – R 450 000.00** The wording of the Guarantee shall be identical to the pro-forma provided under Clause C1.3: Form of Guarantee of the Contract Data. • Retention Money amounting to **five per cent (5%)** of the Phase price (which will be determined at the commencement of each phase). Retention monies due shall be subjected to Clauses 6.10.1.3 and 6.10.3. The Performance Guarantee shall be from an approved South African Insurance Company or Bank to be jointly and severally bound with the Contractor, in accordance with the provisions of the Performance Guarantee. The wording of the Performance Guarantee shall be identical to the pro-forma provided under Clause C1.3: Performance Guarantee of the Contract Data The time to deliver the Performance Guarantee is within fourteen (14) days after the Commencement Date of each phase.
6.2.2	*Replace the entire contents of Clause 6.2.2 with the following:* "If the Contractor fails in his obligations to provide the stated security within the period stated in Clause 5.3.2, or if the Performance Guarantee shall differ from the pro-forma provided under Clause C1.3: Performance Guarantee of the Contract Data, the Employer may terminate the Contract in terms of Clause 9.2.1.3.2"
6.2.3	*Replace the entire contents of Clause 6.2.3 with the following:* "The Contractor shall ensure that the Fixed Performance Guarantee remains valid and enforceable until the issue of the Certificate of Completion of each phase."
6.5.1.2.3	The percentage allowance shall be seven percent (7%).
6.8.2	*Replace the entire contents of Clause 6.8.2 with the following:* Contract Price Adjustment will only be applicable to work completed in the Phase 2 of the project (2027/2028 financial year). The value of certificates issued in terms of Clause 6.10.1(excluding the value of those special materials referred to in Clause 6.8.3) shall be increased or decreased by applying a "Contract Price Adjustment Factor" calculated according to the formula and the conditions set out in the Contract Price Adjustment Schedule. The base month shall be taken as the month prior to the closing of the tender.
6.8.3	Price adjustments for variations in the costs of special materials are **not** allowed.
6.10.1	In subclause 6.10.1 delete "monthly".

Clause	Description / Wording
6.10.1.5	The percentage advance on materials on site not yet built into the Permanent Works is 80%. No payment for materials supplied but not yet built into the Works will be made without the Contractor providing the documentary evidence of ownership referred to in Clause 6.10.1.5.
6.10.1.9	*Add the following new clause:* "The Contractor is required to submit completed, accurate and signed monthly Expanded Public Works Programme (EPWP) reports, together with all payment certificates. Payment to the Contractor will not be processed until the EPWP reporting for a specific month is provided. In addition, a penalty for late submission of R1500.00 per day will be applicable for every day after the 5th working day of the subsequent month to the reporting month."
6.10.3	*Replace the entire contents of Clause 6.10.3 with the following:* "Payment of the amounts referred to in Clauses 6.10.1.1, 6.10.1.2, 6.10.1.3 and 6.10.1.4 shall be subject to a retention by the Employer of an amount (called the "retention money"), being the percentage retention stated in the Contract Data, of the said amounts due to the Contractor, until the retention money reaches the "Limit of retention money" stated in the Contract Data." The percentage retention shall be ten per cent (10%) up to the "Limit of retention money", which limit shall be five per cent (5%) of the Phase Price, excluding Value Added Tax. Retention shall be released to the Contractor after the expiration of the defects liability period of each phase.
6.10.4	*Replace* the wordings "within 7 days" and "within 28 days" in Clause 6.10.4 with the wording "within 5 working days: and "within 30 days".
6.10.6.2	*Replace the contents of Clause 6.10.6.2 with the following:* "No interest shall be payable to the Contractor upon any moneys retained or overdue in terms of the Contract."
6.11	Delete this clause in its entirety.
7.2.1	*Add the following at the end of Clause 7.2.1:* "Unless otherwise directed in writing by the Employers Agent, all materials for the Permanent Works shall be new and unused."
7.8	The Defects Liability Period shall be twelve (12) months per phase to be completed and as described in the Contract Data, measured from the date of Certificate of Completion of the phase.
7.8.2.2	*In sub-subclause 7.8.2.2 add the following:* ", subject to such work being done on a written instruction by the Employer's Agent."
8.6.1	Insurances shall be maintained in force for the duration of the Contract Phase until the issue of the Certificate of Completion per phase, and in respect of Sub-Contractors, the Contractor shall be deemed to have complied with the provisions of the requirements relating to insurance by ensuring that the Sub-Contractors have effected such insurances. After the completion of each phase, the works and the insurance of the works shall revert to the Client
8.6.1.1	The sum insured shall be the aggregate of: 8.6.1.1.1 The Contract Price plus 25%. 8.1.6.1.2 Plant and materials supplied by the Employer – R50,000

Clause	Description / Wording
	8.1.6.1.3 Cover for professional fees – R150,000
8.6.1.2	A Coupon Policy for Special Risk Insurance issued by Sasria is required
8.6.1.3	The limit of indemnity for liability insurance is R5,000,000 for any one event, the number of events being unlimited.
8.6.1.5	In addition to the insurances required in terms of GCC Clauses 8.6.1.1 to 8.6.1.4 the following insurances are also required: (a) Insurance on an All-Risks basis for construction plant, equipment and other things (except those intended for incorporation into the works) brought onto the site to the full value of such construction plant, equipment and other things; (b) Motor Vehicle Liability Insurance, comprising a minimum of Balance of Third-Party motor risks, including Passenger Liability, subject to a minimum limit of R2,5 million; (c) Where the Contract involves manufacturing and/or fabrication of the works or part thereof at premises other than the site, the Contractor shall satisfy the Employer that all materials and equipment for incorporation in the works are adequately insured during manufacture and/or fabrication, storage, and transportation to and off-loading on Site. (d) Imported equipment or component parts or materials to be supplied in terms of this Contract which require any process of assembly or finishing in South Africa prior to delivery to the site are to be insured by the Contractor up to the delivery to site of the assembled or finished equipment, component parts or materials, unless special arrangements are made with the Employer. (e) Registration with the Department of Labour as an employer, in terms of the Compensation for Occupational Injuries and Diseases Act 1993, as amended
8.6.3	*Add the following to subclause 8.6.3:* Where the Contractor is responsible for the appointment of Sub-Contractors, then the Contractor shall (a) ensure that potential and appointed Sub-Contractors are aware of the whole contents of these amended General Conditions of Contract clauses pertaining to insurance; and (b) ensure the compliance by Sub-Contractors with these amended General Conditions of Contract clauses pertaining to insurance, where applicable.
8.6.5	*Add the following to subclause 8.6.5:* The insurances to be provided by the Contractor and Sub-Contractor shall be affected with South African insurers and on terms approved by the Employer (which approval shall not be unreasonably withheld) and the Contractor shall, if required by the Employer, produce to the Employer copies of the Policy or Policies of insurance and the receipts for payment of the current premiums.
8.6.7	*Replace the contents of Clause 8.6.7 with the following:* If the Contractor fails to effect and keep in force, or fails to pay the premiums for the insurances referred to, then, after giving the required notification and if the Contractor fails to remedy the default within the required time, the Employer may terminate the contract in terms of clause 9.2.1.
8.6.8	*Add the following new clause:*

Clause	Description / Wording
	The Contractor may affect, at his own cost, any insurance additional to that required by the Contract which he deems necessary in his own interests. The Employer reserves the right to call for full information regarding such insurances.
9.1.4	*Replace the contents of Clause 9.1.4 with the following:* "Up to the time of termination of the Contract by either party in terms of this Clause, or until the Contractor gives notice in terms of this Clause to terminate the Contract and the Contractor is precluded from exercising his right to terminate the Contract because the Employer agrees to bear any resultant additional costs provided for in Clause 9.1.2.2 hereof, the Contractor: a) will be entitled to an extension of calendar time for working days lost as may be approved by the Employer's Agent, and b) will be reimbursed the cost of delays per working day, where the number of working days will be determined pro rata the effect the delays have on the progress of the work as agreed with the Employer's Agent. Payment in full and final settlement will be made at the rates tendered for the payment items specially provided in the Bill of Quantities Where the circumstances described in Clauses 9.1.1 and 9.1.2 are applicable only to a certain portion of the Contract, the Employer's Agent will decide after consulting the Contractor, to what extent the Contract as a whole is affected and whether or not a claim in terms of this Clause can be submitted. No payment will be made in terms of this Clause after the expiry of the Due Completion Date.
9.2.1.3	*Add the following after Clause 9.2.1.3.8:* "or 9.2.1.3.9 Has failed to provide the required insurances or fixed performance guarantee within the prescribed time; or 9.2.1.3.10 Has failed to maintain to keep in force or to pay the premiums for any of the required insurances; or 9.2.1.3.11 Has committed a corrupt or fraudulent act during the tender process or the execution of the Contract; or 9.2.1.3.12 Has benefitted from an official or other role player committing any corrupt or fraudulent act during the tender process or in the execution of the Contract."
9.2.1.3.7	*Delete* "or" *at the end of this clause.*
10.3.2	Dispute resolution shall be by amicable settlement before any adjudication or arbitration or court action.
10.5.1	Dispute resolution shall be by ad-hoc adjudication.
10.5.3	The number of Adjudication Board Members to be appointed is one (1).
10.7.1	The determination of disputes which are unresolved in terms of Clause 10.5.3 shall be by arbitration.
11	*Add the following additional clause:* "**Details to be confidential** The Contractor shall treat the details of the Works comprised in this Contract as private and confidential (save in so far as may be necessary for the purposes hereof) and shall not publish or disclose the same or any particulars thereof in any trade or technical paper elsewhere without the prior written consent of the Employer's Agent."

Clause	Description / Wording
12	*Add the following additional clause:* "**Mandatory Subcontract Works** The minimum percentage of the value of the Contract to be subcontracted to EEs, excluding the Main Contractor's Preliminary and General Costs, VAT and contingencies, shall as stated in Part C3: Scope of Works, Section C3.3: Procurement. The percentage allowance shall include EE Preliminary and General and Profit. Refer to PSA 8.13."
13	*Add the following additional clause:* "**Expanded Public Works Programme (EPWP) reports** The Contractor is required to submit completed, accurate and signed monthly Expanded Public Works Programme (EPWP) reports, attached to this tender document as Annexure B, together with all monthly payment certificates. Payment to the Contractor will not be certified until the EPWP reporting for a specific month is provided. In addition, a penalty for late submission of R1500.00 per day will be applicable for every day after the 5th working day of the subsequent month to the reporting month."

PART 2: DATA PROVIDED BY THE CONTRACTOR

Clause	Description / Wording
1.1.1.9	The Contractor is: …….. ……..
1.2.1.2	The Contractor's address for receipt of communications and notices is: **Address (Postal):** …… …… …… …… **Address (Physical):** …… …… …… …… Telephone Number (Work): …… Telephone Number (After Hours): ……..…… Facsimile Number: ……..…… Electronic Mail Address (E-mail): ……..
5.5	Practical Completion for the whole of the Works (maximum 8 months) is ……. months, calculated from the Commencement Date.

PRO FORMA

PERFORMANCE GUARANTEE

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means: .....

Physical address: .....

"Employer" means: .....

"Contractor" means: .....

"Employers 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: .....

"Expiry Date": This Performance Guarantee shall remain in full force and effect **until the issue of the Certificate of Completion of the Works** in terms of the Contract. (Refer Clause 2 hereunder).

CONTRACT DETAILS

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

PERFORMANCE GUARANTEE

1. The Guarantor's liability shall be limited to the amount of the Guaranteed Sum.

2. The Guarantor's period of liability shall be from and including the date of issue of this Performance Guarantee and up to and including the date of issue by the Employers Agent of the **Certificate of Completion of the Works** or the date of payment in full of the Guaranteed Sum, whichever occurs first unless the Guarantor is advised in writing by the Employer of his intention to institute claims, and the particulars thereof, in which event this guarantee shall remain in full force and effect until all such claims have been paid or liquidated. The Employers Agent and / or the Employer shall inform the Guarantor in writing of the date on which the Certificate of Completion of the Works has been issued.

3. The Guarantor hereby acknowledges that:

3.1 any reference in this Performance Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship;

3.2 its obligation under this Performance Guarantee is restricted to the payment of money.

4. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:

4.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Employers Agent in an Interim or Final Payment Certificate has not been made in term of the Contract and failing such payment within (7) seven calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 4.2;

4.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 4.1 and the sum certified has still not been paid;

4.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 4.

5. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:

5.1 the Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 5; or

5.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 5; and

5.3 the aforesaid written demand is accompanied by a copy of the notice of termination and / or the provisional / final sequestration and / or the provisional liquidation court order.

6. It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4 and 5 shall not exceed the Guarantor's maximum liability in terms of 1.

7. Where the Guarantor has made payment in terms of 5, the Employer shall upon the date of issue of the **Final Payment Certificate** submit an **expense account** to the Guarantor showing how all monies received in terms of this Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Performance Guarantee shall bear zero percent (0%) interest.

8. Payment by the Guarantor in terms of 4 or 5 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.

9. Payment by the Guarantor in terms of 5 will only be made against the return of the original Performance Guarantee by the Employer.

10. The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may deem fit and the Guarantor shall not have the right to claim his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.

11. The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.

12. This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 2, where after no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.

13. This Performance Guarantee, with the required demand notices in terms of 4 or 5, shall be regarded as a liquid document for the purposes of obtaining a court order.

14. Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed at .....

Date .....

Guarantor's signatory (1) .....

Capacity .....

Guarantor's signatory (2) .....

Capacity .....

Witness signatory (1) .....

Witness signatory (2) .....

C1.4: HEALTH AND SAFETY AGREEMENT

ARTICLE OF AGREEMENT IN TERMS OF SECTION 37(2) OF THE OCCUPATIONAL SAFETY ACT (1993)

BETWEEN

THE KOUGA LOCAL MUNICIPALITY
(Hereinafter referred to as the "EMPLOYER")

AND

……
……
……

Herein represented by ……..……. in his/her capacity as ……..……., duly authorised by virtue of a resolution dated ……..……..……, attached hereto as Annexure A, of the said
(Herein after referred to as the "CONTRACTOR")

WHEREAS the CONTRACTOR is the mandatory of the EMPLOYER as contemplated in an agreement in respect of:

……
……
……
Contract number: …….

AND WHEREAS section 37 of the Occupational Health and Safety Act, 1993 (Act 85 of 1993, hereinafter referred to as the "ACT"), imposes certain powers and duties upon the EMPLOYER.

AND WHEREAS the parties have agreed to enter into an agreement in terms of section 37(2) of the ACT.

NOW THEREFORE the parties agree as follows:

(a) The CONTRACTOR undertakes to acquaint the appropriate officials and employees of the CONTRACTOR with all relevant provisions of the ACT and the regulations promulgated in terms thereof.

(b) The CONTRACTOR undertakes that all relevant duties, obligations and prohibitions imposed in terms of the ACT and Regulations will be fully complied with. Provided that should the EMPLOYER prescribe certain arrangements and procedures, that same shall be observed and adhered to by the CONTRACTOR, his officials and employees. The CONTRACTOR shall bear the onus of acquainting himself/herself/itself with such arrangements and procedures.

(c) The CONTRACTOR hereby accepts sole liability for such due compliance with the relevant duties, obligations, prohibitions, arrangements and procedure, if any, imposed by the ACT and Regulations and the EMPLOYER expressly absolves the EMPLOYER from itself being obliged to comply with any of the aforesaid duties, obligations, prohibitions, arrangements and procedure as the case may be.

(d) The CONTRACTOR agrees that any duly authorised officials of the EMPLOYER shall be entitled, although not obliged, to take such steps as may be necessary to ensure that the CONTRACTOR has complied with the undertakings as more fully set out in paragraphs (a) and (b) above, which steps may include, but shall not be limited to, the right to inspect any appropriate site or premises occupied by the CONTRACTOR, or to inspect any appropriate records held by the CONTRACTOR or to take such steps it may deem necessary to remedy the default

of the CONTRACTOR at the cost of the CONTRACTOR.

(e) The CONTRACTOR shall be obliged to report forthwith to the EMPLOYER any investigations, complaint or criminal charge which may arise as a consequence of the provisions of the ACT and Regulations, pursuant to work performed in terms of this agreement, and shall, on written demand, provide full details in writing of such an investigation, complaint or criminal charge as the case may be.

Signature(s) of authorised agents:

…… ……

Name(s) (in block letters):

…… ……

Capacity of authorized agents:

…… ……

for and on behalf of the Contractor:

……

……

……
(Name and address of organization)

Witness:

……
(Full name in block letters as well as signature)

……..
(Signature)

Date: ……..

for and on behalf of the Employer:

Signature of authorized agent: ……..

Name of authorized agent: ……..……..

Capacity of authorized agent: ……..……..

for the **Employer**:

KOUGA LOCAL MUNICIPALITY
P O Box 21
Jeffreys Bay
6330

Witness:

…….....……..……
(Full name in block letters as well as signature)

……..
(Signature)

Date: ……..

PRO FORMA

DISCLOSURE STATEMENT

Date: …….

Contract: ……..
(Name)

Contractor: ……..
(Name)

Employer: ……..
(Name)

Employers Agent: ……..
(Name)

Dear Sirs

I am willing and available to serve as (ad-hoc / standing) Adjudication Board Member in the above-mentioned Contract.

In accordance with the General Conditions of Contract for Construction Works Adjudication Board Rules relating to the disclosure statements by selected or nominated persons to the adjudication, I hereby state that:

- I shall act with complete impartiality and know of nothing at this time, which could affect my impartiality.
- I have had no previous involvement in this project.
- I do not have any financial interest in this project.
- I am not currently employed by the Contractor, Employer or Employers Agent.
- I do not have any financial connections with the Contractor, Employer or Employers Agent.
- I do not have or have not had a personal relationship with any authoritive member of the Contractor, Employer or the Employers Agent which could affect my impartiality.
- I undertake to immediately disclose to the parties any changes in the above position which could affect my impartiality or be perceived to affect same.

Should there be any deviation from the foregoing statements, details shall be given.

I further declare that I am experienced in the work which is carried out under the Contract and in interpreting the contract documentation.

Name in full: ……

Signature: …….

PRO FORMA

ADJUDICATION BOARD MEMBER AGREEMENT

This Agreement is entered into between:

Adjudication Board Member: …….

Name: ……

Physical Address: ……

Postal Address: ……

E-mail Address: ……

Facsimile Number: ……..

Telephone Number: ……

Mobile Number: ……

Contractor: ……..

Name: ……

Physical Address: ……

Postal Address: ……

E-mail Address: ……

Facsimile Number: ……..

Telephone Number: ……

Mobile Number: ……

Employer: ……..……..

Name: ……

Physical Address: ……

Postal Address: ……

E-mail Address: ……

Facsimile Number: ……..

Telephone Number: ……

Mobile Number: ……

The Contractor and the Employer will hereinafter be collectively referred to as the Parties.

The Parties entered into a Contract for ……

…… (Name of project) which provides that a dispute under or in connection with the General Conditions of Contract for Construction Works, Second Edition 2015 (GCC), must be referred to **ad-hoc / standing adjudication.**

The undersigned natural person has been appointed to serve as Adjudication Board Member and together with the undersigned Parties agree as follows:

1. The Adjudication Board Member accepts to perform his duties in accordance with the terms of the Contract, the General Conditions of Contract for Construction Works Adjudication Board Rules and this Agreement.

2. The Adjudicator undertakes to remain independent and impartial of the Contractor, Employer and Employers Agent for the duration of the Adjudication Board proceedings.

3. The Adjudication Board Member agrees to serve for the duration of the Adjudication Board proceedings.

4. The parties may at any time, without cause and with immediate effect, jointly terminate this Agreement.

5. Unless the Parties agree, the Adjudication Board Member shall not act as arbitrator or representative of either Party in any subsequent proceedings between the Parties under the Contract. No Party may call the Adjudication Board Member as a witness in any such subsequent proceedings.

6. The standing Adjudication Board's duties shall end upon the Adjudication Board Member(s) receiving notice from the Parties of their joint decision to disband the Adjudication Board.

7. The Adjudication Board Member shall be paid in respect of time spent upon or in connection with the adjudication including time spent travelling:

a. A monthly retainer of ……..……..…….. (amount) for ……. (number) of months, and/or

b. A daily fee of …….. (amount) based on a ……. (number) hour day, and/or

c. An hourly fee of ……..…….. (amount), and/or

d. A non-recurrent appointment fee of ……. (amount) which shall be accounted for in the final sums payable

8. The Adjudication Board Member's expense incurred in adjudication work shall be reimbursed at cost.

Upon submission of an invoice for fees and expenses to the Parties, the **(Contractor / Employer) *** shall pay the full amount within 28 days of receipt of the invoice and shall be reimbursed by the other party by half the amount so that fees and expenses are borne equally by the Parties. Late payment of such invoice shall attract interest at prime plus 3% points compounded monthly at a prime rate charged by the Adjudication Board Member's bank.

This Agreement is entered into by:

Contractor's signature: ……..

Contractor's name: ……..

Place: ……..

Date: ……..

Employer's signature: ……..

Employer's name: ……..

Place: ……..

Date: ……..

Adjudication Board Member's signature: ……..

Adjudication Board Member's name: ……..

Place: ……..

Date: ……..

*** Delete the inapplicable party**

CONTRACT

PART 2 (OF 4): PRICING DATA

C2.1 Pricing Instructions

C2.2 Bill of Quantities

C2.3 Summary Page for Bill of Quantities

C2.1: PRICING INSTRUCTIONS

C2.1.1 PREAMBLE TO THE BILL OF QUANTITIES

C2.1.1.1 Pricing Assumptions mean the criteria as set out below, read together with all parts of this contract document, which it will be assumed in the Contract, that the Tenderer has taken into account when developing his prices.

C2.1.1.2 The method of measurement published by the South African Bureau of Standards in Clause 8 of the Standardized Specifications for Civil Employers Agenting Construction is applicable, subject to the variations and amendments contained in the section "Applicable SABS 1200 Standardized Specifications".

C2.1.1.3 Descriptions in the Bill of Quantities are abbreviated and comply generally with those in the Standardized Specifications. Clause 8 of each Standardized Specification, read together with the relevant clauses of the Scope of Work, set out what ancillary or associated activities are included in the rates for the operations specified. Should any requirements of the measurement and payment clause of the applicable Standardized Specification, or the Scope of Work, conflict with the terms of the Bill, the requirements of the Standardized or Scope of Work, as applicable, shall prevail.

C2.1.1.4 The reference clauses in a specification in which further information regarding the bill item can be obtained appear under the "Reference Clause" or "Payment Refers" column in the Bill. The reference clauses indicated are not necessarily the only sources of information in respect of schedule/billed items. Further information and set specifications may be found elsewhere in the contract documents. Standardized Specifications are identified by the letter or letters which follow SABS in the SABS 1200 series of specifications, e.g. G for SABS 1200 G.

C2.1.1.5 Work reserved for Labour Intensive construction methods will be numbered with a prefix "LI" in the Bill to distinguish them from the conventional construction works. Such work shall be constructed using local labour who is temporarily employed in terms of the Scope of Work.

C2.1.1.6 Unless otherwise stated, items are measured nett in accordance with the Drawings, and no allowance is made for waste. The Bill has to be completed in black non-erasable ink and the tenderer is referred to the Conditions of Tender as well as the Tender Data with regard to the correction of errors.

C2.1.1.7 The quantities set out in the Bill of Quantities are the estimated quantities of the work. The tenderers attention is directed to Clause 6.7 of the Conditions of Contract and the Contractor will be required to determine the actual and final quantities of the Works to be executed and the Contractor shall undertake whatever quantities may be directed by the Employers Agent from time to time. The Contract Price for the completed contract shall be computed from the actual quantities of work done, valued at the relevant unit rates and prices.

C2.1.1.8 The prices and rates to be inserted in the Bill of Quantities are to be the full inclusive prices for the work described under the several items. Such prices and rates shall cover all costs and expenses that may be required in and for the execution of the work described, and shall cover the cost of all general risks, liabilities, and obligations set forth or implied in the documents on which the tender is based, as well as overhead charges and profit. Reasonable prices shall be inserted as these will be used as a basis for assessment of payment for additional work that may have to be carried out.

C2.1.1.9 A price or rate is to be entered against each item in the Bill of Quantities, whether the quantities are stated or not. An item against which no price / rate is entered will be considered to be covered by the other prices or rates in the Bill.

C2.1.1.10 Except where rates only are required, the tenderer shall insert all amounts to be included in his total tendered price in the "Amount" column and show the corresponding total tendered price.

C2.1.1.11 All prices or rates inserted in the Bill of Quantities shall be EXCLUDING VAT. Provision has been made on the Summary Page of the Bill of Quantities, for the addition of VAT.

C2.1.1.12 Arithmetical errors of responsive tenders shall be corrected in the manner specified under the Conditions of Tender as well as the Tender Data. **(Refer also CIDB Practice Note No. 2 dated February 2008)**

C2.1.1.13 The units of measurement described in the Bill of Quantities are metric units. Abbreviations used in the Bill of Quantities are as follows:

mm	=	millimetre	h	=	hour
m	=	metre	kg	=	kilogram
km	=	kilometre	t	=	ton (1 000kg)
m^2	=	square metre	No	=	Number
m^2.pass	=	square metre-pass	Sum	=	Lump Sum
ha	=	hectare	MN	=	MegaNewton
m^3	=	cubic metre	MN.m	=	MegaNewton-metre
m^3.km	=	cubic metre-kilometre	PC Sum	=	Prime Cost Sum
ℓ	=	Litre	Prov Sum	=	Provisional Sum
kℓ	=	kilolitre	Lab.month		Labourer.Month
MPa	=	Mega Pascal	%	=	per cent (percentage)
Mℓ	=	Mega litre	kW	=	kilowatt

C2.1.1.14 The quantities set out in the Bill are the estimated quantities of the Works but the Contractor will be required to undertake whatever quantities as may be directed by the Employers Agent from time to time. The Contract Price for the completed Contract shall be computed from the actual quantities of work done, valued at the relevant unit rates and prices.

C2.1.1.15 An item against which no price / rate is entered or where a word or phrase such as "included" or "provided elsewhere" will be accepted as a rate of nil (R 0,00) having been entered against such items and covered by the other prices or rates in the Bill. Any work executed to which such a payment item applies, shall be measured under the appropriate items in the Priced Bill and valued at a rate of nil (R 0,00). The rate of nil shall be valid irrespective of any change in the quantities during the execution of the Contract.

NOTE: CORRECTION OF ENTRIES MADE BY TENDERER

Any entry made by the tenderer in the Bill of Quantities, forms, etc., which the tenderer desires to change, shall not be erased or painted out. A line shall be drawn through the incorrect entry and the correct entry shall be written above in black ink and the full signature of the Tenderer shall be placed next to the correction.

Please note that separate Bill of Quantities have been provided for the Preliminary and General Items (Section A1 and Section A2) related to the two phases of the Contract. Tenderers should price both schedules, accordingly, considering the following:

- **Phase 1 – 7 months (2026/2027 financial year funding)**
- **Phase 2 – 3 months (2027/2027 financial year funding)**

Please see Clause 5.5.1 of the Contract Data for the preliminary transition point between Phase 1 and Phase 2.

An allowance has been made for escalation for works to be completed in Phase 2 and will be utilised during the implementation of Phase 2.

ITEM NO	PAYMENT CLAUSE	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		SECTION A-1 : PRELIMINARY AND GENERAL - PHASE 1 (2026/27 FINANCIAL YEAR)				
	SABS 1200 A	**GENERAL**				
A1	**8.3 & PSA 8.3**	**SCHEDULED FIXED-CHARGE AND VALUE-RELATED ITEMS**				
	PSA 8.3.1	**Contractual Requirements**				
A1.1		Guarantee	Sum	1		
		Insurance provided by the Contractor				
A1.2		Contract Works insurance	Sum	1		
A1.3		Occupational Injuries Insurance	Sum	1		
A1.4		Common Law Liability	Sum	1		
A1.5		All Risks Insurance	Sum	1		
A1.6		Motor Vehicle Liability Insurance	Sum	1		
A1.7		Any other insurance required	Sum	1		
	8.3.2	**Establish Facilities on the Site**				
	8.3.2.1	Facilities for the Engineer				
A1.8	8.3.2.1 (a)	Desk and office chair in Contractor's office	Sum	1		
A1.9	8.3.2.1 (c)	Two nameboards (Refer to PSAB 3.1 & 5.1)	Sum	1		
	8.3.2.2	Facilities for the Contractor				
A1.10	8.3.2.2 (a)	Site Office and Storage Area	Sum	1		
A1.11	8.3.2.2 (d)	Living accomodation	Sum	1		
A1.12	8.3.2.2 (e)	Ablution and Latrine Facilities	Sum	1		
A1.13	8.3.2.2 (f)	Tools and equipment	Sum	1		
A1.14	8.3.2.2 (g)	Water supplies, electrical power and communications	Sum	1		
A1.15	8.3.2.2 (h)	Dealing with water	Sum	1		
A1.16	8.3.2.2 (i)	Access to works	Sum	1		
	PSA 8.3.3	**Other Fixed Charge Obligations**				
		Other fixed charge obligations not listed above (Tenderer to specify)				
A1.17		……	Sum	1		
A1.18	8.3.4	Removal of Site Establishment	Sum	1		
	PSA 8.11	**Health and Safety**				
A1.19	8.11.1	General safety obligations	Sum	1		
A1.20	8.11.2	Risk assessments	Sum	1		
A1.21	8.11.3	Health and safety plan	Sum	1		
A1.22	8.11.4	Health and safety file	Sum	1		
		Carried forward / …				

ITEM NO	PAYMENT CLAUSE	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward / …				
A1.23	8.11.6	Training	Sum	1		
A1.24	8.11.7	Medical assessment of employees	Sum	1		
A2	**8.4 & PSA 8.4**	**SCHEDULED TIME-RELATED ITEMS**				
	PSA 8.4.1	**Contractual Requirements**				
A2.1		Guarantee	Sum	1		
		Insurance provided by the Contractor				
A2.2		Contract Works insurance	Sum	1		
A2.3		Occupational Injuries Insurance	Sum	1		
A2.4		Common Law Liability	Sum	1		
A2.5		All Risks Insurance	Sum	1		
A2.6		Motor Vehicle Liability Insurance	Sum	1		
A2.7		Any other insurance required	Sum	1		
	PSA 8.4.2	**Operation and Maintenance of Facilities on Site for the Duration of Construction**				
	8.4.2.1	Facilities for Engineer				
A2.8	8.4.2.1 (a)	Desk and office chair in Contractor's office	Sum	1		
A2.9	8.4.2.1 (c)	One nameboard (Refer to PSAB 3.1 & 5.1)	Sum	1		
	8.4.2.2	Facilities for the Contractor				
A2.10	8.4.2.2 (a)	Site Office and Storage Area	Sum	1		
A2.11	8.4.2.2 (d)	Living accomodation	Sum	1		
A2.12	8.4.2.2 (e)	Ablution and Latrine Facilities	Sum	1		
A2.13	8.4.2.2 (f)	Tools and equipment	Sum	1		
A2.14	8.4.2.2 (g)	Water supplies, electrical power and communications	Sum	1		
A2.15	8.4.2.2 (h)	Dealing with water	Sum	1		
A2.16	8.4.2.2 (i)	Access to works	Sum	1		
A2.17	8.4.3	Supervision for the duration of construction	Sum	1		
A2.18	8.4.4	Company and head office overheads for the duration of the Contract	Sum	1		
	8.4.5	**Other Time-related Obligations**				
A2.19	PSA 8.4.5	Provision of security personnel	Sum	1		
		Other time-related obligations not listed above (Tenderer to specify)				
A2.20		……	Sum	1		
		Carried forward / …				

ITEM NO	PAYMENT CLAUSE	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward / …				
	PSA 8.4.6	**Compensation in Terms of Clause 5.12.2.4 and Clause 9.1.4 of the Conditions of Contract for Delays**				
A2.21		a) Plant	Sum/w-day	2		
A2.22		b) Labour	Sum/w-day	2		
A2.23		c) Supervision	Sum/w-day	2		
A2.24		d) other services, facilities, etc. not covered by (a), (b) and (c)	Sum/w-day	2		
A2.25	PSA 8.10	Quality Control and Quality Assurance System for duration of Contract	Sum	1		
	PSA 8.11	**Health and Safety**				
A2.26	8.11.1	General safety obligations	Sum	1		
A2.27	8.11.3	Health and safety plan	Sum	1		
A2.28	8.11.5	Construction safety officer and other appointments	Sum	1		
A3	**PSA 8.5**	**SUMS STATED PROVISIONALLY BY ENGINEER**				
A3.1	PSA 8.5.1	Additional testing required by the Engineer	Prov Sum	R14,000.00		
A3.2	PSA 8.5.2	Overheads, charges, profits, etc on PSA 8.5.1	%	R14,000.00		
A3.3	PSA 8.5.3	Payment to Service providers for relocation of services	Prov Sum	R52,500.00		
A3.4	PSA 8.5.4	Overhead, charges, profit, etc. on PSA 8.5.3	%	R52,500.00		
A3.5	PSA 8.5.5	Community liaison officer	Prov Sum	R70,000.00		
A3.6	PSA 8.5.6	Overhead, charges, profit, etc. on PSA 8.5.5	%	R70,000.00		
A3.7	PSA 8.5.7	Payment to Social Facilitator and PSC Committee members	Prov Sum	R21,000.00		
A3.8	PSA 8.5.8	Overhead, charges, profit, etc. on above item A3.7	%	R21,000.00		
A3.9	PSA 8.5.9	Sum allocated to and for payment to the Contractor for providing and arranging Accredited Training for his labourers (Local labourers only)	Prov Sum	R10,000.00		
A3.10	PSA 8.5.10	Overheads, charges, profits, etc on item A3.9	%	R10,000.00		
A3.11	PSA 8.5.11	Provide Training to Municipal Employees on the operation and maintenance of all equipment supplied and installed	Prov Sum	R28,000.00		
A3.12	PSA 8.5.12	Overheads, charges, profits, etc on item A3.13	%	R28,000.00		
A3.13	**PSA 8.13**	**MANAGEMENT OF EE's / QSE's:**				
A3.13.1	PSA 8.5.13	Mark-up for the management and facilitation of Works Undertaken by Exempted Micro Enterprises (EMEs)	%	R1,425,000.00		
A4	**PSA 8.7**	**DAYWORK (Provisional)**				
		Labour: Normal Time				
A4.1		Labourers	hr	Rate Only		
		Carried forward / …				

ITEM NO	PAYMENT CLAUSE	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward / …				
A4.2		Operatives (semi-skilled)	hr	Rate Only		
A4.3		Artisans	hr	Rate Only		
		Labour: Overtime				
A4.4		Labourers	hr	Rate Only		
A4.5		Operatives (semi-skilled)	hr	Rate Only		
A4.6		Artisans	hr	Rate Only		
		Materials				
A4.7		Allowance for materials	Prov Sum	R35,000.00		
A4.8		Percentage mark-up to materials	%	R35,000.00		
		Plant				
A4.9		TLB Make Model	hr	Rate Only		
A4.10		Tracked excavator (22 t minimum) Make Model	hr	Rate Only		
A4.11		Compressor 250 CFM complete with hand tools and attachments Make Model	hr	Rate Only		
A4.12		Compactor (vibrating plate) Make Model	hr	Rate Only		
A4.13		Compacting roller: Hand operated walk behind Make Model	hr	Rate Only		
A4.14		Tip truck (7 tonne) Make Model	hr	Rate Only		
A4.15		Crane Truck (5 tonne) Make Model	hr	Rate Only		
A4.16		Concrete mixer Make Model	hr	Rate Only		
A4.17		Dewatering pump Make Model	hr	Rate Only		
A5	**PSA 8.8**	**TEMPORARY WORKS**				
A5.1	8.8.2	Dealing with Traffic	Sum	1		
		Carried forward / …				

ITEM NO	PAYMENT CLAUSE	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward / …				
	PSA 8.8.4	**Existing Services**				
A5.2	8.4.4 (a)	Supply or hire of GPR (Ground Penetrating Radar) or similar for the location of existing services	Sum	1		
A5.3	8.4.4 (b)	Use of GPR or similar	day	3		
A5.4	8.4.4 (c)	Excavate by hand in soft material to expose existing services	m^3	105		
	PSA 8.8.5	**Cost of Survey in Terms of Land Survey Act**				
A5.5		Locate, record and protect erf boundary and survey	Sum	1		
A5.6		Replace pegs recorded as missing at commencement of Contract as well as pegs removed in terms of PSA 5.1.2 (a), (b) and (c)	No	5		
A6	**PA**	**ENVIRONMENTAL MANAGEMENT**				
	PA 9.2	**Billed Items**				
A6.1	PA 9.2.1	Method Statements: Additional work	No	1		
A6.2	PA 9.2.2	All requirements of the environmental management specification	Sum	1		
A6.3	PA 9.2.3	Trimming of the Site	Sum	1		
		Carried Forward to Summary: SECTION A-1			**R**	

ITEM NO	PAYMENT CLAUSE	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		SECTION A-2 : PRELIMINARY AND GENERAL - PHASE 2 (2027/28 FINANCIAL YEAR)				
	SABS 1200 A	**GENERAL**				
A1	**8.3 & PSA 8.3**	**SCHEDULED FIXED-CHARGE AND VALUE-RELATED ITEMS**				
	PSA 8.3.1	**Contractual Requirements**				
A1.1		Guarantee	Sum	1		
		Insurance provided by the Contractor				
A1.2		Contract Works insurance	Sum	1		
A1.3		Occupational Injuries Insurance	Sum	1		
A1.4		Common Law Liability	Sum	1		
A1.5		All Risks Insurance	Sum	1		
A1.6		Motor Vehicle Liability Insurance	Sum	1		
A1.7		Any other insurance required	Sum	1		
	8.3.2	**Establish Facilities on the Site**				
	8.3.2.1	Facilities for the Engineer				
A1.8	8.3.2.1 (a)	Desk and office chair in Contractor's office	Sum	1		
A1.9	8.3.2.1 (c)	Two nameboards (Refer to PSAB 3.1 & 5.1)	Sum	1		
	8.3.2.2	Facilities for the Contractor				
A1.10	8.3.2.2 (a)	Site Office and Storage Area	Sum	1		
A1.11	8.3.2.2 (d)	Living accomodation	Sum	1		
A1.12	8.3.2.2 (e)	Ablution and Latrine Facilities	Sum	1		
A1.13	8.3.2.2 (f)	Tools and equipment	Sum	1		
A1.14	8.3.2.2 (g)	Water supplies, electrical power and communications	Sum	1		
A1.15	8.3.2.2 (h)	Dealing with water	Sum	1		
A1.16	8.3.2.2 (i)	Access to works	Sum	1		
	PSA 8.3.3	**Other Fixed Charge Obligations**				
		Other fixed charge obligations not listed above (Tenderer to specify)				
A1.17		……	Sum	1		
A1.18	8.3.4	Removal of Site Establishment	Sum	1		
	PSA 8.11	**Health and Safety**				
A1.19	8.11.1	General safety obligations	Sum	1		
A1.20	8.11.2	Risk assessments	Sum	1		
A1.21	8.11.3	Health and safety plan	Sum	1		
A1.22	8.11.4	Health and safety file	Sum	1		
		Carried forward / …				

ITEM NO	PAYMENT CLAUSE	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward / …				
A1.23	8.11.6	Training	Sum	1		
A1.24	8.11.7	Medical assessment of employees	Sum	1		
A2	**8.4 & PSA 8.4**	**SCHEDULED TIME-RELATED ITEMS**				
	PSA 8.4.1	**Contractual Requirements**				
A2.1		Guarantee	Sum	1		
		Insurance provided by the Contractor				
A2.2		Contract Works insurance	Sum	1		
A2.3		Occupational Injuries Insurance	Sum	1		
A2.4		Common Law Liability	Sum	1		
A2.5		All Risks Insurance	Sum	1		
A2.6		Motor Vehicle Liability Insurance	Sum	1		
A2.7		Any other insurance required	Sum	1		
	PSA 8.4.2	**Operation and Maintenance of Facilities on Site for the Duration of Construction**				
	8.4.2.1	Facilities for Engineer				
A2.8	8.4.2.1 (a)	Desk and office chair in Contractor's office	Sum	1		
A2.9	8.4.2.1 (c)	One nameboard (Refer to PSAB 3.1 & 5.1)	Sum	1		
	8.4.2.2	Facilities for the Contractor				
A2.10	8.4.2.2 (a)	Site Office and Storage Area	Sum	1		
A2.11	8.4.2.2 (d)	Living accomodation	Sum	1		
A2.12	8.4.2.2 (e)	Ablution and Latrine Facilities	Sum	1		
A2.13	8.4.2.2 (f)	Tools and equipment	Sum	1		
A2.14	8.4.2.2 (g)	Water supplies, electrical power and communications	Sum	1		
A2.15	8.4.2.2 (h)	Dealing with water	Sum	1		
A2.16	8.4.2.2 (i)	Access to works	Sum	1		
A2.17	8.4.3	Supervision for the duration of construction	Sum	1		
A2.18	8.4.4	Company and head office overheads for the duration of the Contract	Sum	1		
	8.4.5	**Other Time-related Obligations**				
A2.19	PSA 8.4.5	Provision of security personnel	Sum	1		
		Other time-related obligations not listed above (Tenderer to specify)				
A2.20		……	Sum	1		
		Carried forward / …				

ITEM NO	PAYMENT CLAUSE	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward / …				
	PSA 8.4.6	**Compensation in Terms of Clause 5.12.2.4 and Clause 9.1.4 of the Conditions of Contract for Delays**				
A2.21		a) Plant	Sum/w-day	2		
A2.22		b) Labour	Sum/w-day	2		
A2.23		c) Supervision	Sum/w-day	2		
A2.24		d) other services, facilities, etc. not covered by (a), (b) and (c)	Sum/w-day	2		
A2.25	PSA 8.10	Quality Control and Quality Assurance System for duration of Contract	Sum	1		
	PSA 8.11	**Health and Safety**				
A2.26	8.11.1	General safety obligations	Sum	1		
A2.27	8.11.3	Health and safety plan	Sum	1		
A2.28	8.11.5	Construction safety officer and other appointments	Sum	1		
A3	**PSA 8.5**	**SUMS STATED PROVISIONALLY BY ENGINEER**				
A3.1	PSA 8.5.1	Additional testing required by the Engineer	Prov Sum	R6,000.00		
A3.2	PSA 8.5.2	Overheads, charges, profits, etc on PSA 8.5.1	%	R6,000.00		
A3.3	PSA 8.5.3	Payment to Service providers for relocation of services	Prov Sum	R22,500.00		
A3.4	PSA 8.5.4	Overhead, charges, profit, etc. on PSA 8.5.3	%	R22,500.00		
A3.5	PSA 8.5.5	Community liaison officer	Prov Sum	R30,000.00		
A3.6	PSA 8.5.6	Overhead, charges, profit, etc. on PSA 8.5.5	%	R30,000.00		
A3.7	PSA 8.5.7	Payment to Social Facilitator and PSC Committee members	Prov Sum	R9,000.00		
A3.8	PSA 8.5.8	Overhead, charges, profit, etc. on above item A3.7	%	R9,000.00		
A3.9	PSA 8.5.9	Sum allocated to and for payment to the Contractor for providing and arranging Accredited Training for his labourers (Local labourers only)	Prov Sum	R10,000.00		
A3.10	PSA 8.5.10	Overheads, charges, profits, etc on item A3.9	%	R10,000.00		
A3.11	PSA 8.5.11	Provide Training to Municipal Employees on the operation and maintenance of all equipment supplied and installed	Prov Sum	R12,000.00		
A3.12	PSA 8.5.12	Overheads, charges, profits, etc on item A3.13	%	R12,000.00		
A3.13	**PSA 8.5.13**	**WORKS UNDERTAKEN BY EXEMPTED MICRO ENTERPRISES (EMES)**				
A3.13.1	PSA 8.5.13	Mark-up for the management and facilitation of Works Undertaken by Exempted Micro Enterprises (EMEs)	%	R680,000.00		
A4	**PSA 8.7**	**DAYWORK (Provisional)**				
		Labour: Normal Time				
A4.1		Labourers	hr	Rate Only		
		Carried forward / …				

ITEM NO	PAYMENT CLAUSE	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward / …				
A4.2		Operatives (semi-skilled)	hr	Rate Only		
A4.3		Artisans	hr	Rate Only		
		Labour: Overtime				
A4.4		Labourers	hr	Rate Only		
A4.5		Operatives (semi-skilled)	hr	Rate Only		
A4.6		Artisans	hr	Rate Only		
		Materials				
A4.7		Allowance for materials	Prov Sum	R15,000.00		
A4.8		Percentage mark-up to materials	%	R15,000.00		
		Plant				
A4.9		TLB Make Model	hr	Rate Only		
A4.10		Tracked excavator (22 t minimum) Make Model	hr	Rate Only		
A4.11		Compressor 250 CFM complete with hand tools and attachments Make Model	hr	Rate Only		
A4.12		Compactor (vibrating plate) Make Model	hr	Rate Only		
A4.13		Compacting roller: Hand operated walk behind Make Model	hr	Rate Only		
A4.14		Tip truck (7 tonne) Make Model	hr	Rate Only		
A4.15		Crane Truck (5 tonne) Make Model	hr	Rate Only		
A4.16		Concrete mixer Make Model	hr	Rate Only		
A4.17		Dewatering pump Make Model	hr	Rate Only		
A5	**PSA 8.8**	**TEMPORARY WORKS**				
A5.1	8.8.2	Dealing with Traffic	Sum	1		
		Carried forward / …				

ITEM NO	PAYMENT CLAUSE	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward / …				
	PSA 8.8.4	**Existing Services**				
A5.2	8.4.4 (a)	Supply or hire of GPR (Ground Penetrating Radar) or similar for the location of existing services	Sum	1		
A5.3	8.4.4 (b)	Use of GPR or similar	day	2		
A5.4	8.4.4 (c)	Excavate by hand in soft material to expose existing services	m^3	45		
	PSA 8.8.5	**Cost of Survey in Terms of Land Survey Act**				
A5.5		Locate, record and protect erf boundary and survey	Sum	1		
A5.6		Replace pegs recorded as missing at commencement of Contract as well as pegs removed in terms of PSA 5.1.2 (a), (b) and (c)	No	5		
A6	**PA**	**ENVIRONMENTAL MANAGEMENT**				
	PA 9.2	**Billed Items**				
A6.1	PA 9.2.1	Method Statements: Additional work	No	1		
A6.2	PA 9.2.2	All requirements of the environmental management specification	Sum	1		
A6.3	PA 9.2.3	Trimming of the Site	Sum	1		
A7		**ESCALATION**				
A7.1		Provisional Sum for Escalation for works completed under Phase 2 as per Clause 6.8.2 of the General Conditions of Contract 2015 and Contract Data.	Prov Sum	R225,000.00		
		Carried Forward to Summary: SECTION A-2			**R**	

ITEM NO	PAYMENT CLAUSE	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		SECTION B : BULK WATER PIPELINE				
	SABS 1200 C	**SITE CLEARANCE**				
B1	**8.2 & PSC 8.2**	**SCHEDULED ITEMS**				
	PSC 8.2.1	**Clear and Grub**				
B1.1		Clear and grub 2m wide strip for pipeline in road reserves	m	3,100		
B1.2		Bush clear 5m wide strip	m	300		
	8.2.2	**Remove and grub large trees and tree stumps of girth**				
B1.3	8.2.2 (a)	Over 1m and up to and including 2m	No	15		
B1.4	8.2.2 (b)	Over 2m and up to and including 3m	No	10		
B1.5	8.2.2 (c)	Over 3m	No	10		
B1.6	PSC 8.2.5	Take down existing fences	km	0.2		
	PSC 8.2.11	**Demolish and dispose of roadworks**				
B1.7	8.2.11 (a)	Saw-cut asphalt surfacing	m	210		
B1.8	8.2.11 (b)	Remove and dispose of asphalt surfacing	m^2	210		
B1.9	8.2.11 (c)	Removal of interlocking or block pavers	m^2	120		
B1.10	8.2.11 (d)	Removal of kerbing and channeling (all types)	m	100		
	PSC 8.2.12	**Demolish and dispose of existing minor structures**				
B1.11		230 mm brickwork (headwalls, manholes and the like)	No	2		
B.1.12		Concrete up to 200mm thick, reinforced or unreinforced (apron slabs, driveways, manhole bases, etc.)	m^2	20		
B2	**SABS 1200 DB**	**EARTHWORKS (PIPE TRENCHES)**				
	8.3	**SCHEDULED ITEMS**				
	PSDB 8.3.2	**Excavation**				
	8.3.2 (a)	Excavate in all materials for trenches, backfill, compact and dispose of Measured trench width 850mm for 250mm diameter pipe Depth over Up to and including				
B2.1		0m 1.5m	m	770		
		Carried forward / …				

ITEM NO	PAYMENT CLAUSE	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward / …				
B2.2		1.5m 2.0m	m	100		
B2.3		2.0m 2.5m	m	10		
		Measured trench width 950mm for 315mm diameter pipe				
		Depth over Up to and including				
B2.4		0m 1.5m	m	2,040		
B2.5		1.5m 2.0m	m	290		
B2.6		2.0m 2.5m	m	125		
B2.7		2.5m 3.0m	m	10		
	8.3.2 (b)	Extra-over for				
B2.8		Hard rock excavation	m^3	290		
B2.9	8.3.2 (c)	Excavate and dispose of unsuitable material from trench bottom	m^3	10		
	PSDB 8.3.3	**Excavation Ancillaries**				
B2.10	8.3.3.1	Make up deficiency in backfill material : (provisional)				
B2.11	8.3.3.1 (a)	From other necessary excavations on site	m^3	10		
B2.12	8.3.3.1 (c)	By importation from commercial or off-site sources selected by the Contractor :				
B2.13		Subbase quality material complying with subclause 3.2.1 of SABS 1200 ME	m^3	10		
B2.14	8.3.3.3.	Compaction in road reserves to 95% MAASHTO density	m^3	1,780		
B2.15	PSDB 8.3.3.5	Backfilling using 4MPa Floatcrete	m^3	140		
B2.16	PSDB 8.3.3.6	Backfilling using sand stabilised with 5% cement	m^3	15		
B2.17	PSDB 8.3.3.7	Backfilling using soilcrete	m^3	6		
B2.18	PSDB 8.3.3.8	Backfilling using G5 subbase material	m^3	50		
	PSDB 8.3.4	**Particular Items**				
		Shore trenches deeper than 1.5m on both sides				
B2.19		1.5m 2.0m	m	390		
B2.20		2.0m 2.5m	m	135		
B2.21		2.5m 3.0m	m	10		
	PSDB 8.3.5	**Existing Services that Intersect or Adjoin a Trench**				
	8.3.5 (a)	Services that intersect a trench				
		Water pipes:				
B2.22		Up to and including 250mm diameter	No	13		
		Carried forward / …				

ITEM NO	PAYMENT CLAUSE	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward / …				
B2.23		Over 250mm diameter up to and including 450mm diameter	No	1		
B2.24		Over 450mm	No	1		
B2.25		Water erf connections	No	28		
		Sewer pipes:				
B2.26		Up to and including 250mm diameter	No	9		
B2.27		Over 250mm diameter up to and including 450mm diameter	No	1		
B2.28		Over 450mm	No	1		
B2.29		Sewer erf connections	No	28		
B2.30		Stormwater pipes and culverts of all sizes	No	14		
B2.31		Underground electrical cables of all sizes	No	40		
B2.32		Overhead electrical cables	No	14		
B2.33		Fibre and communication cables of all sizes	No	18		
	8.3.5 (b)	Services that adjoin a trench				
		Water pipes:				
B2.34		Up to and including 250mm diameter	m	650		
B2.35		Over 250mm diameter up to and including 450mm diameter	m	10		
B2.36		Over 450mm	m	10		
		Sewer pipes:				
B2.37		Up to and including 250mm diameter	m	620		
B2.38		Over 250mm diameter up to and including 450mm diameter	m	10		
B2.39		Over 450mm	m	10		
B2.40		Stormwater pipes and culverts of all sizes	m	100		
B2.41		Underground electrical cables of all sizes	m	1,500		
B2.42		Overhead electrical cables	m	200		
B2.43		Fibre and communication cables of all sizes	m	1,150		
B2.44		Fences	m	5		
B2.45		Street lights	No	5		
B2.46		Road signs	No	10		
		Carried forward / …				

ITEM NO	PAYMENT CLAUSE	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward / …				
	PSDB 8.3.6	**Finishing**				
	PSDB 8.3.6.1	Reinstate road surfaces and paving complete with all courses				
B2.47	8.3.6.1 (a)	Gravel on shoulders and driveways	m^2	100		
B2.48	8.3.6.1 (e)	MC30 Cutback Primer (0.5l/m^2) or SS60 Emulsion (1l/m^2, 50/50 dilute)	m^2	210		
B2.49	8.3.6.1 (f)	40mm layer of 7mm Continuously Graded Premix	m^2	210		
B2.50	8.3.6.1 (g)	Interlocking and block pavers	m^2	120		
B2.51	8.3.6.1 (h)	Concrete (25MPa/19mm) to indicated surfaces 100mm thick	m^2	20		
B2.52	PSDB 8.3.8	Reinstate stormwater drains and channels with 35Mpa/19mm concrete up to 150mm thick complete	m^3	40		
	PSDB 8.3.9	Kerbing				
		Straight kerbing including bedding, jointing mortar and concrete haunching at all joints:				
B2.53		Barrier kerb	m	25		
B2.54		Mountable kerb	m	25		
B2.55		Edge strip	m	25		
B2.56		Channel	m	25		
		Curved kerbing including bedding, jointing mortar and concrete haunching at all joints:				
B2.57		Barrier kerb	m	5		
B2.58		Mountable kerb	m	5		
B2.59		Edge strip	m	5		
B2.60		Channel	m	5		
B2.61	PSDB 8.3.10	Relocate light posts complete	No	1		
	PESD 8.3.11	Topsoiling				
B2.62		150 mm thick from stockpile or other sources on site	m^3	150		
B2.63		Topsoil from commercial sources (to the Engineer's approval)	m^3	15		
	PSDB 8.3.12	Grassing				
B2.64		Kweek Cynodon	m^2	1,000		
		Carried forward / …				

ITEM NO	PAYMENT CLAUSE	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward / …				
	SABS 1200 DK	**GABIONS AND PITCHING (Refer also to PSDK)**				
B3	**8.2 & PSDK 8.2**	**SCHEDULED ITEMS**				
	8.2.1	**Surface Preparation for Bedding of Gabions**				
B3.1		Cavities fillied with approved excavated material	m^2	Rate Only		
B3.2		Cavities filled with grade 15 Mpa concrete	m^2	Rate Onlv		
	8.2.2	**Gabions**				
		Gabion Baskets - Galfan (95% hot dip + 5% Aluminium) or similar approved				
B3.3		1 x 1 x 1m	m^3	Rate Only		
B3.4		2 x 1 x 1m	m^3	10		
B3.5		3 x 1 x 1m	m^3	Rate Only		
B3.6		4 x 1 x 1m	m^3	Rate Only		
B3.7		2 x 0.5 x 0.5m	m^3	Rate Only		
B3.8		2 x 1 x 0.5m	m^3	Rate Only		
B3.9		3 x 1 x 0.5m	m^3	Rate Only		
B3.10		4 x 1 x 0.5m	m^3	Rate Only		
		Reno Mattresses - Galfan (95% hot dip + 5% Aluminium) or similar approved				
B3.11		1 x 1 x 0.3m	m^3	Rate Only		
B3.12		2 x 1 x 0.3m	m^3	40		
B3.13		3 x 1 x 0.3m	m^3	Rate Only		
B3.14	PS DK 8.2.4	Geotextile	m^2	1,170		
	SABS 1200 L	**MEDIUM - PRESSURE PIPELINES**				
B4	**8.2 & PSL**	**SCHEDULED ITEMS**				
	PSL 8.2.1	Supply, Lay, and Bed Pipes Complete with Couplings				
		PVC-u Cl 9 pipes in bedding for flexible pipes				
B4.1		50mm dia	m	30		
		Carried forward / …				

ITEM NO	PAYMENT CLAUSE	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward / …				
B4.2		75mm dia	m	30		
B4.3		110mm dia	m	30		
B4.4		250mm dia	m	24		
B4.5		315mm dia	m	1,566		
		PVC-u Cl 12 pipes in bedding for flexible pipes				
B4.6		50mm dia	m	30		
B4.7		75mm dia	m	30		
B4.8		110mm dia	m	30		
B4.9		250mm dia	m	878		
B4.10		315mm dia	m	920		
		HDPE PE100 PN 16 pipes in bedding for flexible				
B4.11		50mm dia	m	30		
B4.12		63mm dia	m	30		
		HDPE PE100 PN 10 pipes placed in sleeve pipe				
B4.13		315mm dia	m	50		
	PSL 8.2.2	Extra-over 8.2.1. for the Supplying, Laying, and Bedding of Specials Complete with Couplings				
		Bends for use with PVC-u Cl 9 pipes				
B4.14		315mm x 11,25^{o}	No	3		
B4.15		315mm x 22,5^{o}	No	4		
B4.16		315mm x 45^{o}	No	8		
B4.17		315mm x 90^{o}	No	4		
		Bends for use with PVC-u Cl 12 pipes				
B4.18		250mm x 22,5^{o}	No	1		
B4.19		250mm x 45^{o}	No	4		
		Tee-pieces				
		Standard cast-iron socketed equal and reducing Tees for use with PVC-u pipes (Note: some Tees may be 2-part)				
B4.20		250 x 50mm dia	No	2		
B4.21		250 x 63mm dia	No	2		
B4.22		250 x 75mm dia	No	1		
B4.23		250 x 110mm dia	No	1		
		Carried forward / …				

ITEM NO	PAYMENT CLAUSE	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward / …				
B4.22		250 x 75mm dia	No	1		
B4.23		250 x 110mm dia	No	1		
B4.24		315 x 50mm	No	1		
B4.25		315 x 63mm	No	1		
B4.26		315 x 75mm	No	1		
B4.27		315 x 160mm	No	1		
B4.28		315 x 250mm	No	1		
		Standard cast-iron socketed hydrant Tee				
B4.29		250mm x 80mm flanged branch	No	2		
		Mild steel HDG and coated flanged Tees complete with 2 x flanged adaptors for use with PVC-u pipes				
B4.30		250 x 50mm dia	No	1		
B4.31		250 x 63mm dia	No	1		
B4.32		315 x 50mm	No	1		
B4.33		315 x 63mm	No	1		
		Saddles				
B4.34		250 x 50mm (2") threaded female socket	No	2		
B4.35		250 x 63mm (2 ½") threaded female socket	No	2		
B4.36		315 x 50mm (2") threaded female socket	No	2		
B4.37		315 x 63mm (2 ½") threaded female socket	No	2		
		Compression fittings for use with HDPE PE100 PN 16 pipes				
B4.38		50mm x 50mm (2") male adaptor	No	4		
B4.39		50mm straight coupling	No	2		
		50mm flanged adaptor	No	2		
B4.40		63mm x 63mm (2 ½") male adaptor	No	4		
B4.41		63mm straight coupling	No	2		
B4.42		63mm flanged adaptor	No	2		
		Reducers - socketed for PVC-u pipes				
B4.43		315mm - 250mm PN 12	No	1		
		Flanged adaptors for use with PVC-u pipes				
B4.44		110mm diameter	No	2		
B4.45		250mm diameter	No	2		
B4.46		300mm diameter	No	2		
		Carried forward / …				

ITEM NO	PAYMENT CLAUSE	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward / …				
	PSL 8.2.3	Extra-over 8.2.1 for the Supplying, Fixing and bedding of Valves				
		Socketed gate valves PN 16 (AVK or similar approved)				
B4.47		50mm	No	1		
B4.48		65mm	No	1		
B4.49		80mm	No	1		
		Flanged gate valves PN16 (AVK or similar approved) with 2 x flanged adaptors for PVC-u pipes				
B4.50		100mm diameter	No	1		
		Flanged gate valves PN16 complete with 2 x flanged adaptors for HDPE PE100 PN16 pipes (AVK or similar approved)				
B4.51		50mm diameter	No	1		
B4.52		65mm diameter	No	1		
		Fire hydrant valves				
B4.53		Above ground fire hydrant valve complete with HDG and coated 80mm diameter riser pipe	No	2		
	8.2.5	Supply and Place Pipes, Valves and Specials (Short pipe runs)				
		All mild steel specials shall be HDG and coated as per the Drawings				
		300mm diameter reservoir outlet				
B4.54		Long-barrel VJ flanged adaptor	No	5		
B4.55		300mm dia pipe special flanged one end, other end plain, with puddle flange. Nominal length - 1,500mm	No	1		
B4.56		300mm dia pipe special plain ended. Nominal length - 800mm	No	1		
B4.57		300mm dia pipe special flanged one end, other end plain, with puddle flange. Nominal length - 1,220mm	No	1		
B4.58		300mm dia pipe special flanged one end, other end plain. Nominal length - 1,500mm	No	1		
B4.59		300mm dia pipe special flanged both ends. Nominal length 600mm	No	1		
B4.60		300mm dia pipe special flanged both ends, with puddle flange and 200mm flanged riser pipe for air valve. Nominal length - 1,830mm	No	1		
B4.61		50mm diameter spool piece flanged one end for 200mm pipe and other end flanged for 50mm gate valve. Nominal length - 300mm	No	1		
B4.62		50mm flanged gate valve	No	1		
		Carried forward / …				

ITEM NO	PAYMENT CLAUSE	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward / …				
B4.63		50mm flanged double acting air valve (Vent-O-Mat RBX or similar approved)	No	1		
B4.64		300mm flange gate valve	No	1		
B4.65		300mm flanged electromagnetic flow meter (ABB or similar approved) with 20m power supply and communication cables	No	1		
		250mm gate valve pipework				
B4.66		Long-barrel VJ flanged adaptor	No	9		
B4.67		250mm dia pipe special flanged one end, other end plain, with puddle flange. Nominal length - 1,220mm	No	3		
B4.68		250mm dia pipe special flanged both ends, with puddle flange and 150mm flanged riser pipe for air valve. Nominal length - 1,220mm	No	3		
B4.69		50mm diameter spool piece flanged one end for 150mm pipe and other end flanged for 50mm gate valve. Nominal length - 300mm	No	1		
B4.70		50mm flanged gate valve	No	1		
B4.71		50mm flanged double acting air valve (Vent-O-Mat RBX or similar approved)	No	1		
B4.72		150mm diameter blank flange	No	2		
B4.73		250mm flange gate valve	No	3		
		300mm gate valve pipework				
B4.74		Long-barrel VJ flanged adaptor	No	6		
B4.75		300mm dia pipe special flanged one end, other end plain, with puddle flange. Nominal length - 1,220mm	No	2		
B4.76		300mm pipe special flanged both ends, with puddle flange. Nominal length - 1,220mm	No	1		
B4.77		300mm pipe special flanged both ends, with puddle flange and 200mm flanged riser pipe for air valve. Nominal length - 1,220mm	No	1		
B4.78		50mm diameter spool piece flanged one end for 200mm pipe and other end flanged for 50mm gate valve. Nominal length - 300mm	No	1		
B4.79		50mm flanged gate valve	No	1		
B4.80		50mm flanged double acting air valve (Vent-O-Mat RBX or similar approved)	No	1		
B4.81		300mm flange gate valve	No	2		
		Air valve pipework on 250mm pipe				
B4.82		Long-barrel VJ flanged adaptor	No	3		
B4.83		250mm dia pipe special flanged one end, other end plain, with puddle flange. Nominal length - 1,020mm	No	1		
		Carried forward / …				

ITEM NO	PAYMENT CLAUSE	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward / …				
B4.84		250mm pipe special flanged both ends, with puddle flange. Nominal length - 820mm	No	1		
B4.85		250 x 150mm flanged T-piece	No	1		
B4.86		50mm diameter spool piece flanged one end for 150mm pipe and other end flanged for 50mm gate valve. Nominal length - 300mm	No	1		
B4.87		50mm flanged gate valve	No	1		
B4.88		50mm flanged double acting air valve (Vent-O-Mat RBX or similar approved)	No	1		
		Air valve pipework on 315mm pipe				
B4.89		Long-barrel VJ flanged adaptor	No	9		
B4.90		300mm dia pipe special flanged one end, other end plain, with puddle flange. Nominal length - 1,020mm	No	3		
B4.91		300mm dia pipe special flanged both ends, with puddle flange. Nominal length - 820mm	No	3		
B4.92		300 x 200mm flanged T-piece	No	3		
B4.93		50mm diameter spool piece flanged one end for 200mm pipe and other end flanged for 50mm gate valve. Nominal length - 300mm	No	3		
B4.94		50mm flanged gate valve	No	3		
B4.95		50mm flanged double acting air valve (Vent-O-Mat RBX or similar approved)	No	3		
		Scour pipework on 250mm pipe				
B4.96		Long-barrel VJ flanged adaptor	No	3		
B4.97		250mm dia pipe special flanged one end, other end plain, with puddle flange. Nominal length - 1,020mm	No	1		
B4.98		250mm dia pipe special flanged both ends, with puddle flange. Nominal length - 820mm	No	1		
B4.99		250 x 100mm flanged scour T-piece	No	1		
B4.100		100mm dia gate valve with hand wheel PN 16	No	1		
B4.101		100mm dia flanged pipe special with puddle flage. Nominal length - 850mm	No	1		
B4.102		100mm dia flange 45^{o} bend	No	1		
B4.103		100mm dia flanged pipe special. Nominal length 2,000mm	No	1		
B4.104		100mm diam flanged Parrett coupling	No	1		
		Scour pipework on 315mm pipe				
B4.105		Long-barrel VJ flanged adaptor	No	3		
B4.106		300mm dia pipe special flanged one end, other end plain, with puddle flange. Nominal length - 1,020mm	No	1		
		Carried forward / …				

ITEM NO	PAYMENT CLAUSE	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward / …				
B4.107		300mm dia pipe special flanged both ends, with puddle flange. Nominal length - 820mm	No	1		
B4.108		300 x 100mm flanged scour T-piece	No	1		
B4.109		100mm dia gate valve with hand wheel PN 16	No	1		
B4.110		100mm dia flanged pipe special with puddle flage. Nominal length - 850mm	No	1		
B4.111		100mm dia flange 45^{o} bend	No	1		
B4.112		100mm dia flanged pipe special. Nominal length 2.000mm	No	1		
B4.113		100mm diam flanged Parrett coupling	No	1		
		80mm PRV chamber pipework				
B4.114		75mm CI flanged adaptor for PVC-u pipe	No	4		
B4.115		Long-barrel VJ flanged adaptor for 80mm dia steel pipe	No	2		
B4.116		Long-barrel VJ flanged adaptor for 100mm dia existing pipe to KwaNomzamo	No	4		
B4.117		100 x 80mm dia mild steel flanged unequal Tee	No	3		
B4.118		50mm dia HDPE PE100 PN 16 pipe	m	3		
B4.119		50mm x 90^{o} compression Tee for HDPE PE100 PN 16 pipe	No	1		
B4.120		75mm dia Cl 12 PVC-u pipe	m	6		
B4.121		75mm dia Cl 12 x 90^{o} bend for PVC-u pipes	No	2		
B4.122		80mm dia mild steel flanged pipe special with puddle flange. Nominal length - 820mm	No	2		
B4.123		80mm dia mild steel pipe special flanged one, other end plain. Nominal length - 300mm	No	2		
B4.124		80mm dia mild steel flanged spool piece with 20mm male threaded nipple centrally placed	No	2		
B4.125		80 x 50mm mild steel flanged unequal Tee	No	1		
B4.126		50mm dia mild steel flanged pipe special. Nominal length 200mm	No	1		
B4.127		50mm flanged adaptor suitable for 50mm dia HDPE PE100 PN 16 pipe	No	1		
B4.128		50mm dia flanged butterfly valve	No	1		
B4.129		50mm dia flanged Cla-Val pressure relief valve	No	1		
B4.130		80mm dia flange gate vale PN 16	No	2		
B4.131		100mm dia flange gate vale PN 16	No	2		
B4.132		80mm dia flange Sensus WP-F Dynamic strainer	No	1		
B4.133		80mm dia flanged Sensus Meistream flow meter	No	1		
		Carried forward / …				

ITEM NO	PAYMENT CLAUSE	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward / …				
B4.134		80mm dia flanged Cla-Val pressure reducing valve	No	1		
B4.135		20mm dia Caleffi installation	No	1		
B4.136		25mm diameter spool piece flanged one end for 80mm pipe and other end flanged for 25mm gate valve. Nominal length - 300mm	No	1		
B4.137		25mm flanged gate valve	No	1		
B4.138		25mm flanged double acting air valve (Vent-O-Mat RBX or similar approved)	No	1		
		150mm PRV chamber pipework				
B4.139		CI flanged adaptor for 75mm PVC-u pipe	No	4		
B4.140		CI flanged adaptor for 160mm PVC-u pipe	No	1		
B4.141		Long-barrel VJ flanged adaptor for 150mm dia steel pipe	No	5		
B4.142		Long-barrel VJ flanged adaptor for 315mm dia PVC-u pipe	No	2		
B4.143		150 x 150mm dia mild steel flanged equal Tee	No	2		
B4.144		300 x 150mm dia mild steel flanged unequal Tee	No	1		
B4.145		300 x 200mm dia mild steel flanged unequal Tee	No	1		
B4.146		Standard CI socketed 300 x 160mm unequal Tee for use with PVC-u pipes	No	1		
B4.147		50mm dia HDPE PE100 PN 16 pipe	m	6		
B4.148		50mm x 90^{o} compression Tee for HDPE PE100 PN 16 pipe	No	2		
B4.149		75mm dia CI 12 PVC-u pipe	m	1		
B4.150		75mm dia CI 12 x 90^{o} bend for PVC-u pipes	No	2		
B4.151		160mm dia CI 12 PVC-u pipe	m	3		
B4.152		150 x 80mm mild steel flanged reducer	No	2		
B4.153		80mm dia mild steel flanged pipe special with puddle flange. Nominal length - 820mm	No	1		
B4.154		80mm dia mild steel flanged pipe special with puddle flange and 50mm dia flanged branch for air valve.. Nominal length - 820mm	No	1		
B4.155		80mm dia mild steel pipe special flanged one end, other end plain. Nominal length - 500mm	No	1		
B4.156		80 x 50mm dia mild steel flanged unequal Tee	No	1		
B4.157		150mm dia mild steel flanged pipe special with puddle flange. Nominal length - 820mm	No	1		
B4.158		150mm dia mild steel pipe special flanged one, other end plain, with puddle flange. Nominal length - 820mm	No	2		
		Carried forward / …				

ITEM NO	PAYMENT CLAUSE	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward / …				
B4.159		150mm dia mild steel pipe special flanged one, other end plain, with puddle flange and 50mm dia flanged branch for air valve. Nominal length - 820mm	No	1		
B4160		150mm dia mild steel flanged pipe special. Nominal length - 450mm	No	1		
B4.161		150mm dia mild steel pipe special flanged one end, other end plain. Nominal length - 300mm	No	1		
B4.162		150 x 50mm dia mild steel flanged unequal Tee	No	1		
B4.163		150mm dia flange Sensus WP-F Dynamic strainer	No	1		
B4.164		150mm dia flanged Sensus Meistream flow meter	No	1		
B4.165		50mm dia mild steel flanged pipe special. Nominal length 200mm	No	1		
B4.166		50mm flanged adaptor suitable for 50mm dia HDPE PE100 PN 16 pipe	No	1		
B4.167		50mm dia flanged butterfly valve	No	1		
B4.168		50mm dia flanged Cla-Val pressure relief valve	No	1		
B4.169		80mm dia flange gate vale PN 16	No	2		
B4.170		150mm dia flange gate vale PN 16	No	3		
B4.171		300mm dia flange gate vale PN 16	No	1		
B4.172		80mm dia flanged Cla-Val pressure reducing valve	No	1		
B4.173		150mm dia flanged Cla-Val pressure reducing valve	No	1		
B4.174		50mm dia flanged spool piece. Nominal length 300mm	No	2		
B4.175		50mm flanged gate valve	No	2		
B4.176		50mm flanged double acting air valve (Vent-O-Mat RBX or similar approved)	No	2		
	8.2.11 (b)	Anchor / Thrust Blocks and Pedestals				
B4.177		Concrete	m³	30		
B4.178		Formwork	m²	60		
	PSL 8.2.13	Valve and Hydrant Chambers, etc.				
		Chambers constructed complete as detailed on the drawings for:				
B4.179		Reservoir outlet meter and isolation valve - Refer to drawing 2298-T-300	No	1		
B4.180		Isolation gate valves - Refer to drawing 2298-T-301	No	5		
B4.181		Air valves - Refer to drawing 2298-T-302	No	4		
B4.182		Scour valves - Refer to drawing 2298-T-303	No	2		
B4.183		80mm PRV valve - Refer to drawing 2298-T-305	No	1		
B4.184		150mm PRV valve (two chambers) Refer to drawing 2298-T-304	No	1		
		Carried forward / …				

ITEM NO	PAYMENT CLAUSE	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward / …				
B4.185		Concrete support to above ground fire hydrants	No	2		
B4.186		Type 2 chambers for isolation valves 50mm - 100mm	No			
	PSL 8.2.16	Valve and Pipeline Markers				
B4.187		Pipeline markers	No	20		
B4.188		Valve markers - stencilling on chamber	No	5		
	PSL 8.2.17	Cut Into and Connect to Existing mains				
B4.189		100mm diameter	No	2		
	PSL 8.2.18	Cut Into and Connect to Existing Reservoir				
B4.190		300mm diameter mild steel pipe	No	1		
	SABS 1200 LB	**BEDDING (PIPES)**				
B5	**8.2**	**SCHEDULED ITEMS**				
	8.2.1	**Provision of Bedding from Trench Excavation**				
B5.1		Selected granular material (100mm under pipe, 200mm above pipe)	m³	980		
	8.2.2	**Supply Only of Bedding by Importation**				
	8.2.2.3	From commercial sources				
B5.2	8.2.2.3 (a)	Selected granular material	m^3	660		
B5.3	PSLB 8.2.2.3(c)	6,7mm stone	m^3	6		
	8.2.4	**Encasing of Pipes in Concrete**				
B5.4		20MPa/19mm concrete casing where ordered by the Engineer	m³	6		
B5.5	PSLB 8.2.6	Bedding in wet conditions	m^3	6		
B5.6	PSLB 8.2.7	Crushed stone bedding	m^3	2		
B5.7	PSLB 8.2.7	Geofabric blanket	m^2	45		
B6	**SABS 1200 LG**	**CORE DRILLING (Refer also to PSLG) (PROVISIONAL)**				
	PSLG 8.2.1	**Jacking Establishment**				
		For Pipe Jacking (under railway line)				
B6.1		Fixed charges	Sum	Rate Only		
B6.2		Time-related charges	Sum	Rate Only		
B6.3		Contractor to state time in days ……....				
		For Directional Drilling				
B6.4		Fixed charges	Sum	1		
B6,5		Time-related charges	Sum	1		
		Carried forward / …				

ITEM NO	PAYMENT CLAUSE	SHORT DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		Brought forward / …				
B6.6		Contractor to state time in days ……..				
	PS LG 8.2.2	**Supply of Pipes to be Jacked**				
B6.7		900mm diameter x 100D concrete pipes	m	Rate Only		
B6.8	PSLG 8.2.2.1	450mm diamter butt welded HDPE PE100 PN12,5 pipes for directional drilling	m	50		
	PSLG 8.2.3	**Jacking of Pipes**				
B6.9		Jacking of 900mm diameter pipes	m	Rate Only		
B6.10	PSLG 8.3.3.1	Directional drilling of pipes	m	50		
B6.11	PSLG 8.2.4	Excavation for jacking in all materials	m	Rate Only		
B6.12	8.2.5	Extra-over 8.2.1 and 8.2.4 for hard rock or boulders	m^3	Rate Only		
	PSLG 8.2.9	**Stabilization of Unstable Areas or Grouting of Voids where Ordered**				
		Grout voids between jacked sleeve pipe and soil				
B6.13		Provision and establishment of equipment on site and removal on completion of operartion	Sum	Rate Only		
B6.14		Operation of equipment	day	Rate Only		
B6.15		Materials used (sand/cement grout)	m^3	Rate Only		
		Grout annulus between jacked sleeve pipe and raw pipe				
B6.16		Provision and establishment of equipment on site and removal on completion of operartion	Sum	Rate Only		
B6.17		Operation of equipment	day	Rate Only		
B6.18		Materials used (self-compacting concrete or soil crete)	m^3	Rate Only		
	PSLG 8.2.10	**Standing Time for Pipe jacking Gang and the Jacking Equipment Covered by 8.2.1**				
B6.19		Pipe jacking gang and equipment	hr	Rate Only		
B6.20		Directional drilling gang and equipment	hr	Rate Only		
		Carried Forward to Summary: SECTION B			**R**	

KOUGA MUNICIPALITY

CONTRACT No. 68-2026

KWANOMZAMO BULK WATER:
NEW WATER MAIN FROM HUMANSDORP WATER TREATMENT WORKS TO KWANOMZAMO

DESCRIPTION	AMOUNT
SECTION A-1: PRELIMINARY & GENERAL - PHASE 1 (2026/27 FINANCIAL YEAR)	R
SECTION A-2: PRELIMINARY & GENERAL **-** PHASE 2 (2027/28 FINANCIAL YEAR)	R
SECTION B: BULK WATER PIPELINE	R
SUBTOTAL A	**R**
VAT: ADD 15% VAT	**R**
TOTAL CARRIED TO FORM OF OFFER	**R**

Notes:

1. Contract Price Adjustment will only be applied to Phase 2 of the Contract (Clause 6.8.2 of the Conditions of Contract).

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

Signed …….. Date ……..…….

Name …….. Position ……..…

Tenderer ……..……

CONTRACT

PART 3 (OF 4): SCOPE OF WORK

C3.1 Description of the Works

C3.2 Engineering

C3.3 Procurement

C3.4 Construction

C3.5 Management

C3.6 Specification Data

C3.1: DESCRIPTION OF THE WORKS

STATUS

In the event of any discrepancy between the Scope of Work and any part of the SABS 1200 Standardized Specifications, the Bill of Quantities or the Drawings, the Scope of Work shall take precedence and prevail in the Contract.

C3.1.1 EMPLOYER'S OBJECTIVES

The objective of the Employer (Kouga Local Municipality) is to construct a new bulk water pipeline from the existing Humansdorp Water Treatment Works to KwaNomzamo. This much-needed water pipeline will assist with the water supply reliability to KwaNomzamo, as well as unlock future housing developments in the KwaNomzamo area.

It is the Client's wish to construct the proposed scope of works as one package, however due to funding constraints, the Project will be implemented over two (2) financial years namely, **2026/2027 (Phase 1), & 2027/2028 (Phase 2)**. Each phase shall therefore comprise of a work package (Phase) for that financial year, with a total of two work packages (Phases), all within the same Contract.

The project is spread over the length of the town of Humansdorp, starting at the Water Treatment Works and terminating in the proposed Geelhout Development in Kwanomzamo.

Phase 1 - Clear start and completion positions for Phase 1 will be determined and agreed between the Client and the appointed Contractor, prior to commencement on site, based on submitted rates and the funding amount available for the applicable year, which will be utilised as the end point of Phase 1. Currently it is proposed that the works commence at the Water Treatment Works and that Phase 1 will end at the entrance to Kwanomzamo at the corner of the R330 and Nanto Street.

Phase 2 will commence from the end point of Phase 1 and end at the end of the pipeline, within Kwanomzamo, as detailed on the drawings.

It will be required that all works be completed on the section of pipeline to be completed within each phase. This includes testing and commissioning of the pipeline as per the drawings, complete.

At the end of year 1, once the Contractor has completed the works for that financial year, the Contractor will be allowed to stop work, de-establish site and wait until the funds have become available at the beginning of the second financial year (2027/2028). Once the funds are available the Contractor may re-establish on site.

Effectively, the Contractor will be appointed for a 24-month period, but work will only be undertaken for an anticipated 7 and 3-month period at a time within each financial year indicated.

In terms of the Contract Adjudication, the Combined Price for all works will be taken into consideration.

Upon Successful completion of work for the completed phase, for each financial year, the Contractor shall be able to apply for a Certificate of Practical completion, and once the associated requirements are completed, the Contractor shall then be allowed to apply for an interim certificate of completion. Once the project in its entirety is complete, i.e Phase 1 and 2, the Contractor may apply for a Certificate of Completion as per Clause 5.14 of the General Conditions of Contract 2015. (i.e. the Contractor shall receive a total of two (2) interim Completion Certificates and one (1) final Certificate of Completion).

The offer of validity for the works as set out for year 2, will remain valid with the applicable escalation to be applied in Phase 2.

In the event that the funds are not secured within 6 months from the Completion Date of the works in Phase 1, the Client will go to re-tender for the works to be done in Phase 2 when funds are available and the Contractor (who constructed the

works in Phase 1) will have no claim against the Kouga Local Municipality in any shape or form, for loss of work or profit or any other damages.

C3.1.2 OVERVIEW OF THE WORKS

The project comprises the:

- Supply, installation and testing of 3,435m of 315mm Ø and 250mm Ø u-PVC water pipelines
- Supply and installation of two pressure reducing valve stations
- Four (4) provincial road crossings (1 currently planned to be completed by means of horizontal drilling)
- One (1) Transnet railway crossing to be completed by means of pipe jacking or horizontal drilling
- Connection into the existing WTW reservoir and KwaNomzamo water reticulation network

Work will be completed in two phases, as described in C3.1.1.

C3.1.3 EXTENT OF THE WORKS

The works will span from the existing Humansdorp Water Treatment Works to the proposed Geelhout housing development area in KwaNomzamo.

The Scope of this Contract includes as briefly set out in C3.1.2.

The scope of work listed above is not necessarily complete and shall not limit the work to be undertaken by the Contractor. For a more detailed description of the works, as well as estimated quantities associated with the respective activities, refer to the tender specifications, drawings and the Bill of Quantities.

C3.1.4 LOCATION OF THE WORKS

The location of the work will be carried out as indicated in the locality plan overleaf. The site of the Works is situated in Humansdorp, Eastern Cape.

Locality Plan of Proposed Bulk Water Pipeline

C3.1.5 TEMPORARY WORKS

Temporary works that are envisioned on this contract may include, but not be limited to:

- Shoring of trenches;
- Shuttering for concrete works;
- Launch and receiving pits for directional drilling and/or pipe jacking;
- Temporary support for existing structures and services;
- Access to existing properties and to the Works;
- Barricading of excavations and other sections of the Works;
- Traffic control measures and diversions

The Contractor's attention is however directed to:

- Locating, dealing with and protection of existing services.
- Dealing with and accommodation of traffic.
- Providing access to erven and properties without disruptions
- The requirements, principals and responsibilities specified within the various specifications contained under the Contract Part 3: Scope of Work.

C3.1.6 EXISTING SERVICES

The Contractor shall ensure that the position of all existing services affected by the Works have been verified before construction works commences. The Contractor shall take all necessary steps to ascertain the location of existing services before commencing any portion of the Works and shall exercise the greatest care when working in the vicinity of such services.

Should it be necessary to lower or relocate a service, the Contractor will be required to make the necessary arrangements with the relevant service provider and to inform the Employer's Agent accordingly. All available existing services information has been indicated on the provided drawings. However, it should be noted that services might not be limited to the details indicated on the drawings.

C3.1.7 PROVIDING ACCESS TO PRIVATE PROPERTIES, BUILDING AND FACILITIES

Access to properties, buildings and businesses must be provided by the Contractor at all times during the course of the contract. The Contractor shall provide suitable methods for pedestrians and vehicles to maintain such access. Such temporary access shall be in the form of portable bridges, temporary backfill or other approved means and shall always allow for the safe passage of vehicles, pedestrians and goods. The Contractor shall be responsible for maintaining such crossings and removing the same when they are no longer required.

The full extent of all areas in which plant and personnel are operating shall be at all times be clearly demarked and barricaded to prevent access by members of the public.

C3.1.8 ACCOMMODATION OF TRAFFIC

The Contractor should note that no existing roads or traffic lanes may be closed to traffic without prior written permission of the Employer's Agent and the approval of the KLM and / or the Municipal Traffic Chief's office.

Every effort shall be made by the Contractor to keep disruption of existing traffic and pedestrian movements to the absolute minimum during construction. Where existing roads are used, they shall be protected from damage by construction traffic and repaired where instructed by the Employer's Agent.

The safety and convenience of the travelling public is to be considered of utmost importance and every effort must be made to ensure that all temporary road signs, cones, flagmen and speed controls are maintained and effective, and that courtesy is extended to the public at all times.

It is important that the traffic accommodation requirements described in these specifications are adhered to and that all installations meet with the approval of the relevant traffic authority.

Work, including the erection and removal of traffic control facilities, shall be executed between sunrise and sunset on Monday to Friday, inclusive. Occupation of existing traffic lanes will only be allowed during daylight hours on normal working days, which are defined as Monday to Friday, inclusive.

The travelling public has the right of way on public roads, and the Contractor shall make use of approved methods to control the movement of his equipment and vehicles so as not to constitute a hazard on public roads.

Failure to maintain road signs, warning signs or flicker lights, and the like, in good condition shall constitute ample reason for the Employer's Agent to bring the works to a stop until the road signs, etc., have been repaired / reinstated to his satisfaction.

The Contractor may not commence construction activities before adequate provision has been made to accommodate traffic in accordance with the requirements of these specifications and Chapter 13 of Volume 2 of the South African Road Traffic Signs Manual (SARTSM).

The Contractor shall submit proposals in connection with all signs and accommodation of traffic to the Employer's Agent for approval.

C3.2: ENGINEERING

C3.2.1 DESIGN SERVICES AND ACTIVITY MATRIX

Works designed by, per design stage:

Concept, feasibility and overall process	Employer's Agent
Basic Employer's Agenting and detail layout to tender stage	Employer's Agent
Final design to approved for construction stage	Employer's Agent
Temporary works	Contractor
Preparation of as-built drawings & GIS information	Contractor/Employer's Agent

C3.2.2 DESIGN PROCEDURES

The Contractor shall take all statutory requirements, as well as the Site-Specific Health and Safety Specification and Basic Risk Assessment (refer to particular specification PB) into consideration when designing the Temporary Works.

Where the Contractor is to supply the design of designated parts of the permanent Works, he shall supply full working drawings supported by a professional Engineer's design certificate. All designs shall be such that the final constructed product is able to satisfactorily meet the requirements of the Employer.

The Contractor is responsible for the design of all the Temporary Works and all associated drawings required for the construction and execution of the Permanent Works. Designs for Temporary Works shall be subject to the approval of the Employer's Agent.

Notwithstanding any approval by the Employer's Agent of any temporary works designs, all liability for such designs shall always remain with the Contractor and his Designer.

As guidance to the Contractor, the following Temporary Works that may be required during construction and execution of the Permanent Works are:

(i) Shoring and trench protection
(ii) Temporary access to properties
(iii) Support work and scaffolding
(iv) Shuttering for concrete structures
(v) Fall protection and safety when working at heights
(vi) Record keeping and recording of As Built data for the Engineer.

The above description is not necessarily complete and shall not limit the work to be carried out.

C3.2.3 DRAWINGS

C3.2.3.1 General

The Contractor shall conform in all aspects to the drawings and specifications and to any written instructions, which the Employer's Agent may provide him with during the Contract.

It is the Contractor's responsibility to ensure that work is carried out in accordance with the latest revision of the construction drawings.

Only figured dimensions may be used, 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.

Should any differences or contradictions exist in the documents or dimensions used in the documents, the Contractor shall be responsible to obtain clarification thereof from the Engineer.

Should the Contractor fail to seek clarification of any differences or contradictions, the Contractor shall be solely liable for any costs that may arise due to his failure in this regard.

The Contractor is to provide the Engineer with a full set of Workshop Drawings and specifications of all pumps, electrical panels (equipment) and pipework that he intends to install. Please note that material and pumps may only be ordered once the Engineer has approved the above.

The Engineer will, on the request of the Contractor, and in accordance with the provisions of the Conditions of Contract, provide such dimensions as may have been omitted from the Drawings.

C3.2.3.2 Record (as-built) Drawings

The Contractor shall ensure that accurate As-Built records are kept of all infrastructure installed or relocated during the Contract and where necessary, levels shall also be provided.

A marked-up set of drawings shall be kept and updated by the Contractor on a day-to-day basis. This information shall be supplied to the Engineer's Representative as and when needed.

All information in possession of the Contractor where required by the Engineer and/or the Engineer's Representative to complete the As-Built/Record Drawings, must be submitted to the Engineer's Representative before the Certificate of Completion may be issued.

The Tender Drawings prepared by the Employer for the construction of the Permanent Works are listed and bound under **Appendix A**. The Employer reserves the right to issue amended and/or additional Drawings during the Contract.

C3.2.4 CONSTRUCTION METHODS

Construction methods used shall be as environmentally friendly as possible. No construction methods that will result in long term or permanent damage to the surrounding natural environment shall be allowed.

Care shall be taken when mixing, transporting and placing concrete to avoid spillage and wastage. Any spillage shall be cleaned immediately and disposed of at the designated waste disposal site.

C3.2.5 ACCESS TO WORKS SITE

Access to the site is via existing public roads and tracks. The Contractor may improve the roads and shall maintain them in good condition for the duration of the construction period.

On completion of construction the roads shall be left in the same or better condition as at the start of the Contract.

C3.2.6 SERVICES KNOWN TO BE IN THE VICINITY OF THE WORKS SITE

Existing known services in the form of pipelines and electrical power lines either cross the site of the Works or are in close vicinity. There may be other unknown services that either cross the site of the Works or that may be in close vicinity. Before commencing work the Contractor shall contact the local authority and the Employer's Project Manager to obtain information regarding possible exiting services and to have these pointed out to him.

Items have been allowed in the Bill of Quantities for dealing with and protecting existing services where they are known.

The Contractor shall, however, ensure that prior to construction all the necessary Record Drawings and Way-leaves for all services have been obtained and verified on site by the relevant Service Providers in his presence.

The Contractor shall take whatever extra precautions are required to protect all existing services from damage during the period of the Contract. Any damage to existing services indicated by the relevant service providers or other damage as a result thereof, shall be for the Contractor's account.

C3.2.7 MATERIALS AND WORKMANSHIP

Workmanship throughout shall be executed according to the latest professional standards and particular care shall be taken to ensure a neat installation.

All materials, plant and equipment shall comply with the requirements of the appropriate specification unless otherwise specified.

All materials, plant and equipment shall be of best quality, new and unused, in good condition and complete.

All material, plant and equipment shall be suitable for the permanent conditions likely to be encountered on the Site. Should the materials, plant or equipment not be suitable for use under temporary construction site conditions, the Contractor shall at his own cost provide suitable protection until the unfavourable site conditions cease to exist.

Any plant, material or equipment considered to be not to specification, incorrect brands, faulty, incorrectly installed, of inferior quality or badly fixed shall be replaced by the Contractor at his own cost. The Contractor shall be held responsible for the correctness of all dimensions as set out.

The Engineer's Representative will inspect the work from time to time during the progress of the work. Discrepancies will be pointed out to the Contractor and these shall be remedied at the Contractor's expense. Under no circumstances shall these inspections and remedies relieve the Contractor of any of his obligations or liabilities in terms of the Contract.

C3.3: PROCUREMENT

C3.3.1 PREFERENTIAL PROCUREMENT

C3.3.1.1 Requirements

Refer to Clauses C.2.23.2 and C.3.11 of the Tender Data and Form 1F: Form MBD 6: Preference Points Claim form in terms of the Preferential Procurement Regulations 2022 (80/20 version) of the Tender Data.

C3.3.1.2 Resources Standards pertaining to targeted procurement

Tenders will be evaluated in terms of the Employer's Procurement Points system. The criteria for allocation of procurement points are stated in Clauses C.2.23.2 and C.3.11 of the Tender Data.

C3.3.2 SUBCONTRACTING

C3.3.2.1 Scope of mandatory subcontract works

The Contractor shall note that the Employer is committed to local Emerging Enterprise (EE) development and this contract forms part of this.

The sub-contracting of work is required for all CIDB-related projects in the following ranges:

a) R 5M >, but < R 10M requires Bidder to sub-contract 10% of the value of the project
b) R 10M >, but < R 15M requires Bidder to sub-contract 15% of the value of the project
c) R 15M >, but < R 20 requires Bidder to sub-contract 20% of the value of the project
d) R 20M >, but < R 25M requires Bidder to sub-contract 25% of the value of the project
e) R 25M > requires Bidder to sub-contract 30% of the value of the project

The sub-contracting value will be based on the estimated value of the project either determined by the director or project manager. Where the successful bidder's price falls within any other range, the sub-contracting range included in the Bid Document will be applied. The above will be applied **per phase** of the project and the total phase value will thus be utilised to determine the percentage to be sub-contracted to EEs.

The municipality may include sub-contracting for any other none CIDB related project as may be requested by the Director of the Department to promote local development.

Community Based Suppliers or service providers/ward-based suppliers or service providers must be considered for subcontracting by the main contractor. The first preference for subcontracting must be given to community or ward-based suppliers of that particular ward where the project is taking place. If the required skill or expertise is not available from the ward / area where the project is taking place, the main contractor is permitted to accept service provers or suppliers within the KLM jurisdiction. Those service provider or suppliers would then contract directly with the main contractor.

C3.3.2.2 Preferred subcontractors / suppliers

Local Emerging Enterprises registered on the Kouga Local Municipality Database and/or nominated by the municipality.

C3.3.2.3 Subcontracting procedures

All matters pertaining to subcontractors and the work executed by them shall be dealt with directly between the Employer's Agent and the Contractor in the context of all subcontract work being an integral part of the Works for which the Contractor is responsible.

The Employer's Agent will not liaise directly with any subcontractors nor will he issue instructions concerning the subcontract works directly to any subcontractor.

The Contractor shall remain responsible for providing the subcontracted portion of the works as if the work had not been subcontracted. All subcontractors appointed and/or utilised by the main contractor, including any recommended or provided by the Employer, shall be deemed to be domestic subcontractors appointed by the main contractor and the main contractor shall be liable for all work and actions of the subcontractors as if he had appointed the subcontractors directly.

Subcontractors shall comply in full, to all aspects of the Contract.

C3.3.2.4 Attendance on subcontractors

The Contractor shall guide, assist, advise and mentor the local EE subcontractor/s and guidance on how to establish and determine rates.

The Contractor shall be responsible for ensuring that the prospective local EE subcontractor/s fully comprehend the:

- Implications of the liabilities and responsibilities inherent in the contract into which the tenderer entered.
- Implications of the tendered rates.
- Scope and extent of the Works.
- Proper procedures for the submission of a tender.
- Procedures and basis on which tenders will be evaluated and awarded.

The Contractor shall closely manage, mentor, supervise, guide and assist the EE in all aspects of management, planning, execution and the completion of work.

The above shall include inter alia, but is not limited to, the following:

(i) Planning and programming of the Works.
(ii) The sourcing, ordering, purchasing, hiring all the necessary Construction Equipment, Materials, tools and accidentals necessary and required for the successful execution and completion of the Permanent as well as the Temporary Works.
(iii) Labour relations and employment.
(iv) Monthly measurements, costing and invoicing.
(v) General safety, occupational health and safety matters.
(vi) Functions of civil Employer's Agenting infrastructure, structures, services and systems.
(vii) Interpreting and understanding the contract.
(viii) Construction and maintenance methods and procedures.
(ix) Communication.
(x) Cash-flow control, submitting invoices and payment certificates.
(xi) Planning, programming, scheduling, critical path control and acceleration.
(xii) Maintenance planning.
(xiii) Material procurement and control.
(xiv) Risk limitation and management.
(xv) Quality assurance and procedures.
(xvi) Compliances with all applicable laws, regulations, statutory provisions and agreements.
(xvii) General Conditions of Contract and Contract Data.
(xviii) Contractual claims, if situations arise that entitle a contractor to claims in terms of the Conditions of Contract.
(xix) Profit and loss.
(xx) Replacement and running costs of Construction Equipment.

The extent and level of management, mentorship, supervision, guidance and assistance to be provided by the Contractor shall be in commensuration with the expertise of the relevant EE and should be so directed as to enable the EE to achieve the successful execution and completion of the respective works.

C3.3.3 SANCTIONS

In the event that the Tenderer fails to substantiate that any failure to achieve the Contract Participation Goal (CPG) outcomes was due to quantitative under runs, the elimination of items, or any other reasons beyond the Contractor's control which may be acceptable to the Employer, the Contractor shall be liable to pay to the Employer a financial penalty calculated in the following manner:

$$P = 0{,}50 \times \frac{(D - D_o)}{(100)} \times N_A$$

Where D = tendered Contractor participation goal percentage.

D_o = the Contract Participation Goal, which the Employer's Representative based on the credits passed, certifies as being achieved upon completion of the contract.

N_A = Net Amount of the Tender

P = Rand value of penalty payable.

The penalties will be calculated with each certificate, based on the information provided under the monitoring indicated in clause C3.3.4 below.

C3.3.4 MONITORING / REPORTING

The reporting requirements below will be adhered to.

CPG attainment will be monitored on a monthly basis, and for this the Contractor will supply the relevant information at a time set by the Employer's Agent.

C3.3.4.1 The Contractor shall submit all the documentation required in terms of details of his plan to achieve CPG, compliance with the contract and C3.3.4.2 timeously and, together with his programme of activities, a schedule which indicates clearly the expected commencement and completion dates of work and services to be performed by all the targeted enterprises engaged on the contract for the purpose of securing credits towards the contract participation goal. This schedule shall be updated by the Contractor whenever a change in date occurs.

C3.3.4.2 The Contractor shall prepare and attach to his claim for payment, in a form approved by the Employer, the following:

a) a brief report which describes the commercially useful functions performed by the targeted enterprises in the performance of the contract, both over the interim period and on a cumulative basis;
b) a schedule reflecting the estimated total value of the contracts, the cumulative value of the contracts and the value of supplies provided or work and services performed (or both) over the period for which payment is claimed in respect of each and every targeted enterprise performing commercially useful functions;

C3.3.4.3 Should random inspections conducted by the Employer's Agent on targeted enterprise activities indicate that such enterprises are not performing in accordance with the requirements of this part, the Contractor shall provide, in addition to the requirements of C3.3.4.2, separate weekly resource

returns and any other relevant information in respect of such targeted enterprises in a format approved by the Employer's Agent.

C3.3.4.4 The Employer's Agent shall certify the value of the credits counted towards the contract participation goal whenever a claim for payment is issued to the employer and shall notify the Contractor of this amount.

C3.3.4.5 The Contractor shall, upon completion of each individual targeted enterprise's contract, issue a completion certificate and certify the amount paid to such targeted enterprises. He shall submit the certificates, counter-certified by the relevant targeted enterprise, to the Employer's Agent for record-keeping purposes. The Contractor shall furnish reasons to the Employer whenever it is not possible to obtain such counter certification.

C3.3.5 CONTRACTOR'S OBLIGATIONS TO SUBCONTRACTED EEs

(1) Dispute Avoidance and Resolution Procedures

The Contractor shall at all times

(a) apply the terms and conditions of the subcontract fairly and justly, taking due cognisance of the level of sophistication and experience of the EE subcontractor concerned.

(b) closely monitor all EE subcontracts and issue reasonable warnings when any contravention of the terms of the subcontract has occurred or appears likely to occur. The Contractor shall give EEs reasonable opportunity to avoid or make good any such contravention.

When taking any disciplinary actions or imposing any penalties provided for in the subcontract, the Contractor shall explain fully that such actions are in accordance with the conditions of subcontract.

Should any dispute arise between the Contractor and an EE, such dispute shall be resolved in accordance with the provisions of the subcontract.

Should an EE subcontractor be terminated, the Contractor shall replace such subcontractor with a local EE subcontractor listed on the KLM database.

(2) Quality of Work and Performance of EE subcontractors

If, in the opinion of the Employer's Agent, an EE Subcontractor fails to comply with any of the criteria listed below, he/she shall issue a written warning to the Contractor stating all the areas of non-compliance.

(a) Acceptable standard of work as set out in the subcontract specifications.
(b) Progress in accordance with the time constraints in the subcontract.
(c) Site safety.

The circumstances that may warrant the issue of a written warning are, however, not limited to those listed above.

A copy of the letter of warning shall be forwarded to the Employer.

C3.3.6 ISSUING OF COMPLETION CERTIFICATE

The Contractor shall, within 7 days of the completion of each subcontract completed in accordance with the provisions of this specification, issue free of charge to the EE a Certificate of Completion co-signed by the Employer's Agent and a senior representative of the Contractor who has been duly authorised to do so.

C3.3.7 MEASUREMENT AND PAYMENT

Payment will be deemed to be covered by the rates and sums tendered and paid for the various items of work included under the contract (refer Clauses C3.5.1.26).

C3.4: CONSTRUCTION

C3.4.1 WORKS SPECIFICATION

C3.4.1.1 Applicable SANS Standards

The applicable SABS 1200 Standardised Specifications for Civil Engineering Construction read in conjunction with the SABS 0120 Code of Practise for use with Standardised Specifications for Civil Engineering Construction and Contract Documents will apply until such time as the SANS standards for Civil Engineering Construction are finalised.

C3.4.1.2 Applicable National and International Standards

Although not bound in nor issued with this document, for the purpose of this Contract the latest issues of the following Standard Specifications for Engineering Construction, applicable at the date of tender advertisement, shall apply:

SANS 1200 A	-	General
SANS 1200 AB	-	Engineer's Office
SANS 1200 C	-	Site Clearance
SABS 1200 D	:	Earthworks
SANS 1200 DB	-	Earthworks (Pipe trenches)
SANS 1200 G	-	Concrete (Structural)
SANS 1200 HA	-	Structural Steelwork (Sundry items)
SANS 1200L	-	Medium Pressure Pipelines
SANS 1200 LB	-	Bedding (Pipes)
SABS 1200 LC	-	Cable Ducts

Notes to Tenderer:

1. Should any variation and/or addition conflict with the requirements of the Standardized Specification, the variation or addition will prevail.

2. The term "project specifications" appearing in any of the SANS1200 standardised specifications must be replaced with the term "scope of work".

3. The General Conditions of Contract applicable to this contract are the "Conditions of Contract for Construction Works (3rd Edition) 2015" published by the South African Institute of Civil Employer's Agenting, together with the Special Conditions of Contract form part of the contract.

4. The terms "Schedule of Quantities", (used throughout the Standard Specifications) and "Bill of Quantities", (used in other documents forming part of this contract), and "Pricing Schedule" are synonymous.

5. The prefix "PSA" denotes an amendment to SABS 1200A. "PSAB" denotes an amendment to SABS 1200AB and so forth. The number following these prefixes refers to the relevant clause numbers of SABS 1200.

   For example: "PSA 8.1" refers to Clause 8.1 of SABS 1200A.

The variations and additions to the specifications are contained in Section 3.6: Specification Data.

C3.4.1.3 Particular/Generic Specifications

The particular and/or generic specifications listed below are applicable to this contract. These specifications are also bound into this document.

PDC	Design, Manufacture and Installation of Valves
PDF	Water Meters
PA	Environmental Management
PB	Health and Safety Specifications

C3.4.1.4 Certification by recognised bodies

Not applicable

C3.4.1.5 Agreement certificates

Not applicable.

C3.4.2 PLANT AND MATERIALS

C3.4.2.1 Plant and Materials Supplied by the Employer

The Employer will not supply any plant or materials on this contract. The Contractor shall provide all plant and materials.

C3.4.2.2 Materials, Samples and Shop Drawings

Where material to be used in this contract is specified to comply with the requirements of a South African National Standard Specification (or other specification) and such material is available with the official SANS (SABS) mark (or other official mark), the material shall bear the official mark.

The Contractor shall supply samples of sufficient size of proposed road making, bedding and concrete materials, as applicable, to a SANS accredited laboratory for testing prior to any such materials being used. Only materials that comply with the specifications may be used. No separate payment shall be made for the testing of materials, the cost of which shall be deemed to be covered by the rate for the relevant items.

Copies of all test results shall be given to the Employer's Agent for his approval.

Materials or work, which does not conform to the approved samples submitted in terms of Clause 7.4 of the Conditions of Contract, will be rejected. The Employer's Agent reserves the right to submit samples to tests to ensure that the material represented by the sample meets the specification requirements.

The costs of any such test conducted by or on behalf of the Employer's Agent, the results of which indicate that the samples provided by the Contractor do not conform to the requirements of the Contract, shall, in accordance with the provisions of Clause 7.4.4 of the Conditions of Contract, be for the Contractor's account.

C3.4.2.3 Equipment Provided by the Employer

No equipment will be provided by the Employer. The Contractor shall provide all necessary lifting equipment, tools, labour and plant required to install and erect the plant and equipment supplied in terms of the Contract.

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C3.4.2.4 Construction Equipment

All construction plant and equipment used on this contract shall be in good working order, well maintained, of adequate size and fit for purpose. No plant or equipment that leaks oil, fuel or hydraulic fluids may be used on site.

Any plant or equipment that, in the opinion of the Employer's Agent, is not of adequate size or fit for use shall be removed from the site and replaced with acceptable plant and equipment, all at the Contractor's cost.

C3.4.3 EXISTING SERVICES

C3.4.3.1 Known Services

The positions of existing services, insofar as they are known, are shown on the drawings. Items have been allowed in the Bill of Quantities for dealing with and protecting services. In addition to the above, the Contractor shall carry out his own investigations and surveys to locate any services that may be affected by any construction activities.

The Contractor shall familiarize himself with all existing services and liaise with all relevant authorities for the location and detection of existing services. The Contractor shall also use all necessary means to locate and expose services without damage to such services. The Contractor shall protect any services which are visible or can be reasonably expected to be in certain positions.

The Contractor shall ensure that the position of all existing services affected by the Works have been verified before construction works commences and should it be necessary to lower or relocate any service, the Contractor will be required to make the necessary arrangements with the relevant service provider and to advise the Engineer accordingly.

The Contractor shall take whatever precautions are required to protect these services from damage during the period of the Contract.

C3.4.3.2 Treatment of Existing Services

All affected services shall be located by the Contractor using hand excavation well in advance of any excavation. The contractor shall check the levels of existing services for clearance with the proposed works and any clashes shall be reported to the Engineer well before any excavation commences.

Services exposed in any excavation shall be properly supported and protected from construction damage and vandalism by suitable shielding or other protective measures.

C3.4.3.3 Damage to Services

Any service damaged by the Contractor shall immediately be reported to the relevant authority and the Engineer.

If the Engineer rules that the Contractor has negligently damaged services, the Contractor shall pay the amount certified by the Engineer to the Employer or the relevant authority, as relevant. The Engineer's ruling shall be final.

If the Engineer rules that the damage was not due to the Contractor's negligence, the Employer shall pay for the repair of the services so damaged. The responsibility shall remain with the Contractor to establish the position of existing services prior to commencing any excavation.

C3.4.3.4 Connection to Existing Services

Seven (7) days written notice shall be given to the Employer and to the Engineer of intention to connect to any existing service or structure. Such connection may only be undertaken once written approval is granted.

The work to connect to existing services may have to be done outside of normal working hours to accommodate the requirements of the relevant authority.

C3.4.4 SITE ESTABLISHMENT

C3.4.4.1 Service and Facilities Provided by the Employer

C3.4.4.1.1 Water Supply

Water is available on site from the existing reticulation but the Contractor shall make his own arrangements regarding the supply of water. All water drawn from the municipal reticulation shall be metered and paid for at the prevailing tariffs. The Contractor shall provide a meter connection in this regard at his own cost and maintain weekly and monthly consumption records.

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

The Contractor shall make himself thoroughly acquainted with the regulations relating to the use of water and shall take adequate measures to prevent the wastage of water.

The sources of all water utilised for the purposes of the Contract shall be subject to the prior approval of the Employer's Agent, which approval shall not be unreasonably withheld. The Contractor shall comply with all prevailing legislation in respect of drawing water from natural and other sources and shall, when required by the Employer's Agent, produce proof of such compliance.

The distribution of water shall be carried out by the Contractor strictly in accordance with the applicable laws and regulations. All water provided by the Contractor for construction purposes shall be clean, free from undesirable concentrations of deleterious salts and other materials and shall comply with any further relevant specifications of the Contract.

The Contractor shall, whenever reasonably required by the Employer's Agent, produce test results demonstrating such compliance. Water provided by the Contractor for human consumption shall be healthy and potable to the satisfaction of the health authorities in the area of the Site.

The Employer accepts no responsibility for the shortage of water due to any cause whatsoever or for the additional costs incurred by the Contractor as a result of such shortage.

The Contractor shall take note that no separate or direct payment of any kind whatsoever will be made for any cost incurred to obtain, distribute, consume and use water or for the provision of a water supply point or for the cost of water drawn. Payment for the aforementioned shall be deemed to be covered by the rates and prices tendered and paid for the various items of work included under the Contract.

C3.4.4.1.2 Power / Electricity Supply

Electricity is available on site. The Contractor shall make his own arrangements with the Electricity Department for a supply of electricity if required and shall pay establishment and consumption costs at the tariffs ruling at the time.

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

The distribution of electricity shall be carried out by the Contractor strictly in accordance with the applicable laws and regulations. No separate payment will be made to the Contractor for the obtainment, distribution and consumption of electricity, the costs of which will be deemed to be in the Contractor's tendered rates and prices.

C3.4.4.1.3 Location of Site Camp and Materials Storage Area

The Contractor shall establish his Site camp and materials storage area at a mutually acceptable location. Written confirmation of the owner's permission to occupy the chosen location shall also be issued to the Employer's Agent if it falls outside the bounds of the site.

The site and materials storage area shall at all times be kept in a clean, dry and tidy condition. Temporary buildings and fencing shall be neat and presentable and the surrounding area shall, at all times, be kept in a neat, clean and orderly condition.

Scavenger-proof litter containers to be provided on site and paper and plastic packaging shall be collected daily and binned so that they cannot be blown onto the surrounding property.

Precautions to be taken against hydrocarbon spillage from heavy equipment such as compressors and generators, e.g. through the use of sand or sawdust filled drip trays. If maintenance and refuelling activities take place in this area, adequate protection and clean-up mechanisms in the event of a spill must be in place. All contaminated material (including soil) to be disposed of at a registered waste site.

All toxic materials (cement, oil, petrol, diesel, etc.) used at or stored in the construction camps should be very strictly controlled and secured against theft at all times.

The Employer shall not provide any services to the site during construction. The Contractor shall be responsible for arranging, at his own cost, for the provision of all services he may require in the area, as well as elsewhere on the Site.

The Contractor shall not use the area nor allow it to be used for any purposes not directly associated with the execution of the Contract.

The Contractor shall not cut down or damage trees without the prior written permission of the Employer's Agent. If any vegetation is damaged or destroyed during the construction period, the damaged areas should be re-vegetated using indigenous plants that are native to this area.

On completion of the construction works, the area shall be re-instated to its original condition.

No persons, other than a night watchman, may overnight at the campsite.

The conditions of the EIA RoD will apply to Site Establishment as much as to any other aspect(s) of the Project. The Contractor shall adhere to the conditions as stipulated in the environmental management specification (PA).

C3.4.4.1.4 Disposal Site

All non-hazardous material cleared on the site, rubble, spoil and refuse shall be disposed of at the municipal waste disposal site. Hazardous waste shall only be disposed of at a registered hazardous waste disposal site. Proof of disposal shall be given to the Engineer on request.

C3.4.4.2 Facilities Provided by the Contractor

C3.4.4.2.1 Temporary Offices for the Engineer

Not required.

C3.4.4.2.2 Sanitary Facilities

No latrines are available and therefore the Contractor shall supply portable chemical toilets for use by his workmen. The number of toilets shall be based on one toilet per fifteen personnel on site. Under no circumstances will the Contractor's staff be allowed to use private or public toilet facilities.

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

All such excrement shall be removed from the Site and shall not be disposed of by the Contractor on the Site. The Contractor shall further comply with any other requirements in this regard as may be stated in the Contract.

The Contractor shall provide water and soap for his staff to be able to wash with at each site of the Works. The waste water shall be disposed of off-site.

The Contractor may, as an alternative to chemical toilets, at his own cost and with written permission from the Employer, install a temporary connection to the existing sewerage network entering the pump station. Such temporary connection shall be removed on completion of the contract and any damage made good. No additional payment will be made for such a temporary connection and the removal thereof.

Under no circumstances will the Contractor's staff be allowed to use any other toilet facilities in and around the Site.

C3.4.4.2.3 Contract Name Boards and Identity Boards

As indicated in the BOQ.

C3.4.4.2.4 Notice Boards

The Contractor shall supply, erect and maintain for the duration of the contract two notice boards providing the names and emergency contact details of the Contractor and the senior staff members responsible for the contract.

One notice board shall be erected at the entrance to the site and the other on the external wall of the site office, next to the door.

C3.4.4.2.5 Accommodation of Employees

The Contractor shall make his own arrangements for the accommodation of his employees.

C3.4.4.3 Other Facilities and Services

The Contractor shall provide, maintain and service as required, the following facilities for the duration of the contract:

i) two contract nameboards
ii) safety equipment for all personal
iii) medical facilities
iv) survey equipment

C3.4.4.3.1 Site Instruction Book

A triplicate book for site instructions shall be supplied by the Contractor. The book shall be kept in the site office and be accessible to the Resident Engineer during normal working hours. The Contractor shall hand the book to the Resident Engineer at the end of the contract.

C3.4.4.3.2 Security Services

The Contractor shall be responsible for any security services he deems necessary to safeguard his facilities, plant and equipment and personnel for the duration of the contract. An item has been allowed in the Bill of Quantities in this regard.

Security of the Contractor's site camp will be the Contractor's own responsibility and no additional payment will be made should additional security measures need to be taken during the Contract.

C3.4.5 SITE USAGE

The Contractor shall confine his activities to the site of the works and to the area allocated to him for his site offices and materials storage. The Contractor may not use or damage in any way any area that falls outside the boundaries of the site. Any area damaged by the Contractor outside the site boundaries shall be rehabilitated to the satisfaction of the Engineer at the Contractor's expense.

No hunting, trapping or snaring will be allowed on the Employer's property or adjacent properties.

Access to site shall be limited to the Contractor and his personnel. The Contractor shall be responsible to control 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.

However, please note that the site will be spread across a large part of the town and that existing vehicle and pedestrian traffic will have to be accommodated. It will be the responsibility of the Contractor to ensure that no unauthorised persons gain access to the various works, excavations, or any potential hazard on site. It is recommended that all excavations and open trenches be closed as soon as possible to minimise risks.

C3.4.6 SURVEY CONTROL AND SETTING OUT OF THE WORKS

Benchmarks shall be used to set out the works and to control designed levels. The position and level of all benchmarks shall be checked, recorded and protected.

Before commencement of work, the Contractor shall liaise with the Engineer in order to establish the exact status of all survey control and boundary pegs on the Site.

The Contractor is solely responsible for the setting out of the works and shall take all precautions to ensure the accuracy thereof. Any discrepancies in levels or setting out data provided to the Contractor in the form of drawings, specifications or by any other means shall be brought to the immediate attention of the Engineer for clarification.

Survey pegs and reference marks shall be pointed out to the Contractor. The Contractor is solely responsible for the setting out of the works from the pegs and reference marks. The Contractor is also solely responsible for the protection of the pegs and reference marks. The Contractor's attention is specifically drawn to the requirements of SABS 1200 A: General, Clause 5.1 Survey, in this regard.

Furthermore, the Contractor shall check the levels of all existing structures that the new works must connect to before commencing with construction. Any discrepancy in levels between the existing structures and the levels shown on the drawings must be brought to the Resident Engineer's immediate attention.

C3.4.6.1 Survey Beacons and Benchmarks

The Contractor shall be responsible for the preservation of all land survey, erf or other pegs, benchmarks and beacons. If damage or disturbance of any such pegs or beacons is caused by the operations of the Contractor or his subcontractors, the pegs or beacons are to be replaced by a Registered Land Surveyor at the cost of the Contractor.

The Contractor is to ensure that no spoil is placed over any erf peg or benchmarks and that these are adequately protected for the full duration of the Contract.

Where disturbances of boundary pegs is unavoidable due to excavation or other operations adjacent to the pegs, the Contractor shall advise the Engineer immediately, and agreement is to be reached that the disturbance of the peg is unavoidable and a strict record of such disturbed pegs is to be kept. Such pegs are to be replaced by a Registered Land Surveyor as described above and the Contractor is to submit proof of the cost of replacement of pegs.

On completion of the Contract, all pegs that have unavoidably been disturbed shall be replaced by the Employer. Pegs which have, in the opinion of the Employer's Agent, been disturbed due to the negligence of the Contractor will be replaced at the Contractor's expense.

C3.4.7 ALTERATIONS, ADDITIONS, EXTENSIONS AND MODIFICATIONS TO EXISTING WORKS

The Contractor shall satisfy himself within 14 days of moving onto site that the dimensional accuracy, alignment, levels and setting out of existing structures or components thereof are compatible with the proposed works and procedures. Any discrepancies shall be brought to the attention of the Engineer in writing where this is not the case.

New structures shall, as far as possible, match existing structures regarding type of materials and finishes. The Contractor shall provide the Engineer with samples of bricks, blocks and other materials and finishes for approval at least 2 weeks prior to starting any work. Only once the Engineer has given approval may the contractor place orders for these materials.

C3.4.8 PROTECTION OF EXISTING WORKS

The Contractor shall take all necessary steps to ascertain the location of existing services before commencing any section of the works and shall exercise the greatest care when working in the vicinity of such services. The Contractor will be responsible for contacting the various service providers, arranging a meeting and verifying all known as well as possible unknown services on site. The Engineer's representative shall assist the Contractor in this regard.

The Contractor shall take all necessary steps to protect any existing works whatsoever against damage which may arise as a result of his operations on Site. The Contractor shall bear the cost of the repair of damage to any service, the possible existence of which could reasonably have been ascertained by him in good time.

C3.4.9 PERMITS AND WAY LEAVES

The Employer's Agent is responsible for obtaining all necessary permits and way leaves from all relevant authorities.

C3.4.10 FEATURES REQUIRING SPECIAL ATTENTION

C3.4.10.1 Safety Act and Regulations

Both the "Factories, Machinery and Building Work Act (Act 22 of 1941)" and the "Machinery and Occupational Health and Safety Act (Act 6 of 1983)" must wherever they appear in the SABS 1200 standardized specifications, be substituted by the "Occupational Health and Safety Act (Act 85 of 1995)".

C3.4.10.2 Health and Safety

The site of the Works is an operational sewage pump station. Special care should be taken to instruct workers of the potential health and safety hazards likely to be encountered when working on the Site. Initial induction training followed by regular refresher training must be given.

All construction work sites, storage areas and site office areas must be securely demarcated / barricaded to prevent access by the general public.

Venomous snake may be found on the Site. Workers must be warned of the possibility of encountering these snakes and warned not to disturb them.

C3.4.10.3 Continuous Operation of the Water supply

The existing water supply shall remain in operation at all times and the Contractor shall allow full access to the existing works for the Employer's operational staff at all times. The Contractor shall programme his work taking these requirements into account.

C3.4.10.4 Site Maintenance

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

C3.4.10.5 Access to Properties (where relevant)

The Contractor shall organise the work to cause the least possible inconvenience to the public and to the property owners adjacent to or affected by the work, and except as hereunder provided, shall at all times provide and allow pedestrian and vehicular access to properties within or adjoining or affected by the area in which he is working. In this respect the Contractor's attention is drawn to Clause 8.1.1 of the Conditions of Contract.

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

Notwithstanding the above, the Contractor may, with the prior approval of the Employer's Agent (which approval shall not be unreasonably withheld), make arrangements with and obtain the acceptance of the occupiers of erven and properties to close off part of a street, road, footpath or entrance temporarily, provided that the Contractor duly notifies the occupiers of the intended closure and its probable duration, and reopens the route as punctually as possible.

Where possible, such streets, roads, footpaths and entrances shall be made safe and reopened to traffic overnight. Such closure shall not absolve the Contractor from his obligations under the Contract to provide access at all times.

Barricades, traffic signs, drums and other safety measures appropriate to the circumstances shall be provided by the Contractor to suit the specific conditions.

C3.4.10.6 Employment of Local Labour

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

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

C3.4.10.7 Monthly Statements and Payment Certificates

The statement to be submitted by the Contractor in terms of Clause 6.10 of the Conditions of Contract shall be prepared by the Contractor at his own cost, strictly in accordance with the standard payment certificate prescribed by the Employer's Agent, in digital electronic computer format. The Contractor shall, together with a copy of the digital electronic computer file of the statement, submit two (2) A4 size paper copies of the statement.

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

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

Any delay by the Contractor in making the said adjustments and submitting to the Employer's Agent the requisite copies of the adjusted statement for the purposes of the Employer's Agent payment certificate will be added to the times allowed to the Employer's Agent in terms of Clause 6.10.4 of the Conditions of Contract to submit the signed payment certificate to the Employer and the Contractor. Any such delay will also be added to the period in which the Employer is required to make payment to the Contractor.

C3.4.10.8 Construction in Restricted Areas

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

C3.4.10.9 Notices, Signs, Barricades and Advertisements

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

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

C3.5.1 MANAGEMENT OF THE WORKS

C3.5.1.1 Applicable SANS Standards

The following SANS 1200 Standardised Specifications for Civil Employer's Agent ing Construction are applicable:

i) SANS 1200 A : General

ii) SANS 1200 AB : Engineer's Office

The provisions of SABS 1200 A and SABS 1200 AB take precedent over the provisions of any part of SANS 2001 that is applicable to the Contract. The variations and additions to these specifications are described in Section C3.6 - Specification Data.

C3.5.1.2 Particular or Generic Specifications

The following Standard and Particular Specifications, as bound in this document, and as amended in the Specification Data, shall apply:

i) Construction Environmental Management Plan

C3.5.1.3 Liaison with Municipal Staff and Operational Requirements

The Contractor shall liaise with the relevant Kouga municipal staff with regard to the timing of all work so as to fit in with the operational requirements of the water supply system. This shall particularly apply to operations which require the shutting down of the reservoir as alternate arrangements will need to be made. The Municipality requires as a minimum seven (7) days prior notice of any such shutdown.

C3.5.1.4 Planning, Cashflow and Programming

C3.5.1.4.1 General

The time for completion will be **7 months for Phase 1 and 3 months for Phase 2**, which includes all statutory public holidays for the Civil Engineering Industry falling within the authorised contract period, as well as the end-of-the-year builder's holiday.

The Contractor's programme shall, in terms of the provisions of Clause 5.6.2 of the GCC clearly show the anticipated quantities of work to be performed each month, together with the manner in which the listed plant is to be used, as well as the anticipated earnings for the various sections of work.

Please see Clause 5.5.1 of the Contract Data relating to the anticipated points of commencement and termination of the various phases.

The programme is to clearly show the critical path and this path is to be able to be identified through all the various programme activities, per phase.

If, during the progress of the work, the quantities of work performed per month fall below those shown on the programme, or if the sequence of operations is altered, or if the programme is deviated from in any other way, the Contractor shall, within one week after being notified by the Engineer, submit a revised programme.

If the programme is to be revised by reason of the Contractor falling behind his programme, he shall produce a revised programme showing the modifications to the original programme necessary to ensure completion of the works or any part thereof within the specified time for completion. Any proposal to increase the tempo of work must be accompanied by positive steps to increase production by providing more labour and-plant on site, or by using the available labour and plant in a more efficient manner.

Failure on the part of the Contractor to submit the programme or to work according to the programme or revised programme shall be sufficient reason for the Employer to take steps as provided for in Clause 9.2 of the Conditions of Contract.

The approval by the Engineer of any programme shall have no contractual significance, other than, that the Engineer would be satisfied if the work is carried out according to such programme, and that the Contractor undertakes to carry out the work in accordance with the programme. It shall not limit the right of the Engineer to instruct the Contractor to vary the programme should circumstances make this necessary.

Also refer Clause 5.6 of the Conditions of Contract.

C3.5.1.4.2 Planning

The Contractor shall plan his work activities in a logical manner taking into account any site or access restrictions, logistical requirements, inspections needed, etc.

C3.5.1.4.3 Submitted Programme

The Contractor's programme shall be in Microsoft Project or in a similar format approved by the Engineer.

The Contractor shall submit to the Engineer prior to starting work, a detailed programme setting out clearly the sequence of work, the resources that he intends to use, and their interdependence. The programme shall be presented in the form of a Gantt Chart and shall clearly show all critical path activities.

Detailed activity programmes showing the anticipated quantities of work to be performed, together with the manner in which the listed plant is to be used, including the project critical path and estimated cash flow shall be included. This programme shall clearly indicate each of the work activities and take into account the work and time constraints.

If, during the progress of the work, the quantities of work performed per month fall below those indicated on the programme, or if the sequence of operations is altered, or if the programme is deviated from in any other way, the Contractor shall produce a revised programme showing the modifications to the original programme necessary to ensure completion of the works or any part thereof within the specified time for completion, within one week, to the Resident Engineer.

The programme, including cashflow to date, shall furthermore be updated for each site meeting showing the work completed and the progress ahead, to or behind schedule as relevant.

During the duration of the Contract, the Contractor shall submit written reports two days before each and every monthly site meeting showing progress related to the agreed programme, and shall update the programme in accordance with actual progress.

When requested by the Engineer, the Contractor shall submit, within two working days, a Method Statement dealing with his proposed procedure for certain elements of the works. No work to this element shall commence until the Engineer's written approval of the Method Statement has been received.

C3.5.1.4.4 General Allowances

When drawing up his programme, the Contractor shall take into consideration and make allowance for, inter alia:

(i) preparation and submission of design drawings to the Employer for approval, and the time allowed for approval by the Employer, the time for approval being ten (10) working days,
(ii) expected weather conditions and their effects,
(iii) known physical conditions or artificial obstructions,
(iv) searching for, dealing with and carrying out alterations to the existing services,
(v) the provision and implementation of the Health and Safety Plan,
(vi) the installation of the mechanical and electrical equipment

C3.5.1.4.5 Engineer's Inspection and Approval of Work

The Contractor together with the Engineer or his Representative shall set milestones or hold points for the inspection and approval by the Engineer of each portion of the design, manufacturing, installation and commissioning of all plant and equipment to be supplied and installed under the Contract. On reaching a milestone or hold point the Contractor shall not proceed further until the Engineer has inspected and approved the work done up to the milestone or hold point.

The Contractor shall inform the Engineer seven (7) days in advance of an approaching milestone or hold point to allow the Engineer sufficient time to make the necessary arrangements for the inspection of the work.

The Contractor shall allow reasonable time in his programme for the Engineer to carry out examination of the work before covering up. Requests for inspections should be made in writing to the Engineer at least 24 hours before such inspections are required.

The Contractor shall arrange his working programme in such a way that all work is inspected and approved at the required time. Under no circumstances shall he proceed with any activity that covers up previous work before the previous work has been approved in writing (e.g. no trench shall be backfilled until the laid pipes and bedding have been inspected and approved) by the Engineer or his Representative.

C3.5.1.4.6 Review of 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 making up lost time. If, in the opinion of the Engineer, such revised programme will not make up lost time, the Engineer shall have the right to request the Contractor to reorganize his work in a manner which will ensure an acceptable programme.

C3.5.1.5 Sequence of the Works

The contractor is to plan and schedule his work in such a way that there is no interruption of services to the town. The programme shall take this into account.

The connection to the reservoir and any part of the existing reticulation shall only be allowed once all pipelines have been completed, tested, passed and backfilled.

Any work that requires the water supply system to be off-line or out of commission shall only be undertaken outside of peak supply times and after adequate public notice has been given.

The Contractor will be required to submit a detailed Method Statement(s) that sets out how he intends to execute the Works for approval by the Engineer. Only once the Method Statement(s) has been approved may work proceed. Allowance must be made in the programme for preparation and approval of the Method Statement(s) as no claim for extension of time will be considered in this regard.

C3.5.1.6 Testing and Quality Control

C3.5.1.6.1 Control Testing of Work

The Contractor and Engineer shall agree on the requirements and methods for control quality testing and record keeping. These results will be taken into consideration by the Engineer in deciding whether the quality of materials utilised and workmanship achieved by the Contractor comply with the requirements of the Specifications.

The Contractor shall engage the services of an approved independent laboratory or other institution – as applicable for quality testing – to ensure that his work complies with the Specifications.

No separate payment will be made for such testing, the cost of which will be deemed to be included in the Contractor's rates tendered for the items of work that require testing in accordance with the Specifications.

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 experienced Site Agents, foremen, surveyors, material 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 time.

The Contractor's attention is drawn to the provisions of the various 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 the Contractor shall furnish the Engineer with all the results of the relevant tests to indicate compliance with the Specifications.

C3.5.1.6.2 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, SANAS accredited, independent laboratory to undertake all testing of materials, the results of which are specified in, or may reasonably be inferred from, the Contract.

The above shall apply irrespective of whether the specifications indicate that the said testing is to be carried out by the Engineer or by the Contractor.

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

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.

C3.5.1.6.3 Costs of Testing

The costs of all testing carried out by the independent laboratory in accordance with the requirements of subclause C3.5.1.6.1 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 C3.5.1.6.1.

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

C3.5.1.6.4 Additional Testing Required by the Engineer

In addition to the provisions of subclause C3.5.1.6.2: Contractor to engage services of an independent laboratory, the Engineer shall be entitled at times during the Contract to require that the Contractor arrange with the independent laboratory to carry out any such tests, additional to those described in subclause C3.5.1.6.1, at such times and at such locations in the Works as the Engineer shall prescribe. The Contractor shall promptly and without delay arrange with the independent laboratory for carrying out all such additional testing as required by the Engineer, and copies of the test results shall be promptly submitted to the Engineer.

The costs of any additional tests required by the Engineer in terms of this subclause C3.5.1.6.4 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 Engineer, the results of which indicate that the quality of the

materials utilised and/or the standard of workmanship achieved are/is not in accordance with the specifications, shall not be reimbursable to the Contractor.

C3.5.1.6.5 Valves – Test Certificates

All valves supplied for installation under this contract shall be provided with test certificates. Batch test certificates are acceptable provided that each valve delivered to site is covered by serial number under these certificates.

C3.5.1.6.6 Control Testing of Bedding

The Contractor is required to carry out control testing and record keeping of pipe bedding.

The Contractor shall engage the services of an approved independent laboratory or other institution – as applicable for quality testing – to ensure that his work complies with the Specifications.

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

C3.5.1.6.7 Control Testing of Earthworks and Road Layers

The Contractor is required to carry out his own control testing of earthworks and road layers, but if he so wishes, and agrees to abide by the results of the Engineer's tests, he may dispense with his own tests. However, should be Contractor wish to use the Engineer's testing facilities, he will be charged for the various tests at the rates ruling at the time.

Any additional tests requested by the Contractor or any re-tests required, due to failure of the initial tests, will be charged to the Contractor at the rates ruling at the time.

Acceptance control testing required by the Engineer will be carried out by an approved independent laboratory.

The Contractor shall engage the services of an approved independent laboratory or other institution as applicable for quality testing, to ensure that his work complies with the Specifications.

No separate payment will be made for such testing, the cost of which will be deemed to be included in the Contractor's rates tendered for the items of work that require testing in accordance with the Specifications.

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

C3.5.1.7 Other Contractors on Site

The Contractor must note that other Contractors may also be present on site. Suitable arrangements must be made to ensure mutual cooperation between all contractors.

C3.5.1.8 Construction in Restricted Areas

Working space in certain areas may be restricted. The construction method used in these restricted areas largely depends on the Contractor's Plant and methods of constructure. However, the Contractor must note that measurement and payment will be according to the specified cross-sections and dimensions irrespective of the method used, and that the rates and prices submitted will be deemed to include full compensation for difficulties encountered while working in restricted areas. No extra payment nor any claim for payment due to these difficulties will be considered.

C3.5.1.9 Format of Communications

Throughout the construction period, the Contractor shall supply and maintain the following documentation that shall be kept on Site, accessible to both the Contractor and the Engineer at all times:

a) Site Request / Instruction book: For the Contractor to provide the Resident Engineer with information required, for giving notification in writing of inspections, drawings, etc., required by the Contractor, and for use by the Resident Engineer for the purpose of writing day-to-day instructions or confirming verbal information or instructions given to the Contractor.

b) Safety File: Containing the site and safety hierarchy, contact details, safety plan, audits, safety equipment, safety training, injuries log, inspections and all other relevant safety data.

c) Quality Control File: Containing Quality Assurance and Quality Control Forms to be operated and maintained by the Contractor.

d) Measurement File: Containing records of work measurement and calculations.

e) Daily Register: Listing labour and plant status.

f) Daily Contract Diary: For recording the work carried out on site each day – shall reference the specific area of work and shall be signed by the Site Agent and the Engineer or his Representative.

g) Monthly Labour Return Schedule.

h) One full set of contract drawings and contract documents.

i) Construction Programme.

C3.5.1.10 Giving Notice of Work to be Covered Up

The Contractor shall give the Engineer reasonable time to accommodate examinations in his programme, in which case times for inspection can be agreed on.

C3.5.1.11 Progress Photographs

The Contractor shall set up a system of taking digital photographs on site on a daily basis to monitor the progress of works. This digital photography shall be labelled with the date, location and description of the photograph and a copy handed to the Engineer on a weekly basis for safe storage. The format shall be JPG, BMP or any other common format.

C3.5.1.12 Key Personnel and Supervision

The Contractor shall assign as Construction Manager (Site Agent) a person suitably qualified and experienced in all aspects of the Works and especially in the construction of bulk pipelines. This Construction Manager shall be responsible for all aspects of the Works on behalf of the Contractor, including receiving instructions, providing quotations, attending meetings, dealing with contractual correspondence, payment certificates, preparation of programs and cash flows, and the like.

The Construction Manager shall have full authority to commit the Contractor to this contract.

The Construction Manager shall be on site at all times to control and supervise the site activities. No work may be undertaken without the Site Agent or his authorised deputy being on the site.

The Contractor shall provide the Employer's Agent with the full names, qualifications, experience and contact details of his key personnel, and especially his Contract Manager, Construction Managers and senior foremen, for approval within seven (7) days of the commencement date of the contract.

C3.5.1.13 Management Meetings

Management meetings will be held monthly on site for the duration of the Contract on dates and at times to be agreed.

It is a requirement that the Contract Manager and Site Agent attend the monthly management meetings.

Two days prior to each monthly meeting the Contractor shall provide an updated programme and progress report, cash flow, labour report and plant and equipment report to the Engineer.

C3.5.1.14 Working Hours

Normal working hours shall be from 07:00 to 17:00 Monday to Friday. Normal working hours exclude gazetted public holidays. In the even that permission is given to undertake work on Saturdays, the working hours shall be restricted to 07:00 to 13:00.

Normal working hours exclude gazetted public holidays.

C3.5.1.15 Payment Certificates

The Contractor should submit his claim for payment on or about the 25th day of each month or as otherwise agreed.

Payment certificates shall be submitted in the form of the Bill of Quantities. Columns shall be provided showing the previous quantity, current quantity and total quantity claimed under each item.

Calculations to substantiate the quantities claimed are to be agreed upon by the Site Agent and Engineer's Representative and be signed by both of them.

A declaration of ownership of unused materials must be submitted together with any claim made for payment of unused materials on site. No payment for materials on site will be made without such a declaration. A pro forma declaration of ownership is included in this document.

An actual and predicted cashflow summary shall be included with each certificate.

C3.5.1.16 Electronic payments

The Contractor must ensure that all interim payment certificates are accompanied by a Tax Invoice, with the Contractor's and the Employer's VAT Registration numbers printed thereon, to ensure timeous payment of the certificate. Contractors must allow 30 days from date of invoice for the payment to be effected.

Contractors wishing to be paid electronically must ensure that their correct banking details are also printed on their Tax Invoice.

C3.5.1.17 Limitations on Open Trenches

Open trench lengths shall be limited to a total of 250m. The Contractor shall start trenching and pipe laying from one position and continuously advance the work from there. The Contractor shall not be allowed to open other (discontinuous) trench sections without the express written permission of the Engineer.

C3.5.1.18 Connection to Existing Services

The Contractor shall inform the Engineer and the Employer in writing at least seven (7) days in advance and shall obtain written permission from the Engineer before connecting into any existing services.

All connections to existing services or systems shall be undertaken in a manner and at times to be approved by the Engineer. Some of this work may have to be done outside of normal working hours to accommodate the local authorities.

C3.5.1.19 Continuous Operation of the Water Supply System

The Contractor shall ensure the existing water supply system remains in operation at all times throughout the contract period. The Contractor shall also allow full access to the existing works for the Employer's operational staff at all times.

C3.5.1.20 Weather Conditions

The Contractor shall, in his programme, allow for the anticipated number of working days on which work could be delayed- as given in the Contract Data.

C3.5.1.20.1 Recording of weather

The Contractor shall provide and erect a rain gauge on site. All rainfall and other adverse weather conditions affecting the contractual time for completion shall be recorded in the site diary.

C3.5.1.20.2 Extension of Time Due to Abnormal Rainfall

Extension of time will not be considered for normal rainfall but only abnormal rainfall or saturated conditions.

A claim for extension of time in respect of delays suffered by the Contractor in consequence of abnormal wet climatic conditions will be considered by the Engineer in terms of Clause 5.12 of the Conditions of Contract and in accordance with provisions set out hereunder.

For the purposes of extension of time, a delay caused by abnormal wet climatic conditions will be regarded as a delay only if, in the opinion of the Engineer, all progress on an item or items of work on the critical path of the Contractor's working programme as approved in terms of Clause 5.6 of the Conditions of Contract has been brought to a halt.

Unless it is customary to carry out the work, in respect of which a delay was suffered, by rotary shifts or by day and by night, only delays to critical path items experienced as a result of abnormal wet climatic conditions during normal working hours (as defined in Clause 5.8 of the Conditions of Contract) will be taken into account for extension of time. This will apply notwithstanding the fact that a delay may have occurred on a portion of the Works on the critical path due to abnormal wet climatic conditions, which work was being executed outside the said normal hours with the permission of the Engineer, granted in terms of Clause 5.8 of the Conditions of Contract.

The Contractor shall make due allowance within his programme submitted in terms of Clause 5.6 of the Conditions of Contract, for the total delay to work items on the critical path resulting from normal wet climatic conditions. The specified allowances for this Contract are defined in Clause 5.12.2.2 of the Conditions of Contract.

Extension of time, if granted by the Engineer, will be determined as the aggregate number of normal working hours for which all progress on the item or items on the critical path was brought to a halt as a result of abnormal wet climatic conditions, less the number of normal working days specified in Clause 5.12.2.2 of the Conditions of Contract.

In determining the revised Due Completion Date of the Contract, the Engineer shall add the equivalent number of normal working days delay determined in accordance with this Clause and all intervening normal non-working days to the prevailing Due Completion Date.

Any extension of time for abnormal wet climatic conditions will be calculated in accordance with the following method:

a) The Contractor shall, in his programme, allow for the anticipated number of working days on which work could be delayed - as given in the Contract Data.

b) Extension of time will be calculated for each calendar month or part thereof over the full period for the completion of the Work, plus any approved extension thereof, as follows:

i) A delay caused by abnormal rainfall will only be accepted for extension of time if, in the opinion of the Employer's Agent, it delays an item or items which lie on the critical path determined by the Contractor's programme. Only delays on normal working days will be considered.

ii) Abnormal rainfall will be considered to be days, as approved, on which rain delayed operations, less the anticipated number of days given in the Schedule in the Contract Data.

iii) The net extension of time determined for each month, which may be negative, shall accumulate algebraically to determine the net number of days for extension of time due to abnormal rainfall, but a negative total at the end of the construction period will not be taken into account.

iv) Where a portion of a month is involved, a pro rata number of days shall be calculated

C3.5.1.21 Neatness of the Site

Progressive and systematic finishing and tidying will form part of this contract. Spoil, rubble, materials, equipment or unfinished operations shall not be allowed to accumulate unnecessarily and in the event of this happening, the Employer shall have the right to withhold payment for as long as the condition prevails in respect of the relevant works in the area(s) concerned.

The general neatness and tidiness of the site is of particular concern. The Contractor shall therefore, on a day-to-day basis, keep the Works in a condition acceptable to Engineer.

No indiscriminate spoiling of material will be allowed. All surplus or unsuitable material shall be removed by the Contractor, transported to, and disposed of at the Municipal tip site or site designated and approved by the Engineer. The Contractor's tendered rate prices to also include for all overhaul costs and tip site charges.

The designated spoil sites for this contract shall be the Humansdorp Tip Site/s.

The Contractor should take note that no hazardous waste or hazardous materials - ie abandoned AC pipelines and materials, will be accepted at the Municipal tip site and these materials will have to be delivered to a facility which accepts hazardous waste.

Therefore, all abandoned and recovered asbestos cement pipelines, materials and the like shall be delivered to such a facility and the Contractor will be required to submit proof to the Engineer that these materials have been delivered and accepted by Waste-Tech or any other registered hazardous waste disposal facility.

The Contractor shall, for the duration of the contract, take appropriate measures to control the dust and soil movement, which may arise due to his operations.

C3.5.1.22 Sand and Dust Control

The Contractor shall, for the duration of the contract, take appropriate measures to control the dust and soil movement which may arise due to his operations.

C3.5.1.23 Maintenance of Access and Streets

The operation of construction vehicles on existing roads or streets shall be limited to traffic with an axle load not exceeding that allowed by the Road Traffic Ordinance of the authority concerned, or any amendment thereof.

All access roads used by the Contractor shall be maintained for the duration of the contract and shall be rehabilitated to their original condition on completion of the contract.

C3.5.1.24 Protecting the Site

The Contractor shall be solely responsible for the protection of the Site against all damage to property, services, terrain, trees etc. If in the normal execution of this Contract, disturbance to the Site of the Works is necessary, the Contractor

shall obtain the prior permission of the Engineer. After completion of this work, the Contractor shall reinstate the area concerned to its original condition at his own cost. The Engineer's ruling of what was the original condition of the Site or part thereof shall be final.

If the Contractor fails to reinstate the Site, the Employer shall do the reinstatement and the Engineer shall establish the extent of the work as well as its costs. The Engineer's ruling shall be final and payment for the work will be deducted from money owing to the Contractor.

The Contractor shall ensure that his actions do not cause any nuisance to the public.

C3.5.1.25 Subcontractors

All matters pertaining to subcontractors (including Selected Subcontractors appointed in terms of Clause 6.3 of the Conditions of Contract) and the work executed by them shall be dealt with directly between the Engineer and the Contractor in the context of all subcontract work being an integral part of the Works for which the Contractor is responsible.

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

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

C3.5.1.26 Works Undertaken by Emerging Enterprises (EEs)

The rate tendered as a percentage of the estimated value of works to be undertaken by EEs (also referred to as SMMEs or EMEs) shall cover all costs for identifying, engaging, appointing and managing EEs for the duration of the respective Phases. The tendered amount shall cover all administration, management and company overhead charges, finance costs, risk, profit and all other incidental costs, in full compliance with the Contract.

Note: No additional mark-up will be payable to the Principal Contractor for the works undertaken by EEs other than the rates tendered by the Principal Contractor for the respective work items and activities in the BoQ. No additional payment covering P&Gs to be paid to Emerging Enterprises will be made, and is deemed to be included in the Principal Contractors P&Gs.

Also refer payment Clause PSA 8.5.13

C3.5.2 HEALTH AND SAFETY

C3.5.2.1 Health and Safety Requirements and Procedures

The Contractor shall be required to comply with the Occupational Health and Safety Act and the latest Construction Regulations. Non-compliance with these Regulations, in any way whatsoever, shall be deemed adequate reason for suspending the Works.

The proposed type of work, materials to be used and potential hazards likely to be encountered on this contract are detailed in the various specifications, Bill of Quantities and Drawings as well as in the Employer's health and safety specification, Refer Regulation 4(1) of the Construction Regulations as well as Particular Specification PB.

The Contractor shall, in terms of Regulation 5(1) of the Construction Regulations, provide a comprehensive Health and Safety Plan detailing his proposed compliance with the regulations, for approval by the Employer or his H&S Agent.

The Contractor shall at times be responsible for full compliance with the approved Plan as well as the Construction Regulations and no extension of time will be considered for delays due to non-compliance with the above-mentioned Plan or Regulations.

A payment item is included in the Bill of Quantities to cover the Contractor's cost for compliance with the OHS Act and the above-mentioned regulations.

The Contractor shall obtain his own copy of the Construction Regulations.

The Employer and the Contractor hereby agrees, in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act, 1993 (Act 85 of 1993), hereinafter referred to as" the Act", that the following arrangements and procedures shall apply between them to ensure compliance by the Contractor with the provisions of the Act:

(a) The Contractor undertakes to acquaint the appropriate officials and employees of the Contractor with all relevant provisions of the Act and the Regulations promulgated in terms of the Act.

(b) The Contractor undertakes that all relevant duties, obligations and prohibitions imposed in terms of the Act and Regulations on the Contractor will be fully complied with.

(c) The Contractor accepts sole liability for such due compliance with the relevant duties, obligations and prohibitions imposed by the Act and Regulations and expressly absolves the Employer from himself being obliged to comply with any of the aforesaid duties, obligations and prohibitions, with the exception of such duties, obligations and prohibitions expressly assigned to the Employer in terms of the Act and its associated Regulations.

(d) The Contractor agrees that any duly authorised official of the Employer shall be entitled, although not obliged, to take such steps as may be necessary to ensure that the Contractor has conformed to his undertakings as described in paragraphs a) and b) above, which steps may include, but will not be limited to, the right to inspect any appropriate site or premises occupied by the Contractor, or any appropriate records or safety plans held by the Contractor.

(e) The Contractor shall be obliged to report forthwith to the Employer, his H&S Agent and Engineer any investigation, complaint or criminal charge which may arise as a consequence of the provisions of the Act and Regulations, pursuant to work performed in terms of this Contract, and shall, on written demand, provide full details in writing, to the Employer, his H&S Agent and Engineer, of such investigation, complaint or criminal charge.

The Contractor shall furthermore, in compliance with Constructional Regulations (2014) to the Act:

(a) Acquaint himself with the requirements of the Employer's health and safety specification as laid down in Regulation 4(1)(a) of the Construction Regulation (2014), and prepare a suitably and sufficiently documented

health and safety plan as contemplated in Regulation 5(1) of the Construction Regulation (2014) for approval by the Employer or his assigned H&S Agent. The Contractor's health and safety plan and risk assessment shall be submitted to the Employer within the time as stated in the Conditions of Contract and shall be implemented and maintained from the Commencement of the Works.

(b) The Employer, or his assigned H&S Agent, reserves the right to conduct periodic audits, as contemplated in the Construction Regulations (2014), to ensure that the Contractor is compliant in respect of his obligations. Failure by the Contractor to comply with the requirements of these Regulations shall entitle the Engineer, at the request of the Employer or his H&S Agent, to suspend all or any part of the Works, with no recourse whatsoever by the Contractor for any damages or loss incurred as a result of such suspension, until such time that the Employer or his H&S agents are satisfied that the issues in which the Contractor has been in default have been rectified.

C3.5.2.2 First Aid and Site Safety

The Contractor shall be the responsible party on Site to ensure that all statutory obligations on safety are strictly adhered to and administered. The Employer shall not be held liable for safety on Site or anywhere else where the Contractor is active. The Contractor shall complete a "Contractor's Legal Delegation Statement" which is bound into this document.

The Contractor may be working in confined spaces and at height and shall especially be required to observe those sections of the Regulations which deal with working in confined spaces and heights and dealing with hazardous gases.

All manholes and pipes shall be tested for hazardous gases on a continuous basis to ensure worker safety. The Contractor shall ensure that the necessary functional gas testing equipment is available on Site at all times. Breathing apparatus must be available as and when required. The Contractor shall ensure that the following list of personnel protective equipment is in general use as a minimum:

- Safety harnesses for working in confined spaces, near to water and at heights.
- Hazardous Gas testing equipment.
- Breathing apparatus for toxic gases and oxygen deficient areas.
- Hard hats where required.
- Leather gloves for cut resistance.
- Ear muffs or ear plugs for noise from machines.
- Overalls for body protection.
- Safety shoes with steel toe caps for foot protection.
- Where work is carried out over or close to water, workers shall be provided with, and wear flotation equipment. Lifesaving equipment shall be provided to these areas.

Anything set out in connection with the various applicable acts in this document is supplementary to and in no way replaces, alters or supersedes the provisions of the Act or any of its Regulations, which shall be complied with at all times.

C3.5.2.3 Expected Health and Safety Risks

Listed below are, which may not be all, the expected health and safety related risks that may be encountered during the contract duration. The Contractor shall identify and prepare assessments for all risks he is likely to encounter in the execution of the contract before commencing with any work.

Further assessments shall be prepared as and when required for any other risks identified during the construction phase before work involving such risks is undertaken.

- Working close to existing services such as water, sewerage and electrical reticulations
- Hazardous materials such as cement, paint, thinners, sealants and the like
- Working at heights
- Working in trenches
- Operating construction plant and equipment
- Lifting, loading and placing of heavy materials and other weights
- Working with cement and other hazardous chemicals
- Dust pollution
- Working with electrical power tools
- Working with pneumatic tools
- Excessive noise levels
- Moving construction plant and vehicles on the Site
- Working next to existing roads with traffic movements
- Venomous snakes

C3.5.2.4 Protection of the Public and Employer's Staff

The Contractor shall at all times ensure that his operations do not endanger any member of the public or of the Employer's staff.

As the area is within a residential area the Contractor shall take special precautions to prevent public access to any danger areas on the Works, e.g. by temporary barricades and/or fencing.

Open excavations and other hazardous conditions on the Site shall be securely barricaded and precautions shall be taken to prevent persons from accessing the same.

C3.5.2.5 Safeguarding and Protection of Excavations

The construction site must be secure and it is the responsibility of the Contractor to ensure the safety of his staff and all staff working on or visitors to the site.

Excavations will be barricaded off, at all times, with clearly visible protection measures. Where deep excavations exist, the barricading shall be adequate to prevent accidental entry.

C3.5.3 ENVIRONMENTAL MANAGEMENT

C3.5.3.1 Environment Management Plan

The Contractor shall comply fully with all provisions of the environmental plan and the basic EMP included in this document. During the duration of the contract, the Contractor may be required to take specific measures not covered by the EMP to protect the environment.

The Contractor shall prior to the commencement of any construction prepare and submit a comprehensive Environmental Management Plan (EMP), which should address the management and monitoring of environmental impacts related to this contract, for approval by the Engineer.

The EMP shall clearly demonstrate how the Contractor intends mitigating damage to the environment, as a result of his construction activities.

The Contractor will further be required to appoint a competent Environmental Control Officer (ECO), who will be responsible for monitoring the Contractor's operations on site, as well as compliance with regard to the EMP and associated legislation.

Further, the ECO will submit his/her Environmental Audits at monthly site meetings, for discussion by all role players.

C3.5.3.2 Methods and Procedures

The following, together with the Construction Environmental Management Programme, shall be applied with regard to the operation and maintenance of the site:

- The site shall at all times be kept in a neat and tidy condition. Papers and packaging shall be binned and removed from site and waste stockpiles shall be properly demarcated and the waste removed at regular intervals and disposed of at a registered waste disposal site.
- Natural vegetation shall not be damaged unnecessarily and the working areas of the site be kept to the minimum reasonable possible for construction. An environmental awareness training programme for the construction staff should be implemented by Contractor/sub-contractor (s) and all workers made aware of the recommended mitigation measures to be implemented.
- No wild animals (birds, snakes, lizards, game, etc.), domestic stock or indigenous plants are to be disturbed unnecessarily in any way by the construction activities or by the construction staff.

- All topsoil (containing indigenous plant seeds, rootstock, etc.) removed – that may be required in future rehabilitation – should be carefully stockpiled for later rehabilitation.
- Measures need to be taken to ensure that contamination from the work camp and lay-down site does not pollute adjacent areas. This should include the diversion of natural run-off away from the works and the containment thereof in drainage retention areas, where applicable.
- Water from dewatering operations shall be disposed of so as not to return to the working area nor to cause damage or erosion to surrounding areas.
- Dust from stockpiles and access roads shall be controlled by watering.
- Precautions need to be taken against oil spillage from heavy equipment through the use of sand or sawdust drip trays. All material (including soil) contaminated with hydrocarbons should be disposed of as hazardous waste at a registered waste disposal site.
- Any object of historical interest that may be uncovered in the course of the works shall immediately be protected and reported to the Resident Engineer for further action.
- Final audit: On completion of the works, but before the construction site is handed back to the Employer, a thorough environmental inspection shall be carried out and any 'problematic' or damaged areas shall be made good or rehabilitated to the satisfaction of all parties.

C3.5.3.3 Fires and Burning of Vegetation

Under no circumstances whatsoever may fires be lit at the site of the Works.

C3.5.3.4 Preservation of Flora and Fauna and Soil Conservation

The Contractor shall:

a. take all precautions to prevent:
   i) any damage to trees, shrubs and the surrounding natural environment,
   ii) fires,
   iii) loss or injury to domestic or wild animals from any lands used or occupied by the Contractor
b. refrain from destroying, removing or clearing trees, timber and scrub to any extent greater than is absolutely necessary for the execution of the contract
c. ensure that no vegetation, trees or shrubs outside the site boundaries are disturbed, damaged or destroyed,
d. take care to cause the minimum disturbance to the fauna and flora,
e. take measures as to ensure that his employees are aware of and abide by all laws and restrictions governing the hunting, disturbing, capturing or destroying of animals and birds in the vicinity of the camp or the Works or the taking of fish from any water; and
f. prohibit all firearms from the site and temporary camps.

C3.5.3.5 Protection of Trees, Shrubs and Surrounding Environment

The Contractor shall ensure that no trees, shrubs or the surrounding natural environment outside the site boundaries are disturbed, damaged or destroyed. A penalty of R1,500 per tree or shrub damaged or destroyed or for damage to the natural surrounding environment may be charged to the Contractor. The Engineer shall have the right to permanently exclude any person from the site who causes any damage to the natural environment.

C3.5.3.6 Prevention of Poaching

The Contractor shall ensure that none of his employees partake in any poaching activities of any nature during the duration of the contract.

Any person caught poaching shall be banned from the site of the Works and shall be prosecuted under the relevant laws.

The Contractor shall be liable for a fine of R2,500 for each and every incidence of poaching committed by any of his employees, whether the employee is prosecuted or not. Repeated incidents may be considered as cause for cancellation of the contract.

C3.5.4 LEGISLATION

C3.5.4.1 Changes in legislation

Reference in the General Conditions of Contract and in any other standard document forming part of this Contract to legislation which has been amended or superseded by other legislation since the most recent publication of such standard document, shall be deemed to be a reference to the amended or replacement legislation.

Such amendment or replaced legislation shall be applicable during the Contract Period, provided the amendment or replacement occurred more than 28 days prior to the signing of the contract Agreement.

C3.5.4.2 The Occupational Health and Safety Act

The Contractor shall be required to comply with the latest revision of the *Occupational Health and Safety Act, 1993, the Construction Regulations 2014 as promulgated in the Government Gazette No. 37305 of 07 February 2014*. Non-compliance with these regulations in any way whatsoever will be adequate reason for suspension of the Works.

The proposed type of work, materials to be used and hazards likely to be encountered on this Contract are detailed in the Scope of Work, Pricing Instructions and Drawings. The Employer's Health and Safety Specifications are included in the Annexure.

The Contractor shall, in terms of Sub-clause 5(1) provide a comprehensive health and safety plan, detailing his proposed compliance with the Regulations, for approval by the Employer.

C3.6: SPECIFICATION DATA

The Specification Data gives amendments and additions to the specifications that are listed in the List of Applicable Specifications. Clause headings are prefixed by the letters "PS" followed by alphabetic and numeric characters which identify the specification and main clause of the applicable specification. Where the Specification Data sub-clause is an addition and there is no appropriate clause in the applicable specification to which to link it, a new clause number is given following the last clause number used in the specification. New clauses are followed by an asterisk (*).

Should any requirement of the Specification Data conflict with any requirement of the specifications listed, the requirement of the Specification Data shall prevail.

C3.6.1 VARIATIONS AND ADDITIONS TO SABS 1200 STANDARDIZED

The following variations and additions to the SABS 1200 Standardized Specifications shall apply to this Contract.

It should be noted that these variations and additions to the SABS 1200 Standardized Specifications shall be implemented and effected prior to the interpretation and application of such.

The prefix “PS” indicates an amendment to SABS 1200 Standardized Specifications. The prefix “PSA” indicates an amendment to the SABS 1200 A Standardized Specification, “PSDB” to SABS 1200 DB Standardized Specification and so on.

Similarly, the numbers following the applicable “PS” prefix indicate the corresponding SABS 1200 Standardized Specification clause number to which this variation or addition shall apply.

An asterisk (*) placed after to a “PS letter and clause number” denotes the inclusion of an additional new clause for which no equivalent appears within the relevant SABS 1200 Standardized Specification.

For example, “PSMK 8.2.11” indicates an amendment to clause 8.2.11 within the SABS 1200 MK Standardized Specification, “PSL 5.3” indicates an amendment to clause 5.3 within the SABS 1200 L Standardized Specification and so on.

The prefix “PSMK 8.2.14*” denotes the inclusion of an additional new clause within the SABS 1200 MK Standardized Specification for which no equivalent appears.

The terms “project specification”, “Project Specification” or “Portion 2 of the project specification” appearing in any of the SABS 1200 Standardized Specifications shall be replaced with the term “Scope of Work”.

The term “Scope of Work” shall mean Part 3 of The Contract.
SABS 1200 and SANS 1200 shall have corresponding meanings.

Further to the above it should be noted that where in a specific Standardized Specification reference is made to a sub clause in another Standardized Specification, any amendment or addition to the sub clause referred to, as provided for in the specification, shall apply. The aforementioned shall also apply with respect to clauses referred to in a Particular Specification.

Please note that separate Bill of Quantities have been provided for the Preliminary and General Items (Section A1 and Section A2) related to the two phases of the Contract. Tenderers should price both schedules, accordingly, considering the following:

- **Phase 1 – 7 months (2026/2027 financial year funding)**
- **Phase 2 – 3 months (2027/2027 financial year funding)**

Please see Clause 5.5.1 of the Contract Data for the preliminary transition point between Phase 1 and Phase 2. An allowance has been made for escalation for works to be completed in Phase 2 and will be utilised during the implementation of Phase 2.

PSA GENERAL (SABS 1200 A)

PSA 1 SCOPE

Replace the contents of Clause 1.1, including the notes, with the following:

"1.1 This specification covers requirements, principles and responsibilities of a general nature which are generally applicable to civil engineering construction and building works contracts, as well as the requirements for the Contractor's establishment on the Site."

PSA 2 INTERPRETATIONS

PSA 2.3 DEFINITIONS

In the opening phrase, insert the words: "the definitions given in the Conditions of Contract and" between the words "specification" and "the following".

a) General

Add the following definitions:

General Conditions and Conditions of Contract. The General Conditions of Contract specified for use with this Contract as amended in the Contract Data.

Project Specification. Shall mean the "Specification Data", i.e. that portion of the Scope of the Works that completes and/or amends the standardized and standard specifications.

SANS. Except for references to the Bureau itself, and to the (official) SABS mark, the term "SABS'" shall mean "SANS".

Schedule of Quantities and Bill of Quantities shall mean the same.

Specified. As specified in the Standardised Specifications, the Drawings or the Scope of Works. "Specifications" shall have the corresponding meaning."

c) Measurement and payment

Replace the definitions for "Fixed charge", "Time-related charge" and "Value-related charge" with the following:

"Fixed charge. A charge that is not subject to adjustment on account of variations in the value of the Contract Price or the time allowed in the Contract for the completion of the work.

The terms "Schedule of Quantities" and "Bill of Quantities" shall mean the same.

Time-related charge. A charge, the amount of which varies in accordance with the Time for Completion of the Works, adjusted in accordance with the provisions of the Contract.

Value-related charge. A charge, the amount of which varies pro rata with the final value of the measured work executed and valued in accordance with the provisions of the Contract."

PSA 2.4 ABBREVIATIONS

a) Abbreviations relating to standard documents

Add the following abbreviation:

"CKS: SABS Co-ordinating Specification."

b) Other abbreviations

Add the following abbreviations:

"MAMDD: Modified AASHTO maximum dry density.

TMH1: Technical Methods for Highways 1".

PSA 2.8 ITEMS IN SCHEDULE OF QUANTITIES

PSA 2.8.1 Principle

In the fourth line of Subclause 2.8.1, after the word "specification", add: "or in the measurement and payment clause of the standard specification, particular specification or Specification Data".

Add the following paragraphs:

"The Contractor shall be deemed to have inspected and examined the Site and its surroundings and information available in connection therewith and to have satisfied himself before submitting his contract price (as far as is practicable) as to:

(a) the form and nature of the Site and its surroundings, including subsurface conditions,

(b) the hydrological and climatic conditions,

(c) the extent and nature of work and materials necessary for the execution and completion of the Works,

(d) the means of access to the Site and the accommodation he may require

and, in general, shall be deemed to have obtained all information (as far as is practicable) as to the risks, contingencies and all other circumstances which may influence or affect his tender.

The Contractor shall be deemed to have based his tender on the technical data given in the Documents and, if in the performance of the Contract any circumstances shall differ from the said technical data, which difference causes delay or additional Cost, the Contractor shall be entitled to make a claim in accordance with Clause 10 of GCC 2015.

The Contractor shall be deemed to have satisfied himself as to the correctness and sufficiency of his price for the Works and of the rates and prices stated in the priced Bill of Quantities and the Schedule of Rates and Prices (if any) or in the specification, which rates and prices shall (except in so far as otherwise provided in the Contract) collectively cover full payment for the discharge of all his obligations under the Contract and all matters and things necessary for the proper completion of the Works."

PSA 3 MATERIALS

PSA 3.1 QUALITY

Where applicable, materials shall bear an official standardization mark.

Add the following to Clause 3.1:

"Where proprietary materials are specified, it is to indicate the quality or type of materials or articles required, and where the terms "or other approved" or "or approved equivalent" are used in connection with proprietary materials or articles, it is to be understood that the approval shall be at the sole discretion of the Employer's Agent.

All manufactured materials supplied shall be new materials unless the contrary is specified. All materials specified to be in accordance with SABS Specifications shall bear the SABS mark, where such a mark is available for the type of product."

Add the following Clause to Clause 3:

PSA 3.3* ORDERING OF MATERIALS

The quantities set out in the Bill of Quantities have been carefully determined from calculations based on data available at the time of its compilation, but are to be considered as approximate quantities only. Before ordering materials of any kind the Contractor shall be solely responsible for determining, from the drawings issued or approved by the Employer's Agent for construction purposes, and from measurements on Site, the actual quantities of materials required for the execution of the Works. No liability or responsibility whatsoever shall be attached to the Employer or the Employer's Agent in respect of materials ordered by the Contractor except when ordered in accordance with the drawings issued or approved by the Employer's Agent for construction purposes."

PSA 4 PLANT

PSA 4.1 SILENCING OF PLANT

Replace the contents of Clause 4.1 with the following:

"The Contractor's attention is drawn to the applicable regulations pertaining to noise and hearing conservation, framed under the Occupational Health and Safety Act (Act No. 85 of 1993) as amended.

The Contractor shall at all times and at its own cost, be responsible for implementing all necessary steps to ensure full compliance with such regulations, including but not restricted to the provision and use of suitable and effective silencing devices for pneumatic tools and other Plant which would otherwise cause a noise level in excess of that specified in the said regulations.

Where appropriate, the Contractor shall further, by means of temporary barriers, effectively isolate the source of such noise in order to comply with the said regulations."

PSA 4.2 CONTRACTOR'S OFFICES, STORES AND SERVICES

Add the following new paragraph before the existing paragraph in Clause 4.2:

"The Contractor's buildings, sheds and other facilities erected or utilised on the Site for the purposes of the Contract shall be fenced off and shall contain all offices, stores, workshops, testing laboratories, toilet facilities, etc. as may be required by the Contractor. The facilities shall always be kept in a neat and orderly condition.

No personnel may reside on the Site. Only night-watchmen may be on the Site after hours."

Delete "and first-aid services" in the second paragraph of Clause 4.2 and add the following:

"The Contractor shall provide and maintain on the Site adequate and suitable sanitary services and a supply of potable water for his employees engaged on the Contract and, if necessary, suitable accommodation and similar facilities elsewhere for such employees off the Site.

The Contractor shall provide on the Site and in close proximity to the actual locations where the work is being executed, a minimum of 1 toilet per 15 workers with separate toilets for males and females, which toilets shall be effectively screened from public view and their use enforced. Such toilets shall be relocated from time to time as the location of the work being executed changes, so as to ensure that easy access to the toilets is maintained.

The Contractor shall, where applicable, make all necessary arrangements and pay for the removal of night soil."

Add the following clause:

PSA 4.3 FIRST AID SERVICES

The first aid services to be provided by the Contractor shall include, inter alia, a First Aid cabinet fully equipped and maintained with at least the minimum contents as listed in the Annexure (Regulation 3) to the General Safety Regulations of the South African Occupational Health and Safety Act, 1993 (Act 85 of 1993), to deal with accidents and ailments which are likely to occur during the construction period.

The Contractor shall provide personal safety equipment and facilities as required by Regulation 2 of the General Safety Regulations of the South African Occupational Health and Safety Act, 1993 (Act 85 of 1993).

PSA 5 CONSTRUCTION

PSA 5.1 SURVEY

PSA 5.1.1 Setting Out of the Works

The installed benchmarks shown on the drawings shall be used by the Contractor for setting out the Works. Before commencing any construction, the Contractor shall check the relative positions and levels of all reference pegs, benchmarks and line pegs and inform the Engineer of any discrepancy. The Contractor shall be responsible for setting out the Works from the pegs and benchmarks and the dimensions given on the drawings.

Any errors or suspected discrepancies with regards to levels, co-ordinates, dimensions or other related aspects of the existing or proposed works that come to light during the execution of the Works shall be brought to the attention of the Engineer without delay.

Add the following to Subclause 5.1.1

"The Contractor shall be responsible for the true and proper setting out of the Works and for the correctness of the position, levels, dimensions and alignment of all parts of the Works and for the provisions of all necessary instruments, appliances and labour in connection therewith.

The Contractor shall carefully protect and preserve all benchmarks, sight-rails, pegs and other things used in setting out the Works.

The checking of any setting-out or of any line or level by the Engineer shall not relieve the Contractor of his responsibility for the correctness thereof.

If at any time during the progress of the Works, any error shall appear or arise in the position, levels, dimensions or alignment of any part of the Works, the Contractor, on being required to do so by the Employer's Agent, shall at his own expense rectify such error to the satisfaction of the Employer's Agent , but if such error is based on incorrect data supplied in writing by the Employer's Agent or if there is any delay in providing the particulars required, the Contractor shall, in respect of that delay and the Cost of such rectification, be entitled to make a claim in accordance with Clause 10 of GCC 2015.

The Contractor shall advise the Engineer of any conflict between the position of any part of the Works and an existing feature or service.

The Contractor shall be required to check and verify, prior to commencement of any construction work, all benchmarks and boundary reference pegs, as shown and detailed on the drawings. Reference and benchmark pegs disturbed and/or removed during the construction period shall be replaced by a Professional Land Surveyor and the Contractor shall bear the cost of such replacement. Payment to check and verify the reference and benchmark pegs will be made in terms of PSA 8.8.5."

PSA 5.1.2 Preservation and Replacement of Beacons and Pegs Subject to Land Survey Act

Delete from the second sentence "Before the commencement . . . . "to" . . . . apparently in their correct positions" and replace with the following:

"Immediately on taking over the site, the Contractor, in consultation and liaison with the Employer's Agent, shall search for all pegs and the Contractor shall compile a list of pegs that are apparently in their correct position."

Replace the third sentence of Clause 5.1.2 with the following:

"At completion of the Contract, the Contractor shall expose and mark all pegs that were listed at the commencement of the construction as being in order and the Contractor shall arrange with a registered Land Surveyor the replacement of pegs that have become disturbed or damaged. The Contractor shall, as a precedent to the issue of the Certificate of Completion, provide to the Employer's Agent, a certificate from the Registered Land Surveyor, certifying that all the pegs listed at the commencement of construction in accordance with the provisions of this Clause, have been checked and that those found to have been disturbed, damaged or destroyed have been replaced in their correct positions, all in accordance with the provisions of the said Act.

The costs of replacement and certification as aforesaid shall be entirely for the Contractor's account, provided always that the Contractor shall not be held liable for the cost of replacement of pegs which:

(a) cannot reasonably be re-established in their original positions by reason of the finished dimensions of the Permanent Works ; and

(b) the Contractor can prove beyond reasonable doubt and to the satisfaction of the Employer's Agent, were disturbed, damaged or destroyed by others beyond its control, and

(c) were in close proximity to the work and which would unavoidably be removed, subject to the Employer's Agent's approval being given to remove such pegs."

PSA 5.2 WATCHING, BARRICADING AND LIGHTING AND TRAFFIC CROSSINGS

Add the following:

"The Contractor shall comply in all aspects with the requirements of the Occupational Health and Safety Act (Act 85 of 1993), refer also PSA 5.10."

The Contractor shall, in connection with the Works, provide and maintain all signs, signboards, lights, barriers, barricades, fencing and watching when and where:

(a) specified in or reasonably to be inferred from the Contract, or

(b) required by any competent statutory or other authority, or

(c) required by the Employer's Agent for the protection of the Works or for the safety or convenience of the public or others;

provided that, if the Engineer shall instruct the Contractor to provide any sign, signboard, light, barrier, barricade, fencing or watching not included in paragraphs (a), (b) or (c), such requirement shall constitute a variation by the Engineer in terms of Clause 6.3 of the General Conditions of Contract 2015.".

PSA 5.3 PROTECTION OF STRUCTURES

Replace:" Machinery and Occupational Safety Act, 1983, (Act No. 6 of 1983)" with: "Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), as amended," and insert the following after "(Act No. 27 of 1956)" : "as amended".

PSA 5.4 PROTECTION OF OVERHEAD AND UNDERGROUND SERVICES

Replace the heading and the contents of Clause 5.4 with the following:

"PSA 5.4 LOCATION AND PROTECTION OF EXISTING SERVICES

PSA 5.4.1 Location of Existing Services

Various services are known to exist on, under, over or within the site of the Works. Their approximate positions are shown on the drawings but, although are based on the best information available, their accuracy cannot be guaranteed. It is likely that other services that are not shown on the drawings also exist on the Site.

Before commencing with any work in an area, the Contractor shall ascertain the presence and actual position of all services which can reasonably be expected by an experienced and competent Contractor to be present on, under, over or within the Site.

Without in any way limiting its liability in terms of the Conditions of Contract in relation to damage to property and interference with services, the Contractor shall, in collaboration with the Employer's Agent, obtain the most up-to-date plans as are available, showing the positions of services existing in the area where it intends to work.

Neither the Employer nor the Employer's Agent offer any warranty as to the accuracy or completeness of such plans and because services can often not be reliably located from plans, the Contractor shall ascertain the actual location of services depicted on such plans by means of careful inspection of the Site.

Thereafter, the Contractor shall, by the use of appropriate methodologies carefully expose the services at such positions as are agreed to by the Employer's Agent, for the purposes of verifying the exact location and position of the services. Where the exposure of existing services involves excavation to expose underground services, the further requirements of Clauses 4.4 and 5.1.2.2 of SABS 1200D (as amended) shall apply.

The aforesaid procedure shall also be followed in respect of services not shown on the plans but which may reasonably be anticipated by an experienced Contractor to be present or potentially present on the Site.

All services, the positions of which have been determined as aforesaid at the critical points, shall henceforth be designated as "Known Services" and their positions shall be indicated by the Contractor on a separate set of drawings, a copy of which shall be furnished to the Employer's Agent without delay.

As soon as any service which has not been identified and located as described above is encountered on, under, over or within the Site, it shall henceforth be deemed to be a Known Service and the aforesaid provisions pertaining to locating, verifying and recording its position on the balance of the Site shall apply. The Contractor shall notify the Employer's Agent immediately any such service is encountered or discovered on the Site.

All services, in particular electrical cables, shall be treated as live until proven otherwise.

Whilst it is in possession of the Site, the Contractor shall be liable for all loss of or damage as may occur to:

(a) Known Services, anywhere along the entire lengths of their routes, as may reasonably be deduced from the actual locations at which their positions were verified as aforesaid, due cognisance being taken of such deviations in line and level which may reasonably be anticipated; and

(b) Any other service which ought reasonably to have been a Known Service in accordance with the provisions of this Clause;

as well as for consequential damage, whether caused directly by the Contractor's operations or by the lack of proper protection; provided always that the Contractor will not be held liable in respect of damages occurring to services not being Known Services.

No separate payment will be made to the Contractor in respect of any costs incurred in preparing and submitting to the Employer's Agent, the drawings as aforesaid and these costs shall be deemed included in the Contractor's other tendered rates and prices included in the Contract.

Payment to the Contractor's in respect of exposing services at the positions agreed by the Employer's Agent and as described above will be made under the payment items (if any) as may be provided therefore in the respective sections of the Specifications pertaining to the type of work involved.

PSA 5.4.2 Protection During Construction

The Contractor shall take all reasonable precautions and arrange its operations in such a manner as to prevent damage occurring to all Known Services during the period which the Contractor has occupation and/or possession of the Site.

Where applicable, major excavating equipment and other plant shall not be operated dangerously close to these services. Where necessary, excavation in close proximity to these services shall be carefully carried out with suitable hand tools, excluding picks wherever their use could damage the services. No additional payment will apply to such more difficult work.

Services left exposed shall be suitably protected from damage and in such a manner as will eliminate any danger arising there from for the public and/or workmen, all in accordance with the requirements of the prevailing legislation and related regulations.

Unless otherwise instructed by the Employer's Agent, no services shall be left exposed after its exact position has been determined and all excavations carried out for the purpose of exposing underground services shall be promptly backfilled and compacted. In roadways, the requirements of subclause 5.9 of SABS 1200 DB should be observed. In other areas compaction is to be to 90% modified AASHTO density.

PSA 5.4.3 Alterations and Repairs to Existing Services

Unless the contrary is clearly specified in the Contract or ordered by the Employer's Agent, the Contractor shall not carry out alterations to existing services. When any such alterations become necessary, the Contractor shall promptly inform the Employer's Agent, who will either make arrangements for such work to be executed by the owner of the service, or instruct the Contractor to make such arrangements himself.

Should damage occur to any existing services, the Contractor shall immediately inform the Employer's Agent, or when this is not possible, the relevant authority, and obtain instructions as to who should carry out repairs. In urgent cases the Contractor shall take appropriate steps to minimise damage to and interruption of the service. No repairs to telecommunication cables, electric power lines and cables shall be attempted by the Contractor, unless approved by the Employer's Agent.

The Employer will accept no liability for damages due to a delay in having alterations or repairs effected by the respective service owners. The Contractor shall provide all reasonable opportunity, access and assistance to persons carrying out alterations or repairs of existing services."

PSA 5.7 SAFETY

Replace the contents of Clause 5.7 with the following:

"Pursuant to the provisions of the Conditions of Contract, and without in any way limiting the Contractor's obligations thereunder, the Contractor shall at its own expense (except only where specific provision (if any) is made in the Contract for the reimbursement to the Contractor in respect of particular items):

(a) Provide to its Employees on the Site of the Works, all safety materials, clothing and equipment necessary to ensure full compliance with the provisions of the Occupational Health and Safety Act (Act No 85 of 1993) as amended (hereinafter referred to as the Act) at all times, and shall institute appropriate and effective measures to ensure the proper usage of such safety materials, clothing and equipment at all times; and

(b) Provide, install and maintain on all barricades, safety signage and other measures to ensure the safety of workmen and all persons in, on and around the Site, as well as the general public; and

(c) Implement on the Site of the Works, such procedures and systems and keep all records as may be required to ensure compliance with the requirements of the Act at all times; and

(d) Implement all necessary measures as to ensure compliance of the Act by all subcontractors engaged by the Contractor and their employees engaged on the Works; and

(e) Comply fully with all other requirements pertaining to safety as may be specified in the Contract.

The Employer and the Employer's Agent shall be entitled, although not obliged, to make such inspections on the Site as they shall deem appropriate, for the purpose of verifying the Contractor's compliance with the requirements of the Act. For this purpose, the Contractor shall grant full access to the Site of all parts of the Site and shall co-operate fully in such inspections and shall make available for inspection, all such documents and records as the Employer's and/or Employer's Agent's representative may reasonably require.

Where any such investigations reveal, or where it comes to the Employer's Agent's attention that the Contractor is in any way in breach of the requirements of the Act or is failing to comply with the provisions of this clause, the Employer's Agent shall, in accordance with the provisions of Clause 5.11.2 of the General Conditions of Contract 3rd Edition 2015, be entitled to suspend progress on the Works or any part thereof until such time as the Contractor has demonstrated to the satisfaction of the Employer's Agent, that such breach has been rectified.

The Contractor shall have no grounds for a claim against the Employer for extension of time and/or additional costs if the progress on the Works or any part thereof is suspended by the Employer's Agent in terms of this clause and the Contractor shall remain fully liable in respect of the payment of penalties for late completion in accordance with the provisions of Clause 5.13.1 of the Conditions of Contract should the Contractor fail to complete the Works on or before the specified Due Date for Completion in consequence of the suspension.

Persistent and repeated breach by the Contractor of the requirements of the Act and/or this Clause shall constitute grounds for the Employer's Agent to act in terms of Clause 9.2.1.3.6 of the Conditions of Contract and for the Employer to cancel the Contract in accordance with the further provisions of the said Clause 9.2."

PSA 5.8 GROUND AND ACCESS TO WORKS

Add to Subclause 5.8:

"The Contractor shall not use the Site or land connected with the Works or cut down trees or vegetation, for any purpose whatsoever other than for the proper carrying out of the Works and shall locate any facilities that may be required for the Contract on the Site in such areas as the Engineer shall stipulate."

Add the following clauses:

"PSA 5.9* MAINTAINING SERVICES IN USE

The Contractor shall take note that he shall not cut off any service in use without the prior approval of the Employer's Agent.

Failure on the part of the Contractor to comply with any of the above provisions will constitute sufficient reason for the Employer's Agent to stop the works until the situation has been remedied, or should he deem it necessary, arrange for the situation to be remedied at the Contractor's cost.

No direct payment will be made for the cost of maintaining services in use. Payment will be deemed to be covered by the rates and sums tendered and paid for the various items of work included under the Contract."

"PSA 5.10* DEALING WITH AND ACCOMMODATING TRAFFIC

Before commencing with any construction works that may impact traffic, the Contractor shall submit to the Engineer for approval a Traffic Management Plan (TMP) setting out in full detail how he intends to deal with and accommodate traffic on public roads. The TMP shall include drawings, as appropriate, showing details of any road narrowing or closure.

The Contractor shall take note that the existing roads and tracks within the Sites shall remain operational throughout the contract period. To this end the Contractor shall provide and maintain all temporary fences, security, barriers, kerb ramps, signs, markings, flagmen, drums, lighting, personnel and all other incidentals necessary to ensure safe and easy passage of all traffic. The Contractor shall at all times ensure that adequate traffic accommodation measures are in place so as to ensure public and traffic safety.

Temporary traffic signs etc. as well as all necessary markings shall be erected and maintained by the Contractor and the number and layout of the traffic signs shall comply with the Site Manual entitled *"Safety at Roadworks in Urban Areas*", as published by the Department of Transport.

Traffic signs shall have a yellow background with either a red / black border.

"PSA 5.11* SITE MEETINGS

The Contractor's Contracts Manager and Site Agent will be required to attend regular site meetings, which shall normally be held once a month on dates and at times determined by the Employer's Agent, but in any case, whenever reasonably required by the Employer's Agent. Unless otherwise indicated in the Contract or instructed by the Employer's Agent, such meetings shall be held at the Contractor's offices on the Site. At such monthly meetings, matters such as general progress on the Works, quality of work, problems, claims, payments, and safety etc, shall be discussed, but not matters concerning the day-to-day running of the Contract.

PSA 5.12* ACCOMMODATION OF OTHER CONTRACTORS

The Contractor may be required to accommodate other contractors on the Site of the Works during the Contract period.

Adequate access to the site of their works shall be given to the above stated contractors at all times.

No direct payment will be made for the cost of providing adequate access and accommodating the stated contractors on the Site of the Works, as well as the cost of any inconvenience or disruption experienced in attending to the aforementioned. Payment shall be deemed to be covered by the rates and sums tendered and paid for the various items of work included under the Contract.

PSA 6 TOLERANCES

Add the following clause:

PSA 6.4* USE OF TOLERANCES

No guarantee is given that the full specified tolerances will be available independently of each other, and the Contractor is cautioned that the liberal or full use of any one or more of the tolerances may deprive him of the full or any use of tolerances relating to other aspects of the work.

Except where the contrary is specified, or when clearly not applicable, all quantities for measurement and payment shall be determined from the 'authorised' dimensions. These are specified dimensions or those shown on the Drawings or, if changed, as finally prescribed by the Employer's Agent, without any allowance for the specified tolerances. Except if otherwise specified, all measurements for determining quantities for payment will be based on the 'authorised' dimensions.

If the work is constructed in accordance with the 'authorised' dimensions plus or minus the tolerances allowed, the calculation of quantities will be based on the 'authorised' dimensions, regardless of the actual dimensions to which the work has been constructed.

When the work is not constructed in accordance with the 'authorised' dimensions plus or minus the tolerances allowed, the Employer's Agent may nevertheless, at his sole discretion, accept the work for payment. In such cases no payment shall be made for quantities of work or material in excess of those calculated for the 'authorised' dimensions, and where the actual dimensions are less than the 'authorised' dimensions minus the tolerance allowed, quantities for payment shall be calculated based on the actual dimensions as constructed."

PSA 7 TESTING

PSA 7.1 PRINCIPLES

PSA 7.1.2 Standard of Finished Work Not to Specification

Insert the words “or checks by an approved laboratory ..." after the words “Where the Employer’s Agent’s checks ...” in the first line of Clause 7.1.2.

PSA 7.2 APPROVED LABORATORIES

Replace the contents of Clause 7.2 with the following:

“Unless otherwise specified in the relevant specification or elsewhere in the Scope of Work, the following shall be deemed to be approved laboratories in which design work, or testing required in terms of a specification for the purposes of acceptance by the Employer’s Agent of the quality of materials used and/or workmanship achieved, may be carried out:

(a) any testing laboratory certified by the South African National Accreditation Systems (SANAS) in respect of the nature and type of testing to be undertaken for the purposes of the Contract;

(b) any testing laboratory owned, managed or operated by the Employer or the Employer’s Agent;

(c) any testing laboratory established and operated on the Site by or on behalf of the Employer or the Employer’s Agent;

(d) any testing laboratory designated by the Employer’s Agent.”

PSA 8 MEASUREMENT AND PAYMENT

PSA 8.1 MEASUREMENT

PSA 8.1.1 Method of Measurement, All Sections of the Bill

Delete the words: “and South West Africa.”

PSA 8.1.2.1 Contents

Replace the contents of item (c) with the following:

"The 'duration of construction' applicable to a time-related item shall be the tendered contract period for the total works, plus as applicable, the Civil Engineering Industry Holiday (Dec / Jan) and all gazetted public holidays for the Civil Engineering Industry."

PSA 8.1.2.2 Tendered Sums

Replace the contents of this Sub-Clause with the following:

“Except only where specific provision is made in the Specifications and/or the Bill of Quantities for separate compensation for any of these items, the Contractor’s tendered sums under items PSA 8.3.1 and PSA 8.4.1 shall collectively cover all charges for:

- risks, costs and obligations in terms of the Conditions of Contract and of this standardised specification; and
- head-office and site overheads and supervisions; and
- profit and financing costs; and
- expenses of a general nature not specifically related to any item or items of the permanent or temporary work; and
- providing such facilities on Site as may be required by the Contractor for the proper performance of the Contract and for its personnel, including, but without limitation, providing offices, storage facilities, workshops, ablutions, for

providing services such as water, electricity, sewage and rubbish disposal, for access roads and all other facilities required, as well as for the maintenance and removal on completion of the Works of these facilities and for the cleaning-up of the site of the Contractor's establishment and reinstatement to not less than its original condition; and

PSA 8.2 PAYMENT

PSA 8.2.2 Time-related Items

Replace the contents of this Clause with the following:

"Subject to the provisions of A 8.2.3 and A 8.2.4, payment for each time-related item will be made monthly in equal amounts, calculated by dividing the sum tendered for each item by the duration of construction as defined in PSA 8.1.2.1 in months, until the sum tendered has been paid in full, provided always that the total of the monthly amounts so paid for each item is not more than in proportion to the progress of the work as a whole.

Should the Employer's Agent grant an extension of time for the completion of the total works, the Contractor will be entitled to an increase in the sums tendered for time-related items, which increase shall be in the same proportion to the original tendered sums, as the extension of time is to the duration of construction as defined in PSA 8.1.2.1. The Contractor shall however note that the aforementioned will not apply to extensions of time granted in terms of PSA 8.4.6.

Payment of such increased sums will be taken to be as full compensation for all additional preliminary and general costs, either time-related costs or fixed costs, that result from the circumstances pertaining to the extension of time granted."

The payment to the Contractor for Time-Related Items shall be adjusted in accordance with the following formula in the event of the Contract being extended by means of a Variation Order:

$$\text{Sum of Tendered amounts for Time Related Items} \times \frac{\text{Extension of Time authorised by Variation Order}}{\text{Tendered Contract Period}}$$

For the purposes of applying this formula "Extension of Time" will exclude the Contractor's December / January close-down period, if applicable.

The abovementioned adjustment of the payment for Time-Related Items shall be made in the completion Payment Certificate and shall be the only payment for additional Time-Related costs irrespective of the actual period required to complete the Contract including its authorised extensions.

In the case of fixed price contracts, the amount by which the Time-Related Items is adjusted shall not be subject to the Contract Price Adjustment formula.

In the case of contracts subject to Contract Price Adjustment the amount by which the time-related items are adjusted shall be subject to the Contract Price Adjustment formula.

PSA 8.3 SCHEDULED FIXED-CHARGE AND VALUE-RELATED ITEMS

PSA 8.3.1 Contractual Requirements

Add the following to A 8.3.1:

"The sum tendered shall cover all initial costs incurred in complying with the requirements of the Conditions of Contract and include for the cost of providing and maintaining the special risks insurance stipulated in the Conditions of Contract, if applicable."

PSA 8.3.3 Other Fixed-charge Obligations

Add after the last paragraph:

"Certain items will be scheduled purely to draw the Contractors attention to them. They are not all encompassing and do not relieve the Contractor from his obligation if not documented as a payment item."

PSA 8.4 SCHEDULED TIME-RELATED ITEMS

PSA 8.4.1 Contractual Requirements …….…….. Unit: Sum

Add the following to A 8.4.1:

The Contractor shall tender lump sums in the Bill of Quantities to cover his Time-related Establishment costs. The amount tendered and paid shall be full compensation to the Contractor for:

(i) The maintenance of his whole organisation as established for this Contract.

(ii) The maintenance of all insurances, indemnities and guarantees required in terms of the Conditions of Contract or Tender where applicable

(iii) Compliance with all general conditions and requirements which are not specifically measured elsewhere for payment in these Contract Documents.

Payment of the lump sums shall be made pro rata monthly in compliance with the method laid down in Sub-clause 8.2.2 of SABS 1200A, as amended.

The sums shall also include, where applicable, for the cost of providing and maintaining the special risks insurance stipulated in the Conditions of Contract."

The Contractor will not be paid Time-Related Preliminary and General charges for any Special Non-Working Days, as stipulated in the Contract Data, which shall be deemed to have been allowed for in his rates.

PSA 8.4.2 Operation and Maintenance of Facilities on Site, for Duration of Construction, Except Where Otherwise Stated

PSA 8.4.2.3 Replace the words "periods stated" in the second line of this Clause with the following:

"duration of construction as defined in PSA 8.1.2.1".

PSA 8.4.5 Other Time-related Obligations

Add the following to A 8.4.5:

Provision of Security Personnel …… Unit: month

This item shall cover the cost of providing such security personnel the Contractor deems appropriate, taking cognizance of the location of the site and the historical record of incidents of crime in the area.

Add the following new clause:

PSA 8.4.6* Compensation in Terms of Clause 5.12.2.4 and Clause 9.1.4 of the Conditions of Contract for delays Incurred:

(a) Plant ……..… Unit: Sum per working day

(b) Labour ……..……..... Unit: Sum per working day

(c) Supervision ……..…….……...….. Unit: Sum per working day

(d) Other services, facilities etc. not covered by (a), (b) and (c)…….. Unit: Sum per working day

The sum tendered for each item shall cover the full and final standing cost per day of delaying the specified resource or facility and no additional compensation shall apply, notwithstanding any provisions to the contrary in the contract documents, or in respect of any extension of time granted in relation to the circumstances described in Clauses 5.12.2.4, 9.1.1 and 9.1.2 of the Conditions of Contract.

For the purposes of calculating the total delay, a working week shall be held to consist of five working days and a working day 9 hours.

Payment for the partial standing of any of the scheduled resources for a day or part thereof, or the standing of a complete resource for a part day, will be made pro-rata in proportion to an appropriate factor assessed by the Employer's Agent.

The amount by which compensation for delays is adjusted shall, for Contracts where contract price adjustment is specified, be subject to such adjustment formula as defined in the Conditions of Contract.

This payment item shall only apply to delays which in the opinion of the Employer's Agent are due to the circumstances described in Clauses 5.12.2.4, 9.1.1 and 9.1.2 of the Conditions of Contract. No Payment will be made for any salary related or other internally caused strikes. The cost of delays incurred for all other circumstances shall be treated as provided for in the Conditions of Contract.

The provision of this Clause shall in no way prejudice the right of either the Employer or the Contractor to determine the Contract in terms of the provisions of Clause 9 of the Conditions of Contract.

The Contractor shall take note that no payment will be considered for any additional cost incurred in protecting his plant and site establishment, as well as for costs incurred in respect of damage to constructional plant and equipment."

PSA 8.5 SUMS STATED PROVISIONALLY BY ENGINEER

Amend the penultimate sentence of Subclause 8.5 to read:

"The percentage rate for (b)(2) above shall cover the Contractor's overheads, charges and profit on the work covered by the sums provisionally stated for (b)(1) above. Payment will be made on the basis of the sums actually paid for such work, exclusive of VAT."

Add the following clauses:

PSA 8.5.1* Additional Testing Required by the Engineer ……..…..….. Unit: Provisional Sum

The provisional sum provided in the Bill of Quantities is to cover the payment of the SANAS registered soils laboratory to conduct any additional tests as directed by the Engineer.

PSA 8.5.2* Overhead, Charges, Profit etc. on Item PSA 8.5.1 …… Unit: %

The percentage tendered shall be paid to the Contractor on the actual amount paid to the soils laboratory and shall cover the following:

- All costs involved in arranging the tests with the laboratory.
- Setting out the positions for the tests to be taken by the laboratory as indicated by the Engineer.
- Making good all test holes.
- The cost of all overheads, charges and profits.

PSA 8.5.3* Relocation of Municipal Services …….……..…….. Unit: Provisional Sum

The provincial sum is to cover the costs payable by the Contractor to service providers, on the Engineer's instruction only, for the relocation of existing services which impede construction activities. Payment will only be made under this item if prior approval, based upon written quotes from the relevant service providers, was obtained from the Engineer to relocate the relevant services.

PSA 8.5.4* Overhead Charges, Profit, etc on Item PSA 8.5.3 ……..……... Unit: %

The percentage tendered shall be paid to the contractor on the actual amount paid to the service provider and shall cover the cost of contacting the service provider and arranging for the relocation of the services, as well as briefing the service provider on the presence of other underground services which may affect their work, ensuring that the service providers workmen are correctly inducted on site and maintaining a competent supervisory presence whilst relocating work takes place.

PSA 8.5.5* Community Liaison Officer (CLO) ……..…… Unit: Provisional Sum

A Provisional sum is provided in the Schedule of Quantities to cover reimbursement to the Contractor for payments made by him as remuneration to the Community Liaison Officer as and when directed by the Engineer.

No separate measurement and payment will be made for any costs incurred by the Contractor in liaising with the Community Liaison Officer. Such costs will be deemed to have been recovered in the rates tendered for the scheduled items.

The Contractor must provide proof of payments to the CLO in the form of copies of pay slips when claiming payment under this item. The actual proven amount paid to the CLO will be reimbursed to the Contractor, with the tendered markup.

PSA 8.5.6* Overhead Charges, Profit, etc on Item PSA 8.5.5 …… Unit: %

The percentage tendered shall cover the office administration of the CLO's employment contract as well as on site management of the CLO, for the duration of the contract.

PSA 8.5.7* Social Facilitator and PSC Committee Members …..…… Unit: Provisional Sum

A Provisional sum is provided in the Schedule of Quantities to cover reimbursement to the Contractor for costs associated with the appointment, liaison and payment by him of a Social Facilitator and PSC Committee on the project during the construction period.

No separate measurement and payment will be made for any costs incurred by the Contractor in appointing and paying the Social Facilitator and PSC Committee. Such costs will be deemed to have been recovered in the rates tendered for the scheduled items.

The Contractor must provide proof of payments to the Social Facilitator and PSC Committee members in the form of copies of invoices or pay slips when claiming payment under this item. PSC Committee members shall be paid per meeting attendance. Attendance registers for the PSC Committee must therefore also accompany claims for payment under this item. Payment shall only be made to PSC Committee members for attending meetings. No member shall be paid if they did not attend a meeting.

The actual proven amount paid to the Social Facilitator will be reimbursed to the Contractor, with the tendered markup.

PSA 8.5.8* Overhead Charges, Profit, etc on Item PSA 8.5.7 …… Unit: %

The percentage tendered shall cover all costs associated with the appointment, liaison and payment of the Social Facilitator, and PSC Committee members for the duration of the contract.

PSA 8.5.9* Training of Local Labour …..……..…… Unit: Provisional Sum

A Provisional sum is provided in the Schedule of Quantities to cover reimbursement to the Contractor for costs associated with identifying needs, arranging and providing accredited training for his local labour temporary employed on the Contract.

No separate measurement and payment will be made for any costs incurred by the Contractor arranging and paying for the training. Such costs will be deemed to have been recovered in the rates tendered for the scheduled items.

The Contractor must provide proof of payments for the training in the form of copies of invoices when claiming payment under this item. The actual proven amount paid to for the training will be reimbursed to the Contractor, with the tendered markup.

PSA 8.5.10* Overhead Charges, Profit, etc on Item PSA 8.5.9 …… Unit: %

The percentage tendered shall cover all costs associated with arranging and providing accredited training.

PSA 8.5.11* Training of Municipal Employees …..…….....…… Unit: Provisional Sum

A Provisional sum is provided in the Schedule of Quantities to cover reimbursement to the Contractor for costs associated with arranging and providing training for municipal employees on mechanical and electrical equipment installed under the contract. Training shall cover operational and maintenance requirements of the equipment.

No separate measurement and payment will be made for any costs incurred by the Contractor arranging and paying for the training. Such costs will be deemed to have been recovered in the rates tendered for the scheduled items.

The Contractor must provide proof of payments for the training in the form of copies of invoices when claiming payment under this item. The actual proven amount paid to for the training will be reimbursed to the Contractor, with the tendered markup.

PSA 8.5.12* Overhead Charges, Profit, etc on Item PSA 8.5.11 …… Unit: %

The percentage tendered shall cover all costs associated with arranging and providing the necessary training for the municipal employees. Tenderers to note that more than one training session may be required as municipal employees work different shifts and all employees must receive training. Certificates of attendance must be issued to all employees who attended the traing as proof of training received.

PSA 8.5.13* Works Undertaken by Exempted Micro Enterprises (EMEs) …… Unit: %

The rate tendered as a percentage of the estimated value of works to be undertaken by EMEs shall cover all costs for identifying, engaging, appointing and managing EMEs for the duration of the contract. The tendered amount shall cover all administration, management, mentoring, and company overhead charges, finance costs, risk, profit and all other incidental costs, in full compliance with the Contract, complete.

Note: No additional mark-up or variance in rates tendered by the EMEs will be payable to the Contractor for the works undertaken by EMEs other than the rates tendered by the Contractor for the respective work items and activities in the BoQ. No additional P&Gs charges will be payable to the Contractor other than the P&Gs charges tendered by the Contractor. The Contractor shall therefore make provision for the respective EME's P&Gs costs and charges in the P&Gs rates and charges tendered.

Replace Clause 8.6 with the following:

PSA 8.6 PRIME COST SUMS

(a) Description of Item to which Prime Cost Sum Applies……..……..…...Unit: PC Sum
(b) Charge Required by Contractor on Sub-item (a) above……Unit: %

Sub-items (a) and (b) will be provided in the Bill of Quantities for each different item to which a Prime Cost Sum applies.

The Contractor shall be reimbursed under sub-item(s) (a) in substitution of the respective Prime Cost Sums included in the Contract, the actual price(s) paid or payable by him in respect of the goods, materials or services supplied, but excluding any charges for the Contractor's labour, profit, carriage, establishment or other charges related to such goods, services or materials.

The Contractor shall be paid under sub-item (b), the respective percentage, as stated by the Contractor in its Tender, of the amount certified by the Employer's Agent for payment under the related sub-item (a). The percentages tendered by the Contractor for each respective sub-item (b) included in the Bill of Quantities shall be deemed to in full and final compensation to the Contractor in respect of any charge by the Contractor for labour, carriage, profit, establishment and for any other charges related to the goods, services or materials supplied under the related sub-item (a).

If the Contractor shall have omitted within its Tender to insert a tendered percentage under sub-item (b), or tendered a zero percentage, the Contractor's tendered rate for sub-item (b) shall be deemed to be zero and the Contractor shall not be entitled to any payment under sub-item (b)."

Note:

1. Only payments for successful test will be made under the Prime Cost Sum provided in the Bill of Quantities for "additional acceptance control testing by the Employer's Agent.

2. The Contractor is responsible for the cost of process control testing. Payment in terms of the above will only be made for acceptance control testing ordered by the Employer's Agent."

PSA 8.7 DAYWORK

Add the following to A 8.7:

Provisional items for Daywork are scheduled as follows:

(a) Labour at hourly rates for skilled, semi-skilled and unskilled labourers.
(b) Material as a Provisional Sum with a percentage allowance on the net cost.
(c) Plant at hourly rates for various types specified.

Tendered unit rates for plant, whether owned or hired, shall cover the cost of insurances, delivery to and removal from Site, plant operators, consumable stores, fuel and maintenance.

To ensure that the plant is achieving a reasonable output of work, the Employer's Agent's personnel will randomly monitor and measure work produced. Poor performance of any item of plant will be noted by the Employer's Agent and certain reductions in payment may be applied.

Furthermore, should the performance of a machine be poor, or persistently break down, the Employer's Agent may order that it be replaced, all at the cost of the Contractor."

PSA 8.8 TEMPORARY WORKS

PSA 8.8.4 Existing services

Replace the heading of paragraph (c) with the following:

(c) Excavate by hand in soft material to expose existing services……..……Unit: m³

Add the following:

"The rate tendered for (c) shall further cover the cost of backfilling the excavation with excavated material compacted to 90% of modified AASHTO maximum density, loading, transporting within a free haul distance of 0,5km and disposing of surplus material as directed, keeping the excavation safe, dealing with water, protecting the exposed services, and any other operation necessary to complete the work.

No distinction will be made between the various types of services to be exposed, or the depths to which excavations are taken.

Excavation in excess of that authorised will not be measured for payment."

PSA 8.8.5 Cost of Survey in Terms of Land Survey Act

Replace the contents of Clause 8.8.5 with the following:

"(a) Locate, record and protect erf boundary and survey pegs……..……Unit: Sum

The sum tendered shall cover the cost of complying with the requirements of 5.1.2 and PSA 5.1.2 as well as the cost of exposing and marking the pegs on completion of the Works.

(b) Replace pegs recorded as missing at commencement of Contract as well as pegs removed in terms of PSA 5.1.2 (a) and (b) ……..……..……Unit: No

The rates tendered shall cover the cost of arranging for a registered surveyor to replace the pegs, as well as the payment of the surveyor. The Contractor shall however note that pegs recorded as missing at the start of the work and subsequently found by the surveyor to be in their correct position will not be measured for payment.

NOTE:

The cost to set out the Works in terms of 5.1.1 and PSA 5.1.1 shall be deemed to be covered by the sums tendered for other obligations under Clauses 8.3.3 and 8.4.5."

PSA 8.8.6 Special Water Control in Terms of Project Specification ……..…… Unit: Sum

The sum shall cover the cost for the provision, operation, maintaining and removal of all plant and materials required to deal with any special water control anywhere on site, as ordered by the Engineer.

The sum shall cover the cost of providing the necessary plant or materials, or both, fully erected and operative on the Site, the cost of operating and maintaining pumps, well points, sheeting, close timbering, and other equipment, as applicable, for 24 hours a day, 7 days a week, throughout the duration of the contract, and the cost of removing such goods and restoring the Site to its original condition on completion of that part of the project for which the temporary works were erected.

Add the following clauses:

PSA 8.9* FREEHAUL AND OVERHAUL

Notwithstanding any clauses in any Standardized Specification or Specific Specification Data dealing with the definition, measurement and/or payment for transport, freehaul and/or overhaul, neither measurement nor payment for overhaul will be made. All haulage will be considered to be freehaul and the cost thereof will be deemed to be covered by the rates for the provision or disposal of the applicable material.

PSA 8.10* MISCELLANEOUS ITEMS

An item which, in the payment clause column of the Schedule of Quantities, refers to this clause will be measured in the unit scheduled.

The sum or rate for such item shall cover the cost of all materials, labour and plant, risks, overheads and profit required to execute and complete the work as specified, described in the Schedule of Quantities or shown on the drawing(s).

PSA 8.11* HEALTH AND SAFETY

PSA 8.11.1 General Health and Safety Obligations…….…….…… Unit : Sum

Compliance with the general health and safety obligations may be scheduled as a fixed-charge and/or a time-related item.

The tendered sum(s) shall cover all costs, not included under the scheduled items below, of establishing and maintaining the general health and safety systems and general compliance with the Occupational Health and Safety Act and its Construction Regulations.

PSA 8.11.2 Risk Assessments……..…….. Unit : sum

Risk assessments will be scheduled as a fixed-charge item only.

The tendered sum shall cover all costs associated with carrying out risk assessments at the start of the contract and for any subsequent risk assessment that proves necessary as the work proceeds, as well as the inclusion thereof in the health and safety plan.

PSA 8.11.3 Health and Safety Plan……..……... Unit : sum

This item may be scheduled as a fixed-charge and/or a time-related item.

The tendered sum(s) shall cover all costs of the preparation, approval process, implementation and continued maintenance of an approved health and safety plan as required in terms of the Construction Regulations.

PSA 8.11.4 Health and Safety File…….……..…….. Unit : sum

This item will be scheduled as a fixed-charge item only.

The tendered sum shall cover all costs for the compiling and continued maintenance of the health and safety file as required in terms of the Construction Regulations.

The tendered sum for this item shall also cover the cost of preparing and submitting to the Employer a copy of the health and safety file on completion of the contract.

PSA 8.11.5 Construction Safety Officer and Other Appointments……..… Unit : sum

This item will be scheduled as a time-related item only.

The tendered sum shall cover all costs related to the appointment of a competent and experienced construction health and safety officer and such other appointments required in terms of 3.4.2 and in terms of the Occupational Health and Safety Act and its Construction Regulations.

The sum tendered shall also cover the costs associated with the preparation and submission of the monthly health and safety reports required under 3.4.3.

PSA 8.11.6 Training ……..……..……. Unit : sum

Training will be scheduled as a fixed-charge item only.

The tendered sum shall cover all costs for training required in terms of the Occupational Health and Safety Act and its Construction Regulations.

PSA 8.11.7 Medical Assessment of Employees…… Unit : sum

This item will be scheduled as a fixed-charge item only.

When scheduled, the sum tendered shall cover all costs of having the Contractor's employees medically assessed with regard to their fitness for the work they will be required to perform and/or vehicles or plant they will require to operate and the provision of the appropriate certificate(s).

PSA 8.12* ENVIRONMENTAL MANAGEMENT

PSA 8.12.1 Compliance with Requirements of the Environmental Management Plan (EMP) ……... Unit: sum

The Contractor shall comply with the requirements of the Environmental Management Plan as bound in this document, including ensuring that no alien vegetation shall take root in areas disturbed by him. Such vegetation shall be removed/eradicated as soon as their presences are detected. This sum will be paid to the Contractor in equal monthly amounts subject to proper/substantial compliance, and no other costs in this regard shall be paid. Compliance will be monitored by an Environmental Control Officer through regular audits.

This item is only applicable in the absence of Particular Specification PA: Environmental Management (Comprehensive). When Particular Specification PA is included in the document, the payment items of PA will apply.

PSAB ENGINEER'S OFFICE (SABS 1200 AB)

PSAB 3 MATERIALS

PSAB 3.1 NAMEBOARDS

Notwithstanding the provisions of this Sub-Clause, two Contract Nameboards shall be provided. The nameboards shall further comply with regards to size, painting, decorating and detail to the provided drawing. The nameboards shall be erected within fourteen days of the Commencement Date and shall be placed where ordered. Any damage to these nameboards shall be repaired within seven days of a written instruction issued by the Employer's Agent.

In addition, the Contractor shall provide and erect two Identity Boards that provide details of the Contractor and emergency contact numbers for the Contractor, ambulance services, fire brigade, police and other emergency services.

Further to the above the Contractor will not be allowed to erect more than two of his own nameboards in the area of the Works. The position of these shall be agreed to by the Employer's Agent. No payment will be made for the supply, erection or maintenance of the Contractor's nameboards and the Employer's Agent reserves the right to order the removal of the nameboards if not properly maintained.

All nameboards shall be removed within 7 days of the issue of the Certificate of Completion".

PSAB 3.2 OFFICE BUILDINGS

Where required, office buildings for the use of the Engineer shall be provided and maintained for the duration of the Contract. The following variations and additional to the requirements of SANS 1200 AB shall apply.

a) The office shall have a floor area of at least 20 m².
   As an alternative, the Contractor may supply a 6m x 2,5 x 2,5m high marine container, specially converted for use as an office with insulate walls and roof. If this type of office is supplied, it shall be protected by an elevated waterproof roof, constructed over the container, and approximately 300 mm above the top of the container.
b) The minimum glazed area shall be 3,5 m².
c) The minimum window opening shall be 2,5 m².
d) Four office chairs and two desks of 1,5 m² are required.
e) Racks for hanging contract drawings shall be provided.
f) One air conditioner unit with cooling and heating capacity of at least 2,5 kW
g) A meeting room capable of seating 10 persons. Furnishings shall include a table and chairs for 10 persons and one air conditioner unit with cooling and heating capacity of at least 2,5 kW. This may be shared with the Contractor.
h) A lockable flush toilet including the following and reserved for the Engineer will be required.
   i. Hand washbasin
   ii. Paper towel dispenser
   iii. Water supply

The Contractor shall fully maintain, service and clean the Engineer's office and toilet.

Add the following new clause:

PSAB 3.3* CAR PORT

A car port of minimum size 6 x 6m shall be erected abutting the Engineer's office and enclosed on three sides with shade cloth. Height to underside of roof beams shall be 2.3m minimum.

The roof of the carport shall be constructed using corrugated galvanized steel sheeting, or similar water resistant materials. The Contractor shall also provide a floor to the carport, and a pathway between the carport and the Engineer's office, constructed of a 50 mm thick layer of 19mm concrete stone.

PSAB 4 PLANT

Add the following new clause:

PSAB 4.2* Survey Equipment

The Contractor shall provide the following survey equipment for use by the Engineer:

a) 1 x tacheometer capable of reading to 20 seconds of arc, with tripod,

b) 1 x Engineer's automatic level with tripod,

c) 2 x tacheometer staffs with staff bubbles,

d) 1 x level staff with staff bubble,

e) 2 x ranging rods,

f) all steel and wood pegs, concrete, hammers, picks, etc., that the Engineer may require.

The Contractor shall provide proof, at the start of the Contract, that the tacheometer and level have recently been serviced by an acceptable institution and shall, throughout the period of construction, service and maintain all survey equipment and he shall insure same and indemnify the Employer and the Engineer against all claims for loss, breakage or theft of such equipment.

The survey equipment may be shared by arrangement between the Contractor and the Engineer.

PSAB 5 CONSTRUCTION

PSAB 5.1 NAMEBOARDS

Replace the contents of this Sub-Clause with the following:

"The Employer's Agent's nameboards and the Contractor's identity boards shall be erected within fourteen days of the Commencement Date and shall be placed where ordered. Any damage to these boards shall be repaired within seven days of a written instruction issued by the Employer's Agent.

Further to the above the Contractor will not be allowed to erect more than two of his own nameboards in the area of the Works. The position of these shall be agreed to by the Employer's Agent. No payment will be made for the supply, erection or maintenance of the Contractor's nameboards and the Employer's Agent reserves the right to order the removal of the nameboards if not properly maintained.

All nameboards shall be removed within 7 days of the issue of the Certificate of Completion".

PSAB 5.3 KEY PERSONNEL

Add the following to AB 5.3:

The Contractor shall inform the Engineer of the person whom he has charged with the duties with respect to the Site in terms of the Occupational Health and Safety Act and the person(s) who are in possession of a valid certificate of competency in first aid. The Contractor shall give copies of the minutes of the site safety meetings to the Engineer.

PSAB 5.5 SURVEY ASSISTANTS

The Engineer's Representative will occasionally need the assistance of a survey labourer to help with testing, survey, etc., envisaged at approximately 2 hours (non-consecutive) per week.

In terms of Subclause 5.5, two suitable, trained and experienced workmen to be used as survey assistants shall be made available to the Engineer during working hours as and when required. As far as practical the same assistants and labourers, shall be allocated to the Engineer for the full duration of construction

PSAB 8 MEASUREMENT AND PAYMENT

Delete the contents of this Clause. The appropriate measurement and payment clauses have been included under Clause 8 of SABS 1200 A and PSA.

Add the following new clause:

PSAB 8.2.1* Survey Assistants

Payment for the survey assistants shall be at the tendered daywork rates for the actual hours worked in assisting the Engineer.

PSC SITE CLEARANCE (SABS 1200 C)

PSC 3 MATERIALS

PSC 3.1 DISPOSAL OF MATERIAL

Delete the first two sentences of this clause and replace with:

"Debris arising from the clearing of site or the demolition of structures on site shall be removed by the Contractor and disposed of at a tip site approved by the Municipality.

The rate tendered shall allow for any fees to be paid at the tip site."

PSC 5 CONSTRUCTION

PSC 5.1 AREAS TO BE CLEARED AND GRUBBED

Add the following:

"Areas to be cleared will be indicated by the Employer's Agent on site. Only the approved minimum area required for the execution of the Works, including areas on which material shall be stockpiled for later reuse or on which material shall be dumped and spread, shall be cleared and grubbed.

For the pipe trenches indicated by the Engineer, generally a sufficiently wide strip equal to the trench width plus the estimated allowance for trench side slopes plus the width of stockpiled backfill and a 1,000 mm width (which shall be maintained alongside the trench) plus the width of access to the trench shall be cleared of vegetation. The width cleared shall, however, not exceed 5m.

All bush, shrub and trees shall be cut down and all stumps and roots within the permanent servitude, or to a width specified by the Engineer along the pipeline route, must be completely removed. Suitable cleared plant material shall be chipped and stockpiled for later use in rehabilitating the disturbed areas.

The Engineer may direct that certain trees not within 3 meters of the pipeline and which would not interfere with construction, be left standing and the Contractor shall therefore obtain the Engineer's instruction before removing trees which could reasonably be left standing. All timber removed remains the property of the Employer and the Contractor shall dispose of timber in a manner as instructed by the Engineer.

Only the approved minimum area required for the execution of the Works including areas on which material shall be stockpiled for later reuse or on which material shall be dumped and spread, shall be cleared and grubbed.

For reservoirs and other structures, the cleared area shall be the footprint of the structure plus maximum 1,000mm allowance on each side.

PSC 5.3 CLEARING

Replace 5.3 (b) with the following:

Trees, shrubs and other suitable vegetation cleared shall be chipped and stockpiled for later use in rehabilitation of the site on completion of the work. All other material cleared shall be disposed of at the municipal solid waste site.

PSC 5.5 RECLEARING OF VEGETATION

Add the following:

"Except if otherwise agreed, where areas have to be recleared on the written instruction of the Employer's Agent, such reclearing shall be carried out at the Contractor's own cost and the Contractor is advised therefore, not to clear areas at such an early stage that reclearing may become necessary."

PSC 5.6 CONSERVATION OF TOPSOIL

Add the following:

"Conservation of topsoil, together with grass, roots and chipped mulch shall be applicable. Topsoil up to a depth of 150 mm, if available, shall be removed from the cleared areas specified under PSC 5.1 and stockpiled on approved sites for later reuse.

Topsoil shall not be stockpiled higher than 2,0m. Care shall be exercised to prevent the compaction of topsoil in any way especially by vehicles travelling over such material.

Until required for spreading, the stockpiles of topsoil material shall be stabilized by watering or other approved means."

PSC 8 MEASUREMENT AND PAYMENT

PSC 8.1 BASIC PRINCIPLES

Add the following:

"The thickness of the layer that will unavoidably be stripped during clearing of vegetation will be taken as 100mm. This implies that levels used in earthworks quantity calculations shall be 100mm lower than the original levels excluding stripping of topsoil to stockpile where applicable.

Levels to be used for earthworks quantity calculations will be surveyed once the clearing operations have been completed."

PSC 8.2 SCHEDULED ITEMS

PSC 8.2.1 Clear and Grub

Add the following:

"Clearing and grubbing for pipelines shall be measured per linear metre of pipeline centreline cleared over the width as stated in PSC 5.1 above.

Rates shall be held to include for clearing of wider areas where required by the Contractor, for removal of trees, destumping and de-rooting. The rate tendered for clearing and grubbing shall also cover the cost of chipping of tree branches, bush and other suitable vegetation, the stockpiling and protecting of chipped material and the disposal of unsuitable material at the dump site, including any fees charged.

Site clearance for pipe trenches will not be measured where such trenches lie within the carriageway of any road.

The tendered rate shall also cover the cost of loading, transporting and disposing of all rubble and other unwanted debris encountered in road reserves or along service routes."

PSC 8.2.5 Take Down and Re-Erect Existing Fences……..……...Unit: m

Add the following to subclause 8.2.5

"The rate shall further cover the cost to reinstate the fences to their original status, as well as for all new material in so doing"

PSC 8.2.9 Transport Material and Debris to Unspecified Sites and Dump

Delete this subclause.

Notwithstanding the fact that the disposal site will be as indicated in the document, the transportation of material and debris generated by any clearing operation will not be measured separately for payment."

Replace the heading and contents of subclause 8.2.10 with the following:

"PSC 8.2.10 Remove Topsoil to Nominal Depth of 150 mm, Stockpile and Maintain ..... Unit: m^3

The rate shall cover the cost of removing the topsoil where ordered, together with such vegetation and small roots as may occur within the specified depth and width, for loading, transporting to designated area on site, for stockpiling, for maintaining, protecting and wetting (dust control) the stockpile for the full duration of the Contract, as well as transporting the topsoil to remote locations if necessary.

Add the following new clauses

PSC 8.2.11* Demolish and Dispose of Roadworks

(a) Saw-cut asphalt surfacing …… Unit: m

The rate shall cover all costs of hiring or providing suitable power saws for asphalt cutting, plant, labour and consumables to cut the asphalt surfacing to a depth up to 40mm

(b) Remove and dispose of asphalt surfacing …….. Unit: m^2

The rate shall cover all costs to lift, load, transport and dispose at the Municipal waste disposal facility of asphalt surfacing up to 40mm thick, and all charges payable at the waste disposal facility.

(c) Remove of interlocking or block pavers …….. Unit: m^2

The rate shall cover all costs to lift and temporary store interlocking or block pavers for reuse, as well as all costs to load, transport and dispose at the Municipal waste disposal facility of any damaged pavers, and all charges payable at the waste disposal facility.

(d) Concrete kerbing and channelling (all types) ..... Unit: m

The rate shall cover all costs of demolition, loading, transportation and disposal at the Municipal waste disposal facility and all charges payable at the waste disposal facility.

Proof of disposal of material at the Municipal tip site must accompany monthly payment certificates, failing which the Engineer shall have the right to refuse payment until such time as proof of disposal has been provided..

PSC 8.2.12 Demolish and Dispose of Existing Minor Structures

(a) 230 mm brickwork (headwalls, manholes and the like) ..... Unit: No or m^2

(b) Concrete up to 200mm thick, reinforced or unreinforced (apron slabs, driveways, manhole bases, etc.) ..... Unit: m^2

The rates for the above items shall cover the cost of demolition, loading, transportation and disposal at the Municipal waste disposal facility and all charges payable at the waste disposal facility. Proof of delivery and disposal of material at the Municipal tip site should accompany monthly payment certificates.

PSD EARTHWORKS (SABS 1200 D)

PSD 2 INTERPRETATIONS

PSD 2.1 SUPPORTING SPECIFICATIONS

Replace Clause 2.1.2 with the following:

PSD 2.1.2: Any of the other SABS 1200 Specifications may form part of the Contract Documents."

PSD 2.3 DEFINITIONS

Replace the word and the definition for "borrow" with the following:

"Borrow material: Material, other than material obtained from excavations required for the Works, obtained from sources such as borrow pits or the authorised widening of excavations. 'Borrow' shall have a corresponding meaning."

Replace the definition for "Restricted excavation" with the following:

"Restricted excavation: Shall be as scheduled in the Bills of Quantities and/or indicated on the drawings, irrespective of the type of plant used."

Replace the definition for "specified density" with the following:

"Specified density: The specified dry density expressed as a percentage of modified AASHTO dry density."

Replace the definition for "stockpile" with the following:

"Stockpile (verb): The process of selecting and, when necessary, loading, transporting and off-loading material in a designated area for later use for a specific purpose."

Add the following new definitions:

"Commercial Source: A source of material provided by the Contractor, not the Employer, and including any borrow pit, provided by the Contractor.

Fill: An embankment or terrace constructed of material obtained from excavations or borrow pits.

Fill (material): Material used for the construction of an embankment or terrace.

Roadbed: The natural in situ material on which the fill, or in the absence of fill, the pavement layers, are constructed."

Sand (cohesionless and non-cohesive): For the purpose of compaction requirements, sand is classified as a non-plastic material of which not less than 95% by mass passes a sieve of nominal aperture size 4,75mm and not more than 10% by mass passes a sieve of nominal aperture size 0,075mm. The material shall be well graded with the grading analysis forming a regular S-curve between the specified sieve sizes without any one or more sizes dominating.

PSD 3 MATERIALS

PSD 3.1 CLASSIFICATION FOR EXCAVATION PURPOSES

PSD 3.1.1 Method of Classifying

Replace the contents of Clause 3.1.1 with the following:

"The Contractor may use any method he chooses to excavate any class of material but his chosen method of excavation shall not determine the classification of the excavation. The Engineer or his Representative will decide on the classification

of materials. In the first instance classification will be based on inspection of the material to be excavated and on the criteria given in PSD 3.1.2(a), (b) and (c).

The classification of material other than "soft excavation" shall be agreed upon before excavation may commence.

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."

PSD 3.1.2 Classes of Excavation

Replace the contents of Clause 3.1.2 with the following:

"All materials encountered in any excavation for any purpose, including restricted excavation, will be classified as follows:

(a) Soft Excavation
Any material which can be removed by bulldozers or backhoes, shall be classified as soft excavation. Any material not falling into the category of hard rock excavation or calcrete shall be classified as soft excavation.

(b) Intermediate Excavation
Intermediate excavation shall not be separately measured and paid for. Should the Contractor consider the ground conditions to be intermediate excavation for which he requires payment, he shall allow for the cost of such intermediate excavation in his rates for soft excavation.

(c) Hard Rock Excavation
Hard rock excavation shall be excavation in material (including undecomposed boulders exceeding 0.17 cubic metres in individual volume) that cannot be efficiently removed without blasting, wedging and splitting, or hydraulic hammers.

This classification includes materials such as:
- solid unfractured rock occurring in bulk;
- solid ledges thicker than 200mm;
- igneous rock intrusions;
- cemented sedimentary rocks.

(d) Calcrete
Excavation in solid calcified calcrete will be classified as hard rock excavation.

Calcrete is described as a material formed by in situ cementation and/or replacement of practically any pre-existing soil by the precipitation of calcium carbonate out of ground water. The calcium carbonate content of the material must be at least 50% by mass. Solid calcified calcrete is calcrete generally free of horizontal fissures and normally, to be excavated practically, requires the use of drills, wedges or splitting with a vibrating chisel attached to an excavator ("woodpecker"). The decision whether or not any material is solid calcified calcrete rests with Engineer."

Add the following new clause:

PSD 3.1.3* Classes of Excavation for Hand Excavation

(a) Soft Excavation Class 1
Soft excavation Class 1, including restricted excavation, shall be excavation in material that can be readily excavated by hand by the average person by means of a suitable shovel without the use of a pick or other hand swung tool.

Where excavation will be made along existing pipelines, the excavation from ground level to pipe crown level and the removal of existing pipe bedding materials will be classified as soft excavation.

Note: The use of picks to loosen "soft excavation Class 1" shall not result in the Class 1 material being classified as Class 2 or Class 3 material. In the event of any disagreement, the Engineer shall make the final decision as to whether material shall be classified as Class 1 or not.

(b) Soft Excavation Class 2
Soft excavation Class 2, including restricted excavation, shall be excavation in material that can be readily excavated by hand by the average person with the aid of a pick or other hand swung tool.

(c) Soft Excavation Class 3
Soft excavation Class 3, including restricted excavation, shall be excavation in material that can be excavated with difficulty by hand by the average person with the aid of a pick or other hand swung tool.

(d) Intermediate Excavation
Material which is difficult to excavate by hand even with the aid of a crow bar and requires the assistance of pneumatic tools for economic removal.

In the event of any disagreement, the Engineer shall make the final decision as to whether material shall be classified as "intermediate" or not.

(e) Hard Excavation
Material which cannot be economically fragmented and loosened by hand implements and pneumatic tools except by drilling and blasting or the use of rock breaking equipment.

In the event of any disagreement, the Engineer shall make the final decision as to whether material shall be classified as "hard" or not.

PSD 3.2.3 Material Suitable for Backfill or Fill against Structures

Replace the contents of Clause 3.2.3 with the following:

"Material used for backfill against structures shall generally be the material excavated, subject to the following conditions:

a) The material shall not contain an excessive number of stones retained on a 50 mm sieve; and
b) The material shall not contain large clay lumps that do not break up under the action of the compaction equipment; and
c) The liquid limit of the material shall not exceed 40 and the PI shall not exceed 18; and
d) The minimum compaction shall be 93% of modified AASHTO maximum density or that specified on the drawings."

PSD 3.3 SELECTION

PSD 3.3.1 General

Replace the second paragraph with the following:

"The Contractor shall deal selectively with materials from all excavations to ensure that no acceptable backfill or bedding material is contaminated by material unfit for use. No additional payment shall be made in this regard and all costs related to the above selection process shall be included in the applicable payment items.

Should useful material be contaminated to such an extent that it is regarded as unfit for use, the Contractor shall at his own cost dispose of this material and replace it with material of an equivalent standard to the acceptable in situ material."

PSD 3.3.2 Backfilling and Embankments

Add the following:

"With reference to the last line of this subclause the material to be used for backfill shall be either 15 MPa/19 concrete or

material complying with PSME 3.2.1, being a subbase (G5) quality material compacted in layers not exceeding 150mm layers to 90% of modified AASHTO maximum density, as ordered by the Engineer."

Add the following new clause:

"PSD 3.3.3* Selection in Excavations and Borrow Areas / Pits

Approval of a borrow area or pit for a certain purpose does not necessarily mean that all the material in that area is suitable for the specified purpose. It does mean that the borrow area contains some suitable material. The onus shall rest on the Contractor to ensure that only material that is indeed suitable is removed and used for the specified purpose.

When the Contractor has to select excavated material for a specific purpose, the above provisions relating to borrow areas shall apply mutatis mutandis to excavations.

The Contractor shall not waste or contaminate material that has been selected for a specific purpose."

PSD 4 PLANT

PSD 4.4 DETECTORS

Replace the contents of Clause 4.4 with the following:

"The Contractor shall, for the purposes of detecting and locating underground services in accordance with the provisions of Subclause 5.4 of SABS 1200 A and Subclause 5.1.2 of SABS 1200 D, at its own cost, provide and use detecting equipment which is suitable for the detection of underground cables and pipes."

Add the following new clause:

PSD 4.3* AVOIDING QUAGMIRE CONDITIONS

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

PSD 5 CONSTRUCTION

PSD 5.1 PRECAUTIONS

PSD 5.1.1 Safety

PSD 5.1.1.1 Barricading and lighting

Replace "Machinery and Occupational Safety Act, 1983 (Act 6 of 1983)" with "Occupational Health and Safety Act, 1993 (Act 85 of 1993) and the Construction Regulations (2014)".

PSD 5.1.1.2 Safeguarding of excavations

Replace "Machinery and Occupational Safety Act" with "Occupational Health and Safety Act, 1993 (Act 85 of 1993) and Construction Regulations (2014)".

Add the following to paragraph (b) (1):

"Payment for supporting the sides of excavations and trenches shall be deemed to be included in the rates tendered for excavations. No separate payment will be made in this regard and it will be the Contractor's responsibility to ensure the safety and stability of all excavations.

Where trenches have to be widened to accommodate manholes, junction boxes, etc., the cost of supporting the vertical sides of such additional excavations will be deemed to be included in the rates tendered for excavation."

Add the following to paragraph (b) (2):

"The slope of the sides of an excavation or trench may never be steeper than 60° to the horizontal and all costs incurred to slope the sides of an excavation or trench will, irrespective of the angle of the slope, be deemed to be included in the rates quoted for excavation."

PSD 5.1.1.3 Explosives

Replace the contents of this Clause with the following:

"The use of explosives is prohibited on this Contract."

Add the following clause:

PSD 5.1.1.4 Safeguarding of Existing Buildings and Services

The Contractor shall adequately shore all excavations deeper than 1m that are closer than 1.5m from any building or service in order to safeguard such building or service. The rate tendered for excavation shall include for the cost of shoring.

PSD 5.1.2 Existing Services

PSD 5.1.2.2 Detection, location and exposure

Replace the contents of Clause 5.1.2.2 with the following:

"The exposure by the Contractor of underground services, as required in terms of Clause 5.4 of SABS 1200 A and PSA 5.4 shall be carried out by careful hand excavation at such positions and to such dimensions as are agreed to by the Engineer.

If existing services are not shown on the drawings but the existence thereof can be reasonably expected or determined, the Contractor shall, in conjunction with the relevant authorities, determine the exact depth and position of such services before starting with construction.

After the exact position of a service has been located, whether indicated on any drawing or not, such service shall be deemed to be a known service. The Contractor shall be liable for all costs of repair, as well as any subsequent costs, arising from the damage of such a service due to the result of the Contractor's activities. The type, position and depth of such known services must be indicated on the "as-built" drawings."

Unless otherwise instructed or agreed by the Engineer, no service shall be left exposed after its exact position has been determined and all excavations carried out for the purposes of exposing underground services shall be promptly backfilled and compacted to the following densities:

a) In roadways: 95% of modified AASHTO maximum density, and
b) In all other areas: 93% of modified AASHTO maximum density.

Where hand excavations to expose underground services have to be carried out in roadways, the Contractor shall reinstate the road layerworks in accordance with the provisions of the Contract or as directed.

Payment in respect of the exposing of the services by means of hand excavation as described above shall be deemed to be covered by the rates tendered under items PSA 8.8.4(c)."

Payment in respect of the reinstatement of layerworks in road ways will be made in accordance with PSDB 8.3.6.1 and subclause 8.3.6.1 of SABS 1200 DB."

PSD 5.1.2.3 Protection of cables

Replace Clause 5.1.2.3 with the following:

"5.1.2.3 Protection during construction

Further to the requirements of PSA 5.4.2 and Subclause 5.4.2 of SABS 1200 A, major excavating equipment and other plant shall not be operated dangerously close to Known Services. Where necessary, excavation in close proximity to Known Services shall be carefully carried out with suitable hand tools, excluding picks wherever their use could damage the services. No additional payment will apply to such more difficult work.

Should any service not being a Known Service be discovered or encountered during the course of the Contract, the Contractor shall, in addition to complying with the requirements of Sub-clause 5.4.2 of SABS 1200 A (as amended), immediately notify the Engineer thereof and implement such measures as will prevent damage of such service or, if it was damaged in the course of discovery, will prevent and minimise the occurrence of any further damage occurring."

PSD 5.1.2.4 Negligence

The Contractor shall not repair any service damaged. Where the damage is the result of the Contractor's negligence, he shall bear all costs of the repairs undertaken by the owner, as well as the costs of associated damages. In addition to the cost of repair, a penalty of R5,000 may be charged to the Contractor for each and every incidence."

PSD 5.1.4 Nuisance

PSD 5.1.4.1 Dust nuisance:

Add the following to Subclause 5.1.4.1:

"The Contractor shall be responsible for dust control and shall be held liable for any claims that may result from dust nuisance emanating at any time from any portion of the Site from the date of handover of the Site to the Contractor until the issue of the Certificate of Completion. Appropriate methods to suppress dust must therefore be implemented for the duration of the contract.

No separate payment shall be made for controlling dust and all costs associated in this regard shall be deemed to be covered by the tendered rates."

PSD 5.1.6 Road Traffic Control

Delete the contents of Clause 5.1.6 and replace with the following:

"The provisions of PSA 5.10 shall apply as applicable.

Where the work affects the operation or safety of public road traffic, vehicular and/or pedestrians in addition to complying with the requirements of 5.1.1.1, the Contractor shall provide, erect and maintain traffic signs, personnel and equipment that conform to the applicable requirements, layouts and guidelines as specified in the applicable manual.

Traffic accommodation and signage shall be erected and maintained by the Contractor and the number, type and layout of the traffic signs shall comply with the South African Development Community's South African Road Traffic Signs Manual, Volume 2 – Chapter 13, Roadworks Signing.

Where necessary and as shown in these manuals, warning lights, an adequate number of flagmen and appropriate barricades, clearly visible to oncoming traffic at all times of the day and night shall be provided. If steel drums are used for this purpose, they shall be ballasted with soil, sand or stones and the outside shall be whitewashed and provided with retro-reflective material (in the case of tape, of minimum width 10 mm), red on the left-hand side facing oncoming traffic and white on the right-hand side. The drums shall be maintained in a clean and effective condition and no stones shall be placed on them.

No direct payment will be made for the cost of providing and complying to the aforementioned. Payment will be deemed to be covered by the rates and sums tendered and paid for the various items of work included under the Contract."

PSD 5.2 METHODS AND PROCEDURES

PSD 5.2.1 Site preparation

PSD 5.2.1.2 Conservation of topsoil

Add the following:

"Topsoil ordered to be stripped and conserved for later use shall be stockpiled in a manageable heap where designated by the Engineer. The material together with such vegetation and small roots as may occur within the specified depth shall be stripped, loaded, transported to stockpile, maintained and wetted (dust control) for the full duration of the Contract or until use.

Topsoil shall not be stockpiled higher than 2m. Care shall be exercised to prevent the compaction of topsoil in any way especially by vehicles travelling over such material."

PSD 5.2.2 Excavation

PSD 5.2.2.1 Excavation for general earthworks and for structures

Add the following to paragraph (b):

"When the nature of the material precludes the above procedure, additional excavations shall be carried out to provide working space for the erection of formwork. In general, payment will be made for excavating a working width of 600 mm, but the Contractor may excavate a greater working width at no additional cost to the Employer."

Replace the first sentence of paragraph (e) with the following:

"Where excavations have been carried below the authorised levels, the Contractor shall backfill such excavations to the correct level with approved gravel material compacted to 98% of modified AASHTO density or to the density of the surrounding material, whichever is the higher density.

Where excavations for structures have been carried out in hard material, the Engineer may direct that over-excavation be backfilled with 15 MPa/19 concrete if there is a danger of settlement or differential settlement of the foundations.

Where the sides of excavations against which concrete is to be cast have been over-excavated or have collapsed partially, the Contractor shall re-trim the excavations if necessary and, unless other remedial measures are agreed to by the Engineer, shall cast the concrete for the structure, including the additional concrete that may be required as a result of the over-excavation or partial collapse. The cost of the additional concrete or remedial measures shall be for the Contractor's account."

PSD 5.2.2.3 Disposal

Replace the second sentence with the following:

"The Contractor shall dispose of all surplus material and debris at the Humansdorp municipal waste site. No separate payment shall be made for disposal, including any costs charged at the waste site. All costs for disposal shall be deemed to be included in the rates for the relevant items.

Add the following clause:

"PSD 5.2.2.4* Selection and stockpiling

Approval or designation of the material in a particular borrow pit or excavation for a particular purpose does not imply that all the material in the borrow pit or excavation is suitable for the particular purpose for which the said approval or designation relates, nor that all material in the borrow pit or excavation should be used for the particular purpose. The Contractor shall select suitable material from that borrow pit or excavation, discard unsuitable material and reserve material for other purposes as necessary.

The Contractor shall organise and carry out its operations in such a manner as will prevent the contamination of suitable embankment, fill and backfill material with unsuitable materials. Any excavated material which becomes, in the Engineer's opinion, unsuitable for use in embankments, fills or backfill as a result of contamination, shall be disposed of in a manner acceptable to the Engineer and shall be replaced by the Contractor with materials acceptable to the Engineer, all at the Contractor's cost.

When required, or when ordered by the Engineer, material shall be temporary stockpiled at sites indicated by the Engineer for later use. The additional costs of stockpiling material shall be paid to the Contractor in accordance with the provisions of Sub-clause PSD 8.3.14."

PSD 5.2.4 Finishing

PSD 5.2.4.2 Topsoiling

Topsoil shall be placed as directed in Subclause 5.2.4.2 or as ordered by the Engineer, to a nominal thickness of 100 mm after light compaction.

PSD 5.2.4.3 Grass or other vegetation

Add the following at the end of the subclause:

"Hydroseeding:

The following materials shall be used in hydroseeding:

(a) Fertilizer

The type of fertiliser to be used shall be 2:3:2 (22 + 2N) and superphosphate.

(b) Grass seed

The following seed mixture at an application rate of not less than 45 kg of seed mixture per hectare shall be used:

10 kg	Cynodon dactylon
10 kg	Festuca rubra
6 kg	Lolium multiflorum
6 kg	Agrostis tenius
3 kg	Trifolium subterranean
4 kg	Dactylis glomerata
6 kg	Serredella
45 kg	per hectare

Cellulose pulp shall be added to the hydroseeding mix at a rate of 25 kg of pulp per kilolitre of water used, except where otherwise instructed in respect of flat slopes.

Hydroseeding shall be carried out with an approved hydroseeding machine at a rate of application of not less than 45 kg

of seed mixture per hectare, unless otherwise specified in the Scope of Work.

(c) Straw Stabilization:

One bale of hay per 20 m² shall be rotivated or harrowed into the sand. Harrowing or rotivation shall be done across the direction of the prevailing winds."

(d) Grass sods:

Grass sods shall be fine kweek (Cynodon Dactylon) or kikuyu (Pennistum Clandestinum) as specified by the Engineer.

The grass sods shall be nursery grown, cut, delivered and laid within 36 hours from harvesting. It shall be free of weeds and disease and contain a minimum soil (topsoil) thickness of at least 100 mm.

The area to be harvested shall be well watered prior to harvesting and handled with extreme care to retain the maximum amount of moisture and soil within the roots. The contractor shall place and plant the sods on the areas indicated by the Engineer. Prior to the placement, the area to receive sods shall be fertilized by applying 40 g/m² of super phosphate fertiliser and thereafter be well watered.

Sods shall be fitted closely together and any hollows shall be filled with topsoil to produce an even and smooth surface. During and directly after the laying the sods, the sods shall be well watered and rolled to obtain a level and even surface."

PSD 5.2.5 Transport for Earthworks

Replace the contents of Sub-clause 5.2.5 with the following:

"The transport and haul of all excavated materials, as well as material imported from commercial sources or borrow pits selected by the Contractor, irrespective of the distance and source, shall be deemed to be freehaul, the cost of which shall be included in the Contractor's various tendered rates and prices. No separate compensation shall apply for the transportation of such materials."

PSD 7 TESTING

Add the following new clause:

PSDA 7.4* DENSITY TESTING UNDER STRUCTURES

The Contractor shall test the density of compacted material under structures to ensure the compaction meets the specified density.

Testing shall be carried out at a minimum of two tests per 10m^2 with a minimum of 6 tests for any structure with a footprint larger than 40m^2. Smaller structures and fill under floors of buildings shall have a minimum of three tests per structure or floor.

No statistical method of testing shall be allowed. All minimum densities and the average density must be equal to or higher than the specified density to be accepted.

PSD 8 MEASUREMENT AND PAYMENT

PSD 8.3 SCHEDULED ITEMS

PSD 8.3.1 Site Preparation

Replace Clauses 8.3.1.1 and 8.3.1.2 with the following:

"Unless otherwise scheduled, where Site preparation such as clearing, grubbing, the removal of large trees or the removal and stockpiling of topsoil or surface obstructions are required, the provisions and scheduled items of SABS 1200 C shall apply."

PSD 8.3.2 Bulk Excavation

Replace the contents of subclause 8.3.2 with the following:

"a) Excavate in all materials and use for embankment fills, platforms, berms, backfill or dispose, as ordered ..... Unit: m^3

The unit of measurement shall be the cubic metre measured in place in accordance with Subclause 8.2 of SABS 1200 D.

Separate items will be scheduled for each type of excavation or structure and for each type or manner of disposal of excavated material.

The tendered rates shall cover the cost of excavation in all material, complying with all the precautions required in terms of PSA 5.1 and Subclause 5.1 of SABS 1200 D in addition to the cost of excavation, for basic selection and keeping selected material separate, for loading, transporting within the applicable freehaul distance, off-loading at the spoil or stockpile site, maintaining and finishing the spoil site, spreading, backfilling, watering, compacting as specified on the Drawings, final grading, shaping and trimming, for complying with the requirements for tolerances, providing for testing, finishing and tidying, all in accordance with the specifications.

b) Extra-over for:

1) Hard rock excavation ..... Unit : m^3

2) Calcrete ..... Unit : m^3

The rate shall cover the additional cost of the operations enumerated in a) above for any portion of the excavation that is classified as hard rock or calcrete excavation as applicable.

For the purposes of measurement and payment, excavation other than hard rock and calcrete excavation will not be separately classified (refer PSD 3.1.2).

Add the following subclause to D8.3.2:

c) Hand excavation:

The provisions of D 8.3.2 and D 8.3.3 shall apply *mutatis mutandis* for hand excavation.

PSD 8.3.3 Restricted Excavation

Replace the heading of subclause 8.3.3 (a) with the following:

"a) Excavate in all materials for restricted foundations, footings and trenches and use for embankment fills, platforms, berms, backfill or dispose, as ordered ..... Unit: m^3

Replace the first sentence of subclause 8.3.3 a) with the following:

"Separate items will be scheduled for each type of excavation or structure and for each type or manner of disposal of excavated material."

b) Extra-over for:

Replace the contents of subclause 8.3.3 b) with the following:

1) Hard rock excavation ..... Unit : m^3
2) Calcrete ..... Unit : m^3

The rate shall cover the additional cost of complying with the requirements of a) above and for all the operations

enumerated in a) above for any portion of the excavation that is classified as hard or calcrete, as applicable.

For the purposes of measurement and payment, excavation other than hard rock and calcrete excavation will not be separately classified (refer PSD 3.1.2)."

Add the following subclauses to 8.3.3:

c) Extra over 8.3.3(a) for hand excavation where ordered …….…….…….. Unit: m³

The provisions of D 8.3.2 and D 8.3.3 shall apply *mutatis mutandis* for hand excavation.

This item shall apply to hand excavation ordered by the Engineer or when the Engineer considers that, owing to circumstances, excavation by mechanical excavators is not practicable. It shall not apply to hand excavation for trimming or finishing an excavation made by mechanical means.

The rates tendered shall cover the additional cost, extra over that provided for under 8.3.3(a), for carrying out restricted excavation by hand tools where ordered by the Engineer.

The volume shall be computed from the dimensions specified, shown on the Drawings, or ordered by the Engineer.

Normal handwork required to clean and trim the sides and bottoms of mechanically completed restricted excavations will not qualify for payment in terms of this Clause."

d)* Extra over 8.3.3(a) for backfilling using soilcrete ……..…… Unit: m³

The rate tendered shall cover the additional cost, extra over that provided under 8.3.3(a), for backfilling the working space volume with soilcrete consisting of 5% cement by mass of selected material, for all labour, plant, equipment, water, material, selection, mixing, placing, compaction and vibration, as well as for protecting the structure.

The volume shall be computed from the dimensions specified, shown on the Drawings, or as ordered by the Engineer.

Over excavation beyond that allowed for, will not qualify for payment."

PSD 8.3.6 Overhaul

Delete Sub-clause 8.3.6.

No overhaul will be paid on material for the purposes of this Contract and all costs for transporting material shall be included in the applicable tendered rates and amounts.

PSD 8.3.8 Existing Services

PSD 8.3.8.1 Location

Add the following to Subclause 8.3.8.1(c):

The rate tendered for (c) shall further cover the cost of backfilling the excavation with excavated material compacted to 90% Modified AASHTO density, loading, transporting and disposing of surplus material at the tip site, keeping the excavation safe, dealing with water, taking special care that the exposed services are not damaged in any way, any other operation necessary to complete the work, and for supplying adequate supervision during both excavation and backfilling operations.

No distinction will be made to the depths or the lengths to which excavations are taken.

Excavation in excess of that authorised will not be measured for payment."

PSD 8.3.11 Grassing or Other Vegetation Cover

Replace the contents with the following:

"a) Planting of grass cuttings ..... Unit: m²

The tendered rate shall include full compensation for supplying, planting, fertilizing and maintenance in accordance with the requirements of PSD 5.2.4.3.

b) Planting of grass sods ..... Unit: m²

The tendered rate shall include full compensation for supplying, laying, planting, fertilizing, rolling, and maintaining the grass sods, all in accordance with the requirements of PSD 5.2.4.3.

c) Hydroseeding ..... Unit: m²

The tendered rate shall include full compensation of the seed mixture, for furnishing cellulose pulp and mixing it with seed and water and applying the mixture, watering, weeding, re-hydroseeding bare patches, and for any other work except mowing, which may be necessary for establishing an acceptable cover and maintaining the grass for a period of three months after an acceptable cover has been established.

d) Straw Stabilization ..... Unit: m²

The tendered rate shall include all costs to supply, spread and rotivate or harrow the straw 100 mm deep into the soil."

PSD 8.3.12 Road Traffic Signs and Markings

Delete the contents of this Sub-Clause.

The provisions of PSA 5.10 shall apply.

Add the following new clauses:

"PSD 8.3.14* Extra over items 8.3.2, PSD 8.3.2, 8.3.3 and PSD 8.3.3 for the Temporary Stockpiling of Material Where Ordered ..... Unit: m³

The unit of measurement shall be the cubic metre of material from necessary excavations, temporarily stockpiled by the Contractor on the instructions of the Engineer, before being used in embankments, platforms, fills or backfill.

Measurements shall be taken in place in compacted embankment, platforms, fills or backfill as the case may be.

The tendered rate shall include for the costs, additional to those provided for in PSD 8.3.2.1(a) and PSD 8.3.3 of off-loading, forming and maintaining the stockpile for as long as is required, reloading and transporting.

Payments to the Contractor under this item will only be made in respect of that material stockpiled on the instructions of the Engineer (which instruction shall state specifically that payments for such stockpiling will be paid for under this item) and no payments will be made to the Contractor under this item in respect of materials stockpiled by the Contractor on its own volition, nor for materials necessarily stockpiled by the Contractor in consequence of the sequence of operations adopted by it in the course of executing the Works, whether such stockpiling was avoidable or otherwise."

"PSD 8.3.15* Extra over items 8.3.2, PSD 8.3.2, 8.3.3 and PSD 8.3.3 for Disposing of Spoil Material on a Site Provided by the Contractor .....Unit: m³

The unit of measurement shall be the cubic metre, measured in accordance with Sub-clause 8.2 of SABS 1200 D, of surplus and/or unsuitable material disposed of, on the instruction of the Engineer, at a spoil site or spoil sites provided by the Contractor.

The tendered rate shall include full compensation for the additional cost of providing a spoil site or other means of disposing of surplus spoil material, for transporting the material regardless of the distance involved, for acceptance charges for such material and for all other incidental costs to dispose of the spoil material."

PSD 8.3.16* Density Testing

Unless otherwise scheduled no separate payment shall be made for density testing, the costs of which shall be deemed to be covered by the tendered rates for excavation.

PSDB EARTHWORKS (PIPE TRENCHES) (SABS 1200 DB)

PSDB 1 SCOPE

Add the following to DB 1:

This specification is also applicable to the excavation of cable trenches.

PSDB 2 INTERPRETATIONS

PSDB 2.2 APPLICATION

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

PSDB 3 MATERIALS

PSDB 3.1 CLASSES OF EXCAVATION

Delete the contents of Clause 3.1 and replace with the following:

"The classification shall be as described in PSD 3.1".

PSDB 3.5 BACKFILL MATERIAL

Substitute "from trenches" in DB 3.5(a) with "from trenches and other excavations".

Delete the contents of Clause 3.5(b) and replace with the following:

"b) Material used in the reinstatement of trenches beneath or within surfaced roadways, up to underside of the road layers, shall be either clean sand complying to PSD 2.3 stabilised with 5% cement by volume compacted in layers 150mm thick to 100% of modified AASHTO density or 4MPa Floatcrete trench fill, as specified on the drawings or instructed by the Engineer. Where Floatcrete is used the trench is to be filled level with the final road surface.

Material used in the reinstatement of trenches beneath or within unsurfaced (gravel) roadways shall be G5 subbase quality material compacted to 95% Mod AASHTO density in layers not exceeding 150mm.

The area subject to loads from road traffic shall be held to apply for a width of 500mm beyond the back of kerb or edge of roadway."

Add the following paragraphs to sub-clause 3.5:

"c) <u>Cement-stabilised backfilling</u>

Backfilling shall, where directed by the Engineer, be stabilised with 5% cement. The aggregate shall consist of approved soil or gravel containing stones not bigger than 38 mm and with a plasticity index not exceeding 10.

The soil or gravel shall be mixed with 5% cement and just sufficient water to activate the cement, and shall be compacted in layers 150mm thick to 90% of modified AASHTO density.

d) <u>Soilcrete backfilling</u>

The aggregate for soilcrete shall be mixed with 5% cement and shall consist of approved soil or gravel containing stones not bigger than 38mm and with a plasticity index not exceeding 10.

The soil or gravel shall be mixed in a concrete mixer with the cement and enough water to acquire a consistency that allows the mixture to be placed with vibrators to fill all voids between the pipe and the sides of the trench. Shuttering shall be used where necessary."

PSDB 3.6 MATERIALS FOR REINSTATEMENT OF EXISTING ROADS AND PAVED AREAS

PSDB 3.6.1 Subbase and Base:

Delete the contents of Clause 3.6.1 and replace with the following:

"Where trenches cross existing surfaced roads the following shall apply:

a) The service (pipe, cable etc.) shall be laid on a bedding cradle, and covered with a fill blanket, as specified in SABS 1200 LB or in the Project Specification.
b) The remaining portion of the trench, shall be backfilled with clean sand stabilised with 5% cement by volume compacted in layers 150mm thick to 100% of modified AASHTO density to the underside of the road layers, or with Floatcrete to level with the surfacing, as specified.
c) The subbase and base layers shall be constructed above the stabilised backfill with approved materials compacted to the specified modified AASHTO densities.

Delete the heading and contents of Clause 3.6.4 and replace with the following:

"PSDB 3.6.4 Bituminous and Premix Surfacing

Where this project is undertaken simultaneously with the construction of bituminous and/or premix surfaced roads, a hot premix and/or bituminous surfacing in accordance with the specifications applicable to the road surfacing shall be used in the reinstatement of the road surface.

Where the construction of surfaced roads does not form part of this project, a hot premix (Type IVa or 7 mm sidewalk mix) 40mm thick laid on a cleaned surface which has been previously tack coated with an anionic emulsion shall be used in the reinstatement of the road surface.

In cases where trenches within or across roads have been backfilled with Floatcrete, the surface of the Floatcrete shall scabbled using picks or other suitable means to a depth of 40mm to accommodate the surfacing."

PSDB 3.7 SELECTION

Replace the words "if he so wishes" in the first line of the second paragraph with the words "at his own cost".

Add the following to subclause 3.7:

"Notwithstanding Subclause 3.7, in terms of which the Contractor has a choice regarding methods of selection, the Contractor is required to use selective methods of excavation. The provisions of PSD 3.3 shall apply *mutatis mutandis* for trench excavation.

Furthermore, the Contractor shall selectively stockpile topsoil material as well as road materials for re-use in terms of 5.9.

When preparing his programme and construction methods, the Contractor shall make allowance for selective excavation."

PSDB 4 PLANT

PSDB 4.1 EXCAVATION EQUIPMENT

Add the following to Clause DB 4.1:

"All trench excavations that exceed the specified widths shall be backfilled with approved selected material to the satisfaction of the Engineer. No payment shall be made for this and all relevant costs shall be deemed to be included in the tendered rates."

PSDB 5 CONSTRUCTION

PSD 5.1 PRECAUTIONS

PSD 5.1.2 Stormwater, Seepage and Dewatering of Excavations

PSD 5.1.2.1 Throughout the Works

Delete the words "and seepage" from the last line and replace with "seepage, or from any other source."

Add the following:

The Contractor is to take every precaution to prevent water from any source entering the trench and shall design and construct any temporary embankments, diversion channel or overpass, and supply and operate such pumping plant as may be necessary for this purpose. The proposed plan of the dewatering system shall be submitted to the Engineer for approval prior to the installation of the system.

Any water, including seepage, entering the trench shall be removed immediately by the Contractor. The unit rates for trench excavations shall cover all costs of storm water diversion and protection, and for dewatering."

PSDB 5.1.2.2 Special water hazards

The Contractor shall take note that the pipeline route crosses a water course in Mandela Street. The Contractor shall deal with all water as specified in 5.1.2.1, including flow into trenches due to a high or perched water table, water course, and any overland flow.

Along any section of the trench where water is present and prevents the installation of the pipeline to the required specifications, the bottom will be stabilized with 100mm thick 19mm stone if so ordered by the Engineer and the pipe will then be bedded in 13mm aggregate wrapped in geotextile or as detailed on the drawings.

PSDB 5.1.3 Accommodation of Traffic and Access to Properties

Replace the semi-colon and the word "and" at the end of Subclause 5.1.3(a) with a full stop and replace item (b) with the following:

"(b) Where necessary and to achieve compliance with his obligations in terms of the Scope of Work to provide and maintain pedestrian and vehicular access to properties affected by the Works, the Contractor shall construct and maintain to the satisfaction of the Engineer, such temporary access roads around, and/or steel or timber bridges over excavations in roads, pavements, entrances or accesses to properties.

Temporary pedestrian access bridges shall be at least 1,0 m wide and temporary access bridges for vehicles shall be at least 3,6 m wide. All temporary access bridges shall be fitted with handrails as well as protective mesh fencing on both sides. Temporary pedestrian bridges shall be provided at every affected property until such time as the trench restricting access to the property has been backfilled.

Trenches across driveways and other vehicle accesses may not remain open over night but shall be backfilled up to existing ground level at the end of each working day.

On completion of the work, the Contractor shall dismantle and remove all such temporary constructions and reinstate these areas to their former condition.

No direct payment will be made for the cost of accommodating traffic and providing access to erven and properties. Payment will be deemed to be covered by the various rates tendered and paid."

PSDB 5.1.4 Existing Services that Intersect or Adjoin Trenches

Add the following to DB 5.1.4:

"The requirements of PSA 5.4 shall apply *mutatis mutandis*".

Add the following new clauses:

PSDB 5.1.5* Excavation for the Removal of Existing Pipelines

Where existing pipes have to be recovered, lifted, removed and relayed, they shall be carefully opened up by machine trenched excavation up to 300 mm above the crown of the pipes, after which the whole pipe shall be fully exposed by means of hand excavation. The trench excavation width shall comply with Subclause 5.2.

If so instructed by the Engineer, the Contractor shall, before commencing with the trench excavation of the pipeline, expose the pipeline to be removed by means of careful hand excavation at positions and interval agreed with the Engineer, in accordance with the requirements of subclause PSA 5.4.1.

Measurement and payment for locating the exact positions of the pipelines, where required by the Engineer, shall be made in accordance with PSD 8.8.4.

The Contractor shall thereafter expose and remove from the ground, the existing water pipelines. The pipes shall be pulled out of their sockets and removed from the trench in a manner approved by the Engineer and brought to the surface for inspection and re-use.

All pipes and specials encountered shall be removed from the trench in a manner as to avoid causing damage to the pipe itself and as approved by the Engineer and cleaned sufficiently as to allow inspection of the pipes and specials by the Engineer and stacked in such a manner as will facilitate the inspection of each pipe and special.

Pipes that are declared suitable for re-use and pipes declared unfit for re-use shall be dealt with in accordance with the respective manner described in the specifications, or on the Drawings or the Engineer's instructions, as relevant."

Pipes and specials that are suitable for re-use shall be transported to the Contractor's yard where they shall be off-loaded and neatly stacked to the satisfaction of the Engineer, unless they are immediately reused. The Contractor shall be responsible for compiling a written report on all pipes and special recovered.

Pipes and specials which are declared by the Engineer as unsuitable for re-use shall be transported to a spoil site and covered with spoil material to a depth of not less than 300 mm.

After the successful removal of the pipes, the remaining portion of the trench and the existing bedding shall be excavated to the original trench bottom level. The provisions of subclauses PSDB 5.6 and PSDB 5.7 shall apply.

PSDB 5.1.6* Safety

All excavation work shall be subjected to the requirements of the Occupational Health and Safety Act (Act 85 of 1993 regulations and amendments). The Contractor shall ensure that working conditions are safe and that excavations are kept free of water at all times.

The responsibility for safety of workers and the general public lies solely with the Contractor while carrying out the excavation and backfill operations. All trenches accessible to the general public, and especially those in road reserves, shall be barricaded with orange snow fences or similar of minimum height 1.0m on both sides along their entire length. The fences shall always be maintained in good condition and kept upright without sagging.

It is expected that ground conditions may be unstable and/or wet in areas and the Contractor shall take all necessary precautions to shore trenches and other excavations to ensure the safety of workers and the general public at all times whilst trenches and excavations remain open.

PSDB 5.2 MINIMUM BASE WIDTHS

Notwithstanding the provisions of this Sub-Clause, the minimum base widths for the various trenches shall be as shown on the Drawings and / or specified in the Bills of Quantities.

Add the following to Sub-clause 5.2:

"Trench sides shall be as near vertical as possible in order to avoid possible difficulties where pipelines have to be installed parallel to existing services, fences, hedges, etc.

Under roadways, and at depths exceeding 3 metres, the maximum trench width below the crown of the pipe shall not exceed the minimum trench width specified by more than 20%. Should these widths be exceeded, the Contractor shall, at his own cost, provide a higher class bedding than that called for to give the equivalent structural strength, and where this is not practicable, take such other measures, to the approval of the Engineer, as are necessary to attain this result."

Substitute DB 5.2(b) with the following:

"Bedding is required for all pipes, irrespective of diameter."

Add subclause PSDB 5.2(c):

The minimum base width for cable trenches shall be 400mm. Where more than one cable is laid in a trench the base width shall be the sum of the external diameters of the cables plus 75mm spacing between cables plus 200mm side allowance (100mm either side of trench) to a minimum width of 400mm.

The minimum depth for cable trenches shall be 600mm below final finished ground level.

Sand bedding is required for all cables to a minimum dimension of 100mm above and below the cable.

PSDB 5.3 SITE CLEARANCE

Replace clause 5.3 with the following:

PSDB 5.3.2 Topsoil

Topsoil shall be carefully stripped over the trench width, set aside for bringing back after backfilling of trenches and replacing over the top of trenches to restore the ground to its near as possible original condition.

Topsoil will be separated from other excavation material and stored in a suitable position outside the working area agreed with the Engineer.

PSDB 5.3.3 General Levelling

If, owing to excessive cross-falls, the Contractor requires to carry out general levelling within the servitude strip to facilitate use of plant, such levelling may only be carried out after stripping and setting aside of topsoil over the full width of the area to be levelled.

After completion of the works, the ground shall, at the discretion of the Engineer be restored to its original contour, topsoil replaced to its original depth and the area protected against erosion to the satisfaction of the Engineer.

PSDB 5.4 EXCAVATION

Add the following to clause DB5.4:

"Except where otherwise specified, trenches shall be of such a depth that the minimum cover over the pipes shall be 700mm, except at road-crossings, where the minimum cover shall be 1000mm.

With respect to the length of trench permitted to be excavated, the Contractor shall take note that unless otherwise agreed by the Engineer, not more than 250m of trench shall be excavated in advance of trench backfill.

Further, no trench may be left open over weekends, public holidays and the period 16 December to 8 January inclusive.

Where trenches have to be excavated under this Contract adjacent to existing live services / other services laid under other contracts, it may be necessary to shore trenches to prevent damage to the live services / other services. It will be the responsibility of the Contractor to ensure that services constructed under other contracts or existing live services are not damaged by his operations during the Contract."

Add the following new subclauses:

PSDB 5.4.1* Excavations Near Structures or Services

If the lack of space near existing houses, structures, fences or services restricts the use of normal plant and equipment, or where trench excavations in hard rock material cannot be done with an excavator fitted with a hydraulic hammer, the excavation shall be carried out by other methods selected by the Contractor and approved by the Engineer.

PSDB 5.4.2* Limitation on Open Trenches

Unless otherwise agreed to in writing by the Engineer, the maximum length of open trench excavation shall be limited to 250m in total.

PSDB 5.5 TRENCH BOTTOM

Add the following to DB 5.5:

The Engineer may, upon consideration of the condition of the trench bottom, particularly with regard to the properties of the soil materials, order the use of a crushed stone layer in order to provide a stable platform for placing of the pipe bedding and laying the pipe in certain sections of the trenches. The stone layer shall consist of 19 mm single-sized crushed stone, and shall have a specified thickness of 150 mm over the specified minimum base width.

Should the material in the trench bottom or the bedding material be of such a nature that it can penetrate the stone layer, the Engineer may instruct the Contractor to enclose the stone layer completely within a geotextile filter blanket which shall comply with the requirements of PSDB 3.8, and shall have overlaps of at least 200 mm.

PSDB 5.6 BACKFILLING

PSDB 5.6.1 General

Add the following to Sub-clause 5.6.1:

"It is desirable that trenches shall be backfilled as soon as possible after pipe laying to curtail thermal movements of and damage to the pipeline, flotation of the pipeline should the trench fill with water, and to ensure public safety. At no time shall backfilling lag more than 100 meters behind the last pipe laid.

The Contractor may use his discretion as whether to backfill around joints before the pipeline is hydrostatically tested. The Contractor shall be responsible for the location and repair of any leaks on the pipeline under hydrostatic test and no extra payment will be made for any re-excavation and subsequent reinstatement which may be necessary to locate and remedy leaks or for the installation of cathodic protection equipment.

Should the Contractor elect to leave joint holes open until after the hydrostatic test, he shall provide at his own expense effective and approved barricades and fences around each hole for the protection of persons and animals. In built-up areas, barricades shall be clearly marked at night-time with warning lights."

PSDB 5.6.2 Material for Backfilling

Replace the last paragraph of this Clause "In areas……backfill" with the following:

“The material for backfilling in areas subject to road traffic loads shall comply with PSDB 3.5.”

PSDB 5.6.3 Disposal of Soft Excavation Material

Delete the contents of Sub-clause 5.6.3. and replace with the following:

“Unless otherwise agreed to by the Engineer, excess material arising from the excavations will be disposed of at the designated tip site. The rate for spoiling of excess material shall include for the loading and carting of material, and the off-loading at the tip site. The Contractor shall be responsible for all charges levied at the tip site.

Where topsoil is encountered this will be set aside on site and re-used later.”

PSDB 5.6.6 Completion of Backfilling

Add the following:

“If in the opinion of the Engineer insufficient progress is being made with the backfilling of trenches, the Engineer will be entitled to order than no further excavation takes place until the backfilling operation has caught up.”

Add the following new clause:

"PSDB 5.6.9* Backfilling Around Structures

Backfilling around a structure shall not be commenced before it has been approved by the Engineer.

Granular material shall be used as backfill material around structures as shown on the Drawings and shall be placed in layers not exceeding 150 mm compacted thickness, each layer being thoroughly compacted to 100% of modified AASHTO density as instructed by the Engineer before the succeeding layer is placed.

Unsuitable or surplus excavated material shall be spoiled in accordance with the requirements of PSD 5.2.2.3 and Subclause 5.2.2.3 of SABS 1200 D, as instructed by the Engineer.”

PSDB 5.7 COMPACTION

PSDB 5.7.1 Areas not Subject to Traffic Loads

Add the following sentence:

"All non-cohesive material shall be compacted to 100% MOD AASHTO density."

PSDB 5.7.2 Areas Subject to Traffic Loads:

Delete “98%” in the last sentence and replace with "100%".

Add the following to DB 5 .7 .2:

All trenches within road reserves will be considered to be subject to traffic loads and the backfill material and compaction in these trenches shall comply with the requirements of Sub clauses 3.5(b) and 5.7.2.

Add the following additional clauses:

PSDB 5.11* WORK IN TOWNS AND ON AREAS UNDER CONTROL OF AUTHORITIES OR PRIVATE OWNERS

Where the pipeline crosses through towns or areas controlled by the Government, Provincial or Local Authorities, public or semi-government corporations or private owners, the work shall be carried out in accordance with the reasonable requirements of the authorities or owners where these do not contradict the provisions of the contract.

Before undertaking any work in these areas, the Contractor shall contact the authority or owner concerned at least 14 days before commencement of construction, inspect the route in detail and familiarise himself with the requirements of the authority or owner in respect of working hours and working conditions. No additional payment or relief from his obligations in terms of the contract will be made on account of restriction imposed by the authorities or owners.

Construction of the pipeline in any controlled area shall not be started without the written advice to the authorities or owners concerned that work is about to commence. No felling of trees, removal of crops or demolishing of buildings or other structures shall be undertaken without the approval of the authorities or owners.

PSDB 5.12* INTERFERENCE WITH AND REINSTATEMENT OF EXISTING SERVICES AND WORKS

The Engineer will supply the Contractor with such information as he has, concerning obstructions and services that cross the pipeline route. Whilst such information is given in good faith, it shall not relieve the Contractor of any of his liabilities, obligations and risks under the contract.

Before commencing any excavation or pipework, the Contractor shall verify the locations and elevations of all known or suspected service and utility installations such as power transmission lines or cables, telephone lines or cables, water and sewer pipes, access roads, tracks or paths, irrigation or stormwater reticulation, agricultural contours, natural drainage channels, lamps or other posts or pylons and any other service or obstacle, whether those be buried, under water or not. Verification shall be by inspection of the site, examination of drawings, consultation with landowners, occupiers and responsible authorities or, where necessary, by the excavation of trial holes.

The Contractor shall be responsible for the cost of immediate repair of any damage caused to services or utility installations and for any loss or damages suffered as a result of the interruption of any service so damaged whether or not such damage is attributable to negligence on his part. Any damage caused shall immediately be reported to the Engineer.

The Contractor shall not interfere with any service or utility installation without written approval of the owner, occupier or responsible authority.

The Contractor shall arrange for the temporary continuance of any service or utility installation which must be discontinued, disconnected, deviated or removed for the purpose of construction and for the maintenance of such temporary measures until final restoration of the service or utility installation. The provision of the temporary measures shall be carried out in such a manner as may be required by the authority or owner concerned or as directed by the Engineer.

The Contractor shall send all requisite notices to the authorities or persons concerned and shall make the necessary arrangements for the maintenance, discontinuance, disconnection or removal of the said installations.

In the case of temporary discontinuance of services, the Contractor shall warn owners, occupants or responsible authorities of the impending interference with the service and co-operate with them in order to carry out the work with as little disruption of the owners', occupants' or local authority's operations as possible and whatever temporary arrangements are required to maintain the service in operation during alterations shall be carried out by the Contractor.

As soon as possible, all service and utility installations that have been interfered with, shall be restored to the condition they were in before the start of construction under this contract, or better, but to the satisfaction of the Engineer.

PSDB 7 TESTING

PSDB 7.1 DENSITY TESTING

Notwithstanding the contents of Clause 7.1, the Contractor shall bear the cost of all quality control tests regardless of whether the tests indicate acceptable compaction or not.

The following are the minimum frequencies for the process control tests to be executed by the Contractor:

(a) Pipe bedding: one density test per each 50m of pipe trench.
(b) Normal trench backfilling: one density test on every second layer for every 50m of pipe trench.
(c) Backfilling in areas subject to vehicle loads under roadways: two tests on each layer of 150mm at each road crossing. Trenches backfilled with Floatcrete need not be tested.

The positions of these minimum number of tests shall be determined randomly by the Contractor and shall be clearly documented with the results. The results of the tests shall be submitted to the Engineer and shall prove to the Engineer that the work as a whole was done satisfactorily.

Additional tests, over and above the minimum tests could be ordered by the Engineer. Payment for these tests will be made under Item PSA 8.5.1 if the tests indicate that the density is as specified. If any tests fail, the cost of such tests shall be for the account of the Contractor.

PSDB 8 MEASUREMENT AND PAYMENT

PSDB 8.1 BASIC PRINCIPALS

PSDB 8.1.1 *Replace* "along the route of the pipeline" in the third line of Clause 8.1.1 with "as specified in PSDB 5.6.3".

PSDB 8.1.2 *Add the following to DB 8.1.2(b):*

"The depth of trenches for electric cables shall be as indicated on the relevant drawings, subject to a minimum depth of 600mm."

PSDB 8.2 COMPUTATION OF QUANTITIES

Add the following new clause:

PSDB 8.2.5* Existing Services Within a Trench

If payment in terms of PSA 8.8.4 has been made to expose an existing service and the excavation involved falls within a proposed trench, the quantity measured for trench excavation shall be reduced accordingly.

PSDB 8.3 SCHEDULED ITEMS

PSDB 8.3.2 Excavation

(a) Excavate in all materials for trenches, backfill, compact and dispose of surplus material ..... Unit: m or m³

Replace the first sentence with the following:

"Items will be provided for various trenches widths as specified and detailed on the Drawings and various depths in increments as specified in the Bill of Quantities."

Add the following to Clause DB 8.3.2(a):

"The rate for trench excavation shall also provide for the fact that the excavation width in sand will be wider than normal and that fast excavation and backfill will reduce any groundwater seepage. The rate shall also cover any cost for working in restricted areas or widths, and within urban areas alongside streets.

The rate tendered shall also cover the cost of complying with PSDB 3.5, the safety precautions and fencing requirements specified under PSDB 5.1.6, as well as the cost of any disruption or delay in complying with PSDB 5.4 and PSL 5.1.4.

i) Combined trenches

The rate for excavation and backfilling of combined trenches for more than one service shall allow for trench widths as specified in PSDB 5.2 unless otherwise scheduled. Extra bedding and fill blanket will be measured and paid for under the relevant scheduled items as in the case of normal pipes trenches.

ii) Cable trenches

Excavation for cable trenches not laid with other services will be measured and paid for separately under the depth increments scheduled. The tendered rate shall provide for excavation to the widths as specified in PSDB 5.2(c), preparing trench lengths as requested by the electrical contractor, backfilling and compaction.

The rate shall also make provision for the possibility that long trenches may need to be prepared for the electrical contractor to lay full cable lengths up to 300m and for immediate (same day) backfilling after installation of the cable to prevent theft.

PSDB 8.3.2(b) Extra-over item (a) above for:

Delete the contents of payment sub-clause 8.3.2(b)(1). For the purpose of measurement and payment, material other than hard rock and calcrete, will not be separately classified.

Add the following new subclause:

PSDB 8.3.2(d)* Hand excavation ..... Unit: m^3

The provisions of DB 8.3.2 and PSDB 8.3.2 shall apply *mutatis mutandis* for hand excavation.

The rates tendered shall cover all additional costs for carrying out trench excavation by hand, with NO extra-over rates other than as allowed for under (1) below.

The volume shall be computed from the dimensions specified, shown on the Drawings, or ordered by the Engineer.

Note: Normal handwork required to clean and trim the sides and bottoms of mechanically excavated trenches will not qualify for payment in terms of this clause.

1) Extra-over item 8.3.2(d) above for intermediate and hard rock material: ..... Unit: m^3

The rates tendered for intermediate and hard rock material shall cover all additional costs for excavating by hand in such material as described in PSD 3.1.3.

No claim in terms of the General Conditions of Contract will be considered should the Contractor encounter hard rock and not have the necessary materials, personnel, equipment or plant for the hard rock removal readily available. The time taken for transition from one excavation method to the other will also not be considered as grounds for a claim under this Clause.

PSDB 8.3.3 Excavation Ancillaries

PSDB 8.3.3.1 Make up deficiency in backfill material ..... Unit: m^3

Add the following to sub-clause 8.3.3.1(c):

"The rate shall also include for compaction of basecourse quality backfill as per PSDB 3.5."

PSDB 8.3.3.3 Compaction in road reserves ..... Unit: m^3

Replace the contents of this Clause with the following:

"This item shall only apply to the compaction of materials in areas subject to road traffic loads as defined in PSDB 3.5.

The volume will be computed from the length of trench falling within the defined area, the width as shown on the Drawings and the depth from the top of the bedding to the designated level of the underside of the required selected layer, finished verge level etc. as scheduled on the Drawings. The rate tendered shall cover the cost of the additional compactive effort as specified.

Payment for this work will be additional to that covered by 8.3.2(a)."

PSDB 8.3.3.4 Overhaul

Delete this clause.

Overhaul shall not be applicable. All haul is deemed to be free haul.

Add the following additional clauses:

PSDB 8.3.3.5* Backfilling using 4MPa Floatcrete ..... Unit: m^3

The volume will be computed from the length of trench as applicable and the width determined from the applicable side allowances specified in 8.2.3, and the depth from top of selected fill blanket to level with the existing road surface. The rate shall cover all costs to supply, place and protect the Floatcrete until set, dealing with traffic and for scabbling the top surface to accommodate the surfacing layer. Payment for this item will be additional to that for excavation covered by 8.3.2.

PSDB 8.3.3.6.* Backfilling using sand stabilised with 5% cement ..... Unit: m^3

The volume will be computed from the length of trench as applicable and the width determined from the applicable side allowances specified in 8.2.3, and the depth from top of selected fill blanket to the underside of the road layers (subbase, base, etc.). The rate shall cover all costs to provide and mix all materials, place and compact in the trench, and dealing with traffic. Payment for this item will be additional to that for excavation covered by 8.3.2.

PSDB 8.3.3.7* Backfilling using soilcrete ..... Unit: m^3

The volume will be computed from the length of trench as applicable and the width determined from the applicable side allowances specified in 8.2.3, and the depth from top of selected fill blanket to either final ground level or 100 mm below FGL where topsoil will be placed. The rate shall cover all costs to provide and mix all materials, place and compact in the trench, and dealing with traffic. Payment for this item will be additional to that for excavation covered by 8.3.2.

PSDB 8.3.3.8* Backfilling using G5 subbase quality material ..... Unit: m^3

The volume will be computed from the length of trench as applicable and the width determined from the applicable side allowances specified in 8.2.3, and the depth from top of selected fill blanket to level with the existing road surface. The rate shall cover all costs to provide, place and compact the G5 material in the trench, and dealing with traffic. Payment for this item will be additional to that for excavation covered by 8.3.2.

PSDB 8.3.4 Particular Items

SDB 8.3.4(a) Shore trench opposite structures or service …….. Unit : m

Add the following to subclause 8.3.4(a):

This item shall cover the cost of shoring trenches in any position, regardless of whether structures or services are present or not.

Shoring need not be of timbering but can also be of steel.

In addition to the items referred to in DB 8.3.4(a), the tendered rate shall also cover the cost of the design of shoring by a competent, registered person.

Separate items may be scheduled for depth increments.

PSDB 8.3.5 Existing Services that Intersect or Adjoin a Pipe Trench

PSDB 8.3.5(a) Services that intersect a trench ..... Unit : No

Add the following to DB 8.3.5(a):

"Existing services with a depth of cover exceeding 300mm, measured from the bottom of the trench excavation to the top of the existing service shall not be measured and paid for.

The tendered rates shall also allow for the following costs:

i) Sufficient photographs shall be taken of existing services and handed to the Engineer before they are crossed if there is any possibility of a difference of opinion over the condition of the services, especially for existing services on private property.

ii) If any such service is damaged it shall be repaired at least to its original condition or to a standard agreed to in writing with the relevant owner, which written agreement shall first be approved by the Engineer.

iii) If such a service is removed it shall be replaced as per the original service.

PSDB 8.3.5(b) Services that adjoin a trench …… Unit: m

Replace the wording "measuring for shoring" at the end of the first sentence within 8.3.5(b)2) with the words: "protected by shoring".

Add the following at the end of this subclause:

(v) the additional cost of detection, exposure, hand excavation, protection, alteration and backfill material (the last if outside trench dimensions),
(vi) the rate for this payment item shall cover the cost of any necessary shoring,
(vii) the additional cost of any shoring necessary.

Existing services which have been exposed and paid for under clause 8.8.4 of SABS 1200 A and PSA 8.8.4 shall not qualify for payment under this clause. Services that have been abandoned will not be measured for payment."

PSDB 8.3.6 Finishing

PSDB 8.3.6.1 Reinstate road surfaces complete with all courses

Add the following subclauses to 8.3.6.1:

(e) MC30 Cutback Primer (0.5l/m2) or SS60 Emulsion (1l/m2, 50/50 dilute) …….. Unit m^2

The area will be computed from the specified trench width multiplied by the applicable length of road.

(f) Hot asphalt type IVA (min thickness 40 mm) …… Unit: m^2

The area will be computed from the length of paved trench surface as applicable and the width determined from the applicable side allowances specified in 8.2.3. The final compacted thickness of the premix layer must be not less than 40mm. The rate shall include for the cost of reconstructing and compacting the road layers (subbase and base), including the cost of importing material that matches the existing subbase and base if necessary.

(g) Interlocking and block pavers …… Unit: m^2

The area will be computed from the length of paved trench surface as applicable and the width determined from the applicable side allowances specified in 8.2.3 and shall cover all costs to provide labour, plant and materials to prepare the subsurface, place and compact a 50mm sand layer, import from storage and lay previously lifted pavers, grouting and locking up as necessary. The cost shall also include for the provision of new pavers matching the existing to make up any shortfall caused by pavers that were damaged or broken by construction activities.

(h) Concrete surfaces 100mm thick …… Unit: m^2

The area will be computed from the length of paved trench surface as applicable and the width determined from the applicable side allowances specified in 8.2.3 and shall cover all costs to provide labour, plant and materials to prepare the subsurface, supply, place, compact and finish the concrete surface to match the existing.

The rates for items (e) to (h) above shall further cover the costs of temporary accommodation of traffic (including the signs and by-passes), arranging for safety of the public, excavation (including breaking up, removal and disposal of surplus material) and the subsequent reinstatement as specified in 5.9, and shall include the cost of delays and the cost of any risk of having to repair damage as specified in 5.10.

Add the following new clauses:

PSDB 8.3.8* Stormwater Drains and Channels with 35Mpa/19mm Concrete up to 150mm Thick Complete .. Unit: m^2

The area of channel will be computed from the length and the width determined on-site. Payment for this item will be additional to that for excavation covered by 8.3.2. Different items may be scheduled for different types and sizes of channels.

The rates shall include for all materials, labour, plant, tools and equipment to prepare the surface, install and remove formwork, supply and placement of concrete and reinforcing steel, finishing, curing, protecting and backfilling and finishing of the surfaces next to the channels.

The rates shall further cover the cost of temporary accommodation of traffic (including the signs and by-passes), arranging for safety of the public, excavation (including breaking up, removal and disposal of surplus material) and the subsequent maintenance requirements as specified in 5.9, and shall include the cost of delays and the cost of any risk of having to repair damage as specified in 5.10.

PSDB 8.3.9* Kerbing …… Unit: m

Separate items will be scheduled for different types of kerbing and channels.

The rates shall cover all costs for labour, plant and materials to provide and install kerbing complete with bedding, jointing mortar, concrete haunching behind all joints and at kerb mid-points, backfill behind the kerbs and finish off neatly.

Add the following new clauses:

PSDB 8.3.10* Relocate Light Post Complete …….. Unit: No

The rates shall cover the costs for arranging for safety of the public, arranging with the local authority to disconnect the electrical connection, excavations (including breaking up, removal and disposal of surplus material), removal of the light post, transporting to new position and the subsequent replanting, backfilling, and reconnection of the electrical supply by the local authority, including any fees charged by the local authority.

PSDB 8.3.11* Topsoiling …….. Unit: m^2

The rate shall cover the cost of excavating from the stockpiles, transporting, off-loading and spreading to nominal depth of 150mm or for the supply of topsoil from commercial sources, placing and spreading to nominal depth of 150mm.

Separate items will be scheduled for topsoil from stockpile and topsoil from commercial sources.

PSDB 8.3.12* Grassing or Other Vegetation Cover …….. Unit: m^2

The rate shall cover the cost of preparing the surface, supplying and planting grass sods of the specified variety, applying a balanced NPK slow-release granular fertilizer, and initial watering. The rate shall also cover the cost of watering the grassed area weekly for 6 weeks.

PSDK GABIONS AND PITCHING (SABS 1200 DK)

PSDK 3 MATERIALS

PSDK 3.1 GABIONS

PSDK 3.1.3 Geotextile

Add the following to Sub-clause 3.1.3:

"Filter fabric for groundwater drains shall be a non-woven continuous filament, needle punched, spun-bounded polyester geotextile having the following physical characteristics:

Mass per unit surface	150 g/m² (min)
Porosity under 0,5 KPa	93%
Porosity under 200 KPa	82%
Normal permeability under 2 KPa	3 x 10 - 3 m/s

PSDK 8 MEASUREMENT AND PAYMENT

PSDK 8.2 SCHEDULED ITEMS

PSDK 8.2.4 Geotextile

Delete the contents of Sub-clause 8.2.4 and replace with the following:

"The area measured will be that of the nett area of geotextile used. The rate shall cover the cost of supplying geotextile, cutting, waste, placing, joining, overlapping and fastening the geotextile in position."

PSG CONCRETE (STRUCTURAL) (SABS 1200 G)

PSG 2 INTERPRETATIONS

PSG 2.3 DEFINITIONS

Under (a) add:

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

PSG 2.4 EXPLANATION OF TERMS

PSG 2.4.1 Exposure Condition

All concrete on the Works shall be as specified for very severe conditions.

PSG 2.4.2 Strength Concrete

Grade 30 MPa/19mm means strength concrete grade 30 MPa with 19mm stone. The same applies to all other strength concrete.

PSG 3 MATERIALS

PSG 3.1 APPROVAL OF MATERIALS

Add the following to clause 3.1:

Materials used for application in potable water structures shall be non-toxic and shall not impart any odour, taste or colour to the water.

PSG 3.2 CEMENT

PSG 3.2.1 Applicable Specifications

Replace the contents of this sub clause with the following:

All cement used in the Works shall be Portland Cement type CEM1 of strength class 52.5 complying with SANS 50197-1.

If aggregates to be used on the project are alkali-reactive, the OPC used shall not have an alkali content (Na2O + 0.656 K2O) which exceeds 0.6% by mass of the cement.

PSG 3.4 AGGREGATES

PSG 3.4.1 Applicable Specifications

Replace G 3.4.1 with the following:

The nominal stone size specified in the concrete grade (e.g. 30 MPa/40 mm) shall mean stone conforming to the grading specified in SANS 1083 for the nearest equivalent size, i.e. 40mm means stone that complies with SANS 1083 for 37.5mm size.

Fine and coarse aggregates shall fully comply with the requirements of SABS1083.

Aggregates shall be free from clay, lumps, shale, soft or flaky particles, mica, loam, oil, alkali, and other deleterious substances.

Coarse Aggregate - dust content < 0.5% by mass.
maximum water absorption < 1%
Flakiness indices 26.5mm size < 30%
Flakiness indices 19.0mm size < 25%

Flakiness indices to be determined in accordance with SABS Method 847.

Maximum water demand of the fine aggregate shall be 190l/m3.

Aggregates to be used shall be tested in accordance with subsection C-15 of SANS1083 or alternatively the source material supplier shall submit a test certificate to confirm that they are not potentially alkali-reactive.

The chloride ion content in the aggregates shall be determined and shall be within the limits specified in SANS1083. Test results shall be submitted to the Engineer.

The Contractor shall be responsible for locating the sources of all aggregates. The tendered rates shall therefore be deemed to allow for:

(a) the Contractor satisfying himself at tender stage by means of test and test mixes by an accredited laboratory of his source aggregate materials that he intends to use,
(b) the importation of aggregates, if necessary, that do comply with this Specification.

PSG 3.4.2 Use of Plums

The use of plums will not be permitted.

PSG 3.4.3 Storage of Aggregates

Add the following:

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

Add the following new clause:

PSG 3.4.4* Concrete Using Reactive Aggregates

The Contractor shall provide the Engineer with sufficient data to enable to enable him to assess the degree of alkali-aggregate reactivity of the aggregates to be used for concrete.

Where reactive aggregates such as Malmesbury Group aggregates and certain Table Mountain Formation and other quartzitic aggregates are used for concrete, the Contractor shall, in order to ensure that the concrete is not subject to alkali-aggregate reaction, design his mixes and/or use cement with a sufficiently low alkali content such that the total equivalent sodium oxide content of the concrete is less than 1.8kg/m3.

Note: The equivalent sodium oxide content (alkali content) is measured as Na2O + 0.658 K2O. For cement it is expressed as a percentage by mass, for concrete it is expressed in kg/m^3.

In the case of other aggregates that are less reactive the Engineer will determine the type and degree of precautionary measures to be adopted.

For each delivery of cement or precast concrete units the Contractor shall provide acceptable written evidence that the requirements of this clause have been met.

Add the following new clauses:

PSG 3.9* CURING COMPOUND

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

PSG 3.10* MATERIALS FOR BUILDING WORK

PSG 3.10.1 Cement

The requirements stipulated for sub clause 3.2.1 and PSGA 3.2.1 shall apply.

PSG 3.10.2 Sand

Sand for mortar shall comply with SABS 1090.

PSG 3.10.3 Bricks

All bricks shall comply with SABS 227 and shall be NFX burnt clay masonry units free of stones, cracks and other defects. The bricks shall be obtained from an approved manufacturer and samples of the bricks shall be submitted to the Engineer for approval.

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

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

Add the following new clauses:

PSG 3.9* GROUTING MATERIAL

Approved non-shrink grout with bulking aggregates shall be used to grout in pipes and fittings through walls, openings left in walls for construction purposes and any other openings in concrete elements, unless otherwise specified. SikaGrout 212 or equal is approved.

PSG 3.10* MATERIALS FOR BUILDING WORK

PSG 3.10.1 Cement

The requirements stipulated for sub clause 3.2.1 and PSGA 3.2.1 shall apply.

PSG 3.10.2 Sand

Sand for mortar shall comply with SABS 1090.

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All bricks shall comply with SABS 227 and shall be NFX burnt clay masonry units free of stones, cracks and other defects. The bricks shall be obtained from an approved manufacturer and samples of the bricks shall be submitted to the Engineer for approval.

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

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

PSG 4 PLANT

PSG 4.5 FORMWORK

Add the following to G 4.1:

Replace the heading of sub clause 4.5 to read: "FORMWORK AND SCAFFOLDING"

PSG 4.5 FORMWORK AND SCAFFOLDING

PSG 4.5.1 Design

Add the following:

"All formwork and scaffolding used on or for any part of the Works shall be designed and approved by a recognised authority / designer / structural engineer, who shall carry professional responsibility for such design, before commencing with the erection of any formwork or scaffolding.
The Contractor shall appoint and reimburse the authority / designer / structural engineer and submit, to the Engineer, proof of the approved designs.

Irrespective of the above, such approval shall not relieve the Contractor of his responsibility with regard to the strength and stability of the formwork or scaffolding.

PSG 4.5.2 Finish

Add the following:

"The finish to all exposed concrete shall be smooth and that of buried or backfilled surfaces, rough."

Add the following new clause:

PSG 4.5.4* Chamfers and Fillets

All exposed external angles in concrete work shall have 25mm x 25mm chamfers unless otherwise specified or ordered, but the top edge of a slab that is to receive an applied finish shall not be chamfered.

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

PSG 5 CONSTRUCTION

PSG 5.1 REINFORCEMENT

PSG 5.1.2 Fixing

Add the following:

"The Engineer shall only inspect the reinforcing after it has been fixed in place, the formwork cleaned, cover blocks positioned and tied, before concreting commences.

Welding of reinforcing steel will not be permitted."

PSG 5.1.3 Cover

Add the following:

"Notwithstanding anything to the contrary in any of the specifications included in the documents, minimum concrete cover

to reinforcing steel shall be 40mm.

The distance between pipes in the concrete and the reinforcing steel shall nowhere be less than
a) 50 mm or
b) 5 mm plus the maximum size of the coarse aggregate or,
c) the cover as specified on the Drawings, whichever is the greater."

PSG 5.2 FORMWORK

PSG 5.2.1 Classification of Finishes

Add the following:

Formwork for formed concrete surfaces against which backfill will be placed shall be rough. This shall extend to 100mm below final ground level. Formwork for all other formed surfaces shall be smooth, except where otherwise specified.

Add the following to 5.2.1 (b):

(b) Smooth

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

If the finish of exposed surfaces does not comply with the requirements for uniformity of the texture and appearance, the Contractor shall, when instructed to do so by the Engineer, rub down the exposed surfaces of the entire structure or any part thereof as specified below, entirely at his own cost. All repairs must be completed before the rubbing commences.

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

PSG 5.2.5 Removal of Formwork

Add the following:

Notwithstanding the requirements of Table 2 of subclause G5.2.5, in order to improve the effectiveness of the curing treatment, the specified minimum time for the removal of formwork shall be 48 hours.

Add the following sub clause:

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

PSG 5.4 PIPES AND CONDUITS

Add the following:

“If water tightness is a requirement where pipes are cast into walls, floors and slabs, the Contractor shall ensure watertightness where smooth-surfaced pipes are used by using an approved method.

The cost of such method will be deemed to be included in the rates tendered for items PSG 8.9.

Openings left for pipes shall be filled with approved non-shrink grout."

PSG 5.5 CONCRETE

PSG 5.5.1 Quality

PSG 5.5.1.5 Durability

All concrete work shall be as specified for "severe conditions". The water : binder ratio shall not be more than 0.5 unless otherwise specified, scheduled or shown on the drawings.

PSG 5.5.1.7 Strength concrete

Add the following:

"Unless otherwise specified on the drawings or in the Schedule of Quantities, all structural concrete shall be Grade 30 MPa/19mm.

Target concrete strength shall not exceed the specified concrete strength by more than 25%.

The concrete mixes shall be designed by an approved laboratory."

Design

The proportions of the various sizes of aggregate, cement and water shall be such as to produce a dense concrete of adequate workability for the particular circumstances under which the concrete will be transported, placed and compacted.

Approved plasticising additives may be used, or instructed to be used by the Engineer, to ensure adequate workability in preference to varying the proportions of water or cement.

All exposed concrete shall be of the same colour. No change in materials or processes shall be made without the Contractor first satisfying the Engineer that no change in colour will result.

Trial mixes

Whenever "Designed Mixes" are required by the Schedules of Quantities or Drawings, after approval of the aggregates the Contractor shall design for each class of concrete required for the Works, have trial mixes designed within the limits specified herein for 28 day and 7 day strengths and he shall have cubes made and tested by an approved laboratory at his own expense. The test results of cubes made from trial mixes shall be used to determine the proportions for the "Designed Mixes" to be used in the Works.

Details of the mixes as designed shall in all cases be submitted to the Engineer for approval, 15 days before concreting is carried out and no concrete shall be placed in structures before such approval in writing has been obtained. The proportions of cement, aggregates and water for each mix as approved shall not be changed except with approval of the Engineer.

The Engineer must receive for any particular concrete mix:

- Proportions of each design tested
- Strength of each cube tested
- Density of each cube tested
- The Contractor's nomination of the design he proposes."

PSG 5.5.3 Mixing

PSG 5.5.3.2 Ready-mixed concrete

Ready-mixed concrete may be used.

PSG 5.5.8 Curing and Protection

Add the following:

"As soon as the concrete has hardened sufficiently, it shall be protected against loss of moisture. Unless otherwise authorised by the Engineer curing shall be continuously maintained for 7 days.

Failure to maintain continuous curing for the above-mentioned period will be considered as failure to comply with the Specification, irrespective of subsequent wetting, and will be dealt with as specified.

The Contractor shall take all measures necessary to prevent the occurrence of shrinkage cracks in the concrete, having regard to the effect of sun and wind on concrete that is necessarily rich to withstand severe exposure. No part of any face of freshly placed concrete shall be exposed to the sun or wind for more than 0,5 hour after being placed until it is fully cured.

Curing shall be accomplished by one or more of the following methods approved by the Engineer for each type of structure:

(a) sprinkling or spraying with water continuously

(b) ponding of water on exposed surfaces

(c) covering with moisture-retaining materials, such as sand, cotton or jute mats, kept continuously wet

(d) covering with waterproof plastic sheets or curing paper firmly held at the edges

(e) application of liquid curing compounds. The use of membrane curing compounds will be allowed subject to the Contractor producing sufficient cube test results which conclusively indicate the adequacy of the compound by comparing cubes which have been cured with the proposed curing membrane and left exposed to the elements with an equal number of air cured and water cured cubes. Any curing compound which permanently discolours the concrete surface or which weathers in an unsightly manner will not be acceptable.

Before any membrane curing compound is used, each batch shall be tested on a trial surface to ensure that it forms a satisfactory membrane and any compound which is unsatisfactory in the opinion of the Engineer, shall be rejected. Surfaces where curing membranes are used shall be treated in such a manner that the final concrete texture and colour blends in with the rest of the concrete work. Furthermore, the Engineer shall, at his discretion require the Contractor to immediately adopt an effective alternative means of curing any area of the structure to which a membrane has been applied, which in the opinion of the Engineer, is unsatisfactory."

PSG 5.5.10 Concrete surfaces

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

PSG 6 TOLERANCES

PSG 6.2 PERMISSIBLE DEVIATIONS

PSG 6.2.3 Specified permissible deviations

Add the following:

"Degree of Accuracy II is applicable, except where specifically shown otherwise on the Drawings.

Every specified permissible deviation is binding in itself. The cumulative effect of permissible deviations will not be considered. The maximum permissible vertical deviation is subject to the other permissible deviations."

Replace Clause 6.2.3(d)(5) with the following:

	Permissible deviation		
	Degree of accuracy		
	III	II	I
	mm	mm	mm
"Vertically, per metre of height	5	3	2
subject to a maximum of	50	30	10"

PSG 7 TESTS

PSG 7.1 FACILITIES AND FREQUENCY OF SAMPLING

PSG 7.1.1 Facilities

Add the following:

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

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

PSG 7.1.2 Frequency of Sampling

Notwithstanding the requirements of this sub clause, the Contractor shall take note that he is responsible for taking an adequate number of tests to ensure that the concrete being used complies with the specification. The Engineer will only carry out such control testing as he may require.

PSG 7.3 ACCEPTANCE CRITERIA FOR STRENGTH CONCRETE

Add the following:

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

The rates of sampling and testing will be selected by the Engineer depending on the magnitude of the Works and daily pours. At least one sample (sufficient for 6 cube moulds) shall be taken from each day's casting or each individual structure in the event that more than one structure is cast in a day. Each sample shall be taken from one particular batch.

Unless otherwise agreed by the Engineer tests shall be carried out in an approved laboratory and certified copies of all test results shall be submitted to the Engineer immediately after the test.

Compliance with the specified characteristic strength will be judged by tests made on cubes at an age of 28 days. Tests shall also be made at 7 days.

Not more than 5 % of the tests shall fall below the specified strength.

The average strength determined from any group of three consecutive test cubes shall not exceed the target concrete strength by more than 25%.

Each individual test result shall be greater than 85 % of the specified strength.

When the average strength of three consecutive test cubes fails to meet the third of the above requirements, the mix proportions of subsequent batches of concrete shall be modified to increase the strength.

Where durability and impermeability are prime considerations, the Engineer may order the density of wet concrete to be measured regularly as a check on the concrete mix. This shall be done by placing a sample of concrete being poured in a standardised container, compacting by vibration and then determining the density.

The Engineer may also order tests on the hardened concrete in the structure. These may include non-destructive methods or the taking of cored samples.

In evaluating test results, the Engineer will take the following into consideration:

(i) The validity of test results.
(ii) Confirmation that specimen sampling and testing has been carried out in accordance with BS 1881.
(iii) The mix proportions actually used in the concrete under investigation.
(iv) The actual section of the structure represented by the test cube/s.
(v) The possible influence of any reduction in concrete quality on the strength and durability of the affected section of the structure.

The Engineer may thereafter declare the concrete to be defective and order action to be taken as specified."

PSG 8 MEASUREMENT AND PAYMENT

PSG 8.1 MEASUREMENT AND RATES

PSG 8.1.1 Formwork

Delete "or splays over 20 mm x 20 mm" from the first line of paragraph 8.1.1.2.

Add the following to paragraph 8.1.1.2:

"Splays up to and including 25 mm x 25 mm will not be measured separately and will be deemed to be included in the formwork costs."

Add the following subclauses:

"8.1.1.7 For construction joints at kickers, all additional costs for formwork to edges up to 300 mm high will be deemed to be included in the rates tendered for vertical formwork to sides of walls and will not be measured separately in narrow widths.

8.1.1.8 No formwork will be measured to edges of blinding layers under structures, and the cost thereof (if needed) will be deemed to be included in the rates tendered for concrete in blinding layers.

8.1.1.9 Formwork to horizontal surfaces in reservoirs, chambers, manholes or sumps can either be removed through the manhole cover opening or the Contractor may use permanent formwork at his own cost as no claims in this regard will be considered."

PSG 8.1.2 Reinforcement

Replace the contents of this Clause with the following:

"Notwithstanding the method of measuring and paying for reinforcement specified in Subclauses 8.1.2.2 and 8.1.2.3, reinforcement will be measured and paid for as scheduled

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

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

PSG 8.1.3 Concrete

Add after "mixing, testing" in the second line of sub clause 8.1.3.3(a) "including transport to an approved laboratory,"

PSG 8.2 SCHEDULED FORMWORK ITEMS

PSG 8.2.5 Narrow Widths

Add the following:

"Unless otherwise scheduled, widths in excess of 300 mm shall not be regarded as narrow widths."

PSG 8.4 SCHEDULED CONCRETE ITEMS

PSG 8.4.3 Strength Concrete, Grade

Add the following:

The rates for concrete shall also cover:

(a) the use of dolomitic aggregate where prescribed
(b) the cost of meeting the requirements of SDG3.4.4
(c) the cost of the preparation of design mixes by an approved laboratory and the submission for approval to the Engineer
(d) the cost of non-designated joints

PSG 8.7 GROUTING

Add the following to G 8.7:

c) Holes in walls and for pipework ……..……. Unit : sum or m^3

The rate shall cover the cost of scabbling, cleaning and preparing the concrete surfaces, erecting formwork, providing an approved non-shrink grout, placing and ramming the grout solidly into all voids and pockets and steel-floating the surface.

PSHA STRUCTURAL STEELWORK (SUNDRY ITEMS) (SABS 1200 HA)

PSHA8 MEASUREMENT AND PAYMENT

PSHA 8.3 SCHEDULED ITEMS

PSHA 8.3.6 Corrosion Protection

No separate payment shall be made for corrosion protection, the cost of which shall be deemed to be covered by the rates for steelwork items.

Add the following new clause:

PSHA 8.3.7* Miscellaneous Steelwork (Items stated) ……..... Unit: No or sum

The various items of iron and steelwork will be measured by number as scheduled. The unit rate shall cover the cost of supply, erection and corrosion protection together with the supply and fixing of all bolts, brackets and foot supports, and for building-in the unit concerned.

PSL MEDIUM PRESSURE PIPELINES (SABS 1200 L)

PSL 2 INTERPRETATIONS

PSL 2.1 REFERENCE

Add the following new clause:

PSL 2.1.3* Drawings

Drawings numbered L1, L2 and L3 referred to in this standardized specification have been superseded by the Employer's Agents' drawings. Wherever the aforementioned drawings are referred to, the appropriate of the details shown on the Employer's Agents' drawings shall apply."

PSL 2.4 ABBREVIATIONS

Add the following abbreviations:

HDPE: High density polyethylene.

oPVC: Oriented polyvinyl chloride

PSL 3 MATERIALS

PSL 3.3 CI PIPES, FITTINGS AND SPECIALS

Add the following:

""CI fittings and specials for use with PVC pipes shall be Class 16 and shall be coated inside and out with Fusion bonded Epoxy (FBE) to a minimum average dry film thickness of 250 microns in accordance with EN 14901:2006."

PSL 3.4 STEEL PIPES, FITTINGS AND SPECIALS

PSL 3.4.2 Pipes of Nominal Bore up to 150 mm

Notwithstanding the requirements of this Sub-Clause, pipes of normal bore up to 150mm shall, except where otherwise shown on the drawings or authorised, be flanged.

PSL 3.7 OTHER TYPES OF PIPES

PSL 3.7.1 uPVC Pipes

Replace the contents with the following:

uPVC pipes and fittings shall be provided with spigot and socket rubber ring joints and shall comply with SABS 966-1. Solvent welded fabricated fittings will not be acceptable.

PSL 3.7.2 Polyethylene Pipes

Replace the contents with the following:

"Polyethylene pipes shall be black HDPE pipes complying with SABS ISO 4427, manufactured from PE80 or PE100 material, as specified, with a nominal pressure rating (PN) of 12,5 bar.

Compression fittings to be used with HDPE pipes and shall be "Plasson", "Alprene" or approved equivalent with a nominal pressure rating of 16 bar (PN 16)".

Add the following new clauses:

PSL 3.7.3* oPVC Pipes

oPVC pipes and fittings shall be provided with spigot and socket rubber ring joints and shall comply with SANS 16422. Solvent welded fabricated fittings will not be acceptable.

PSL 3.7.4* Copper tubing and fittings

Copper tubing shall be class O and comply with the requirements of SABS 460. Fittings shall be brass "Conex" compression fittings to SABS 1067.

PSL 3.8 JOINTING MATERIALS

PSL 3.8.3 Flanges and Accessories

Add after "insertion piece" in the second line "consisting of a full face gasket".

Notwithstanding the provisions of this clause, all flanges shall be drilled to SABS 1123/1600/3 and all bolts, nuts and washers shall be stainless steel grade 316 and shall comply with EN ISO 3506-44, as applicable.

PSL 3.8.4 Loose Flanges

Bolts and nuts shall comply as stated in PSL 3.8.3.

PSL 3.9 CORROSION PROTECTION

PSL 3.9.1 CI pipes

CI pipes and fitting shall be Fusion Bonded Epoxy (FBE) coated to a minimum average thickness of 250 microns in accordance with EN 14901:2006.

PSL 3.9.2 Steel Pipes

Notwithstanding the provisions of this Sub-Clause, all steel pipes and specials to be installed shall be heavy duty hot dipped galvanized complying with the requirements of SABS ISO 1461 and shall **not** be passivated.

After the galvanizing process, all steel pipes and specials shall be cleaned, scrubbed and washed down firstly with a suitable solvent and then with clean water. Immediately thereafter, the pipes and specials shall be internally and externally coated as scheduled below, all in accordance with the manufacturer's instructions.

Coat	Product	DFT (µm)		
		Min	Nominal	Max
1	Holding Primer Sigmacover 280 or approved equivalent	45	50	75
2	Sigmaguard 720 (White) or approved equivalent	125	150	175
3	Sigmaguard 720 (Blue) or approved equivalent	125	150	175
Total DFT		295	350	425

All coats shall be in contrasting colours and no DFT reading may be less than nor more than the minimum and maximum values specified. The overall average DFT shall not be less than the nominal DFT specified.

Application shall be by airless or conventional pressure pot spray systems and thinners shall be used strictly in accordance with the manufacturer's instructions. All critical areas like edges and welds shall be given an extra stripe coat.

Note :
The drilling patterns for flanges shall be SANS 1123 Table 1600/3 and all pipes, specials and fittings shall be supplied complete with all necessary stainless steel bolts, washers and nuts as well as appropriate insertion pieces applicable to diameter and material.

PSL 3.9.6 Corrosive soil

All buried flanged joints, together with their bolts, shall be protected by means of "Denso" paste and then wrapped to give a covering of at least three layers of "Denso" impregnated tape, or other means of inhibiting corrosion approved of by the Employer's Agent. Denso tape must be carefully moulded over the paste and fitting in order to expel all voids.

PSL 3.10 VALVES (to be read in conjunction with Particular Specification PDC – Valves)

Replace the contents of this Subclause with the following:

PSL 3.10.1* Gate Valves

Gate valves shall be AVK Series 01/60 or approved equivalent gate valves which conform to the requirements of SABS 664 and shall be of the resilient seal type. All valves shall have a working pressure rating of at least 16 Bar and shall be clockwise opening with non-rising spindle and cap top unless otherwise specified.

The wedge shall be fully encapsulated with NBR rubber internally and externally. The wedge nut shall be of the "fixed nut" concept allowing no movement and manufactured from dezinctification resistant high tensile navy brass.

The primary seal for stern sealing shall be a NBR rubber hydraulic U seal (Manchette type) and the secondary seal shall consist of at least two NBR O rings inside and two outside of a Nylon Bush.

The body of the valve shall further bear the SABS mark, trade name, as well as the size and class of valve. A test certificate as per Clause 3.5.20 of compliance with SANS 664 will be acceptable.

PSL 3.10.2* Butterfly Valves

Valves shall be similar to the "Compact" type with a working pressure of 1,6 MPa. Pipes shall not be tested against closed butterfly valves. All butterfly valves shall be fitted with a second trunnion seal in the form of an O-ring. The body shall be clad with rubber.

Butterfly valves shall be either of the seal-in-body or the seal-in-disc type as detailed in the Project specification or Schedule of Quantities.

All seal in disc Butterfly valves shall be of the double eccentric, bi-directional, full-bore and "tight shut off" type. Manufacturers shall certify that seal in disc valves are of the double eccentric design. All butterfly valves shall seal and be pressure tested from both directions.
The maximum flow rate in the valves shall not exceed 7 m/s unless otherwise specified. The maximum permissible flow rates through the valves at the respective maximum differential pressure across the valve shall be quoted. No cavitation in the fully open position shall be accepted and the tenderer must state the head loss for the specified flow rates in his covering letter.

Butterfly valves shall be generally in accordance with BS 5155. Face-to-face shall be in accordance with BS 5155 for pressures up to and including PN 25, whilst for PN 40 face-to-face may be to DIN 3202.

Butterfly valves larger than 250mm diameter shall be flanged and fitted with a gearbox with stainless steel shaft. All flanged butterfly valves shall be drilled according to SABS 1123 Table 1600/3 or as otherwise specified.

Shafts can be either continuous or a stub-shaft design configuration. Stub-shafts shall extend into the disc hub for a distance of at least 1.5 x shaft diameter and shall not protrude from the hubs i.e. exposing the shafts.

The shaft shall have a splined or square shaft connection to the disc and shall be of single piece construction, supported both at the bottom and top of bearings and isolated from the liquid being conveyed through the valve. Shafts may also be attached to the blade by means of keys, at the Engineer's discretion. Shaft fixing by means of dowel or taper pins shall not be accepted.

The shaft connection shall be designed to transmit shaft torque equivalent to at least 75% of the torsional strength of the shaft.

The shaft shall be positively connected inside the disc. The control shaft shall be connected to the spindle by means of a through-bolt.

O-ring seals shall be used only as dust seals and not as primary sealing devices

Butterfly valves shall seal drop tight from both sides at all pressures up to the maximum rated working pressure of the valve.

PSL 3.10.3* Ball Valves

Ball valves installed as part of the air valve installation shall be three-piece full-bore stainless-steel ball valves with PTFE seats as supplied by Vac-Cent Services, or approved equivalent.

PSL 3.10.4* Air Valves

Air valves shall be "Vent-o-mat RBX" or approved equivalent.

All air valves shall be double action air valves suitable for potable water, as specified on the drawings. All air valves shall be flanged and suitable for a working pressure of 1,6 MPa.

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

Double-acting air valves shall have large as well as small orifices. The large orifice shall have a rubber bed, and the small orifice a brass bed on which the balls can shut. Air valves shall be designed to remain open until all the air has escaped and shall not close due to the speed of the escaping air.

Air valves shall be flanged and supplied with flanged isolating valves. All flanged air valves shall be drilled according to SABS 1123 Table 1600/3.

All valve sizes, T-pieces and pipe branches for air valves shall be as specified on the drawings.

The valves shall further be as specified on the drawings and Bill of Quantities in terms of size, pressure rating and model number.

PSL 3.10.5* Fire Hydrants

Underground hydrants shall conform to SABS 1128: Part 1 – 1997 and shall be of the screw down type with captive stopper and rising spindle. The hydrants shall further have a maximum height of 320mm, be anti-clockwise opening and the outlet connection shall be of the London Thread type.

Above ground hydrants shall be of the standard 80mm female BSP inlet with 65mm female instantaneous outlet with single lug type, manufactured in Cast iron and installed complete with concrete supporting pillar. Hydrants shall be 16 bar rated. Above ground hydrants shall be without handwheels."

PSL 3.10.6* Scour Valves

All scour valves shall be suitable for a working pressure of 1,6 MPa and all flanges drilled to SABS 1123 Table 1600/3.

Scour valves for pipes of 600mm diameter or larger shall consist of a flanged gate valve of 250 mm dia coupled horizontally to a flanged scour valve tee and scour chamber as specified on the drawings. The outlet pipe shall be a 250 mm nominal diameter stainless steel pipe with 6 mm wall thickness.

Scour valves for pipes of diameter less than 600mm shall consist of a flanged gate valve of 100 mm dia coupled horizontally to a flanged scour valve tee and scour chamber as specified on the drawings. The outlet pipe shall be a 100 mm nominal diameter stainless steel pipe with 4 mm wall thickness.

The outlet scour chamber shall discharge above ground level in the direction of the fall of the natural ground surface, perpendicular to the main pipe and shaped to the natural drainage direction.

Scour valves shall be AVK or approved equivalent.

PSL 3.11 MANHOLES AND SURFACE BOXES

PSL 3.11.1 Bricks

All bricks to be used on this contract shall be NFX Burnt clay engineering bricks, having a nominal compressive strength of 28 MPa, and complying with the requirements of SABS 227."

PSL 3.11.5 Manhole covers and frames

The requirement of this Sub-Clause shall apply, except that the type of cover and frame to be used shall be as called for on the drawings or ordered by the Employer's Agent.

PSL 3.11.6 Surface Boxes

All surface boxes, including air valve chambers shall be as specified and detailed on the Drawings.

PSL 4 PLANT

PSL 4.1 HANDLING AND RIGGING

Add the following to clause 4.1:

Pipes, specials and fittings shall not be subjected to rough handling at any time. Under no circumstances shall same be dropped during loading or off-loading or be allowed to collide with each other.

The Contractor shall be responsible for:

(1) The storage, care, handling, site transportation and insurance of pipes, specials, fittings, valves and other materials and equipment after their delivery to site.

(2) The receipt, provision of labour and plant for the off-loading of pipes, specials, fittings, valves, materials and equipment at the store or alongside the pipeline trench.

(3) Suitable supports for the pipes and specials for stacking purposes.

(4) The provision of suitable access along the pipeline route and within the pipeline servitude for the purpose of off-loading pipes, valves, etc.

(5) The space requirements for pipe separate from the excavated material.

Wherever suitable access to the pipeline servitude is not available, the Contractor shall provide and maintain access as instructed by the Engineer.

Pipes, fittings, specials and valves shall be protected during transportation and handling against damages caused by impact, dropping, etc.

Faulty pipes, fittings, specials and valves or pipes, fittings, specials and valves which have suffered damage which would affect their serviceability shall not be used in the Works.

Add the following subclauses to 4.1:

PSL 4.1.1* Inspection on Delivery

The Engineer's Representative will thoroughly inspect all pipes, fittings and specials delivered to the site but his acceptance of same as being in good condition shall not relieve the Contractor of any of his obligations or responsibilities under this Contract.

Materials rejected by the Engineer or his representative shall be removed from the site and shall be replaced with other approved materials by the Contractor at his own expense.

PSL 4.1.2* Storage

Pipes shall generally be distributed and stored as close as possible to the laying position in order to minimize double handling. Where pipes are strung alongside the trench, they should be placed on the side away from excavated material.

Where pipes, specials and fittings are to be stockpiled in bulk storage yards, the Contractor shall make his own arrangements for a suitable area that shall meet with the Engineer's approval. The stockpiling area shall be adequately fenced and protected by a lockable gate and a watchman shall be maintained at all times.

Each class and size of pipe shall be stored separately in its own stockpile. PVC pipes shall be stored in the shade. If shade nets are used the minimum screening shall be 80 %.

All PVC pipes and rubber rings or other materials that will deteriorate under the action of sunlight, ozone or inclement weather, shall be stored in permanent shade in lockable weatherproof sheds. Care shall be taken at all times to prevent contamination of these products by oil or other petroleum derived solvents.

Valves shall be stored in orderly groups on prepared floors and under cover. Valves shall be wrapped in plastic or other suitable material to prevent damage, distortion, ingress of dirt, or corrosion of flanges or working parts. Under no circumstances shall any valves be stored in direct contact with the ground or left unprotected.

PSL 4.2 SETTING OUT

Add the following to clause 4.2:

The Employer or Engineer shall establish basic reference pegs and benchmarks on the site and give to the Contractor the particulars thereof in sufficient time to enable the Contractor to meet his approved programme.

The Contractor shall be responsible for true and proper setting out of the Works and for the correctness of the position, levels, dimensions and alignment of all parts of the Works and for the provision of all necessary instruments, appliances and labour in connection therewith.

If at any time an error shall appear, the Contractor shall rectify the problem at his own expense.

Setting out of the Works shall be performed by an experienced Engineering Surveyor and shall be to the following limits of accuracy:

(a) Pipe centreline:

Shall be in straight lines between changes of direction and/or grade and shall in its final laid position be within 100mm of the plan centreline on the approved drawings.

(b) Pipe invert levels and gradients:

In the final laid position, pipe invert levels shall be within ± 25 mm of the invert levels on approved drawings but notwithstanding this tolerance, the same direction of grade as per approved drawings shall be maintained and the grade shall not be flatter than 1:500.

(c) Position of fittings, specials and valves:

Unless otherwise specified elsewhere, fittings, specials and valves shall be installed within 5m of the plan position indicated on the approved drawings.

(d) Benchmarks and triangulation points:

All levels shall be reduced levels above mean sea level and shall be indicated to the nearest 0,005 m. All co-ordinates shall be based on the applicable Lo system and shall be indicated to the nearest 0,1 m. Levelling shall be carried out to an accuracy such that the closing error between benchmarks does not exceed 0,007 times the square root of the distance traversed in kilometres.

Setting-out of the Works shall also include the following duties, which shall be performed and kept up to date as pipe laying progresses:

(i) Accurate determination of as-laid invert levels of the pipeline before backfilling commences.

(ii) Accurate fixing by triangulation of all changes in direction before backfilling commences.

(iii) Accurate determination of exact as-laid chainages of all specials, changes in direction and/or grade, valves, off-takes, structures, etc., taken along the pipeline before backfilling commences.

(iv) The establishment of permanent surface bench marks along the pipeline route at intervals not exceeding two kilometres and accurate levelling of same. Benchmarks to be sited within the pipeline servitude width as indicated on the drawings.

(v) The establishment of permanent surface triangulation points along the pipeline route at intervals not exceeding 5 kilometres and determination of co-ordinates of same. Pipelines shorter than 5km shall have at least one surface triangulation point. Triangulation points to be sited within the pipeline servitude width as indicated on the drawings.

Levels and co-ordinates over any section of pipeline backfilled shall be made available to the Engineer on request at no extra costs.

PSL 5 CONSTRUCTION

PSL 5.1 LAYING

PSL 5.1.1 General

Add the following to clause 5.1.1:

"uPVC and oPVC pipes shall be laid, cut and jointed strictly in accordance with the manufacturer's instructions. A pipeline shall further be laid continuously; the leaving of gaps for fittings will not be permitted."

Add the following subclauses to 5.1.1:

PSL 5.1.1.1* Bends

Bends shall be installed true to line, level and deflection and shall be anchored in concrete where required to counteract thrust. The faces of a thrust block shall be 300 mm from the back of any flanges. Steel bends shall normally be supplied with "centre planes" marked with two small punch marks close to both ends of the bends to facilitate correct positioning of the bends in laying.

PSL 5.1.1.2* Tees

Tees for air valves shall be installed with branch barrels vertical. Tees for scour valves shall be installed with branch barrels horizontal or at the gradients as indicated on the drawings. Tees for off-takes shall be installed as shown on the drawings.

PSL 5.1.1.3* Dismantling joints

Dismantling joints shall be installed where indicated on the drawing or instructed by the Engineer. These will normally be provided to facilitate the removal of valves or similar fittings from the pipeline. The Contractor shall supply and install dismantling joints with due regard to their pressure rating and mating flanges. The hydraulic pressure restraining tie-bolts shall be carefully installed to tie the pipework across the dismantling joint. Dismantling joints shall be watertight.

PSL 5.1.2 Damage

Add the following:

Damage to coatings shall be repaired strictly in accordance with the pipe and fitting manufacturer's specifications for repairing damage to coatings. The manufacturer shall provide such specification at time of order and prior to delivery of the pipes and fittings.

PSL 5.1.3 Keeping Pipelines Clean

Add the following:

The interior of pipes shall be perfectly clean before being laid and the Engineer may instruct pipe interiors to be cleaned or washed before the pipes are lowered into the trench.

The Contractor shall at his own expense make good any damage to valves and fittings or clogging of off-takes or malfunctioning of fittings that result from his failure to keep the pipeline in a thoroughly clean condition.

Night-caps or plugs shall be used to close off all ends of each laid section of pipework when work is stopped at the end of the day or for longer periods and shall be left on the ends of sections of completed pipework until such sections are tied-in with the remainder of the completed pipeline.

The Contractor shall also, at his own expense blank-off all air valves, scour valves and off-takes with steel blank flanges which shall be bolted with at least four bolts to tee flanges or shall be fixed to plain ended tee branches by half couplings welded to the blank flanges. These shall be watertight and shall not be removed until the valves or other fittings are about to be fitted.

Notwithstanding the use of night-caps, the Contractor shall at his own expense make good all damage to pipes and fittings caused by the ingress of dirty water, silt, sand, debris, vermin, insects and other foreign matter. The Contractor shall at his own expense and to the satisfaction of the Engineer clean the interior of the pipeline of such contaminants.

PSL 5.1.4 Depths and Cover

Replace the contents of subclause 5.1.1.1 with the following:

PSL 5.1.4.1 Cover to pipes

Unless otherwise shown on the drawings or instructed by the Engineer, cover to pipes shall be as follows:

During construction:

Where construction traffic is liable to cross over pipes, they shall be laid so that there is not less than 0.75 m of cover over the pipe. Road crossings shall be constructed after the construction of the road layers has reached the stage where 0.75 m cover is available.

Pipes beneath verges and open spaces:
The tops of pipes beneath verges shall be not less than 0.75 m and not more than 1.25 m below the final verge level.

Supply connection:
The tops of pipes shall not be less than 450 mm and not more than 600 mm below the final road surface.

Pipes beneath existing roadways:

The tops of pipes beneath a road shall not be less than 1m and not more than 1.25m below the road level.

PSL 5.1.4.3 Intersection of service pipes

Add the following:

Where the minimum clearance between pipe crossings would be less than that specified in Subclause 5.1.4.3, rising mains shall be laid beneath the service crossed, at an invert level which allows for the clear space as specified. The rising mains shall be laid horizontally at this level for a distance of at least 1,5 m on either side of the centreline of the service crossed and the transition to the specified cover levels obtained as specified in Subclause 5.1.4.2.

The Contractor may, at his own expense, increase the cover levels by a maximum of 200 mm. No decrease in cover level or clear space between pipe barrels as specified will be permitted unless otherwise instructed by the Engineer in writing.

Add the following new clause:

PSL 5.1.5* Prevention of Flotation

It is desirable that trenches shall be backfilled as soon as possible after pipe laying to curtail thermal movements of the pipeline, damage to pipes and fitting, reduce danger to residents and animals, and prevent flotation of the pipeline should the trench fill with water. At no time shall backfilling lag more than 100 meters behind the last pipe laid.

The Contractor may use his discretion as whether to backfill around joints before the pipeline is hydrostatically tested. The Contractor shall be responsible for the location and repair of any leaks on the pipeline under hydrostatic test and no extra payment will be made for any re-excavation and subsequent reinstatement which may be necessary to locate and remedy leaks or for the installation of cathodic protection equipment.

Should the Contractor elect to leave joint holes open until after the hydrostatic test, he shall provide at his own expense effective and approved barricades and fences around each hole for the protection of persons and animals. In built-up areas, barricades shall be clearly marked at night-time with warning lights.

Pipes to be encased in concrete shall be prevented from flotation during concreting operations. Apart from this special case during concreting operations, the Contractor shall prevent the flotation of pipework due to stormwater or groundwater entering the trench before backfilling has been completed.

Methods adopted to prevent flotation shall not damage pipes or fittings and shall be approved by the Engineer. Notwithstanding this, the Contractor shall at his own expenses repair all damage to pipework caused by flotation and/or by the methods adopted to prevent it.

PSL 5.2 JOINTING METHODS

Add the following to 5.2:

All plain ended valves and specials shall be jointed into pipelines using long-barrel detachable couplings.

Add the following new clause:

PSL 5.2.5* Protection of Buried Joints

The Contractor shall protect all nuts and bolts against corrosion by wrapping them with "Denso" tape or equal approved, in accordance with the manufacturer's instructions.

All buried mild steel pipework shall be wrapped in an approved petroleum-based paste and adhesive tape ("Denso tape" or equal, approved) in accordance with the manufacturer's instructions.

PSL 5.3 SETTING OF VALVES, SPECIALS AND FITTINGS

Add the following:

"Valves shall be positioned opposite the erf splay peg at intersections or as directed by the Engineer. The top of the spindle of a gate valve shall not be less than 75mm nor more than 600mm below the level at which the top of the valve box is to be set. To ensure the aforementioned, valve spindle extension pieces shall be fitted by the Contractor.

Below ground fire hydrants shall be bolted to the tee such that the outlet is in line with the pipeline.

The mass of valves or meters shall at no time be carried by the pipe, the flange or the coupling and valve chamber floors shall preferably be cast complete with valve stools and supports immediately after the installation of valves and meters. Stools shall not be permitted to carry the mass of a valve until at least 7 days after casting the concrete. Alternatively, prefabrication and welding of pipe and valve supports shall comply with the requirements of SANS 10044, Part III, and shall be fabricated to the Engineer's approval.

Valves and meters requiring special adjustment after installation shall be adjusted and commissioned by the respective suppliers or agents after installation.

Butterfly valves shall be installed with the blade seal-retaining ring facing downstream.

Tees and valves will have to be cut into the existing pipelines. The work of cutting into the pipelines and installing the tees and fittings shall be carry out as a single continuous operation without interruption. In each instance the work shall be completed within 24 hours or less. This may require that the Contractor works outside of normal working hours in order to complete the work.

Before starting with the work of cutting into the existing pipelines, the Contractor shall first ensure that he has all tees, valves, fittings, plant, materials and labour required to carry out the operation present on site. Critical plant such as pipe cutters and welding machines shall have 100% backup in case of plant failure. The Contractor shall also ensure he has sufficient power generation backup in the form of portable generators in case of power failure.

The Contractor shall under no circumstances commence with cutting into any pipeline without the written permission of the Engineer."

PSL 5.6 VALVE AND HYDRANT CHAMBERS

Notwithstanding the requirements of this subclause, the requirements of subclause 5.6.1 and 5.6.2, valve chambers shall be constructed in accordance with the details shown on the drawings.

Add the following new clauses:

PSL 5.11* MARKERS FOR PIPELINES, VALVES AND FIRE HYDRANTS

A pipeline marker shall be placed over the centreline of the pipe at each change of direction and at spacings not exceeding 300m on straight pipe sections. An appropriate marker shall be placed by the Contractor at the position of each valve.

The markers shall be manufactured and installed in accordance with the details shown on the drawings.

All chambers constructed on the pipeline shall be clearly marked on the outside to denote the appurtenances housed in each and the chainages thereof. Marking shall be by stencilling in road marking paint in letters not smaller than 75 mm. All markings shall face the upstream direction. Abbreviations to be used shall be as follows:

(i)	Air valves	AV
(ii)	Isolating valves	IV
(iii)	Scour valves	SV
(iv)	Fire hydrants	FH
(v)	Water meters	M
(vi)	All bulk off-takes	BO

PSL 6 TOLERANCES

PSL 6.2 CONTROL POINTS

Add the following:

"Valves shall be located as indicated on the plan layout opposite the boundary peg of the erf, and to within a longitudinal tolerance of 100mm."

PSL 7 TESTING

PSL 7.1 GENERAL

Add the following to L 7.1:

"The Works will be supervised and inspected by the Engineer and/or his authorised Representative. Such supervision and inspection shall in no way relieve the Contractor of his obligation and responsibility of performing the Works in accordance with the contract.

The Contractor shall institute his own inspection of the Works and shall conduct tests to ensure that the materials supplied and quality of workmanship comply with the requirements of the contract. The Contractor must therefore be in possession of his own testing equipment.

The Contractor shall provide access at all times and shall be responsible for the opening and closing of access covers for inspection purposes and for providing sufficient labour and equipment in order to enable the Engineer or his authorised Representative to inspect the Works efficiently."

PSL 7.3 STANDARD HYDRAULIC PIPE TEST

PSL 7.3.1 Test Pressure and Time of Test

Add the following to Sub-clause 7.3.1.1:

"Pipelines shall be hydrostatically tested once the entire pipeline is laid and after installation of all valves, specials and fittings. The Contractor shall be responsible for providing all water required for testing, the source of which shall be subject to approval by the Engineer.

Where the method of test is in any way in variance to this specification, the Contractor shall submit a detailed method statement to the Engineer and no test shall proceed before approval of such method statement by the Engineer.

The Contractor's test equipment shall be connected directly to the flange of a hydrant tee or through a specially adapted end cap or a short, detachable pipe. Alterations may have to be made to the Contractor's test equipment to allow the placing of an "in-line" check pressure gauge. If necessary, this will be requested by the Engineer prior to the start of a leakage test."

Pipes shall not be tested against closed valves. Special blank flanges or end caps, fully anchored, shall be provided for testing.

Substitute subclause 7.3.1.2 with the following:

"The maximum working pressure shall be the specified pressure class of the section of pipeline being tested."

Substitute L 7.3.1.3 with the following:

"The test pressure applied according to L 7.3.1.2, must, with allowance for any level differences along the pipeline, be such that the pressure at any point in the pipeline will be at least 1,2 times and not more than 1,5 times the rated working pressure of the pipe."

Delete subclause 7.3.1.4.

Add the following to Sub-clause 7.3.1.5:

"Water used by the Contractor to fill the reticulation and during testing shall be water drawn from the reticulation and transported in a clean container.

Add the following new clause:

PSL 7.3.4* State of Valves During Test

All valves shall be in the open position during testing. Testing shall not take place against closed valves and blank flanges shall be used on scour valves.

Immediately after successful hydraulic testing the scour valves shall be closed and the blank flanges removed.

The Contractor shall ensure that the differential pressure across valve gates does not exceed the manufacturer's stated maximum working pressure at any time.

PSL 8 MEASUREMENT AND PAYMENT

PSL 8.1 GENERAL

Replace the second sentence of this Clause with the following:

"No payment will be made for depths of excavation in excess of those specified unless ordered in writing by the Employer's Agent."

PSL 8.2 SCHEDULED ITEMS

PSL 8.2.1 Supply, Lay and Bed Pipes Complete with Couplings……..……...Unit: m

Add the following:

"Couplings shall be held to include compression couplings required to join lengths of HDPE pipeline.

The rate tendered shall further cover the cost of cutting pipes where required, including all materials, plant and labour for fettling or chamfering the cut edge, all in strict accordance with the manufacturer's specifications. With respect to testing, the supply and installation of all equipment, fittings and specials required, as well as the cost of water drawn shall be included in the tendered rate.

Unless specifically measured and scheduled separately in the Bills of Quantities, no separate payments will be made for short or non-standard pipe lengths. The cost of short or non-standard pipe lengths shall be covered by the rates tendered for 8.2.1.

The measured quantity of pipe length will only be included in the payment certificate after the installation has successfully passed a leakage test and has been accepted in terms of Clause 7.3 and PSL 7.3.1. Payment may be made for material on site up to this stage.

PSL 8.2.2 Extra-over 8.2.1 for the Supplying, Laying and Bedding of Specials Complete with Couplings ….Unit: No

Add the following:

"Except where the rates for pipes and fittings cover the cost of couplings, short collar repair couplings will be measured by number. The rate shall cover the cost of the supply and installation of the joint including all bolts, nuts and jointing material and corrosion protection as specified.

The rate tendered for specials shall also as applicable cover the cost of the provision of corrosion protection as specified in PSL 3.9.2, and PSL 3.9.6 as well as the supply and installation of all stainless steel bolts, nuts, washers, insertion pieces, as required."

PSL 8.2.3 Extra over 8.2.1 for the Supplying, Fixing and Bedding of Valves ……..……..Unit: No

Add the following:

"Valves are measured and paid for per item, complete with the inclusion of the cutting of pipes, extra excavation and all extra material and labour that is required, including isolating valves (e.g. under air valves), complete as shown on the drawings. Flanged distance pieces shall be included in the rate for air valves and fire hydrants.

The rate shall include for valve supports as required.

The rate tendered shall also cover the cost of the provision of corrosion protection as specified in PSL 3.9.1, PSL 3.9.2 and PSL 3.9.6".

PSL 8.2.4 Extra-over 8.2.1 for the Cutting of the Pipe and the Supplying and Fixing of the Extra Coupling

Delete this Sub-Clause. Provision has been made under PSL 8.2.1 for the measurement and payment of work included under this Sub-Clause 8.2.4.

PSL 8.2.10 Temporary Valves, etc.

Delete this Sub-Clause:

Provision has been made under PSL 8.2.1 for the measurement and payment of work included under this Sub-Clause.

PSL 8.2.13 Valve and Hydrant Chambers, etc. …… Unit: No

Replace the contents with the following:

Unless otherwise scheduled in the Bills of Quantities, chambers will be measured as complete units for which separate items will be scheduled for each type of chamber of overall depth not exceeding 2,0m from soffit of roof to floor level, complete as detailed on the drawings.

The tendered rate shall cover all materials, plant and labour necessary for the complete construction of the chambers, including the compaction of the bottom of the chamber excavation to 90% of modified AASHTO maximum density as well as for building in of the pipes through the wall, frames, locking bars, vents, and concrete pedestals as required.

The rate for scour-valve chambers must also cover the cost of the supply and installation of the scour outlet as described in PSL 3.10.6 and indicated on the drawings, unless scheduled separately.

Note:

The Contractor shall note that the specials and fittings in the various chambers along the route of the pipeline may have been grouped together in the Schedule of Quantities and not separately itemised per Sub-Clauses 8.2.2 and 8.2.3. The payment provisions as specified shall none the less apply as appropriate."

Add the following new sub-clause to 8.2.13:

PSL 8.2.13 (a) Extra-over for Depth Variances in 500mm Increments ……. Unit: No

The rate shall cover all costs for varying the depth of chambers measured under PSL 8.2.13 in increments of 500mm or parts thereof. The rate can be either positive or negative depending whether the depth increases of decreases.

Add the following new clauses:

"PSL 8.2.16* Supply and Install Pipeline and Valve Markers ……..……..Unit: No

The rate tendered shall cover the cost of the supply of the markers complying with the details shown on the drawings, as well as the cost of all labour and equipment required to install the markers as specified in PSL 5.12, or as directed.

The cost for marking chambers shall include all costs for labour, plant, materials, stencils and setting out of and painting the lettering required"

PSL 8.2.17* Cut Into and Connect to Existing Mains .....Unit : No

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

The tendered rate shall include full compensation for all arrangements with the relevant authorities, excavation to expose the main and provide working room, isolating the main, cutting into the main to accommodate the connecting fitting, installing the fitting complete with couplings, dewatering, excavating, removing of excess material, taking steps to prevent the ingress of soil, stones and other material into the main as well as all plant, material and labour to connect the fitting to the pipe as specified. The rate shall also include for all materials, plant and labour for the repair of the pipe linings and coatings, backfill and making good.

PSL 8.2.18* Cut Into and Connect to Existing Reservoir .....Unit : No

The cutting into the existing reservoir shall be measured by the number of each pipe type and diameter installed.

The tendered rate shall include full compensation for all arrangements with the relevant authorities, draining and isolating the reservoir, breaking into the reservoir to accommodate the connecting fitting, installing the fitting complete with couplings, dewatering, excavating, removing of excess material, taking steps to prevent the ingress of soil, stones and other material into the reservoir, grouting the pipe fitting into place with an approved quick setting, non-shrink cementitious grout, removal of debris to the waste site, as well as all plant, material and labour to install the pipe fitting as specified. The rate shall also include for all materials, plant and labour for the repair of the pipe special lining and coating.

PSLB BEDDING (SABS 1200 LB)

PSLB 2.3 DEFINITIONS

Flexible pipe

Add the following:

"PVC, HDPE and steel pipes shall all be classified as flexible pipes."

PSLB 3 MATERIALS

PSLB 3.1 SELECTED GRANULAR MATERIAL

Replace the contents of Clause 3.1 with the following:

"Selected granular material shall be an aggregate, sand or granular material, all being a non-cohesive material that is free of vegetation, the grading analysis of which shows 100% passing a 13,2 mm sieve and not more than 5% passing a 0.075mm sieve and has a compactability factor not exceeding 0,4.

The grading analysis shall produce a smooth S-curve across the full range of sieve sizes. Steep grading curves or curves that cross only a limited number of sieves shall only be used with the written approval of the Engineer.

The Contractor shall arrange for representative samples of the selected granular material to be tested by an accredited laboratory and the test results shall be submitted to the Engineer for his approval.

The cost of material testing shall be covered by the rates for the bedding cradle. No separate payment will be made for material testing."

PSLB 3.2 SELECTED FILL BLANKET

Add the following:

"Where expansive clay is encountered in the trench bottom, the material in the selected fill blanket shall be selected granular material."

PSLB 3.3 BEDDING

Add the following:

"For the purposes of this clause PVC, HDPE and steel pipes shall be classified as flexible pipes."

PSLB 3.4 SELECTION

PSLB 3.4.1 Suitable Material Available from Trench Excavation

Replace the words "(but is not required") in the fifth line with the words "(at his own cost)."

Add the following new clauses:

PSLB 3.5* GEOTEXTILE BLANKET

Where a geotextile blanket is required, the synthetic fibres of a geotextile blanket shall consist of at least 85% by mass of polypropylene, polyethylene, a polyester, a polyamide, or a copolymer of vinyl chloride and vinylidene-chloride, or any combination of these polymers, and shall contain such additives as are necessary to render the filaments resistant to the effects of ultra-violet radiation and heat. The amount of water absorbed by the geotextile after 24 hours soaking in water at 20°C shall be less than 1% by mass.

The geotextile shall also comply with the following:

Mass:	180g/m^2 (minimum)
Strength in all directions:	12 kN/m (minimum)
095w Pore size:	205 (µm) (maximum)

The Engineer's approval of the make and grade of the geotextile shall be obtained by the Contractor before the Contractor orders any geotextile or uses it on the Works.

"Bidim A3" or equal, approved geotextile will be acceptable.

PSLB 3.5* BEDDING IN WATERLOGGED CONDITIONS

Where ordered by the Engineer a bedding cradle of the specified thickness, comprising of 6,7 mm concrete stone complying with SABS 1083, shall be used in waterlogged conditions."

PSLB 5 CONSTRUCTION

PSLB 5.1 GENERAL

PSLB 5.1.1.2 Bottom

Add the following:

"Where expansive clay is encountered in the trench bottom, the selected fill blanket shall comprise of selected granular material."

PSLB 5.1.2 Details of Bedding

Notwithstanding the provisions of this subclause, pipes shall be bedded and protected in accordance with the details shown on the Drawings which shall supersede, as applicable, drawings LB 1 through to LB 5, or as specified in the contract documents.

PSLB 5.3 PLACING AND COMPACTING OF FLEXIBLE PIPES

Notwithstanding the provisions of this subclause, the bedding for flexible pipes shall be constructed to the dimensions shown on the Drawings and by using the bedding material specified (refer also PSLB 5.1.2).

Add the following to clause 5.3:

PSLB 5.3 (c) Common backfill

After completion of bedding with selected granular and fill material, the remaining trench depth for trenches not under or within roadways shall be filled with the selected sandy soil originally excavated from the trench and with all rocks or boulders exceeding 150 mm nominal size excluded. Clay material shall not be used for backfill nor shall it be present in the common backfill material.

The backfill shall be placed in the trench in layers not exceeding 200mm measured in loose and each layer compacted sufficiently to prevent later settlement. The trench shall be filled to the level to which the topsoil was originally separately removed. The top of the trench shall then be completely filled with the topsoil and compacted up to the original ground level. In open areas the top of the trench may be mounded to 150mm to provide for settlement, provided natural drainage of the ground is not interfered with.

As soon as trench backfilling has been completed over any portion of the pipeline all surplus materials and debris shall be removed from the site to the waste disposal site.

Precautions shall be taken to ensure that the natural drainage of the ground is not interfered with, especially where final backfill is left mounded and all necessary cross drains shall be constructed and agricultural drainage berms and contours reinstated as backfilling progresses. Care shall be taken to prevent erosion of backfilling by construction of the necessary diversion banks and drains.

The Contractor shall be responsible for settlement of backfill and erosion of the site up to the time the contract maintenance period has expired and he shall fill and level any settlement and/or erosion from time to time, as required by the Engineer and at the Contractor's expense.

No separate payment will be made for common backfill as this activity is covered by item PSDB 8.3.2.

PSLB 7 TESTING

PSLB 7.1 DENSITY

Add the following to clause 7.1:

"Density of the bedding cradle and selected backfill shall be at least 90 % of the Modified AASHTO maximum dry density of the material.

The Contractor shall conduct density testing of the bedding cradle and selected backfill at a minimum frequency of 4 tests per 100m with tests staggered across both sides of the pipe. Test results shall be submitted to the Engineer for his approval.

The cost of density testing shall be covered by the rates for the bedding cradle and selected backfill. No separate payment will be made for density testing. "

PSLB 8 MEASUREMENT AND PAYMENT

PSLB 8.1 PRINCIPLES

PSLB 8.1.3 Volume of Bedding Materials

Notwithstanding the provisions of this subclause, the volume of bedding will be computed from the specified trench width and specified bedding thickness.

Replace the last sentence with the following:

"No allowance will be made for bulking of material or any additional volume of bedding material required due to over break or any other cause.

Further, the volume of bedding displaced by the pipeline will not be measured for payment."

PSLB 8.1.5 Disposal of Displaced Material

Replace the contents of this Clause with the following:

"Material displaced by the pipeline and by importation of material from sources other than trench excavation, shall be disposed of at the designated spoil site. No overhaul and haulage shall be applicable or payable on the removal and disposal of such material."

PSLB 8.1.6 Free-haul

Delete the words "of 0,5 km" in the first line of this Clause. All haulage under this contract shall be free-haul.

PSLB 8.2 SCHEDULED ITEMS

PSLB 8.2.2 Supply only of Bedding by Importation

PSLB 8.2.2.3 From commercial sources

Add the following to clause 8.2.2.3:

(c)* 6,7 mm concrete stone to SABS 1083 …… Unit: m³

Add the following to the end of this Clause:

"Commercial sources shall include off-site sources located by the Contractor."

PSLB 8.2.5 Overhaul of Material for Bedding … etc.

Delete this sub clause

Free haul will apply indefinitely over the full site.

Add the following new clauses:

PSLB 8.2.6* Bedding in Wet Conditions …… Unit: m^3 and m^2

Payment for these items will only be made where instruction was given in writing by the Engineer.

The provision of crushed stone bedding material will be measured by volume based on the specified trench width and a maximum layer thickness of 150mm unless a greater depth has been specified by the Engineer. The unit rate shall cover the cost of supplying and laying the crushed stone.

The filter fabric will be measured separately net by area based on 2 x specified trench width plus 2 x stone bedding thickness of 150mm (or as otherwise ordered by the Engineer) x length in trench.

The rate shall cover the cost of the supply, delivery, cutting and laying of the filter fabric, including an overlap of 300mm."

PSLB 8.2.7* Crushed Stone Bedding Layer and Geofabric Blanket …… Unit: m^3 or m^2

Where the use of a layer of crushed stone in the trench bottom has been authorized by the Engineer, it will be measured by volume calculated according to the length multiplied by the specified thickness and specified minimum base width.

The rate shall cover the cost of all additional excavation and preparation of the trench bottom to accommodate the layer of stone, the removal of unsuitable material, the supply and placing of a layer of stone at least the specified thickness over at least the specified width and all related activities in order to produce a stable platform.

Where the Engineer has authorized the use of geotextile filter blanket, this will be measured by area as:

Area = (2 x (specified stone layer thickness + minimum base width)) x net length.

The rate shall include the cost of supply, placing and losses as a result of overlaps and over excavated trench widths.

PSLC CABLE DUCTS

PSLC 3 MATERIALS

PSLC 3.1 DUCTS

Notwithstanding the provisions of this subclause, cable ducts to be used shall be uPVC, heavy duty structured wall sewer pipes complying with SABS 1601 with a pipe stiffness of 400 kPa, complete with cuff joints and rubber compression seal.

PSLC 3.2 BEDDING

Delete sub-clauses 3.2.1 and 3.2.2 and replace with the following:

"The requirements and specifications of PSLB 3 shall apply."

PSLC 3.3 BACKFILL

Notwithstanding the provisions of this subclause, the material to be used for backfill in areas subject to road traffic loads shall be clean sand stabilised with 5% cement by volume.

PSLC 5 CONSTRUCTION

PSLC 5.1 EXCAVATION OF TRENCHES

Notwithstanding the contents of this subclause, the requirements of PSDB and SABS 1200 DB shall apply."

PSLC 5.2 BEDDING AND COMPACTION OF BEDDING

Notwithstanding the contents of this subclause, the requirements of PSLB and SABS 1200 LB shall apply."

PSLC 5.8 ROAD CROSSINGS

Delete the last sentence and replace with:

"The duct(s) shall extend a distance of at least 0.5 m beyond the backface of the kerb or the edge of the road, as applicable."

PSLC 5.10 POSITION TO BE MARKED

Marking is required on both sides of the carriageway.

Delete in the second line: "…the letters "GPO or ESC", as applicable, …" and replace with "…the letters "T" and "E", as applicable."

Add the following:

"The height of the letter shall be at least 100 mm."

PSLC 8 MEASUREMENT AND PAYMENT

PSLC 8.2 SCHEDULED ITEMS

PSLC 8.2.5 Supply, Lay, Bed and Prove Duct

Delete the words "for GPO ducts," in subclause (a).

PSLG PIPE JACKING (SANS 1200 LG)

PSLG 1 SCOPE

The scope of this specification shall also apply to directional drilling.

PSLG 3 MATERIALS

PSLG 3.1 PIPES

Notwithstanding the contents of this subclause, pipes for jacking shall be reinforced concrete pipes of the D-load designation 100D that comply fully with the requirements of SABS 677 and shall be sealed. Pipes shall be in-the-wall-joint type with rubber "O" type ring. 900mm ND pipes shall be used.

Concrete pipes for jacking shall be centrifugally spun pipes that incorporate concentric reinforcing steel cages and shall be designed to be able to meet the specific requirements of loading from both the jacking forces and the superimposed loads occurring during and after construction. Joints shall be able to resist the forces imposed during installation.

Pipes for directional drilling shall be butt welded 450mm diameter HDPE PE100 PN12,5 pipes.

PSLG 3.2 INTERMEDIATE JACKING STATIONS

Intermediate jacking stations shall not be allowed.

Add the following new clause:

PSLG 3.3* GROUTING MATERIAL

Material for grouting the annulus between the jacked sleeve pipe and the water pipeline shall be either self-compacting 10MPa/7mm concrete or soilcrete. The Contractor shall provide the Engineer with details of the proposed grout mix for approval.

PSLG 4 PLANT

PSLG 4.1 GENERAL

Replace clause 4.1 with the following:

The Contractor shall provide and use suitable equipment for handling pipes and placing them in position for jacking or directional drilling, for jacking or drilling the pipes, for the lubrication of the outer surface of the pipeline, and for excavation in the pipeline or the directional drilling for the pipeline.

PSLG 5 CONSTRUCTION

PSLG 5.1 GENERAL

Replace clause 5.1.1 with the following:

PSLG 5.1.1 Authority to Jack or Directional Drill Pipeline under Facilities Controlled by Third Parties

The Employer or the Engineer will be responsible for obtaining permission to jack or directional drill pipes under facilities controlled by third parties. The Contractor shall be bound by and shall observe the conditions imposed by any third party in granting such permission.

Although the general construction monitoring and control of the contract Works falls under the authority of the Employer and Engineer, any third party may reserve the right to instruct the Contractor directly in any matter that has a direct bearing on the safety of their facilities and the protection of their interests.

PSLG 5.1.2 Competence

Replace the contents of clause 5.1.2 with the following:

Pipe jacking and directional drilling operations shall only be undertaken by contractors experienced in jacking and directional drilling of large diameter pipes under roads, railway lines and the like. Proof of such experience shall be provided by the Contractor prior to pipe jacking or directional drilling operations commencing.

The Engineer shall have the right to reject any proposed contractor who, in the opinion of the Engineer, does not have adequate experience in pipe jacking or directional drilling. The Contractor shall then obtain the services of another pipe jacking or directional drilling contractor with the required experience at no additional cost. The decision of the Engineer as to what constitutes adequate experience shall be final.

Jacking, excavations and directional drilling shall at all times be supervised and undertaken by persons fully conversant and experienced with this work.

PSLG 5.1.3 Design Calculations by Contractor

The Contractor shall furnish the Engineer with fully detailed design calculations, specifications and working drawings showing his method of installation and methods to provide temporary support for the service (road, embankment, etc.) to be crossed and any modifications to structures required before pipe jacking or directional drilling may commence.

The design shall be carried out by a professionally registered engineer with adequate experience in this field. All design calculations, specifications and drawings related to the pipe jacking or directional drilling operations shall be signed by the professional engineer responsible for their preparation.

Although the Engineer may check and approve the design, specification and drawings, the liability for these shall always remain with the Contractor and his professional design engineer.

Pipe jacking and directional drilling shall not proceed until the Engineer has given written permission to the Contractor that he may proceed.

PSLG 5.1.4 Contractor Solely Responsible

The Contractor shall be solely responsible for the safety of all persons, including his own staff and members of the public, and all structures during pipe jacking and directional drilling operations. The Contractor shall indemnify the Employer and the Engineer from any claims of whatsoever nature arising from any accident or incident in or adjacent to the access pits or any other part of the pipe jacking or directional drilling sites, and pipe jacking and directional drilling operations.

PSLG 5.2 SAFETY CONTROL REQUIRMENTS

PSLG 5.2.3 Recording of Movements

PSLG 5.2.3.2 Working under roadways

All requirements of this clause shall also be applicable to railway lines except that levels shall be taken on the centre line and each steel rail of the railway line.

In the last two paragraphs of clause 5.2.3.2 references to “road” and “road authority” shall also include and read “or railway” and “or railway authority”.

PSLG 5.4 EXCAVATION

PSLG 5.4.2 Thrust Pit

The sites of thrust and receiving pits shall be adequately supported by timbers or other approved means during the entire operation to prevent any movement caused by traffic or rail vibrations.

PSLG 5.4.3 Jacking of Pipelines

PSLG 5.4.3.2 Prevention of subsidence during jacking

The presence of ground water may be expected and the Contractor shall provide adequate methods and equipment to de-water the material in the vicinity of the leading edge of the pipe.

PSLG 5.4.3.3 Standard procedure

Add the following to subclause 5.4.3.3:

All pipelines of diameter 900mm or bigger, or of length in excess of 30m shall be continuously jacked so as to minimise problems caused by the build-up of skin friction on a static pipe.

PSLG 5.5 JACKING PROCEDURE

PSLG 5.5.2 Lubrication of Structure During Jacking

The Contractor will be allowed to use a non-toxic, non-harmful, environmentally friendly lubricant during pipe jacking and directional drilling. The lubricant shall be approved by the Engineer before use.

Replace clause 5.5.3 with the following:

PSLG 5.5.3 Thrust and Reception Pits and Drilling Positions

The positions of all thrust and reception pits, and drilling positions, shall be agreed with the Engineer before commencing work.

Thrust pits shall be of sufficient size to allow jacking operations to be conducted with maximum efficiency.

PSLG 5.6 BACKFILLING AND DISPOSAL OF EXCAVATED MATERIAL

Add the following to clause 5.6:

Backfilling of thrust and reception pits shall be undertaken after installation of the pipeline in the same manner and to the same densities as specified for backfilling of pipe trenches. Refer to clause PSLB 5.3.

Excess material shall be disposed of at the designated spoil site.

PSLG 5.7 GROUTING AND PLUGGING

Add the following to clause 5.7:

In addition to the grouting of all voids between the jacked sleeve pipeline and the surrounding material, the gap between the sleeve pipe and the water pipeline shall also be grouted close without any air pockets or voids with material as specified in PSLG 3.3.

The Contractor shall submit to the Engineer for approval full details of his proposed methods and materials for grouting and plugging before commencing with any grouting operations.

PSLG 6 TOLERANCES

PSLG 6.2 PERMISSIBLE DEVIATIONS

Replace the contents of clause 6.2 with the following:

The position of any point of the finished jacked or drilled sleeve pipe shall be within 100mm horizontally and 50mm vertically of the designed position provided always that there shall be no abrupt changes in direction that will impact on the position of the water pipeline within the sleeve pipe.

Adjustment to line or level, or both, shall be gradual and the pipe manufacturer's stated maximum permissible draw or angular deflection shall not be exceeded at any point. Misalignment between jacked pipes shall not exceed 10mm.

PSLG 6.3 CHECKING ALIGNMENT

Add the following to clause 6.3:

The Contractor shall continually check the alignment during directional drilling operations and shall immediately take corrective action should drilling deviate from the design alignment. A copy of the results of all alignment checks and a statement of any corrective actions taken shall be available for inspection on Site, and a copy shall be given to the Engineer as soon as the directional drilling operation has been completed.

PSLG 8 MEASUREMENT AND PAYMENT

PSLG 8.1 PRINCIPLES

PSLG 8.1.1 General

Add to LG 8.1.1

"The Contractor shall make provision in his pricing for all activities, materials, plant, equipment, labour, safety precautions, dewatering and dealing with water in excavations, and all other costs associated with the provision and installation of the jacked or directional drilled sleeve pipe that may not be scheduled but which an experienced pipe jacking or directional drilling contractor can reasonably expect to incur in order to complete the work as specified. No claims for additional payment will be considered for any additional costs that could have been reasonably foreseen by an experienced contractor.

He shall also include in his rates for the relevant items the cost of the design, specifications and drawings prepared by a registered professional engineer, as these costs will not be paid separately.

PSLG 8.1.2 Items for Pipe Jacking

The requirements of this clause shall apply *mutatis mutandis* to directional drilling.

PSLG 8.1.3 Contractor's Priced Schedule

The requirements of this clause shall apply *mutatis mutandis* to directional drilling.

PSLG 8.2 SCHEDULED ITEMS

PSLG 8.2.1 Jacking Establishment

Add the following to 8.2.1:

The requirements of this clause shall apply *mutatis mutandis* to directional drilling.

Separate fixed charge and time-related charge items for directional drilling operations will be scheduled.

The rates shall cover all costs associated with preparing the sites for the drilling equipment, establishing the directional drilling equipment on site, moving the drilling equipment from one drilling site to the next, all safety precautions including but not limited to watching, barricading and lighting, providing and maintaining all temporary works necessary for the duration of the drilling operation and the removal on completion, removal of the drilling equipment off site on completion of the works, reinstatement of disturbed areas to their original condition and making good.

The rates shall also include for any additional insurances associated with the risks pertaining to directional drilling the Contractor deems necessary.

PSLG 8.2.2 Supply of Pipes to be Jacked

Add the following subclause to clause 8.2.2:

PSLG 8.2.2.1 Supply of pipes for directional drilling …….…….. Unit: m

Each directional drilled pipeline will be measured between the ends of the completed pipeline.

The rate shall include all costs for the supply of the specified pipes, delivery, handling and storage, and jointing pipe lengths as specified.

PSLG 8.2.3 Jacking of Pipes

Add the following subclause to clause 8.2.3:

PSLG 8.2.3.1 Directional drilling of pipes …….. Unit: m

The rate shall cover all costs for the handling and positioning of the pipes, operation of the directional drilling equipment in all materials, pulling the pipe through the drilled excavation, lubrication of the pipe if necessary, cutting the pipe to the required dimensions, loading, transporting and disposal of spoil and debris at the designated spoil site, all labour, plant and consumables costs. All costs for the drilling and final positioning of the pipeline must be allowed for as no other payment will be made for this.

PSLG 8.2.4 Excavation for Jacking

In the second and third paragraphs of LG 8.2.4, delete all reference to dumping of material within 0.5km and to freehaul. Suitable excavated material may be used for common trench filling. All excess or unsuitable material shall be disposed of at the approved spoil site.

The rate shall also include for de-watering and for difficulty that may occur working in potentially wet material.

PSLG 8.2.9 Stabilization of Unstable Areas or Grouting of Voids where Ordered

This item shall also cover all costs for the grouting of the gap between the jacked sleeve pipe and the water pipe. Separate items shall be scheduled for filling of voids between the jacked sleeve pipe and the soil, and the gap between the jacked sleeve pipe and the water pipe.

PSLG 8.2.10 Standing Time for Pipe jacking Gang and the Jacking Equipment Covered by 8.2.1 ……..…. Unit: hour

The requirements of this clause shall apply *mutatis mutandis* to directional drilling. A separate item will be scheduled for the directional drilling gang and equipment.

PARTICULAR SPECIFICATIONS

The following particular specifications are included:

- PDC: Manufacture and Installation of Valves
- PDF: Water Meters
- PA: Environmental Management
- PB: Health & Safety Specifications

PARTICULAR SPECIFICATION

PDC: DESIGN, MANUFACTURE AND INSTALLATION OF VALVES

PDC 1 SCOPE

This specification deals with the supply and delivery of the following types of valves for controlling the flow and pressure of treated and untreated water at temperatures not exceeding 50ºC in small and large diameter medium pressure pipelines:

- Wedge type Gate Valves
- Butterfly Valves
- Non-Return Valves
- Air Valves
- Knife Gate Valves

PDC 2 APPLICABLE SPECIFICATIONS, STANDARDS AND DEFINITIONS

PDC 2.1 Supporting Specifications

Where this specification is required for a project, the following codes, specifications and standards shall, inter alia, form part of the contract document:

a) Project Scope of Work;

b) SABS/SANS Standards;

c) BS Standards;

d) ISO Standards;

e) DIN Standards;

f) API Standards;

g) ANSI Standards

When reference is made to a code, specification or standard, the reference shall be taken to mean the latest edition of the code, specification or standard; including addenda, supplements and revisions thereto.

PDC 2.2 Definitions

For the purposes of this specification the definitions and abbreviations given in the applicable specifications listed in 2.1 and the following definitions shall apply:

Face to face dimensions — The distance between the two planes perpendicular to the body axis located at the extremities of the body and ports.

Nominal pressure (PN) — All pressure units throughout the valve specification will be recorded in kilopascals (kPa).

Nominal pressure (PN) is a numerical designation, which is a convenient round number for reference purposes.

Note 1: The maximum allowable working pressure depends upon the materials, design and working temperature and shall be selected from the pressure/temperature rating tables in the appropriate standards.

Note 2: It is designated by PN followed by the allowable working pressure.

Note 3: This definition is in accordance with ISO 7268.

Nominal size (DN) — A numerical designation of size that is common to all components in a piping system other than components designated by outside diameters. It is a convenient round number for reference purposes and is only loosely related to manufacturing dimensions in millimetres.

Note 1 : Nominal size is designated by DN followed by the size in millimetre.

Note 2 : This definition is in accordance with ISO 6708.

All equipment of the same size (DN) designated by the same PN number shall have compatible mating dimensions.

Tight shut off valve — A valve that has no leakage past the sealing faces in its closed position under test conditions

Low leakage rated valve — A valve that has an agreed leakage rate past the sealing faces when the valve is in the closed position.

Regulating valve — A valve intended for regulating purposes, and which may have a clearance between the sealing faces when the valve is in the closed position.

PDC 2.3 Abbreviations

The following abbreviations shall have the meanings given:

CI	Cast iron
CID	Constant internal diameter
COD	Constant outside diameter
IRHD	International rubber hardness degrees
DN	Nominal diameter, which shall mean the minimum inside diameter of the valve as scheduled
PN	Nominal working pressure
p.e.	Plain ended
PTFE	Polytetrafluoro ethylene
PVC	Polyvinyl chloride
PVC-U	Polyvinyl chloride – unplasticized
Sa	Followed by a number refers to the relevant part of Swedish Standards SIS 05 59 00
SS	Stainless steel

PDC 3 Deviations

The Employer shall not permit any substitution or deviation from the requirements of this Specification without prior approval. Any substitution or deviation from the original Specification shall be submitted to the Engineer for approval. Deviation shall only be considered during the tender stage of the project.

PDC 4 QUALITY CONTROL

PDC 4.1 Quality Management System

The valve manufacturer and all manufacturing subcontractors shall have a Quality Management System in accordance with ISO 9001, which shall be certified by a recognised certification authority or body. Proof of ISO 9001 certification for the valve manufacturer and all subcontractors shall be provided at time of tender.

PDC 4.2 Responsibility for Quality

The manufacturer shall implement a comprehensive Quality Control programme and accept full responsibility for the quality of his workmanship and material used, irrespective of any quality surveillance that may be carried out by the Engineer or his appointed representative.

In keeping with the principles contained in the abovementioned code of practice, the manufacturer or any nominated or approved subcontractor(s) shall:

(a) Be responsible for compliance with all the clauses of this specification in every respect;

(b) Carry out all inspections and tests called for in the specification in the presence of the Engineer or his appointed representative. The cost of these inspections and tests shall be included in the tender price; and

(c) Draft a quality control plan for manufacture indicating all the intended stages of testing during manufacture, cleaning, preparation and application of the corrosion protection system specified, as well as hold points for independent quality surveillance.

The quality control plans shall not be compromised once in agreement and shall be adhered to at all times.

PDC 4.3 Notice of Inspection

The Engineer shall be notified at least seven days in advance, or as otherwise agreed, of impending inspections or when cleaning and first coating are to be carried out as well as for witnessing the points in terms of the agreed Quality Control Plans.

PDC 4.4 Submission for Approval

The following shall be submitted to the Engineer, including data sheets where applicable, for approval before work is started:

PDC 4.4.1 <u>For manufacture</u>

(a) Drawings, including general arrangement and detailed drawings;

(b) Programme;

(c) Quality control plan;

(d) Draft Operational and Maintenance Manual.

PDC 4.4.2 <u>For corrosion protection</u>

(a) Programme;

(b) Quality control plan;

(c) Details of blast materials;

(d) Details of coating products;

(e) Details of pickling and passivating products.

PDC 4.4.3 Manufacture and corrosion protection programme

The manufacture and corrosion protection programmes shall state the time and place when the following will be conducted:

(a) Inspection of material;
(b) Hydrostatic testing of uncoated castings, pipes and fittings;
(c) Manufacture of components;
(d) Fettling or dressing;
(e) Degreasing;
(f) Water soluble salts test;
(g) Blast cleaning and application of first coat;
(h) Application of intermediate and final coats;
(i) Commencement of site repairs.

PDC 4.5 Substandard Quality Control

All material, certification and records of the manufacturer shall be subject to examination by the Engineer.

This shall include the checking and testing of equipment. If any deviation is found, additional testing and quality surveillance shall be carried out.

If the additional testing confirms inaccurate quality control by the manufacturer, all work shall be stopped and shall only proceed after remedial action has been implemented.

PDC 4.6 Access for Surveillance

For the purpose of carrying out surveillance, the Engineer or his representative shall be granted access to any part of the manufacturer's premises relevant to the work being carried out, at any reasonable time.

PDC 4.7 Cost of Quality Control

The cost of quality control shall be included in the tender price. When surveillance results in rejection of the lot or when notice by the manufacturer results in a fruitless trip, the cost shall be recovered from the Contractor appointed under the Contract.

If additional inspections, tests and analyses requested by the Engineer prove that the manufacture and/or corrosion protection is in accordance with the specifications, the costs of the inspections and/or tests including transport and accommodation, if applicable, shall be paid by the Employer. Should however the additional investigations prove that the manufacture and/or corrosion protection is not in accordance with the specifications, the cost shall be recovered from the Contractor.

The Employer shall have the right, without prejudice to any other legal remedy, to deduct such costs from payments due to the Contractor under the Contract.

PDC 4.8 Non-compliance with the Specifications

Valves, associated equipment, materials and corrosion protection that do not confirm to the requirements of this Specification shall be rejected.

Such rejected valves, associated equipment, materials and/or corrosion protection shall be held at the cost of the Contractor who shall, when called upon, and at his own cost, repair the defects or corrosion protection according to the Contract.

Failing satisfactory repair of rejected valves, associated equipment, materials and/or corrosion protection, the valves, associated equipment and materials shall be returned to the Contractor, as applicable, at his cost and risk without any opportunity to substitute the rejected equipment. Alternative valves, associated equipment or materials may be purchased by the Employer at the Contractor's expense or an approved contractor may be appointed to repair the valves, associated equipment, materials and/or corrosion protection.

PDC 4.9 Final Acceptance

No valves, associated equipment or materials shall be accepted nor be delivered to site unless all Quality Control requirements have been complied with.

PDC 4.10 Quality Control Records

PDC 4.10.1 Coating and material records

Quality control, material and coating records for all stages of the work, i.e. batch numbers of materials used, environmental conditions and all test data shall be recorded on the approved Quality Control Plan for manufacturing and corrosion protection.

Certificates for all materials used shall also be required.

PDC 4.10.2 Data sheets, specifications and codes of practice

The Manufacturer shall have available the latest issues of the following:

(a) A copy of this Specification;

(b) Relevant Standard Specifications and Codes of Practice;

(c) Data sheets for materials used.

PDC 4.10.3 Quality control records

Accurate and detailed quality control records shall be kept by the Contractor for all stages of the manufacture and supply of the valves and associated equipment and materials.

All quality control records shall be available for inspection by the Engineer or his representative.
Incomplete, inaccurate or inadequate records shall be regarded as non-compliance with the specifications.

The collection of documents for each valve or item or equipment shall be collated and bound in a logical manner and retained by the Contractor as proof of quality achieved. These shall be available on demand for quality control and payment releases. No payment for any valve shall be made unless the quality control records have been made available to the Engineer.

The records shall be handed over to the Engineer on completion of the Contract or bound into the Operation and Maintenance manuals where such manuals are supplied.

PDC 4.11 Quality Surveillance by the Engineer

PDC 4.11.1 Inspection by the Engineer

Inspection of valves and equipment shall be carried out by the Engineer, his representative or a nominated and approved inspection authority at the manufacturer's and corrosion protection applicator's works.

Inspection by the Engineer, his representative or a nominated and approved inspection authority shall in no way relieve the manufacturer or Contractor of any of their obligations to design, manufacture and supply valves and equipment of the quality and workmanship required in terms of the Contract.

PDC 4.11.2 Independent surveillance

The Engineer may employ an independent, technically qualified person or organisation to carry out quality surveillance of the work on his behalf.

The inspection authority has the right to inspect any item covered in the Contract at any stage of execution of the Contract.
Where imported valves or supplies are to be inspected before shipment, the Contractor shall notify his suppliers abroad of the conditions applicable to inspections and also request them to notify the Engineer when consignments are ready so that arrangements can be made for the required inspections.

PDC 4.11.3 Material tests

The manufacturer's material test data certification and quality records shall be subject to examination by the Engineer or his representative. Reasonable samples of the cleaning and coating materials shall be provided for testing at the Engineer's discretion.

Rejection of the materials shall place a hold on the use of the materials of the same batch number and any components that have already been cleaned / coated with rejected material shall be reworked at no additional cost to the Employer.

PDC 4.11.4 Destructive testing

The Engineer or his representative may carry out reasonable destructive tests to ascertain compliance with the corrosion protection specifications. Areas thus damaged shall be repaired by the Manufacturer / Contractor to the satisfaction of the Engineer at no additional cost.

PDC 5 GENERAL CONDITIONS AND REQUIREMENTS

PDC 5.1 Nominal Pressure

Each valve is assigned a nominal pressure (PN) in kPa and shall be tested in accordance with these specified pressures.

PDC 5.2 Minimum Pressure Rating

1 000 kPa is considered to be the lowest acceptable pressure rating for any valve irrespective of lower system pressures.

PDC 5.3 Design life

All valves and appurtenant fittings shall be designed for a useful life of forty-five (45) years under the operating conditions specified in the Project Specification.

PDC 5.4 Guarantee

All valves shall be guaranteed against faulty design, materials and workmanship for a minimum period of ten (10) years from date the Completion Certificate, unless otherwise specified. During this period the Contractor

shall attend to and rectify at his own cost any defects that can be attributed to faulty design, materials and workmanship. Normal wear and tear shall be excluded.

PDC 5.5 Flanges

Unless specified under the Project Specification, all valves shall be double flanged and drilled off centre to SANS 1123. Flange thickness shall be in accordance with BS 4504 for cast iron valves and SANS 1123 for fabricated valves.

Should a required flange size fall beyond the range of SANS 1123, mating dimensions shall be in accordance with BS 4504.

Flanges with a pressure rating between 1000 - 1600 kPa shall have flat joint faces machined in accordance with the above SANS or BS specifications. Flange pressure ratings that exceed 1600 kPa shall incorporate an “O” ring sealing arrangement. Details of the proposed “O” ring groove shall be furnished at the tendering stage for consideration.

Flange sizes exceeding and including DN 1500 shall however incorporate an “O” ring sealing arrangement irrespective of pressure rating.

The periphery of all flanges shall be machined to the correct outside diameter dictated by the flange pressure rating. Flanges for pipes and fabricated valves shall be machined on both faces.

All holes, shall be drilled perpendicular to the face and spot machined on the bolt head / nut bearing faces.

Sufficient clearance shall be allowed between the body and flange to enable flange bolts to be removed or tightened. Tapped holes shall only be permissible where stiffening ribs or shaft bosses interfere with bolts.

One flange of the valve body shall be clearly marked, identifying the respective pressure rating (Refer to Paragraph 5.12).

PDC 5.6 Jointing Material and Fasteners

Valves shall be supplied complete with bolt units, consisting of a standard length bolt, nut and two washers. The stud unit, where applicable, shall be supplied with a standard length stud, nut and washer. A washer shall be fitted under all bolt / screw heads and nuts.

The shortest standard bolt or stud that protrudes beyond the nut by a minimum of two threads when the assemblies are fully tightened shall be used. The same applies to stud units. The amount by which the bolt or stud protrudes beyond the nut shall therefore not exceed 10mm plus 2 threads. Care shall be taken to ensure that the correct bolt length is used taking into account the actual flange thicknesses on the particular installation.

Where hot dip galvanised bolts are used, the bolts may not be cut, after galvanising, to comply with the abovementioned length specification.

The manufacturer shall specify a fastening sequence for bolts (if applicable) and the torque settings (in Nm) for all bolts. These torque settings and fastening sequences shall be included in the Operation and Maintenance Manual.

In addition each valve shall be supplied with full-face gaskets or "O" rings for joining up to adjacent flanges. Depending on the valve location in a piping system and the atmospheric conditions, the following specifications will apply:

a) Black bolted units to SANS 135;

b) Precision bolted units to SANS 136;

c) Galvanised bolted units to SANS 763;

d) Stainless steel bolted units to DIN 931;

e) Stainless steel set screws to DIN 933.

For all valve components, i.e. bonnet covers, glands etc., drilled holes for bolts shall be perpendicular to the flange face.

All bolts and stud units shall be the same length and appropriate size. When required by the Project Specification, isolating bolt units shall be supplied with bolt, nut, two washers, an isolating sleeve and two isolating washers.

PDC 5.7 Contact Between Dissimilar Metals

The Contractor shall ensure that metals and alloys are compatible or are adequately protected if, in the galvanic series, there is more than 0,3 volt difference in the galvanic potential.

PDC 5.8 Valve Supports and Lifting

Valves of DN 400 and larger shall have supporting feet cast integrally with the valve body.

Each valve over DN 300 or 100 kg mass, shall have two eye bolts of the required strength securely attached to the valve body to facilitate easy handling during transport and installation.

PDC 5.9 Bypasses

Where specified in the Project Specification, valves shall be fitted with bypasses and bypass valves. Piping shall be flanged.

Bypasses shall be bolted to the valve body and not to the adjoining pipe work. Piping and fittings shall be hot dipped galvanised after fabrication.

PDC 5.10 Welding

Welding shall be in accordance with BSS 2633 and BSS 5135 for mild steel and BSS 4677 for corrosion resistant steel.

Welding of flanges shall be in accordance with BSS 806 Type 6.

Weld strength shall be at least 90 % of that of the plate calculated on the original measured thickness of the plate before welding.

The welding process used should limit heat input to a minimum and can include manual metal arc (MMA) and metal inert gas (MIG).

PDC 5.11 Pressure Gauges

Where specified in the Project Specification, valves shall be fitted with glycerine filled pressure gauges complete with separate stainless steel isolating ball cocks. The pressure gauges shall in general conform to SANS 1063.

The gauge face shall have a minimum diameter of 100mm with black lettering and needle on a white background. A red line or needle shall indicate the maximum safe working pressure, where applicable. Pressure gauges shall be calibrated in increments of 5 % of the full-scale reading. The normal working pressure shall give a reading of between 50 and 75 % of the full scale.

PDC 5.12 Marking

PDC 5.12.1 General

Each valve shall be clearly marked in accordance with the requirements of BS 5418.

PDC 5.12.2 Body marking

All valve bodies shall be permanently and indelibly marked (cast in 15mm minimum lettering size on castings or welded on fabricated valves) as follows:

a) Nominal size (DN in mm);

b) Nominal pressure (PN in kPa);

c) Arrow to indicate the direction of flow;

d) The contract number plus identification number to identify each individual valve;

e) Material of construction.

The above markings shall be legible after painting.

In order to facilitate identification at the factory and at site, all valve bonnets, gates, discs, doors, etc. shall be permanently marked (cast in or welded on in 15mm minimum lettering) with the contract number and an identification number for each individual valve.

In addition to the above, one flange for a flanged valve shall be clearly marked with a single set of machined notches (at least 3mm wide, 3mm deep and the length of the notch to suit the width of the flange). For wafer type valves, the width and depth of the notch shall be identical to that of the flanged valves. The length of the notch however shall be 8mm long.

* One notch	-	1000 kPa operating pressure
* Two notches	-	1600 kPa operating pressure
* Three notches	-	2500 kPa operating pressure
* Four notches	-	4000 kPa operating pressure

PDC 5.12.3 Identification plate markings

Identification plate markings shall be hard-stamped, printed or engraved on a stainless steel nameplate fitted to the valve with stainless steel screws. If necessary, a boss / raised face shall be cast as part of the body to fit the nameplates.

Information listed on a name plate shall be as follows:

a) Manufacturer's name or trade mark;

b) Nominal size (DN) in millimetres;

c) Contract number;

d) Nominal pressure (PN) in kPa;

e) Serial number;

f) Item number;

g) Material, disc/gate and body;

h) Date of manufacture;

i) Mass of valve in kg;

j) BS/SANS specification.

PDC 5.12.4 Position indicators

Position indicating plates shall be embossed to clearly show the fully open and closed positions as well as the ¼, ½, and ¾ intermediate positions.

Electronic position indicators are preferred. Full details must however be supplied with the offer. Special valve position indicators, calibrated in the specified increments of the valve opening, shall be designed, supplied and installed as required in the Project Specification.

The indicator system shall be accurately installed and calibrated to give true linear indication of the valve opening. Calibration of the indicator scale shall be done in-situ and directly recorded against the actual valve operation.

All pulleys, brackets, pins, cables, counterweights, sleeves, indicator gears and fasteners shall be of stainless steel 304 or better.

PDC 5.13 Pressure Test Requirements

Valves shall be pressure tested by the manufacturer to prove that all the fully assembled valves are capable of functioning satisfactorily under the specified operating conditions.

All materials and workmanship shall be the best of their respective kinds and shall be subjected to the tests prescribed in the latest amendments of the relevant SANS or BS Specifications.

All final product testing shall be carried out to the methods and tolerances specified in the relevant SANS or BS Specifications.

The supplier shall bear the cost of carrying out the tests prescribed by the codes.

PDC 5.13.1 Pressure testing

Test flanges shall be used, tapped holes in valve bodies are unacceptable. Tie-bolts or other forms of restraint applied across the blank flanges for the testing of flanged valves shall not be permitted.

Note:

a) No valve undergoing pressure testing shall be subject to shock loading.

b) Valves and connections shall be purged of air prior to pressure testing.

PDC 5.13.2 Test fluid

The test fluid for all pressure tests shall be either water with the addition of a suitable inhibitor, or another liquid whose viscosity at ambient temperature is equal to or less than that of water.

PDC 5.13.3 Test procedures

General

Test pressures shall be maintained for not less than a two minute duration or as otherwise specified by the Engineer and the valves shall be watertight in all respects.

Structural and seat test shall be executed on both sides of double seated valves i.e. gate valves.

All valves, completely assembled, shall be pressure tested by the manufacturer in accordance with Table 1.

TABLE 1: APPLICABILITY OF PRESSURE TESTS

TEST	SERVICE APPLICATION		
	TIGHT SHUT-OFF	LOW LEAKAGE	REGULATING
Structural			
(i) Body	√	√	√
(ii) Disc strength	√	√	N/A
Seat/Seal	√	√	N/A

Structural test

All structural tests shall be done at 1.5 x maximum permissible working pressure at ambient temperature. Seepage past gland seals during structural tests shall not be cause for rejection, provided that the gland seals are watertight when the internal pressure is reduced to the maximum permissible working pressure at ambient temperature.

Body

Testing shall be carried out before valves are coated or lined with materials that are capable of sealing against leakage. Both ends of the body shall be blanked off so that the valve is subjected to the full pressure stresses in all directions induced by the test pressure.

The valve disc shall be in the open or partially open position during the test. There shall be no visually detectable leakage through the shell of the valve during the test period.

Disc / Gate strength

The valve shall be closed in the normal manner, and the test pressure applied to one side of the disc with the other side open to atmosphere. There shall be no visible evidence of structural damage to or deformation of the disc or of leakage through the disc during the test duration.

Seat / Seal test

Each assembled valve shall be subjected to open-end tests for leakage up to 1.1 x the permissible working pressures at ambient temperature. Valves shall be drop tight over the complete range of pressures. Valves with symmetrical seatings shall be tested in either direction.

The maximum permissible leakage shall be as given in Table 2.

TABLE 2: TEST PRESSURE LEAKAGE RATES

VALVE TYPE	LEAKAGE RATE
Tight shut-off	Rate 3 * : No visible leakage for duration of test.
Low leakage	Rate 1 : 0.1 mm^3/s x DN

* Leakage rates are defined in BS 5146 : Part 2.

PDC 5.13.4 Hydraulic testing

Before dispatch to site, valves shall be tested at the manufacturers' works in accordance with the requirements of Table 3 below, as applicable.

The Engineer may request that certain testing procedures be witnessed. In such case, the Contractor shall ensure that at least 48 hours written notice be given to the Engineer to enable the tests to be witnessed.

TABLE 3: HYDRAULIC TEST REQUIREMENTS

Class & Working Pressure (MPa)	Test Pressure on Body (MPa)	Test Pressure Gate/Disk (MPa)	Droptight Pressure (MPa)	Applicable Standard
Wedge Gate And Resilient Seal Valves				
Class 10 1,0	2,0	1 ,5 up to 450Ø	1,0	SANS 664
Class 16 1,6	3,2	2,4 up to 450Ø	1,6	SANS 664
Class 25 2,5	5,0	3,7 up to 450Ø	2,5	SANS 664
Butterfly Valves				
Class 1l0 1,0	1,5	1,5	1,1	BS 5155 BS 6755
Class 16 1,6	2,4	2,4	1,75	BS 5155 BS 6755
Class 25 2,5	3,7	3,7	2,75	BS 5155 BS 6755
Non-Return (Check) Valves				
Class 10 1 ,0	1,5	1,0	N/A	SANS 1551
Class 16 1 ,6	2,4	1,6	N/A	SANS 1551
Class 25 2,5	3,7	2,5	N/A	SANS 1551

PDC 5.13.5 Test certificates

All valves must be supplied with hydraulic test certificates. In the case of valves smaller than 350mm diameter, a certificate for the batch, if more than one valve is ordered, will be acceptable.

The test certificates for individual valves shall:

(a) have a specific code / number which relates to the same code / number on the valve;

(b) contain a statement by the manufacturer that the valve(s) have been tested in accordance with this standard; and

(c) state the actual pressures and medium used in the test.

PDC 5.13.6 Anti-static

Valves designated as anti-static shall have electrical continuity between shaft, disc and body when tested in accordance with A.2 of BS 5146: Part 1.

PDC 5.14 Functional Test Requirement

The manufacturer shall do a functional test on each valve. This shall consist of taking the valve through one complete cycle, from fully closed to fully open and back. The manufacturer shall take particular note that the valve position indicator is correctly calibrated.

PDC 5.15 Equipment Drawings

The Contractor shall submit drawings for the following purposes:

- Tendering;
- Manufacture for approval;
- Installation for approval;
- As-build records.

No valve shall be supplied prior to the Engineer approving the manufacturing drawings. Any valve supplied before the drawings are approved, shall be at the Contractor's risk.

PDC 5.16 Operating and Maintenance Manuals

Five copies of Operating and Maintenance Manuals shall be supplied. A Draft copy of the manual shall be submitted for approval before the final copies are submitted.

PDC 5.16.1 Contents

The purpose of these documents is to simultaneously provide a permanent and accurate record of all the equipment provided as well as a usable guide in simple language covering operating, maintenance and fault-finding procedures.

PDC 5.16.2 Binding

The manuals shall be securely bound in A4 size, hard backed plastic / waterproof 4-ring binders, with clear pockets on the spine and front cover for the insertion of title slips, giving the Contract Number, Scheme, Dam and a description of the equipment supplied.

Drawings larger than A3 size, index and other title pages shall be contained in separate plastic pockets, bound in the appropriate section.

PDC 5.16.3 Layout

The sections shall be separated by plastic dividers, clearly and visibly marked to match the index, and shall be set out as follows:

a) Title page;

b) Index;

c) Specification and Technical Schedules;

d) General description with test certificates and final test certificate relating to any tests carried out;

e) Operating Instructions: These shall be clear, concise and easy to follow and must include, where applicable, pre-start, safety and shut-down procedures;

f) Routine maintenance and lubricating schedule;

g) Fault diagnosis and repair procedure;

h) Detailed schedule of plant components giving materials, corrosion protection, part numbers, etc.;

i) Spare parts list: Suppliers / Agents details must be provided;

j) Drawings. They shall include: general arrangements, assembly drawings, hydraulic and electrical diagrams, parts and material list in A3 and flow discharge curves. Suppliers / Agents ORIGINAL brochures and instrumental literature shall also be incorporated in the manual.

PDC 5.17 Handling and Transport

The Contractor is responsible for the safe and undamaged delivery of equipment.

After final product inspection and approval, the valve and related fittings shall be securely packed to prevent damage in transit.

In order to protect the corrosion protection (lining), the ends of valves and fittings shall be securely blanked off with sturdy blank flanges which shall be clearly marked:

"DO NOT REMOVE UNTIL FINAL INSTALLATION"

Plastic sheeting will not be acceptable.

Bolts and other small parts shall be sewn up in strong bags and crated. The bags shall be tagged using metallic tags and indicate the following information:

a) Manufacturer's identification and contract number;

b) Part numbers;

c) Description;

d) Sizes; and

e) Quantities.

Each bag shall have the delivery address listed on a separate metallic tag.
The use of ropes, wire or chains for lifting without suitable padding is strictly forbidden. For transport or storage purposes, balks of timber shall be used to support the components on any surface and separate them from each other.

Precaution shall be taken to support and chock the equipment to prevent movement when loading onto vehicles. Components shall be firmly lashed or chained with padded lashing supported on sawdust bags. The area of padded surfaces shall be adequate to prevent damage to coatings.

The Site Engineer shall be notified of the delivery date and of any requirements regarding off loading and storage at site.

For site delivery, the transportation and supervision during off-loading will be the responsibility of the Contractor.

The final inspection and acceptance of equipment supplied will be undertaken on site after off-loading has been completed. Any damage that occurs during the handling, assembly and storage of equipment at the Manufacturer / Contractor's works, including transportation to site, shall be repaired by the Contractor at his own cost, in accordance with the valve specification and to the satisfaction of the Engineer.

PDC 6 WEDGE GATE VALVES

PDC 6.1 General

Gate valves shall be of the resilient seal or wedge-gate type, the gates of which shall be completely clear of the waterway in the fully open position. Unless otherwise specified, the gate valves shall be of the non-rising spindle type. The valves shall be capable of withstanding the nominal pressure (PN) and specified test pressures from both sides. The gate shall operate satisfactorily under the specified conditions.

Where the specification calls for the supply of 1 000 kPa rated gate valves and the manufacturer manufactures these valves identical to the 1 600 kPa rated valves, these valves can be supplied with the casted pressure rating stating 1 600 kPa and drilled to the 1 600 kPa specification, thus supplying a 1 600 kPa valve. The contractor shall, however, confirm this in writing at the tendering stage.

In specific circumstances the valves have to be drilled to suit existing equipment and details thereof will be supplied in the Project Specification.

Gate valves shall be of the nominal bore, class, type and working pressure as detailed in the Bill of Quantities and shall comply with the following detailed requirements:

PDC 6.2 Manner of Operation

PDC 6.2.1 Valve rotation

Unless otherwise specified in the Project Specification, the valve shall be closed by turning the spindle anti-clockwise when viewed from above the spindle.

In the case of valves fitted with a reduction gearbox, the geared spindle shall rotate as specified above. The valve gearbox, were applicable, shall not be mounted directly onto the stuffing box but shall be mounted on suitable supporting brackets.

The direction of opening of the valve shall be clearly indicated on the bonnet of the valve.

PDC 6.2.2 Sealing ability

Valves are to seal drop tight at the pressures specified in Table 2: Hydraulic Test Requirements.

PDC 6.2.3 Spindle

Valves shall be of the non-rising spindle type.

PDC 6.2.4 Opening and closing torque

All valves shall be designed to be opened or closed against an unbalanced head equal to the maximum rated working pressure of the valve or a lower pressure if so stated in the Project Specification.

The torque required to open or close a valve as stated above shall not exceed the following:

- 100 Nm in the case of valves up to 300 mm ND.
- 300 Nm in the case of valves over 300 mm ND.

PDC 6.2.5 Spindle cap

Valves shall, unless otherwise specified herein, the Drawings or the Bill of Quantities, be fitted with a spindle cap which is locked to the valve spindle by means of a 12mm set screw.

PDC 6.3 Thrust bearings

Gate valves with a nominal bore of 225mm or larger shall be fitted with ball-bearing type thrust faces above and below the spindle thrust collar. The thrust faces shall be housed in a sealed grease packed enclosure. It will be considered an advantage if these thrust faces can be re-greased with the valve under pressure.

All gate valves shall be fitted with a back seal to permit the replacement of the stem seals under pressure.

PDC 6.4 Gland packing

Spindle seals may be of the stuffing box and gland or O-ring type.

PDC 6.5 Seat rings

Valves of nominal bore up to and including 300mm shall have seating rings pressed into undercut recesses, machined into both gate and body in such a manner that the permanent distortion of the seating ring prevents them from becoming loose.

PDC 6.6 Construction Materials

All materials used in the construction of gate valves shall comply with the requirements of SANS 191 and SANS 664 as relevant.

For gate valves for working pressure up to 1,6MPa and over DN 50 but not exceeding 600mm the valve body shall be of cast iron and shall comply with the relevant requirements of SANS 664.

For gate valves for working pressure over 1,0MPa and of diameter exceeding DN 600 the valve body shall be of cast steel and shall comply with the relevant requirements of SANS 191.

Valve trim shall be either manufactured from Copper alloy or Stainless steel as per Appendix D of SANS 664.

All copper/zinc alloys used shall be dezincification resistant.

Galvanised fittings shall not be used on any part of a valve.

The supplier shall provide full details of materials used for the valve construction.

PDC 6.7 End Connections

Gate valves shall be provided with double flanged or double spigotted or double socketed end connections, as detailed.

PDC 6.7.1 Flanged valves

Unless otherwise specified in the Project Specification, valve flanges shall be drilled off centre to the specified pressure table and in accordance with the requirements of the latest revision of SANS 1123. Tapped holes are unacceptable except where stiffening ribs interfere with bolting. The front faces of all flanges shall be fully machined.

Flanged valves shall be supplied complete with all jointing material such as gasketing, bolts, nuts and washers necessary for both flanges. Bolts are to be of such length that, when the valve is bolted to a steel flange with thickness as per 854504, between zero and two threads protrude past the nut.

PDC 6.7.2 Spigotted and socketed valves

The ends of Spigotted and Socketed valves shall be machined to be compatible with CID or COD fibre cement pipes, uPVC or GRP pressure piping as specified in the Scope of Work or in the Bill of Quantities.
End connection dimensions shall be compatible with SANS 1223, SABS 966 and SANS 997.

PDC 6.8 Wedge-gate Valves

PDC 6.8.1 Gate and guides

Channel guides on the body and the shoes on the gate shall be as deep and as long as necessary to support and minimise shudder of the gate in any position during its travel.

Shoes shall be accurately fitted in the guides so as to ensure that sealing rings do not make contact before the gate is seated and that the gate is centralised when seated.

The sliding surfaces between the shoe and the channel shall be constructed from acceptable dissimilar materials.

With the valve fully open, at least half of the shoe shall be supported by the guides.

Jacking screws shall be provided to prevent over travel of the gate when closed. The design of the gate and guides shall be such that both pressure and/or flow may be applied from either side of the gate.

Gate valves of nominal bore not exceeding 300mm shall be capable of being installed in any position.

PDC 6.8.2 Stems

The stem thrust collar shall bear against a ball thrust bearing of approved design, details of which shall be furnished at tendering stage.

PDC 6.8.3 Sealing faces

Body and gate seals shall be of such design and construction that will prevent seals becoming loose and prevent water passing behind seals under all conditions of operation and test. This feature must be proven at tendering stage by suitable drawings and documentation.

The leading edges of the sealing rings shall be slightly chamfered.

PDC 6.8.4 Position indicators

All valves of DN 300 and larger shall, except where otherwise specified, be fitted with mechanical indicators to show the position of the gate.

PDC 6.8.5 Gate and body marks

One face of the gate shall be marked, corresponding to a similar mark on the body, to ensure correct replacement after dismantling. The marks shall be visible and clear after coating.

PDC 6.9 Resilient Seal Gate Valves

PDC 6.9.1 Body and guides

The valve body shall incorporate a straight unobstructed body passage without pockets and shall have inclined seats and prominent gate guides to eliminate deposits in the valve body. The guides shall be as deep and as long as possible, but not protruding into the flow path to offer support in all gate positions.

The rubber coated gate shoes shall accurately fit the body guide profile to allow smooth operation of the gate with minimal shudder.

PDC 6.9.2 Gate

The gate shall be accurately moulded and completely encapsulated in rubber to ensure drop tightness over the valve pressure range. The rubber coated gate shall be designed to offer an equal distribution of sealing pressure in all directions with a capacity to accept foreign matter up to 1mm in particle size.

PDC 6.9.3 Stem

A corrosion resistant stem seal arrangement shall include a scraper ring to prevent the ingress of foreign matter.

A stem thrust collar shall be installed between anti-friction materials to ensure low operating forces.

PDC 6.9.4 Sealing faces

Body and gate seals shall be of such design and construction that will prevent seals becoming loose and prevent water passing behind seals under all conditions of operation and test. This feature must be proven at tendering stage by suitable drawings and documentation.

PDC 6.9.5 Position indicators

All valves of DN 300 and larger shall, except where otherwise specified, be fitted with mechanical indicators to show the position of the gate.

PDC 6.9.6 Gate and body marks

One face of the gate shall be marked, corresponding to a similar mark on the body, to ensure correct replacement after dismantling. The marks shall be visible and clear after coating.

PDC 7 BUTTERFLY VALVES

PDC 7.1 General

Butterfly valves shall be manufactured to the nominal bore, class, and working pressure as detailed in the Project specification or Schedule of Quantities and shall comply with the following requirements:

Butterfly valves shall be either of the seal in body or the seal in disc type as detailed in the Project specification or Schedule of Quantities

Butterfly valves with nominal bore not exceeding 450mm shall be of the wafer or flanged type as specified in the Project Specification. Valves larger than 450mm ND shall be of the flanged type.

All seal in disc Butterfly valves shall be of the double eccentric, bi-directional, full-bore and “tight shut off” type.

Manufacturers shall certify that seal in disc valves are of the double eccentric design. All butterfly valves shall seal and be pressure tested from both directions.

The maximum flow rate in the valves shall not exceed 7 m/s unless otherwise specified. The maximum permissible flow rates through the valves at the respective maximum differential pressure across the valve shall be quoted. No cavitation in the fully open position shall be accepted and the tenderer must state the head loss for the specified flow rates in his covering letter.

Butterfly valves shall be generally in accordance with BS 5155. Face-to-face shall be in accordance with BS 5155 for pressures up to and including PN 25, whilst for PN 40 face-to-face may be to DIN 3202

PDC 7.2 Manner of operation

PDC 7.2.1 General

Butterfly valves shall be operated by hand or by electric actuator as specified. Actuator mounting flanges shall conform to ISO 5211.

The valves shall be capable of closing under the maximum head and maximum specified flow rate. The valves shall be capable of operating in any position without variation of the disc position or flutter.

There shall be no interference in the water flow pattern through a valve, i.e. the disc stop mechanism shall not impede the flow pattern. No cavitation in the fully open position shall be accepted.

Discs shall close with a positive action with no possibility of slamming shut during any stage of the closing operation. All valves shall be installed in a position that allows the valve to operate along the horizontal axis.

The lower portion of the disc shall open towards the downstream side of the valve i.e. in the direction of flow.

PDC 7.2.2 Valve rotation

Unless otherwise specified in the Scope of Works, butterfly valves shall, where applicable, be closed by turning a handwheel clockwise when seen from above the spindle.

The direction of opening of the valve shall be clearly indicated on the actuator of the valve. A robust cast iron or steel indicator shall be provided to indicate the position of the valve.

PDC 7.2.3 Opening and closing torque

The opening or closing torque on the handwheel, where fitted in accordance with the requirements of the Scope of Works, shall not exceed 300N when operating against an unbalanced head equal to the maximum rated working pressure of the valve or when operating against a lower pressure where so stated in the Scope of Works.

PDC 7.2.4 Sealing ability

Butterfly valves shall seal drop tight from both sides at all pressures up to the maximum rated working pressure of the valve.

PDC 7.3 Design

PDC 7.3.1 Body

The hubs for the shaft-bearings and the gearbox mounting flanges shall form an integral part of the valve body.

A 10 millimetre wide and 5 millimetre deep drain groove shall be machined in the gearbox mounting flanges to release any seepage water in the event of shaft seal failure.

PDC 7.3.2 Shafts

The valve shall be suitable for installation with the shaft in any position.

Shafts can be either continuous or a stub-shaft design configuration. Stub-shafts shall extend into the disc hub for a distance of at least 1.5 x shaft diameter and shall not protrude from the hubs i.e. exposing the shafts.

The shaft shall have a splined or square shaft connection to the disc and shall be of single piece construction, supported both at the bottom and top of bearings and isolated from the liquid being conveyed through the valve. Shafts may also be attached to the blade by means of keys, at the Engineer's discretion. Shaft fixing by means of dowel or taper pins shall not be accepted.

O-ring seals shall be used only as dust seals and not as primary sealing devices

The shaft connection shall be designed to transmit shaft torque equivalent to at least 75% of the torsional strength of the shaft.

The shaft shall be positively connected inside the disc. The control shaft shall be connected to the spindle by means of a through-bolt.

PDC 7.3.3 Disc

The disc shall be a single casting or fabrication with a smooth continuous surface.

The disc of seal in body valves shall be of hydrofoil section with a smooth continuous surface and shall be manufactured in 316L stainless steel.

The maximum combined stresses in the disc shall not exceed 20% of the minimum yield stress of the material used, when an unbalanced (differential) pressure equal to the maximum rated working pressure of the valve is applied to either side of the valve.

The disc shall be connected to the shaft by means of corresponding splines or square shaft. Keys may be accepted at the Engineer's discretion but pins, bolts or other devices shall not be accepted.

PDC 7.3.4 Seal retaining rings

Stainless steel seal retaining rings shall be coated to reduce galvanic corrosion. Any recess for the retaining ring in the disc or body shall be coated and the retaining rings assembled whilst the coating is still wet. The coating may be brush applied 2-pack epoxy approximately 150 DFT or FBE. The recess for the retaining ring/s in the blade or body shall be coated in accordance with the corrosion protection specifications, or the seal face shall be assembled with a coat of wet solvent free epoxy.

PDC 7.3.5 Seats and seals

Preference shall be given to a resilient seal arrangement that is removable, replaceable and adjustable in situ from the downstream side of the valve without having to remove the valve from the pipeline.

The resilient seals shall have non-weathering, non-sticking, long life properties and shall be compatible with the quality of the water to be conveyed. Resilient seals shall be continuously moulded soft seals without joints. Glued seals are not acceptable.

The edge of the seal retaining groove in the disc shall be stainless steel 304L deposit welded before machining for an O-ring or music note type seal.

Sealing faces in the body, weld deposited or replaceable, shall be accurately machined and polished and shall provide adequate "lead in' for the resilient seal to open and close on the stainless steel seat only.

The mounting flange of a removable seat in the body shall either be stainless steel deposit welded and machined level with the seat, or the seat ring shall be manufactured to cover the seat mounting flanges.

The seat and seal shall be of a design preventing them from becoming loose and obviate water seepage under the seals or seats during all conditions of operation and testing.

PDC 7.3.6 Body liner

The body liner of seal in body valves shall be of the full body liner type with an EPDM liner and shall be either removable or vulcanised, as detailed in the Project Specification.

PDC 7.3.7 Bearings

Self-lubricating sleeve type bearings (bronze backed) or bushes shall be fitted into the hubs of the valve body. Each valve shall be fitted with at least one adjustable thrust bearing or spacer disc set to hold the disc securely concentric with the body or seat.

PDC 7.3.8 Lubrication

All points on the valve requiring lubrication shall be fitted with nipples suitable for grease gun application.

PDC 7.3.9 Limit stops

Butterfly valves shall be fitted with adjustable mechanical limit stops to limit disc movement at the fully open and fully closed positions.

PDC 7.3.10 Position indicators

A robust cast iron or steel indicator shall be provided to accurately indicate the position of the valve.

PDC 7.3.11 Hand wheels

Unless otherwise specified, all Butterfly valves shall be fitted with gearbox actuators and with robust, solid disc type handwheels. The ring and spokes of the handwheel, where fitted, shall be cast or fabricated from material with a diameter of not less than 20mm. The direction of closing shall be marked on the hand wheel.

Maximum hand wheel dimensions shall be as follows:

PN16

100 NB to 300 NB – Maximum diameters may not exceed 250mm

400 NB to 1000 NB - Maximum diameters may not exceed 400mm

PN25

100 NB to 200 NB – Maximum diameters may not exceed 250mm

250 NB to 800 NB – Maximum diameters may not exceed 400mm

900 NB and 1000 NB – Maximum diameters may not exceed 500mm

Note: Under no circumstances may the hand wheel diameters exceed those specified. Maximum rim pull on the hand wheel may not exceed 300 Newton.

PDC 7.3.12 Gearboxes

Gearboxes shall be of the self-locking worm and gear type with zero backlash. Gears shall be precision machined to ensure compliance in this regard.

Worm shafts shall be fitted with roller thrust bearings to ensure minimal operating effort and smooth rotary action of the input shafts.

Gearboxes shall be packed with approved water resisting grease. The enclosure shall conform to a minimum of IP67 to prevent the ingress of water and debris into the gearbox housing.
Gearboxes shall in all instances be sized for fitting of actuators and shall be provided with ISO mounting pads for direct actuation. Actuator mounting flanges shall conform to ISO 5211.

To prevent over travel of the valve blade in the open or closed position, all valves shall have adjustable mechanical stops incorporated in the gearbox. End stops shall be of the travelling nut type enabling precise setting of the disc open/closed positions.

Gearbox orientation shall be such that the gearboxes do not foul adjacent pipe work. The Contractor shall confirm gearbox orientation with the Engineer before placing any orders.

Full details of gearboxes in the form of a general arrangement drawing or certified catalogue information must be provided with the tender.

PDC 7.3.13 Corrosion protection coating

The inside and outside of the valve body shall be FBE coated (min DFT 250 micron) or an alternative coating approved by the Engineer.

PDC 7.4 Construction Materials

Butterfly valves shall be constructed generally in accordance with BS 5155. Valve components, unless otherwise specified in the Scope of Work, shall be constructed of the material specified in the following tables.

MATERIAL SPECIFICATION		
COMPONENT	**MATERIAL TYPE**	**MATERIAL SPECIFICATION**
Body	Sg Iron Cast Steel	BS 2789 Gr 420 / SABS 936 SG 42 ASTM A216 WCB SANS 1431 Gr 300WA
Disc	Sg Iron Cast Steel Stainless steel	BS 2789 Gr 420 / SABS 936 SG 42 ASTM A216 WCB / BS 970 Part 4, Gr 304 S15
Body Seat	Stainless Steel	BS 970 Part 4, Gr 304 S15
Blade / Seal	Elastomer	EPDM 750 A
Seal Retaining Ring	Stainless Steel	BS 970 Part 4, Gr 304 S15
Shafts	Stainless Steel	BS 970 Part 4, Gr 431 S29
Shaft Bearings / Bushes	Phosphor Bronze Sleeve Type PTFE Backed / Self Lubricating	BS 1400 PB1C (Cu, Sn10, P) Bronze Backed (DUB) GLACIER DU
Shaft Seals	Radial Lip Seal / Cup Seal / O-Ring Seal Elastomer	NITRILE / VITON NBR
Idle Shaft Thrust Bearing/Spacer Disc	Phosphor Bronze	BS 1400 PB1C (Cu, Sn10, P) (for vertical installations)
External Fasteners	Stainless Steel	ASTM A193 Gr B8M, ASTM A439 Gr D2
Internal Fasteners	Stainless Steel	ASTM A193 Gr B8M, ASTM A439 Gr D2

The supplier shall provide full details of materials used in the valve construction.

PDC 7.5 Actuators

Butterfly valves with a nominal bore not exceeding 150mm may be operated directly or by actuator as specified in the Scope of Works.

Butterfly valves exceeding 150mm nominal bore shall be operated by hand (geared actuator), electric, pneumatic or hydraulic actuator as specified in the Scope of Works conforming to the following requirements:

- Actuators shall not be an integral part of the main valve body but shall be a separate unit bolted to the main body in such a manner that water leaking past the main shaft seal is prevented from entering the actuator;
- Actuator mounting flanges shall conform to ISO 5211;
- Positive, adjustable, limit stops shall be provided to prevent over opening or over closing of the valves;
- All actuators are to be geared such that the valve cannot be opened or closed in less than 3 minutes unless otherwise stated in the Project specification;
- Hand operated actuators with a gear ratio of 2 : 1 or lower shall be provided with an easily replaceable shear key to prevent damage to the valve if excessive force is applied on the hand-wheel in the fully open or closed position;
- Actuators shall be of such a design that the disc will be held in any fixed position for an extended period of time;
- Electrically operated actuators shall be fitted with a hand operated override for use in case of power failure;
- Pneumatic and hydraulically operated actuators operation details shall be as specified in the Scope of Works.

PDC 7.6 End Connections and Jointing

Valves shall be either double flanged or wafer type as scheduled.

PDC 7.6.1 Flanged valves

Unless otherwise specified in the Scope of Works, flanges shall be drilled off centre and in accordance with the requirements of SANS 1123.

Tapped holes are unacceptable except where stiffening ribs interfere with bolting. The front faces of all flanges shall be fully machined.

Flanged valves shall be supplied complete with all jointing material such as gaskets, bolts, nuts and washers necessary for both flanges.

Bolts are to be of such length that, when the valve is bolted to or between steel flanges with thickness as per SANS 1123, between zero and two threads protrude past the nut.

PDC 7.6.2 Wafer valves

The dimensions of wafer valves shall be such that the valves may be fitted between flanges complying with the dimensions set out in SANS 1123 for the pressure table scheduled.

PDC 7.7 Data Packs

All valves shall be supplied with comprehensive Data Packs containing the following:

- Actual mill material certificates for all components;
- Coating certificates indicating details of coating type used and results of actual thickness tests conducted to conform to minimum coating requirements as specified. (This may include Pin Hole Detection);
- Pressure test certificates for the body and seal;
- As built general arrangement drawings of the valve and gearbox;
- Operating and Maintenance manuals.

PDC 7.8 Warranty

All valves supplied must include a 15-year warranty, fair wear and tear excluded and the company tendering must submit information to substantiate their claim that such a guarantee is possible and will be honoured.

Details of contactable references that can verify the service backing and performance of the valves offered must be provided.

PDC 8 NON-RETURN VALVES

PDC 8.1 General

Non-return (check) valves shall be designed, manufactured and tested in accordance with SANS 1551 Part 1 : 1992 as amended.

Non-return valves shall be of the nominal bore, class, and working pressure as detailed in the Bill of Quantities and shall comply with the following requirements.

Unless otherwise indicated in the Scope of Works, non-return valves with nominal bore not exceeding 300mm may be of the sloping seat single swing door type or spring assisted single or multiple door type.

PDC 8.2 Manner of Operation

Non-return valves shall close at such a rate and in such a manner as to impose a minimum water hammer on the pipeline.

Preference will be given to designs which allow removal of doors and seals without removal of the valve assembly from the pipeline.

PDC 8.3 Design

PDC 8.3.1 Seal

The valve seal shall, unless otherwise indicated in the Scope of Works, consist of a metal-to-metal stainless steel or gunmetal seats fixed to the body and doors of the valve or a resilient rubber or neoprene seal inserted in the seat ring of the body of the valve with a machined ring on the valve door closing against it.

PDC 8.4 Construction Materials

Non-return valves shall be constructed using materials as follows:

Body and doors	Cast Iron, Austenitic Cast Iron or Cast Steel
Internal & External Coat	Rilsan (min. DFT 300 micron) or FBE (min DFT 250 micron)
Spindle and springs	Stainless steel
Seal	Stainless steel or Gunmetal
Internal Fasteners	Stainless steel

All copper/zinc alloys used must be dezincification resistant.

No galvanised fittings are to be used on any part of a valve in contact with the water.

PDC 8.5 End Connections and Jointing

Valves shall be either double flanged or wafer type as scheduled.

PDC 8.5.1 Flanged valves

Unless otherwise specified in the Scope of Works, flanges shall be drilled off centre and in accordance with the requirements of the latest revision of SANS 1123. Tapped holes are unacceptable except where stiffening ribs interfere with bolting. The front faces of all flanges shall be fully machined.

PDC 8.5.2 Wafer valves

The dimensions of wafer valves shall be such that the valves may be fitted between flanges complying with the dimensions set out in SANS 1123 for the pressure table scheduled.

Wafer valves shall be supplied complete with all jointing material such as gasketing, bolts, nuts and washers necessary for both flanges. Bolts are to be of such length that, when the valve is bolted to or between steel flanges with thickness as per SANS 1123, between zero and two threads protrude past the nut.

PDC 9 AUTOMATIC CONTROL VALVES

PDC 9.1 General

Automatic Control valves shall be used for the following applications:

- Pressure reducing valve
- Pressure sustaining valve
- Check valve
- Flow control
- Level Control
- Pump Control
- Altitude valve

Automatic Control valves shall be hydraulically operated, pilot actuated for the specified application as given in the Bill of Quantities. The design of the valve shall be of two components, namely a single cast body and an elastomeric liner.

PDC 9.2 Manner of Operation

Automatic control valves shall not chatter or slam under low flow conditions. Accurate pressure and flow control shall be obtained under all flow conditions.

Pressure reducing valves shall lower downstream pipeline pressure to a pre-determined pressure, at all flow rates regardless of changes in inlet pressure.

The valve shall be pilot-controlled by means of a double-acting diaphragm valve.

PDC 9.3 Construction Materials

Automatic control valves shall be constructed using materials as follows.

Body		Ductile Iron, Austenitic Cast Iron or Cast Steel – Rilsan Coated (min. DFT 300 micron) or FBE (min DFT 250 micron)
Liner		EPDM, 70 durometer
Liner retainer		Stainless Steel grade 316
Pilot	- Body	ASTM B62 Bronze
	- Wetted parts	Stainless steel grade 316
Control fittings		Brass

All copper/zinc alloys used must be dezincification resistant.

No galvanised fittings shall be used on any part of a valve in contact with the water.

PDC 9.4 Flange drilling

Flanges to automatic control valves shall be drilled in accordance with SANS 1123.

PDC 10 AIR VALVES

PDC 10.1 General

Air valves shall fulfil the following operational functions:

- High volume air discharge during pipeline while filling;
- Large and small orifice ;
- Pressurized air release from a full operating pipeline;
- High volume air intake to prevent negative (vacuum) pressures induced while draining pipeline;
- High volume air intake to prevent negative (vacuum) pressures induced by transient pressures.
- Air valves shall have a cast SG iron body. Stainless steel fabricated body valves shall not be permitted

PDC 10.2 Manner of Operation

Prior to the ingress of water into the air valve chamber when the pipeline is being filled, air valves shall vent through the large orifice up to a transient pressure rise of 2 x valve rated pressure.

Air valves shall not exhibit leaks of weeping of water past the large orifice seal for an operating pressure range from 0.5 bar to 2 x rated working pressure.

The valve shall respond to the presence of air by discharging air through the small orifice at any pressure from 0.5 bar to the rated pressure. The valve shall remain leak tight in the absence of air.

The valve shall react immediately to the pipeline drainage or water column separation by the full opening of the large orifice to allow unobstructed air intake at the lowest possible negative internal pipeline pressure. The valve shall not slam.

PDC 10.3 Design

PDC 10.3.1 Large diameter air valves

Large diameter air valves shall be of the compact single chamber design with solid cylindrical HDPE control floats housed in a cylindrical stainless steel body with flanged inlet and outlet stainless steel orifice plates secured by means of stainless steel tie rods.

The valve shall incorporate an automatic air release "Anti-Shock" and vacuum break features to prevent pipeline damage resulting from high induced transient pressure surges to 2 x valve rated working pressure.

The intake orifice area shall be equal to the nominal size of the valve.

Large orifice sealing shall be affected by the flat face of the control float seating against a Nitrile rubber O-ring housed in a dovetail groove circumferentially surrounding the orifice or the sealing of a ball against a supported sealing ring.

Discharge of pressurised air shall be controlled by the seating and unseating of a small orifice nozzle on a natural rubber seal fixed into the control float.

Flanged ends shall be supplied complete with the required number of stainless steel screwed studs, including nuts, washers and jointing gaskets.

Note that alternate designs may be considered if their performance is equivalent and they have a price advantage.

PDC 10.3.2 Small diameter air valves

Small diameter air valves shall be capable of exhausting large volumes of air at controlled rates without slam and be able to exhaust small volumes of air while under pressure. These valves shall be available with stainless steel of nylon reinforced bodies with a small orifice of at least 12mm^2 and a large orifice of at least 800mm^2.

PDC 10.4 Construction Materials – large diameter air valves

Body	Ductile or SG iron
Dirt screen	Stainless steel grade 304
Floats	HDPE , Stainless Steel or similar
Orifice Plate ends	Stainless steel grade 304
Small orifice nozzle	Stainless steel grade 304

Joint Gaskets	EPDM
Seat seals	EPDM

PDC 10.5 Testing

All air release valve shall be subject o the following test procedures:

- High pressure strength and leak test where the valve shall be filled with water and pressurised to 2 x rate pressure. The pressure shall be maintained for a minimum of two minutes without any leaking, weeping or sweating.

- Low head, low pressure leak test where the valve shall be filled with water and pressurised to a maximum of 0.5 bar using a visible water column. The valve shall be rejected should leak tightness not be maintained for a minimum of two minutes.

- A vacuum break test (drop test) shall be performed by filling the valve with water, pressurised to the rated pressure and then isolated. Pressurised air shall be admitted into the valve while maintaining the pressure in the valve to a minimum of 2 bar above the rated pressure. The "Drop Test" is carried out by slowly bleeding the pressure in the valve until the rated pressure is reached. Should the float not drop to release the pressurised air, the valve will be rejected.

PDC 11 KNIFE GATE VALVES

PDC 11.1 General

Knife gate valves will be used in lower pressure operations usually in chemical lines or as the control valve on the outlet to silos / hoppers where they will de required to stop or regulate the flow of chemicals in power or granular form.

PDC 11.2 Manner of Operation

The valves will be either handwheel operated or operated by an electric actuator as specified.

The valve shall not jam when opening or closing on powder or granular products.

PDC 11.3 Design

The valve shall be fitted with a transverse type gland seal for uniform torque under electric actuator operation. The blade shall be manufactured in 316 stainless steel and shall be surface ground to ensure a smooth, flat and uniform finish.

The gate seal shall be so designed that the edge and not the sides of the gate bear on the seal when the valve is in the closed position.

The valve / actuator coupling and shaft shall be enclosed in a sealed cover to prevent the ingress of dirt. The shaft, thread and nuts shall be encapsulated in waterproof grease.

PDC 11.4 Construction Materials

Body	Ductile or cast SG iron – Rilsan coated (min DFT of 300 micron) or FBE coated (min DFT of 250 micron)
Disc	Stainless steel grade 316
Spindle	Stainless steel grade 316 – enclosed

Seals	EPDM rubber
Internal Fasteners	Stainless steel
Bearings	Sintered Bronze with PTFE on Stainless Steel.

PDC 12 SLUICE GATES

PDC 12.1 General

Sluice gates shall be of robust design and construction suitable for their intended use. Gates shall generally be of the slide type and shall be arranged to seal either against on– or off-seating pressure as specified.

Gates shall not be mounted directly against any surface but shall be hung on foundation bolts allowing a space of approximately 25 - 30mm between the frame and surface. Once the frame is correctly positioned and aligned, the space between the frame and surface shall be grouted closed with a suitable non-shrink cementitious grout.

PDC 12.2 Manner of Operation

The gates will be either hand wheel operated or operated by an electric actuator, as specified.

When a large gate has to be operated against a high unbalanced pressure, the force required to open it may be excessive, in which case rollers shall be fitted in order to reduce friction and hence the operating effort.

PDC 12.3 Design

The design of all sluice gate structural members shall comply with the requirements of DIN Spec 19704. A margin of safety of at least 2,0 under full head conditions shall be allowed for the yield and ultimate strengths of the materials used. In addition, deflections shall be calculated to be less than those allowable for the type of seals used.

Wall mounted gates shall seal around the complete periphery of the opening i.e. they shall seal on all four sides. Channel gates shall seal on three sides, having no seal on the top edge of the gate.

Sluice gates shall be fitted with Neoprene “J” type seals and channel gates shall have Neoprene angle (“L”) type seals. For high off-seating pressure, gates shall be fitted with adjustable wedges to ensure positive contact between seal faces.

Gates shall be designed for minimal leakage. Maximum permissible leakage rates are 1,24 litres per minute per meter of seal length for on-seating pressures and 2,48 litres per minute per meter of seal length for off-seating pressures up to 6.0m, all in accordance with AWWA Spec C 501.

For manual operation, hand wheel diameters and gearbox ratios shall be matched to spindle sizes and thread pitches in order that the time taken to stroke the gates is kept to a minimum. Hand wheel rim effort shall not exceed 150N.

Spindles shall be sized in accordance with the calculated tensile and compressive loads that will be imposed when opening and closing the gate. If necessary, spindles shall be provided with guides to ensure that buckling of the spindle does not take place under compression.

Wide gates may have twin spindles.

PDC 12.4 Construction Materials

Gates and frames	Stainless steel
Pedestals	Stainless steel

Spindles, couplings and stop collars	Stainless steel
Spindle support brackets	Stainless steel or cast iron
Spindle guides	Bronze
Lifting nuts	Bronze
Seals	Neoprene. Alternatively metal/metal or thermoplastic/metal, if allowed.
Hand wheels	S.G. Iron (cast) or mild steel (fabricated)
Spindle cover tubes	Stainless steel, mild steel or clear PVC, as specified
Foundation bolts and fasteners	Stainless steel Grade 316

PDC 13 ITEMS APPLICABLE TO ALL VALVES

PDC 13.1 Jointing Material

Gaskets shall be made from asbestos-free gasket material and made in accordance with BS 281 Grade B with a minimum thickness of 3,0 mm.

PDC 13.2 Corrosion Protection Coating

All valve components manufactured from mild steel or ductile iron shall be internally and externally coated with a heavy-duty corrosion protection system such FBE, unless otherwise specified elsewhere.

PDC 13.3 Prevention of Electrolysis

Where the construction of the valve is such that it is impossible to avoid dissimilar metals of which the potential difference exceeds 0,3 volts, suitable insulation material shall be used on the contact faces between such dissimilar metals.

PDC 13.4 Tolerances

PDC 13.4.1 Body Dimensions

The dimensions of the body of each valve and its component parts shall comply with the relevant tolerance requirements of Table 4 below and of the applicable standard specification for the valve.

TABLE 4 - FACE-TO-FACE DIMENSION	
Face-to-face dimensions mm	Tolerance mm
up to and including 200	+/- 1
above 200 up to and including 400	+/- 2

PDC 13.4.2 Flanges and couplings

Flanges shall be subject to the following tolerances:

- Outside diameter of flange +- 3 mm
- Thickness of flange +- 1 mm
- Diameter of bolt circle +- 1 mm

Couplings shall be subject to the tolerances specified in the appropriate standard specification.

PDC 13.4.3 Commissioning

After commissioning each valve shall perform in the manner, and within the limits and tolerances required in terms of the Project Specification.

PDC 13.5 Delivery

Valves are to be delivered to and off-loaded at a site specified in the Project Specification by the valve supplier unless otherwise indicated in the Project Specification.The cost of such delivery and off-loading is to be included in the cost of the valves.

PDC 14 MEASUREMENT AND PAYMENT

PDC 14.1 Principles

The manufacture, testing, supply, delivery, installation and commissioning of all valves shall be scheduled separately per valve type, size, working pressure and other relevant data.

PDC 14.2 Scheduled Items

PDC 14.2.1 Manufacture, testing, supply, delivery, installation and commissioning of valves …….. Unit : No

The scheduled item shall include the type, size, working pressure, jointing details and other relevant data as applicable.

The rate shall include for the cost of manufacture, quality control, supply, testing (where applicable), corrosion protection, crating, delivery and off-loading on site, storage and fixing in position as directed, commissioning, including all bolts, gaskets and accessories as required.

PARTICULAR SPECIFICATION

PDF: WATER METERS

PDF 1 SCOPE

This specification covers:

(a) Multi-Jet inferential fan wheel velocity type water meters
(b) Semi-positive rotary piston volumetric type water meters
(c) Woltmann helical vane inferential velocity type water meters
(d) Vertical shaft inferential velocity type water meters
(e) Water meter boxes - Ground installations
(f) Water meter boxes - Above ground installations

PDF 2 SPECIFICATION

All water meters of nominal bore not exceeding 100mm, supplied under this contract must comply with the standard specifications of SANS 1529-1. Larger mechanical meters must comply with the standard specifications SANS 1529-4.

Electronic meters must comply with the standard specifications SANS 1529-9.

PDF 3 VERIFICATION

All meters must have verification by the SANS for trade use.

PDF 4 GENERAL REQUIREMENTS

Preference will be given to suppliers that offer products made in South Africa.

PDF 4.1 Behaviour in Case of Flow Back

If a meter could be subjected to an accidental reversal of flow, it shall be capable of withstanding the reversal without any deterioration or change of metrological characteristics and at the same time shall indicate such reverse flow, unless an approved internal non-return valve is fitted.

PDF 4.2 Operating Position

If not approved by the Department of Trade Metrology for operation both vertically and horizontally, the meter shall be marked for horizontal installation only.

PDF 4.3 Types of End Connection

Must comply with SANS 1529-3 unless otherwise specified.

The type of end connection shall be as agreed upon and shall be either of a threaded type or a flanged type for meters up to 50mm. Meter sizes above 50mm shall have flanged connections. Connections shall be subject to the following:

(a) Threaded connection: The thread shall comply with the requirements of SANS 1109
(b) Flanged connection: The flange shall comply with the relevant requirements of BS 4504, Table 16 or drilled to both BS 4505 Table “16” and BS 11 Table “D”.
(c) General: The end connection on the inlet and the outlet of a particular meter shall be of the same size.

PDF 4.4 Finish

All cast iron and steel surfaces shall be sand, grit or shot blasted so that all rust, mill scale, grease, dust and other undesirable matter shall be removed and finished in accordance with the Swedish Code of Practice SIS 055900/1967 to grade 5a 2½.

A non-corrodible finish of a type approved by the Engineer shall be applied to manufacturer's specifications. Full details of the finish material shall be supplied by the tenderer. All body nuts shall be on the top side of the meter body.

PDF 4.5 Technical Literature

Tenderers must supply, with his tender, the following technical literature, fully illustrated where applicable, covering each size of meter offered:

(a) A general descriptive pamphlet giving brief details of material of construction, dimensions and weight of the meters offered.
(b) A spare parts manual including all amendments.
(c) Flow/Percentage accuracy curves and Flow/Head Loss curves

PDF 4.6 Samples

If requested by the Engineer, prior to adjudication of tenders, a sample of each size and type of meter offered by the tenderer must be delivered to the Water Installation Workshop, free of charge.

These meters will be examined and tested; the results being considered when adjudicating the tenders.

Each sample shall be plainly marked or labelled.

Samples will be returned, carriage forward, to tenderers as soon as possible after acceptance of tenders.

PDF 5 PACKING AND MARKING

PDF 5.1 Packing

Each meter shall be so packed as to prevent damage during transit and also to prevent the entry of foreign material into the meter.

All goods shall be crated, packed or battened securely in such a manner as to prevent damage during loading, transport or off-loading. Packing cases and packing material are to be included in the contract price and shall become the property of the Employer. All packing cases shall be clearly marked with the contract number. Threaded flange faces shall be separately protected against damage.

PDF 5.2 Marking

Each meter shall be permanently and indelibly marked with the following information:

(a) The manufacturer's name or trade name or registered trade mark;
(b) The size designation;
(c) The metrological class;
(d) The serial number is to be stamped or cast on the body of the meter, in such a manner that it can be easily read at the same time as the meter. The number series specification may be advised with an order.
(e) The direction of flow, indicated (for example) by an arrow;
(f) The nominal working pressure, in kilopascals;
(g) The letter V or H, if the meter can be operated only vertically or only horizontally, respectively

PDF 6 GUARANTEE

The Contractor will be required to guarantee the workmanship, materials and the specified performance for all meters for a period of two years from the date of supply of each meter.

Any meter found defective in any respect, apart from defects caused by wilful damage or misuse, will be returned as a complete unit to the Contractor and must be replaced by a new unit.

The Contractor will accept charges incurred by the Employer in the removal from site, return to the Contractor and replacement on site of the meter.

PDF 6 SPARES

Tenderers must supply a schedule of spares and prices for each meter size and state which of the parts will be held in stock by his local agent. The schedules of spares must have the current supply price listed against each item and also against assembled units, e.g. Working Chambers, Gear Trains or Counter Mechanism supplied as assembled units.

PDF 7 LOCAL AGENT

The successful tenderer will be required to appoint a competent local agent or preferably a technical representative with full authority to deal with all matters relating to this contract and possessing the expertise for the product which he represents.

The name and address of the local agent or technical representative is to be stated at the time of tendering.

Meters repaired by the Contractor shall be tested and certified by an accredited facility located within the borders of the Republic of South Africa in accordance with the laws of the Department of Trade Metrology.

PDF 8 IMPORT FACILITIES

No special import facilities have been arranged to cover goods to be supplied under this contract and supply must, therefore, be affected ex local manufacture, ex local stocks or against the supplier's own import quotas.

PDF 9 SPECIFICATION OF METERS

The specifications of the various types of water meter are set out below:

A. MULTI-JET INFERENTIAL FANWHEEL VELOCITY TYPE WATER METERS

These water meters must be of the multi-jet inferential fanwheel velocity type.

A1 Flow rate of meter

METER SIZE	15mm	25mm	40mm	50mm
Maximum flow rate qs +/- 2%(m^3/h)	3,0	7,0	20,0	30,0
Nominal flow rate qp +/- 2% (m^3/h)	1,5	3,5	10,0	15,0
Transitional flow rate qt +/- 2% (l/h)	22,5	52,5	150,0	180,0
Minimum flow rate q min +/- 5% (l/h)	15,0	35,0	100,0	150,0
Starting flow (l/h)	6,0	10,0	25,0	32,0

A2 Mesh strainer

A fine mesh strainer of the following minimum dimensions is to be fitted internally in such a manner as to allow for removal without breaking the meter seal.

METER SIZE	APERTURE SIZE	MESH AREA
15mm	2,2mm x 1,7mm	1,556mm^2
25mm	2,1mm x 1,8mm	5,121mm^2
40mm	2,0mm dia.	9,614mm^2
50mm	2,0mm dia.	1,2162mm^2

A3 Drive type

Direct mechanical drive type to prevent magnetic interference.

A4 Counter

Sealed counter unit with minimum 14mm thick scratch resistant moulded tempered mineral glass lens that cannot be penetrated by means of a needle or similar sharp instrument in order to stop the counter from operating, to protect against vandalism and the ingress of humidity.

Counter unit to be of the Cyclometer type registering in cubic meters (m3). Counter numbers shall have a minimum height of 3mm. Two clearly contrasting colours (for example black and red) on a white background shall be used for the numbering and scale marks, of the indicator elements to differentiate between multiples and sub-multiples of the cubic metre.

The counter shall be a wet dial counter to prevent condensation under the lens.

A5 Metrological class of meter

The meters shall be approved to Class C by the Department of Trade Metrology (SANS 1529-1). Copies of approved certificates to be submitted with the tender.

A6 Meter body material

The meter body is to be manufactured from a dezincification resistant copper-base brass alloy or from glass-reinforced UV stabilised polymer.

A7 Nominal working pressure

The meters shall be designed to operate under a nominal working pressure of 1600 kPa.

A8 Fanwheel spindle

Equally spaced inlet and outlet ports around circumference of cartridge to ensure even thrust on fanwheel spindle. The main bearing on which the fanwheel spindle turns shall be of agate or equally hardwearing material.

A9 Pressure drop

Maximum rate of flow (Qs) must be achieved at a pressure drop not in excess of 100kPa across the inlet or outlet of the meter.

B. SEMI-POSITIEVE ROTARY PISTON VOLUMETRIC TYPE WATER METERS

These water meters must be of the semi-positive rotary piston volumetric type

B1 Flow rate of meter

METER SIZE	15mm	25mm
Maximum flow rate qs +/- 2% (m^3/h)	3	7
Nominal flow rate qp +/- 2% (m^3/h)	1,5	3,5
Transitional flow rate qt +/- 2% (l/h)	22,5	52,5
Minimum flow rate q min +/- 5% (l/h)	15	35
Starting flow (l/h)	5,7	13,2

B2 Mesh strainer

A fine mesh strainer of the following minimum dimensions is to be fitted internally

METER SIZE	APERTURE SIZE	MESH SIZE
15mm	0,75mm	2844mm2
25mm	0,90mm	4178mm2

B3 Drive type

Mechanical drive type to prevent magnetic interference. The piston must be designed to accommodate a maximum of 17 revolutions per litre for 15mm dia. meters and 14 revolutions per litre for 25mm dia. meters.

B4 Counter

The counter window must be made of scratch resistant glass with a minimum thickness of 7mm that cannot be penetrated by means of a needle or similar sharp instrument in order to stop the counter from operating without destroying the unit and allowing an uncontrollable discharge of water. The counter lens must be situated horizontally, parallel to the axis of the meter.

The counter must be of the wet dial type to prevent condensation under the lens. All meters must have an approved pulse output facility capable of 2 pulses per litre (15mm) and 1 pulse per 5 litres (25mm).

B5 Metrological class of meter

The meters shall be approved to Class C by the Department of Trade Metrology (SANS 1529-3:2003) for all angles of installation. Copies of approved certificates to be submitted with the tender.

B6 Meter body material

The meter body is to be manufactured from a dezincification resistant copper base brass alloy or specially blended poly-acetyl which is age and UV resistant.

B7 Nominal working pressure

The meters shall be designed to operate under a nominal working pressure of 1600 kPa.

B8 Non-return valve

Meters to be factory fitted with an approved non-return valve.

C. WOLTMANN HELICAL VANE INFERENTIAL TYPE WATER METERS

These water meters must be of the Woltmann helical vane inferential velocity type water meters.

C1 Flow rate capabilities of meter

Meter Size	50mm	80mm	100mm	150mm	200mm	250mm
Maximum flow rate qs +/- 2% (m^3/h)	30,00	80,00	120,00	300,00	500,00	800,00
Nominal flow rate qp +/- 2% (m^3/h)	15,00	40,00	60,00	150,00	250,00	400,00
Transitional flow rate qt +/- 2% (m^3/h)	3,00	8,00	12,00	30,00	50,00	80,00
Minimum flow rate q min +/- 5% (m^3/h)	0,45	1,20	1,80	4,50	7,50	12,00
Starting flow (m^3/h)	0,16	0,22	0,25	0,90	1,20	1,80

Any improvement to these figures will be to the contractor's advantage and will be taken into consideration when assessing tenders.

C2 Meter body material

The meter body is to comply with Section 4.2 of SANS 1529-3.

C3 Counter

The counter unit shall be resistant to any magnetic interference. The counter shall have a copper can and integral glass lens, hermetically sealed to IP 68. The glass lens shall be scratch resistant mineral glass. The meter counter must have a pulse output facility for use with data loggers. The meter counter shall be capable of generating a high frequency bi-directional opto signal for identifying and recording reverse flows.

C4 Measuring mechanism

The meter shall accept a pre-calibrated, replaceable measuring mechanism for on-site replacement. The helical vane to be fitted in a shrouded cartridge designed to direct the entire volume of water through the measuring element ensuring body impact is negligible on the accuracy.

C5 Class of meter

Metrological class of meters is to be minimum Class B

C6 Nominal working pressure

Nominal working pressure of 1600 KPa.

C7 Pressure tapping

Meters must be provided with a pressure tapping (1/4' BSP) into which a pressure gauge or pressure transducer can be fitted to measure downstream of the meter.

C8 Flange drillings

Flange drillings must be multi-drilled to both BS 11 Table “D” and BS 4504 Table “16” on each flange side.

D. VERTICAL SHAFT INFERENTIAL VELOCITY TYPE WATER METERS

These water meters must be of the vertical shaft inferential velocity type water meters

D1 Flow rate capabilities of meter

Meter Size	50mm	80mm	100mm	150mm
Maximum flow rate qs +/- 2% (m^3/h)	30,00	80	120,00	300,00
Nominal flow rate qp +/- 2% (m^3/h)	15,00	40	60,00	150,00
Transitional flow rate qt +/- 2% (m^3/h)	4,50	10	15,00	30,00
Minimum flow rate q min +/- 5% (m^3/h)	1,20	1,2	1,80	4,50
Starting flow (m^3/h)	0,27	0,36	0,33	1,70

Any improvement to these figures will be to the contractor's advantage and will be taken into consideration when assessing tenders.

D2 Meter body material

The meter body is to comply with Section 4.2 of SANS 1529-3.

D3 Counter

The counter unit shall be resistant to any magnetic interference.

D4 Measuring mechanism

Pre-calibrated replaceable mechanism for on-site replacement.

D5 Class of meter

Metrological class of meters is to be Class B.

D6 Nominal working pressure

The meters shall be designed to operate under a nominal working pressure of 1600kPa, unless otherwise stated.

D7 Flange drillings to be standard for installation to drillings according to both BS 11 Table “D” and BS 4505 Table “16”, unless otherwise stated.

E. WATER METER BOXES – GROUND LEVEL

E1 Materials

Meter box and lid to be moulded in modified polypropylene

E2 Box lid and securing pin

Meter box lid to be of the hinged variety with the securing pin moulded in identical modified polypropylene to ensure compatibility.

Lid to be fitted with tamper proof dual action locking mechanism which can only be opened with a special key, complete with reading slot.

E3 Meter couplings

Meter couplings to be so designed that they retract when loosened thus allowing easy removal of the meter without disassembling the connectors. Couplings are to form a perfect seal without the aid of O rings or rubber washers.

All brass couplings to be dezincification resistant.

E4 Isolating valve

a) Three-way - Trickle Flow Ball Valve fusion welded into the pipe-work of the meter box on the inlet side of meter. OR
b) Multifunctional Smart Flow Valve fusion welded into the pipe-work of the meter box on the inlet side of meter.

E5 Water meter

Meter box to be fitted with a 15mm plastic bodied water meter, with a body length of 114mm or 165mm as indicated, as per the specifications in section “B” in this document.

E6 Pressure testing

When a box is supplied with a meter installed it must be pressure tested for water tightness at the factory to the pressure rating of the water meter.

E7 End connections

End connections shall be plastic, fusion welded to the internal pipe-work of the meter box with a 20mm brass female threaded insert, capable of withstanding a rotational torque of no less that 35 Nm when applied.

F ABOVE GROUND WATER METER BOXES

F1 The plastic meter box must be mounted on top of a 110mm dia. plastic tube pipe-work protector and the unit shall be 800mm high.

F2 The meter box shall be a closed unit with the service lid screwed down using screws which are sealed with plastic security plugs. The meter shall be read through a reading slot.

F3 End connections shall be plastic, fusion welded to the internal pipe-work of the meter box with a 20mm brass female threaded insert, capable of withstanding a rotational torque of no less that 35 Nm when applied.

F4 Meter box to be fitted with a 15mm plastic bodied water meter as per the specifications in section “B” in this document with a body length of 114mm.

F5 All pipe-work and fittings to be plastic and to be fusion welded. The unit to be pressure tested to 2000 KPa to ensure there are no leaks.

F6 A municipal shut off valve fitted upstream of the meter to be a high-quality plastic three-way trickle flow ball valve which is operated by means of a 10mm “Allan” -type key. Access to the ball valve to be through an opening which is sealed with a plastic cover plate which can be sealed on site using copper wire and lead seals. OR

F7 A municipal shut off valve fitted upstream of the meter to be a high-quality plastic Multifunctional Smart Flow Valve which is operated by means of a special-type key. Access to the ball valve to be through an opening which is sealed with a plastic cover plate which can be sealed on site using copper wire and lead seals.

F8 A second high-quality plastic ball valve with a handle shall be fitted downstream of the meter for the consumer's use.

G WALL-MOUNT WATER METER BOXES

G1 Meter box and lid to be moulded in modified polypropylene

G2 The meter box shall be a closed unit with the service lid screwed down using screws which are sealed with plastic security plugs. The meter shall be read through a reading slot.

G3 End connections shall be plastic, fusion welded to the internal pipe-work of the meter box with a 20mm brass female threaded insert, capable of withstanding a rotational torque of no less that 35 Nm when applied.

G4 Meter box to be fitted with a 15mm plastic bodied water meter as per the specifications in section “B” in this document with a body length of 114mm.

G5 All pipe-work and fittings to be plastic and to be fusion welded. The unit to be pressure tested to 2000 KPa to ensure there are no leaks.

G6 A municipal shut off valve fitted upstream of the meter to be a high-quality plastic three way trickle flow ball valve which is operated by means of a 10mm “Allan” -type key. Access to the ball valve to be through an opening which is sealed with a plastic cover plate which can be sealed on site using copper wire and lead seals. OR

G7 A municipal shut off valve fitted upstream of the meter to be a high-quality plastic Multifunctional Smart Flow Valve which is operated by means of a special-type key. Access to the ball valve to be through an opening which is sealed with a plastic cover plate which can be sealed on site using copper wire and lead seals.

H ELECTROMAGNETIC FLOW METERS

H1 This specification covers the requirements for the supply, delivery and commissioning of electromagnetic flowmeters for use in the metering of raw and potable water.

H2 The flowmeter shall be of the electromagnetic type, utilising pulsed DC excitation and shall be microprocessor based. It shall be capable of measuring flowrate and flow total with a totaliser to give net flow for network management purposes.

H3 There shall be separate isolated analogue outputs (4-20mA) and pulse outputs 0 - 800 Hz for forward and reverse flows. The outputs shall be fully configurable by the user.

H4 The flowmeter accuracy shall be better than 0,5% in both forward and reverse flow directions.

H5 The meter shall offer a lifetime stable zero and shall not require routine zeroing. The meter shall automatically indicate zero flow under empty sensor conditions.

H6 The meter performance shall be verified on a test facility that is internationally acceptable (e.g., NAMAS, NIST or equal) so that full traceability is assured. Laboratory traceability packs shall be available on request.

H7 It shall be possible to verify the calibration of the complete flow system, i.e., sensor and transmitter in-situ, to better than 2% without removal of, or access to, the sensor. A validation certificate shall be provided.

H8 The flowmeter shall be designed and manufactured under the SABS/ISO 9001 series of quality standards.

H9 The wetted materials shall be compatible with and suitable for use with potable water. The metering tube shall be in Stainless Steel AISI 304 and the electrodes shall be in stainless steel, Hastelloy 'C' or Titanium. The liner shall be of hard rubber or polyurethane, and be certified by an internationally recognised body such as Wrc, AWWA or equal.

H10 The meter shall be suitable for 85 to 265V AC, 40 to 400 Hz without the need for link setting or voltage selection.

H11 The input impedance shall be 10 ohms or greater so that electrode fouling does not affect signal and electrode seal integrity.

H12 The meter shall be fitted with built-in earthing/grounding electrode(s) of the same material as the sensing electrodes.

H13 The flow sensor shall be IP68 (NEMA 6P) rating and be suitable for indefinite submergence to a depth of 5m. The sensor shall also be suitable for installation in underground pipes with or without a metering chamber or pit. The manufacturer shall, on request, provide evidence of satisfactory meter operation - for a minimum period of 5 years - in buried installations.

H14 Multiple diagnostic and self-monitoring functions such as empty pipe, high/low flow rate, reverse flow, flow over range, etc. shall be standard features. Integral and dual output alarms shall be provided. It shall be possible to pre-commission the system using a configurator and verify all displays and outputs.

H15 Dual or three-line alpha-numeric backlit displays shall indicate user defined flowrate and flow total units. the unit shall incorporate a menu selection allowing range, units alarms settings, etc. to be made externally to the electronics housing.

H16 The changes may be made from local keypads or from remote configurators or computers, as specified. Data shall be stored in a non-volatile memory with a minimum retention of ten years.

H17 The meter software shall incorporate dual level password protection to prevent inadvertent or fraudulent programme or unit changes. It shall be possible to set the totalisers to 're-settable' or 'non-resettable' by means of software programming.

H18 The electronic transmitter housing may be integral or remote and shall be safety certified to FM, CENELEC, CSA, SAA and GOST standards for international usage without the need for air purging. It shall be NEMA 4XIP65 or better with separate electronics and termination areas for enhanced protection. The system shall conform to EMC directive 89/336/EEC to 10v/m.

H19 Telemetry: The meter shall be capable of transmitting all electronic signals to be transmitted via the existing Telemetry System.

H20 End Connections: The flowmeters shall be available with flanged ends to permit direct fastening onto the pipeline specials. Flanges must comply with SABS 1023 with a minimum of Class 9 rating or as otherwise specified.

H21 Tenderers shall state the delivery period with their tenders.

H22 Experience: Tenderers shall provide a reference list of pulsed DC electromagnetic flowmeters which have been supplied for major national water projects and which have been in operation for a minimum period of 5 years.

H23 Guarantee: The meters shall be warranted against defective workmanship for a period of two years from date of shipment.

PDF 10 MEASUREMENT AND PAYMENT

PDF 5.1 Each type of meter will be specified by type and size and the rate shall include the supply and full installation of the meter ……..……..… Unit : No

PARTICULAR SPECIFICATION: PA

PA ENVIRONMENTAL MANAGEMENT (COMPREHENSIVE)

PA 1 SCOPE

This Specification covers the requirements for controlling the impact of construction activities on the environment. It contains clauses that are generally applicable to the undertaking of civil Employer's Agenting works in areas where it is necessary to impose pro-active controls on the extent to which the construction activities impact on the environment.

All construction activities shall observe any relevant environmental legislation and in so doing shall be undertaken in such a manner as to minimise impacts on the natural and social environment.

PA 2 NORMATIVE REFERENCES

PA 2.1 SUPPORTING REFERENCES

Where this Specification is required for a project, the following specifications shall, inter alia, form part of the Contract Document.

a) Scope of Work;
b) Construction Regulations, 2014, and
c) Kouga Local Municipality Health and Safety Specification

PA 3 DEFINITIONS & ABBREVIATIONS

For the purposes of this Specification the definitions and abbreviations given in the applicable specifications listed in 2.1 and the following definitions shall apply:

DEDEAT:
Department of Economic Development, Environmental Affairs and Tourism.

DFFE:
Department of Forestry, Fisheries and the Environment

DWS:
Department of Water and Sanitation

EEA:
External Environmental Auditor

EIA:
Environmental Impact Assessment

EMPr:
Environmental Management Programme

Environment:

The surroundings within which humans exist and that are made up of:
i) the land, water and atmosphere of the earth;
ii) micro-organisms, plant and animal life;
iii) any part or combination of (i) and (ii) and the interrelationships among and between them; and
iv) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

Potentially hazardous Substance:

A substance that, in the reasonable opinion of the Employer's Agent, can have a deleterious effect on the environment.

Method Statement:

A written submission by the Contractor to the Employer's Agent in response to the Specification or a request by the Employer's Agent, setting out the plant, materials, labour and method the Contractor proposes using to carry out an activity, identified by the relevant specification or the Employer's Agent when requesting the Method Statement, in such detail that the Employer's Agent is enabled to assess whether the Contractor's proposal is in accordance with the Specifications and/or will produce results in accordance with the Specifications.

The Method Statement shall cover applicable details with regard to: construction procedures, materials and equipment to be used, transportation of equipment/materials to and from site, movement of equipment/material on site, storage of materials on site, containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur, timing and location of activities, areas of non-compliance with the Specifications, and any other information deemed necessary by the Employer's Agent.

Reasonable :

Unless the context indicates otherwise, reasonable in the opinion of the Employer's Agent after he has consulted with a person, not an employee of the Employer, suitably experienced in "environmental implementation plans" and "environmental management plans" (both as defined in Act No107,1998).

Solid waste:

All solid waste, including construction debris, chemical waste, excess cement/concrete, wrapping materials, timber, tins and cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers).

Contaminated water:

Water contaminated by the Contractor's activities, e.g. concrete water and runoff from plant/ personnel wash areas.

Top material:

The top 150 mm of soil (topsoil) and root material of cleared vegetation.

Invasive Alien Vegetation:
An undesirable plant growth which shall include, but not be limited to, all declared category 1 and 2 listed invader species as set out in the Conservation of Agricultural Resources Act.

No-Go Areas:
Generally, those areas outside the designated working areas, including but not limited to: existing services and infrastructure, occupied property; grave sites; cultivated lands, wetland areas, 'Special or Sensitive Environments' as defined in the EMPr.

PA 4 ROLES AND RESPONSIBILITIES

PA 4.1 RESPONSIBILITIES OF THE EMPLOYER'S AGENT

Specific to environmental management, the role of the Employer's Agent will be to ensure enforcement of the Environmental Management Programme and Procedures and supplementary recommendations made by the EEA; review and approve the Method Statements submitted by the Contractor; and liaise with the Contractor, the EEA and DEDEAT on environmental matters as necessary.

Responsibilities of the Employer's Agent will include, but not be limited to:

i) Communicating the advice of the EEA and/or/contents of the EEA's reports;
ii) Issuing site instructions where applicable;
iii) Communicating to the EEA any new/amended construction activities;
iv) Informing the EEA of any infringements/accidents or incidents that have occurred on/off site;
v) Implementing any Temporary Work Stoppages where serious environmental infringements and non-compliances have occurred; Issuing penalties as and when necessary; and,
vi) Maintaining a record of complaints and communicating these to the Contractor and EEA.

Should the Employer's Agent be of the opinion that the environmental management measures are not being adhered to, and that the appropriate corrective action is not being implemented, the Employer's Agent, advised by the EEA, will be at liberty to instruct the Contractor to cease the related operations until the contractor complies with the relevant requirements. The contractor will not be entitled to any extension of time for such stoppages.

PA 4.2 RESPONSIBILITIES OF THE EMPLOYER'S ENVIRONMENTAL AGENT (EEA)

The role of the EEA will be to monitor, review and verify the implementation of the EMPr and liaise with the Employer's Agent and/or Employer, and DEDEAT to confirm the level of compliance achieved and make appropriate recommendations on improvements/actions required.

The responsibilities of the EEA will include, at a minimum:

i) Advising the Employer's Agent on the interpretation and enforcement of the Environmental Specifications;
ii) Assisting with the review of Method Statements;
iii) Demarcating particularly sensitive areas;
iv) Monitoring any basic physical changes to the environment as a consequence of the construction works - e.g. evidence of erosion, dust generation and littering;
v) Undertaking monthly site inspections and submitting reports on the level of compliance to the EMPr demonstrated by the Contractor;
vi) Undertaking quarterly audits, with reporting to the relevant authorities;
vii) Undertaking any damage assessments with the Employer's Agent where incidents, accidents and/or serious infringements have occurred on/off site, and advising on remedial actions required;
viii) Liaising with the relevant authorities as required; and
ix) Updating the EMPr as and when appropriate and communicating these changes to the Employer's Agent and Contractor.

PA 4.3 RESPONSIBILITIES OF THE CONTRACTOR

The Contractor will be contractually required to undertake his activities in an environmental responsible manner. The role of the Contractor will include the following, at a minimum:

i) To implement the EMPr (and any subsequent revisions) for the duration of the construction activities;
ii) To provide reasonable resources for the effective control and management of environmental risks

iii) associated with the construction activities, as per the EMPr;

iv) To assign tasks to personnel as necessary and ensure appropriate accountability and responsibility is

v) assigned to enable the carrying out of these duties;

vi) To maintain incident, training and other relevant administrative records; and

vii) To ensure all personnel, sub-contractors and other workers appointed by the Contractor are aware of the

viii) environmental responsibilities on site.

These roles will, at a minimum, translate into the following environmental responsibilities:

i) Be familiar with the contents of the EMPr and to comply with the EMPr;

ii) Submit the necessary Method Statements and plans to the Employer's Agent for approval;

iii) Review the EEA Reports and take cognisance of the information/recommendations made;

iv) Notify the Employer's Agent immediately in the event of any accidental infringements of the Environmental Specifications and ensure appropriate remedial action is taken;

v) Notify the Employer's Agent in advance of any amendments/changes to the proposed work activities to enable environmental impacts to be confirmed and mitigation measures identified; and

vi) Maintain records – e.g. photographic records, complaints records, training records and incident records

PA 5 REQUIREMENTS

PA 5.1 MATERIALS

PA 5.1.1 Materials handling, use and storage

The Contractor shall ensure that any delivery drivers are informed of all procedures and restrictions (including "no go" areas) required to comply with the Specifications. The Contractor shall ensure that these delivery drivers are supervised during off loading, by someone with an adequate understanding of the requirements of the Specifications.

Materials shall be appropriately secured to ensure safe passage between destinations. Loads including, but not limited to sand, stone chips, fine vegetation, refuse, paper and cement, shall have appropriate cover to prevent them spilling from the vehicle during transit. The Contractor shall be responsible for any clean-up resulting from the failure by his employees or suppliers to properly secure transported materials.

All lay down areas for manufactured/imported material outside of the construction camp shall be subject to the Employer's Agent's approval, which shall not unreasonably be withheld.

PA 5.1.2 Hazardous substances

Procedures detailed in the Material Safety Data Sheets (MSDSs) shall be followed in the event of an emergency situation.

Petroleum, chemicals, harmful and hazardous waste shall be stored in an enclosed and bunded area. This area shall be subject to the approval of the Employer's Agent. The waste shall be disposed of at a hazardous waste disposal site as approved by the Employer's Agent.

The tanks/bowsers shall be situated on a smooth impermeable surface (plastic or concrete) base with an earth bund (plastic must have sand on top to prevent damage and perishing). The impermeable lining shall extend to the crest of the bund and the volume inside the bund shall be 110% of the total capacity of all the storage tanks/bowsers.

The bunded area shall be covered to prevent the accumulation of rainwater within the bunded area.
The Contractor shall prevent unauthorised access into the fuel storage area.

The Contractor shall have on Site all the necessary materials and equipment to deal with spills of any of the substances stored on Site.

PA 5.1.2.1 Shutter oil and curing compound

Shutter oil and curing compound pose a risk of causing water and soil contamination and accordingly are regarded as potential hazardous substances. The Contractor shall ensure that shutter oil and curing compound containers in use are stored within the fuel bund. The remaining containers shall be inspected regularly to ensure that no leakage occurs. When shutter oil or curing compound is dispensed, the proper dispensing equipment shall be used, and the storage container shall not be tipped in order to dispense the oil/compound. The dispensing mechanism of the shutter oil/curing compound storage container shall be stored in a waterproof container when not in use.

Shutter oil and curing shall be used in moderation and shall be applied under controlled conditions using appropriate equipment. The Contractor shall take all reasonable precautions to prevent accidental and incidental spillage during the application of these compounds.

In the event of a shutter oil or curing compound spill, the source of the spillage shall be isolated, and the spillage contained. The Contractor shall clean up the spill, either by removing the contaminated soil or by the application of absorbent material in the event of a larger spill. Treatment and remediation of the spill area shall be undertaken to the reasonable satisfaction of the Employer's Agent.

PA 5.1.2.2 Bitumen

The Employer's Agent shall be advised of the area that the Contractor intends using for the storage of bitumen drums/ products. The storage area shall have a smooth impermeable (concrete or 250 µm plastic covered in sand) floor. The floor shall be bunded and sloped towards a sump to contain any spillages of substances. The bund shall be inspected and emptied daily, and serviced when necessary. The bund shall be closely monitored during rain events to ensure that it does not overflow.

PA 5.2 PLANT

PA 5.2.1 Ablution facilities

A sufficient number of chemical toilets shall be provided by the Contractor in the construction camp area and at appropriate locations agreed by the Employer's Agent. The ratio of toilets to site staff shall not exceed 1:30 (for each sex), and the closest toilet shall never be further than 100m away from the area where work is currently under way.

Toilets shall not be located in river courses or flood plains.

The Contractor shall ensure that no spillage occurs when the toilets are cleaned or emptied and that the contents are properly stored and removed from Site. Discharge of waste from toilets into the environment and burial of waste is strictly prohibited. The Contractor shall prevent any littering on site and ensure that staff disposes of all litter (including leftover foodstuff) in the bins provided.

All temporary/portable toilets shall be secured to the ground to the satisfaction of the Employer's Agent to prevent them toppling due to wind or any other cause.

All toilets are to be maintained in a clean, sanitary condition. The Contractor shall be responsible for cleaning, maintenance, servicing and emptying the toilets on a regular basis. The Contractor shall supply adequate toilet paper at all toilets.

Washing, whether of the person or of personal effects and acts of excretion and urination are strictly prohibited other than at the facilities provided.

PA 5.2.2 Solid waste management

The Contractor shall provide sufficient bins with lids on Site to store the solid waste produced on a daily basis. Solid, non-hazardous waste shall be disposed of in the bins provided and no on-site burying, dumping or burning of any waste materials, vegetation, litter or refuse shall occur. Bins shall not be allowed to become overfull and shall be emptied a minimum of once daily. The waste may be temporarily stored on Site in a central waste area that is weatherproof and scavenger-proof, and which the Employer's Agent has approved.

All solid waste shall be disposed of offsite at an approved landfill site. The Contractor shall supply the Employer's Agent with a certificate of disposal.

PA 5.2.3 Contaminated water

The Contractor shall set up a contaminated water management system, which shall include collection facilities to be used to prevent pollution, as well as suitable methods of disposal of contaminated water. The Contractor shall prevent the discharge of water contaminated with any pollutants, such as soaps, detergent, cements, concrete, lime, chemicals, glues, solvents, paints and fuels, into the environment.

The Contractor shall notify the Employer's Agent immediately of any pollution incidents on Site. The Employer's Agent approval is required prior to the discharge of contaminated water to the Municipal sewer system.

PA 5.2.4 Site structures

All site establishment components (as well as equipment) shall be positioned to limit visual intrusion on neighbours and the size of area disturbed. The type and colour of roofing and cladding materials to the Contractor's temporary structures shall be selected to reduce reflection.

The Contractor shall provide the Employer's Agent with a plan of the site camp showing the layout/positioning of all infrastructure including wash bays, fuel storage areas, materials storage areas, sewage infrastructure and buildings. The Contractor shall maintain a map of the site layout that indicates where the wash bays, fuel storage areas, topsoil sites etc are located. The Employer's Agent and EEA must approve this.

Where site camps are to be established the feasibility of removing topsoil from the site, before site establishment, shall be investigated. Removed topsoil should then be stockpiled for use in rehabilitation of the site camp

Site camps and surrounds shall be maintained in a clean, tidy and orderly condition at all times.

The Contractor shall restore the site camp to its former condition upon completion of the works. This will include removal of all rubble and foundations, loosening of compacted soils and re-establishing groundcover.

PA 5.2.5 Noise control

The applicable regulations framed under the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), and the provisions of SANS 1200 A Subclause 4.1 regarding "built-up areas" shall apply to all areas within audible distance of residents whether in urban, peri-urban or rural areas.

Appropriate directional and intensity settings are to be maintained on all hooters and sirens, and the Contractor shall provide and use suitable and effective silencing devices for pneumatic tools and other plant such that the noise level in inhabited areas and dwellings adjacent to the work areas will not increase by more than 7 dB(A)Leq 60 above residual background sound levels. Similarly in habituated areas adjacent to access roads maximum noise levels shall not exceed 60 dB(A)Leq 60 and maximum sound pressure level of 70 dB(A).

Where excess noise generation is unavoidable, the Contractor shall, by means of barriers, effectively isolate the source of any such noise in order to comply with the said regulations. The Contractor shall restrict any of his operations that may result

in undue noise disturbance to those communities and dwellings abutting the Site to the hours of 08:00 to 17:00 on weekdays and Saturdays. No work will be permitted on Sundays unless otherwise agreed to with the Employer's Agent.

No amplified music shall be allowed on Site. The use of radios, tape recorders, compact disc players, television sets etc. shall not be permitted unless the volume is kept sufficiently low as to avoid any intrusion on members of the public within range. The Contractor shall not use sound amplification equipment on Site unless in emergency situations.

PA 5.2.6 Lights

The Contractor shall ensure that any lighting installed on the site for his activities does not interfere with road traffic or cause a reasonably avoidable disturbance to the surrounding community or other users of the area.

PA 5.2.7 Fuel (petrol and diesel) and oil

Unless otherwise specified in the Specification Data, fuel may be stored on site in an area approved by the Employer's Agent. The Contractor shall ensure that all liquid fuels (petrol and diesel) are stored in tanks with lids, which are kept firmly shut or in bowsers. The tanks/bowsers shall be situated on a smooth impermeable surface (concrete or 250 µm plastic) with an earth bund (plastic must have a 5 cm layer of sand on top to prevent damage and perishing). The impermeable lining shall extend to the crest of the bund and the volume inside the bund shall be 130% of the total capacity of all the storage tanks/ bowsers. The bunded area shall be covered to protect it from rain. Provision shall be made for refuelling at the fuel storage area, by protecting the soil with 250 µm plastic covered with a minimum of a 5 cm layer of sand.

If fuel is dispensed from 200 litre drums, only empty externally clean drums may be stored on the bare ground. All empty externally dirty drums shall be stored on an area where the ground has been protected. The proper dispensing equipment shall be used, and the drum shall not be tipped in order to dispense fuel. The dispensing mechanism of the fuel storage drum shall be stored in a waterproof container when not in use.

The Contractor shall prevent unauthorised access into the fuel storage area. No smoking shall be allowed within the vicinity of the fuel storage area. The Contractor shall ensure that there is adequate fire-fighting equipment at the fuel stores.

Where reasonably practical, plant shall be refuelled at the fuel storage area or at the workshop as applicable. If it is not reasonably practical then the surface under the refuelling area shall be protected against pollution to the reasonable satisfaction of the Employer's Agent prior to any refuelling activities. The Contractor shall ensure that there is always a supply of absorbent material readily available to absorb/ breakdown and where possible be designed to encapsulate minor hydrocarbon spillage. The quantity of such materials shall be able to handle a minimum of 200 ℓ of hydrocarbon liquid spill. The Contractor shall obtain the Employer's Agent prior approval for any refuelling or maintenance activities.

PA 5.2.8 Workshop, equipment maintenance and storage

Leaking equipment shall be repaired immediately or removed from the Site. Where practical, all maintenance of equipment and vehicles on Site shall be performed off Site or in the workshop. If it is necessary to do maintenance outside of the workshop area, the Contractor shall obtain the approval of the Employer's Agent prior to commencing activities. The Contractor shall ensure that in his workshop and other plant maintenance facilities, including those areas where, after obtaining the Employer's Agent approval, the Contractor carries out emergency plant maintenance, there is no contamination of the soil or vegetation. The workshop shall have a smooth impermeable (concrete or 250 µm plastic covered with sand) floor. The floor shall be bunded and sloped towards an oil trap or sump to contain any spillages of substances (e.g. oil).

When servicing equipment on site, drip trays shall be used to collect the waste oil and other lubricants. Drip trays shall also be provided in construction areas for stationary plant (such as compressors) and for "parked" plant (such as scrapers, loaders, vehicles). Drip trays shall be inspected and emptied daily. Drip trays shall be closely monitored during rain events to ensure that they do not overflow. Where practical, the Contractor shall ensure that equipment is covered so that rainwater is excluded from the drip trays.

The washing of equipment shall be restricted to urgent or preventative maintenance requirements only. All washing shall be undertaken off Site or in the workshop. The use of detergents for washing shall be restricted to low phosphate and nitrate containing, low sudsing-type detergents.

PA 5.2.9 Dust

The Contractor shall take all reasonable measures to minimise the generation of dust as a result of construction activities to the satisfaction of the Employer's Agent. The Contractor's dust management planning shall, as a minimum, take cognisance of the following:

- Schedule of spraying water on unpaved roads paying due attention to control of runoff.
- Speed limits for vehicles on unpaved roads and minimisation of haul distances.
- Measures to ensure that material loads are properly covered during transportation.
- Schedule for wheel cleaning and measures to clean up public roads that may be soiled by construction vehicles.
- Minimisation of the areas disturbed at any one time and protection of exposed soil against wind erosion, e.g. by dampening with water or covering with straw
- Location and treatment of material stockpiles taking into consideration prevailing wind directions and location of sensitive receptors.
- Controlled blasting techniques to minimise dust and fly rock during blasting.
- Adherence to the dust loads and protective gear stipulated in the Occupational Health and Safety Act.
- Reporting mechanism and action plan in case of excessive wind and dust conditions.

During summer, a water tanker shall be permanently available for the control of dust generation, and the Contractor shall ensure that the sprays do not generate excess run off. During winter, provision shall be made for a tanker, as required by the Employer's Agent.

During high wind conditions, the Contractor shall comply with the Employer's Agent instructions regarding dust-damping measures. The Employer's Agent may request the temporary cessation of all construction activities where wind speeds are unacceptably high, and until such time as wind speeds return to acceptable levels.

Vehicle speeds should not exceed 20km/h on dirt roads or when traversing unconsolidated or non-vegetated areas. Contractors shall develop and implement a programme for the monitoring of dust fallout in areas where dust generation may be expected.

PA 5.2.10 Trimming of the Site

The Contractor shall include the reinstatement of the owners' verges when trimming the site.

PA 5.2.11 General Equipment and Plant

All equipment and plant brought to site shall be of good working order and shall not have any fluid leaks that may contaminate the environment. The equipment shall furthermore only be utilised for the construction activities. No equipment will be serviced on site and no fluids (oil, brake fluid, coolent, etc.) shall be disposed off on site.

Furthermore, all equipment shall be monitored for leaks on a regular basis as required by the plant inspection requirements (See health and safety specification).

PA 5.3 METHODS AND PROCEDURES

PA 5.3.1 Method Statements

Any Method Statement required by this Specification, the Specification Data or the Employer's Agent shall be produced within such reasonable time as is required by this Specification, the Specification Data or the Employer's Agent. The Contractor shall not commence the activity until the Method Statement has been approved. Except in the case of emergency activities, the Contractor shall allow a period of two weeks for approval of the Method Statement by the Employer's Agent. Such approval shall not unreasonably be withheld.

Method Statements in respect of environment management that shall be provided by the Contractor within 14 days of receipt of the letter of acceptance and prior to the activity covered by the Method Statement being undertaken, include:

1) Location and structure of the fuel storage site, including the type and volume of storage container and the design and capacity of the bund.

2) Contaminated water management system, including an indication of the source and volume of contaminated water and how this would be disposed of.

3) Dust control, including methods to prevent dust generation and methods to reduce dust where its generation is unavoidable.

4) Location and layout of the construction camp in the form of a plan showing offices, stores for fuels and explosives, vehicle parking, access point, equipment cleaning areas and staff toilet placement.

5) Location of proposed site access routes and proposed traffic safety measures.

6) Emergency procedures for fire, and accidental leaks and spillages of hazardous materials.

7) Location, layout and preparation of cement/ concrete batching facilities including the methods employed for the mixing of concrete and the management of runoff water from such areas. An indication shall be given of how concrete spoil will be minimised and cleared.

8) Method of undertaking earthworks, including spoil management, erosion, dust and noise controls.

9) Motivation and method for undertaking any construction related activities within a "no-go" area, including requisite emergency procedures. Unless need clearly motivated and proposed methodology exhibits clear focus on environmentally sensitive construction practice, no activity will be permitted within the defined "no-go" areas.

PA 5.3.2 Environmental awareness training

Not applicable on this Contract.

PA 5.3.3 Construction personnel information posters

Not applicable on this Contract.

PA 5.3.4 Site clearance

The Contractor shall ensure that the clearance of vegetation is restricted to that required to facilitate the execution of the Works. Site clearance shall occur in a planned manner and cleared areas shall be stabilised as soon as possible. The detail of vegetation clearing shall be to the Employer's Agent approval. All cleared vegetation shall either be mulched and mixed

into the topsoil stockpiles or disposed of at an approved disposal site. The disposal of vegetation by burying or burning is prohibited without the requisite permit from the local authority.

Natural features, indigenous flora and fauna in the vicinity of the project works should be protected and damage or disturbance prevented or minimised; specifically:

i) The removal of any indigenous vegetation must be in strict accordance to the conditions as set out by the DFFE permit.
ii) No plant species may be removed unless agreed by the EEA or unless they are listed as alien invasive species.
iii) The minimum amount of vegetation must be removed. Excessive clearing of a site must be avoided. Disturbance outside of the immediate construction area must be avoided.
iv) No construction staff may have access to indigenous vegetation outside of the working corridor.
v) The use of indigenous plants as firewood is prohibited.
vi) Where protected or Red Data Species are encountered and require removal, the EEA should be consulted and the plant(s) then replanted in a nearby 'safe' area of similar habitat. Permission should be obtained from DEDEAT, Eastern Cape.
vii) All fauna (including domestic livestock) within and surrounding the site shall be protected; they shall not be caught, poisoned, trapped, snared or killed.
viii) No domestic animals shall be brought onto the site.

The Contractor shall strip the Top material within the working areas. The Top material shall be stockpiled separately from subsoil and used for subsequent rehabilitation and revegetation. Top material stockpiles shall not be compacted.

Should fauna be encountered during site clearance, earthworks shall cease until fauna have been safely relocated.

PA 5.3.5 Site division

The Employer's Agent shall be advised of the area that the Contractor intends using for his site establishment. The Contractor's camp shall occupy as small an area as possible, and no site establishment shall be allowed within 50 m of any watercourse unless otherwise approved by the Employer's Agent.

The Contractor shall inform the Employer's Agent of the intended actions and programme for site establishment. The site layout shall be planned to facilitate ready access for deliveries, facilitate future works and to curtail any disturbance or security implications for neighbours.

PA 5.3.6 Site demarcation

As required by the Specification Data, the Contractor shall erect and maintain permanent and/or temporary fences of the type and in the locations directed by the Employer's Agent. Such fences shall, if so specified, be erected before undertaking designated activities.

PA 5.3.7 "No go" areas

If so required by the Specification Data, certain areas shall be considered "no go" areas. The Contractor shall ensure that, insofar as he has the authority, no unauthorised entry, stockpiling, dumping or storage of equipment or materials shall be allowed within the demarcated "no go" areas.

"No go" areas shall be demarcated with fencing consisting of wooden or metal posts at 3 m centres with 1 plain wire strand tensioned horizontally at 900 mm from ground level. Commercially available danger tape shall be wrapped around the wire

strand. The Contractor shall maintain the fence for the duration of construction and ensure that the danger tape does not become dislodged.

PA5.3.8 Conservation and stockpiling of topsoil

Topsoil shall be removed from the following areas no longer than 10 days before construction begins:

i) All areas to be excavated;

ii) Areas to be occupied by roads, including the temporary haulage road;

iii) Areas for the storage of fuels;

iv) Areas to be used for batching/mixing of concrete;

v) Areas for stockpiling of construction materials;

vi) Areas for stockpiling of crushed rock; and

vii) Areas for spoiling material.

Topsoil shall be excavated to a minimum depth of 150 mm or to a maximum depth of 300 mm. Compaction of these topsoil stockpiles is not permitted. Where topsoil has been stored for longer than 12 months the Contractor shall turn the soils to maintain viability of the seeds and the soil properties.

The topsoil stockpiles shall be clearly demarcated and vehicle access restricted. The topsoil shall not be contaminated with any fuels, oils or other construction waste or materials.

Topsoil shall not be mixed with any other material (construction rubble, subsoil etc) and erosion of the topsoil stockpiles must be prevented.

PA 5.3.9 Protection of natural features

The Contractor shall not deface, paint, damage or mark any natural features (e.g. rock formations) situated in or around the Site for survey or other purposes unless agreed beforehand with the Employer's Agent. Any features affected by the Contractor in contravention of this clause shall be restored/ rehabilitated to the satisfaction of the Employer's Agent.

The Contractor shall not permit his employees to make use of any natural water sources (e.g. springs, streams, open water bodies) for the purposes of swimming, personal washing and the washing of machinery or clothes.

PA 5.3.10 Protection of flora and fauna

Except to the extent necessary for the carrying out of the Works, flora shall not be removed, damaged or disturbed nor shall any vegetation be planted without authorisation.

Trapping, poisoning and/ or shooting of animals is strictly forbidden. No domestic pets or livestock are permitted on Site.

Where the use of herbicides, pesticides and other poisonous substances has been specified, they shall be stored, handled and applied with due regard to their potential harmful effects.

PA 5.3.11 Protection of archaeological and paleontological remains

The Contractor shall take reasonable precautions to prevent any person from removing or damaging any fossils, coins, articles of value or antiquity and structures and other remains of archaeological interest discovered on the Site, immediately upon discovery thereof and before removal. The Contractor shall inform the Employer's Agent immediately of such a discovery and carry out the Employer's Agent instructions for dealing therewith. All construction within the vicinity of the discovery shall cease immediately and the area shall be cordoned off until such time as the Employer's Agent authorises resumption of construction in writing.

The Employer's Agent will contact the relevant heritage authority.

PA 5.3.12 Access routes/ haul roads

Access to the Construction camp and working areas shall utilise existing roads or tracks. Entry/exit points onto public roads shall take cognisance of traffic safety. Traffic safety measures shall include appropriate signage and signalmen where relevant.

On the Site, and, if so required by the Specification Data, within such distance of the Site as may be stated, the Contractor shall control the movement of all vehicles and plant including that of his suppliers so that they remain on designated routes, are distributed so as not to cause an undue concentration of traffic and that all relevant laws are complied with. In addition such vehicles and plant shall be so routed and operated as to minimise disruption to regular users of the routes not on the Site. On gravel or earth roads on Site and within 500 m of the Site, the vehicles of the Contractor and his suppliers shall not exceed a speed of 20 km/h.

Mud and sand deposited onto public roads by construction activities shall be cleared on a daily basis.

PA 5.3.13 Cement and concrete batching

Where applicable, the location of the batching plant (including the location of cement stores, sand and aggregate stockpiles) shall be as approved by the Employer's Agent. The concrete/cement batching plant shall be kept neat and clean at all times.

No batching activities shall occur directly on unprotected ground. The batching plant shall be located on a smooth impermeable surface (concrete or 250 µm plastic covered with 5 cm of sand). The area shall be bunded and sloped towards a sump to contain spillages of substances. All wastewater resulting from batching of concrete shall be disposed of via the contaminated water management system and shall not be discharged into the environment. Contaminated water storage areas shall not be allowed to overflow and appropriate protection from rain and flooding shall be implemented

Empty cement bags shall be stored in weatherproof containers to prevent windblown cement dust and water contamination. Empty cement bags shall be disposed of on a regular basis via the solid waste management system, and shall not be used for any other purpose. Unused cement bags shall be stored so as not to be affected by rain or runoff events. In this regard, closed steel containers shall be used for the storage of cement powder and any additives. The Contractor shall ensure that sand, aggregate, cement or additives used during the mixing process are contained and covered to prevent contamination of the surrounding environment.

The Contractor shall take all reasonable measures to prevent the spillage of cement/ concrete during batching and construction operations. During pouring, the soil surface shall be protected using plastic and all visible remains of concrete shall be physically removed on completion of the cement/ concrete pour and appropriately disposed of. All spoiled and excess aggregate/ cement/ concrete shall be removed and disposed of via the solid waste management system.

Where "readymix" concrete is used, the Contractor shall ensure that the delivery vehicles do not wash their chutes directly onto the ground. Any spillage resulting from the "readymix" delivery shall be immediately cleared and disposed of via the solid waste management system.

PA 5.3.14 Earthworks

All earthworks shall be undertaken in such a manner so as to minimise the extent of any impacts caused by such activities, particularly with regards to erosion and dust generation. No equipment associated with earthworks shall be allowed outside of the Site and defined access routes unless expressly permitted by the Employer's Agent.

PA 5.3.15 Pumping

Pumps shall be placed over a drip tray in order to contain fuel spills and leaks. The Contractor shall take all reasonable precautions to prevent spillage during the refuelling of these pumps.

The Contractor shall ensure that none of the water pumped during any dewatering activities, including well points, is released into the environment without the Employer's Agent approval. The Employer's Agent approval is required prior to the discharge of this water into the Municipal sewer system.

PA 5.3.16 Bitumen

Over spray of bitumen products outside of the road surface and onto roadside vegetation or the surrounding environment shall be prevented using a method approved by the Employer's Agent.

When heating bitumen products, the Contractor shall take cognisance of appropriate fire risk controls. Heating of bitumen products shall only be undertaken using LPG or similar zero emission fuels and appropriate firefighting equipment shall be readily available.

Stone chip/gravel excess shall not be left on road / paved area verges. This shall be swept / raked into piles and removed to an area approved by the Employer's Agent.

Water quality from runoff from new/ fresh bitumen surfaces will be monitored visually by the Employer's Agent and remedial actions taken where necessary by the Contractor.

PA 5.3.17 Fire control

No fires may be lit on site. Any fires that occur shall be reported to the Employer's Agent immediately. Smoking shall not be permitted in those areas where it is a fire hazard. Such areas shall include the workshop and fuel storage areas and any areas where the vegetation or other material is such as to make liable the rapid spread of an initial flame. In terms of the Atmospheric Pollution Prevention Act (No. 45 of 1965), burning is not permitted as a disposal method.

The Contractor shall ensure that there is basic fire-fighting equipment available on Site at all times. This shall include at least rubber beaters when working in urban open spaces and fynbos areas, and at least one fire extinguisher of the appropriate type when welding or other "hot" activities are undertaken.

PA 5.3.18 Emergency procedures

The Contractor's procedures for the following emergencies shall include:

i) Fire

The Contractor shall advise the relevant authority of a fire as soon as one starts and shall not wait until he can no longer control it. The Contractor shall ensure that his employees are aware of the procedure to be followed in the event of a fire.

ii) Accidental leaks and spillages

The Contractor shall ensure that his employees are aware of the emergency procedure(s) to be followed for dealing with spills and leaks, which shall include notifying the Employer's Agent and the relevant authorities. The Contractor shall ensure that the necessary materials and equipment for dealing with spills and leaks is available on Site at all times. Treatment and remediation of the spill areas shall be undertaken to the reasonable satisfaction of the Employer's Agent.

In the event of a hydrocarbon spill, the source of the spillage shall be isolated, and the spillage contained. The area shall be cordoned off and secured. The Contractor shall ensure that there is always a supply of absorbent material readily available to absorb/ breakdown and where possible be designed to encapsulate minor hydrocarbon spillage. The quantity of such materials shall be able to handle a minimum of 200 ℓ of hydrocarbon liquid spill.

PA 5.3.19 Community relations

Where applicable, the Contractor shall erect and maintain information boards in the position, quantity, design and dimensions specified. Such boards shall include contact details for complaints by members of the public in accordance with details provided by the Employer's Agent.

Where applicable, the Contractor shall keep a "Complaints Register" on Site. The Register shall contain all contact details of the person who made the complaint, and information regarding the complaint itself. The Contractor shall erect and maintain an information board at the access gate to the Site Office.

PA 5.3.20 Erosion and sedimentation control

The Contractor shall take all reasonable measures to limit erosion and sedimentation due to the construction activities. Where erosion and/or sedimentation, whether on or off the Site, occurs despite the Contractor complying with the foregoing, rectification shall be carried out in accordance with details specified by the Employer's Agent. Where erosion and/or sedimentation occur due to the fault of the Contractor, rectification shall be carried out to the reasonable requirements of the Employer's Agent.

Any runnels or erosion channels developed during construction or during the defects liability period shall be backfilled and compacted. Stabilisation of cleared areas to prevent and control erosion shall be actively managed. Consideration and provision shall be made for various methods, namely, brushcut packing, mulch or chip cover, straw stabilising (at a rate of one bale/ 20 m2 and rotovated into the top 100 mm of the completed earthworks), watering, soil binders and anti-erosion compounds, mechanical cover or packing structures (e.g. Hessian cover).

Traffic and movement over stabilised areas shall be restricted and controlled, and damage to stabilised area shall be repaired and maintained to the satisfaction of the Employer's Agent.

PA 5.3.21 Aesthetics

The Contractor shall take reasonable measures to ensure that construction activities do not have an unreasonable impact on the aesthetics of the area.

PA 5.3.22 Recreation

If so required by the Specification Data, the Contractor shall take measures to reduce disruption to recreational users of the area abutting the Site.

PA 5.3.23 Access to site

The Contractor shall ensure that access to the Site and associated infrastructure and equipment is off-limits to the public at all times during construction. If so required, as directed by the Employer's Agent, the Contractor shall fence the site to ensure effective control of access to the site. This fence shall be a diamond mesh fence or similar with a minimum height of 1.8 m, and it shall be erected around the site and shall be maintained for the duration of construction.

PA 5.3.24 Crane operations

Drive plants shall be well maintained and drip trays shall be positioned at potential leak areas. Over-greasing of crane cables shall be avoided.

Movement and lifting of hazardous materials shall be undertaken such that they do not cause a pollution, spillage or safety risk (in particular were concrete buckets are in use).

PA 5.3.25 Trenching

Trenching for services shall be undertaken in accordance with the Employer's Agenting specifications with the following environmental amplifications, where applicable:

a) Soil shall be excavated and used for refilling trenches i.e. soil from the first trench shall be excavated and stockpiled, thereafter soil from the second excavated trench length shall be used to backfill the trench behind it once the services have been laid. The last trench shall be filled using the soil stockpiled from the first trench.

b) Trench lengths shall be kept as short as practically possible before backfilling and compacting.

c) Trenches shall be re-filled to the same level as (or slightly higher to allow for settlement) the surrounding land surface to minimise erosion.

PA 5.3.26 Demolition

Hazardous and non-hazardous materials shall be separated at site and disposed of in a manner approved by the Employer's Agent.

All buildings older than 60 years require a permit from South African Heritage Resources Agency in terms of the National Heritage Resources Act (no. 25 of 1999). A demolition permit is also required from the local authority in terms of the National Building Regulations.

PA 5.3.27 Drilling and jack hammering

The Contractor shall take all reasonable measures to limit dust generation and noise as a result of drilling operations. The Contractor shall ensure that no pollution results from drilling operations, either as a result of oil and fuel drips, or from drilling fluid.

Any areas or structures damaged by the drilling and associated activities shall be rehabilitated by the Contractor to the satisfaction of the Employer's Agent.

PA 5.3.28 Stockpiling

The Employer's Agent will identify suitable sites for stockpiling. Stockpiles shall be convex in shape, shall be no higher than 2 m and shall be located so as to cause minimal disturbance. Stockpiles shall be so placed to occupy minimum width compatible with the natural angle of repose of material, and measures shall be taken to prevent the material from being spread over too wide a surface. Where required, appropriate precautions shall be taken to prevent the erosion and limit the compaction of the stockpiles. The Contractor shall ensure that all stockpiles do not cause the damming of water or run off, or is itself washed away.

Top material stockpiles shall not be covered with any material (e.g. plastic) that may kill seeds or cause it to compost. If the stockpiles start to erode significantly or cause dust problems, they shall be covered with hessian. Where practical, Top material shall not be left for longer than six to eight months before being used for rehabilitation. If stored for longer than six months, the Top material shall be analysed and, if necessary, upgraded before placement.

PA 5.3.29 Bridges, culverts and watercourse crossings

The Contractor shall minimise the extent of any damage to the flood plain necessary to complete the works, and shall not pollute the river systems a result of construction activities. No construction materials shall be stockpiled on the flood plain. The Contractor shall not divert, dam or modify any watercourse or stream without the approval of the Engineer and DWS.

Rehabilitation of the disturbed areas must be carried out in consultation with Working for Water.

Bridge construction and culvert installation should, where possible, be planned to take place during periods when stream flow is low.

Avoid operating machinery in water bodies. Excavation for a bridge or a large culvert should not be performed in flowing water. The water should be diverted around the work site during construction with a cofferdam or stream diversion. Any diversion of a stream requires a separate investigation and an approval from the Department of Water and Sanitation.

Avoid channel changes and protect the embankments of streams and rivers. All rubble from the demolished structures must be removed from the riverbed and disposed of according to the waste management system. No rubble may be left in the water course.

All concrete must be allowed to fully cure prior to coming into contact with the water. Specific mitigation measures related to bridge and culvert construction, covered in detail in the specialist Estuary and Aquatic Studies undertaken as part of the EIA and summarized in the EIR, must be adhered to.

PA 5.3.30 Site closure and rehabilitation

Any areas that the Employer's Agent believes may have been impacted upon or disturbed, shall be rehabilitated to the satisfaction of the Employer's Agent, which includes all areas where Top material has been stripped. Once construction is complete the Contractor shall clear everything from the Site not forming part of the Permanent Works. The area to be rehabilitated shall first be landscaped to match the topography of the surrounding area as it was prior to construction. The composition of vegetation to be used for any rehabilitation shall be as specified in the Specification Data.

The Contractor may not use herbicides, pesticides, fertilisers or other poisonous substances for the rehabilitation process unless otherwise agreed with the Employer's Agent.

All rehabilitated areas shall be considered "no go" areas and the Contractor shall ensure that none of his staff or equipment enters these areas.

The Contractor shall undertake to remove all alien vegetation re-establishing on the area and shall implement the necessary temporary or permanent measures to combat soil erosion.

PA 5.3.31 Temporary revegetation of the areas disturbed by construction.

Where there is likely to be a delay of greater than two weeks in the landscaping and revegetation of a disturbed area or where that site is likely to be the subject of further construction activities at a later stage, the Contractor shall ensure that the area is temporarily revegetated to combat dust generation and prevent erosion. This revegetation shall occur incrementally immediately upon completion of the construction activities at the subject location.

Prior to revegetation structures and material not forming part of the Permanent Works, including remnants of building materials, concrete foundations, timber and other foreign debris, shall be removed and disposed of via the solid waste management system. The area shall be revegetated as follows:

a) The surface shall be levelled by hand or machine as far as practically possible.
b) Alien vegetation shall be cleared by cutting the plants off at ground level and painting the stump with 0.5% Garlon in diesel.
c) For areas with a slope of greater than 1:3, straw shall be utilised as a binding material to stabilise the soil during revegetation and rehabilitation of the site. Straw shall consist of natural, dried fibres of hay or chaff of various lengths between 50 mm and 400 mm, delivered to Site in bales and shall be applied evenly by hand or machine at a rate of 1 bale per 20 m2 over the area to be revegetated. It shall then immediately be rotovated into the upper 100 mm layer of soil.
d) The prepared area shall be hydro- or hand-seeded at a rate of 40 kg/ha using Rye grass (Loliummultiflorum). In the event of hand-seeding, the seed mixture as specified shall be mixed with two parts per volume of clean dry plaster sand, then divided in half and applied evenly in two successive applications, one after the other, by means of an approved hand seeding machine (known colloquially as a "tefsaaier"). On completion of the seeding the surface shall be lightly raked to cover the seed with no more than 5 mm of soil.
e) Water used for the irrigation of vegetated areas shall be free of pollutants that will have a detrimental effect on the plants. The vegetated area shall only be watered once, immediately following seeding. Watering should be carried out from a tanker, using a fine nozzle spray to avoid erosion and disturbance of the vegetation. Water for irrigation purposes may not be drawn from any water body.

No construction equipment, vehicles or unauthorised personnel shall be allowed onto areas that have been vegetated. Only persons or equipment required for the preparation of areas, application of fertiliser and maintenance of revegetated area shall be allowed to operate on these areas.

PA 5.3.32 Temporary site closure

If the site is closed for a period exceeding one week, the Contractor, in consultation with the Employer's Agent shall carry out the following checklist procedure.

Hazardous materials stores

Outlet secure/ locked
Bund empty (where applicable)
Fire extinguishers serviced and accessible
Secure area from accidental damage e.g. vehicle collision
Emergency and contact details displayed
Adequate ventilation

Safety

All trenches and manholes secured
Fencing and barriers in place as per the Occupational Health and Safety Act (No 85 of 1193)
Emergency and management contact details displayed
Pipe stockpile wedged/ secured

Erosion

Wind and dust mitigation in place
Slopes and stockpiles at stable angle
Revegetated areas watering schedules and supply secured

Water contamination and pollution

Cement and materials stores secured
Toilets empty and secured
Refuse bins empty and secured
Drip trays empty and secure (where possible)
Structures vulnerable to high winds secure

PA 6 COMPLIANCE WITH REQUIREMENTS AND PENALTIES

PA 6.1 COMPLIANCE

Environmental management is concerned not only with the final results of the Contractor's operations to carry out the Works but also with the control of how those operations are carried out. Tolerance with respect to environmental matters applies not only to the finished product but also to the standard of the day-to-day operations required to complete the Works.

It is thus required that the Contractor shall comply with the environmental requirements on an ongoing basis and any failure on his part to do so will entitle the Employer's Agent to certify the imposition of a penalty as detailed below.

PA 6.2 Penalties

Penalties will be issued for certain transgressions. Penalties may be issued per incident at the discretion of the Employer's Agent. Such penalties will be issued in addition to any remedial costs incurred as a result of non-compliance with this Specification. The Employer's Agent will inform the Contractor of the contravention and the amount of the penalty, and shall be entitled to deduct the amount from monies due under the Contract.

Penalties will be issued for the transgressions listed below. Penalties may be issued per incident at the discretion of the Employer's Agent. Such penalties will be issued in addition to any remedial costs incurred as a result of non-compliance with the environmental specifications. The Employer's Agent will inform the Contractor of the contravention and the amount of the fine, and will deduct the amount from monies due under the Contract.

Penalties for the activities detailed below, will be imposed by the Employer's Agent on the Contractor.

a)	Any employees, vehicles, plant, or thing related to the Contractor's operations operating within the designated boundaries of a "no-go" area.	R 2 000
b)	Persistent and un-repaired oil leaks from machinery.	R 1 000
c)	Persistent failure to monitor and empty drip trays timeously.	R 1 000
d)	The use of inappropriate methods for refuelling.	R 1 000
e)	Litter on site associated with construction activities.	R 500
f)	Deliberate lighting of fires on site.	R 5 000
g)	Failure to implement specified noise controls, particularly during blasting	R 1 000
h)	Failure to empty waste bins on a regular basis.	R 1 000
i)	Inadequate dust control.	R 2 500
j)	Employees urinating or defecating anywhere on site other than the site ablution facilities.	R 500
k)	A spillage, pollution, fire or any damage to any water course or surrounding environment resulting from negligence on the part of the Contractor or his staff.	R 5 000

For each subsequent similar offence the fine will be doubled in value to a maximum value of R 30 000.

The Employer's Agent shall be the judge as to what constitutes a transgression in terms of this clause, subject to the provisions of Clause 10.2.1 of the General Conditions of Contract. In the event that transgressions continue the Contractor's attention is drawn to the provisions of Subclauses 4.11 and 9.2.1 of the General Conditions of Contract under which the Employer's Agent may remove an individual from site or terminate the Contract.

PA 6.3 Removal from site and suspension of Works

The Employer's Agent may instruct the Contractor to remove from Site any person(s) who in their opinion is guilty of misconduct, or is incompetent, negligent or constitutes an undesirable presence on Site. Clause 5.2.11 of this Specification requires that all Plant be in good working order, and accordingly the Employer's Agent may order that any Plant not complying with the Specifications be removed from Site. Where the Employer's Agent deems the Contractor to be in breach of any of the requirements of this Specification, he may order the Contractor to suspend the progress of the Works or any part thereof.

PA 7 TOLERANCES

Not applicable.

PA 8 TESTING/QUALITY CONTROL

Not applicable.

PA 9 MEASUREMENT AND PAYMENT

PA 9.1 BASIC PRINCIPLES

PA 9.1.1 General

Except as specified below, or as billed, no separate measurement and payment will be made to cover the costs of complying with the provisions of this Specification and such costs shall be deemed to be covered by the rates tendered for the items in the Bill of Quantities completed by the Contractor when submitting his tender.

PA 9.1.2 All requirements of the environmental management specification

All work not measured elsewhere, associated with complying with any requirement of this Environmental Management specification will be measured and paid as a sum.

The tendered sum shall cover the cost of with complying with the environmental management specification and shall include for all materials, labour and plant required to execute and complete the Works as specified, described in the Bill of Quantities or shown on the Drawing(s).

PA 9.1.3 Work "required by the Specification Data"

Where a clause in this Specification includes a requirement as "required by the Specification Data", measurement and payment for compliance with that requirement shall be in accordance with the relevant measurement and payment clause of the Specification Data.

PA 9.2 BILLED ITEMS

PA 9.2.1 Method Statements: Additional work ……...Unit: No

No separate measurement and payment will be made for the provision of Method Statements but, where the Employer's Agent requires a change on the basis of his opinion that the proposal may result in, or carries a greater than warranted risk of damage to the environment in excess of that warranted by the Specifications, then any additional work required, provided it could not reasonably have been foreseen by an experienced contractor, shall be valued in accordance with the Clause in the General Conditions of Contract dealing with Provisional Sums.

A stated sum is provided in the Bill of Quantities to cover payment for such additional work.

PA 9.2.2 All requirements of the environmental management specification.....…..Unit: Sum

All other work not measured elsewhere, associated with complying with any requirement of the environmental management specification shall be measured as a sum.

The tendered rate shall cover any cost associated with complying with the environmental management specification and shall include for all materials, labour and plant required to execute and complete the work as specified, described in the Bill of Quantities or shown on the drawing(s).

PA 9.2.3 Trimming of the Site .....…..Unit: Sum

A lump sum shall be tendered for trimming of site. Payment shall only be effected after issuing of the practical completion certificate and under no circumstances will part payments be made while construction works is still in progress.(PA 5.2.10)

PARTICULAR SPECIFICATION: PB

PB HEALTH AND SAFETY SPECIFICATIONS

HEALTH AND SAFETY

SPECIFICATION

Issued in terms of the Occupational Health and Safety Act, No 85 of 1993 and Construction Regulations 2014

Project:

IMPLEMENTATION OF A NEW BULK WATER MAIN FROM HUMANSDORP WATER TREATMENT WORKS TO KWANOMZAMO

For:

The Kouga Municipality

KOUGA
local municipality
Good Governance through Service Excellence

FOREWORD

This Health and Safety specification has been compiled under the guidelines of the Occupational Health & Safety Act, Act no.85 of 1993 as amended (the Act) and in particular in terms of the Construction Regulations (2014).

It must be clear that this document is a management tool and should be used and transformed by the PRINCIPAL CONTRACTOR into a ***project-specific*** construction Health and Safety plan for work in order to comply with the aforementioned Act and regulations.

Should there be any contradiction between the document and the Act, the Act must take preference except where explicitly stated or where requirements are more stringent than the Act. Where this document is silent on a specific Health & Safety requirement, the Act and regulations must be used as the minimum requirement.

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1. INTRODUCTION AND BACKGROUND

1.1 BACKGROUND TO THE HEALTH AND SAFETY SPECIFICATION

The Construction Regulations (2014) places the onus on the KOUGA MUNICIPALITY, to submit a sufficiently documented and coherent site-specific health and safety specification, highlighting the minimum requirements which forms the framework of the Health and Safety Plan to be developed and submitted by the PRINCIPAL CONTRACTOR to the KOUGA MUNICIPALITY, or appointed Health and Safety Agent for approval before commencement of the construction work/project.

The approved, site specific health and safety plan, in turn, needs to be successfully implemented by the PRINCIPAL CONTRACTOR and any appointed SUB-CONTRACTOR to ensure that identified health and safety risks are managed effectively and that full adherence to the minimum prescribed corporate and legal requirements (as pertained herein) are ensured at all times and are verified during regular audits by the PRINCIPAL CONTRACTOR and the KOUGA MUNICIPALITY.

These specifications cannot be seen as an exhaustive list of legal and corporate compliance requirements, as health and safety is a dynamic aspect of our working life and prevailing site conditions, possibly unknown at the time of specification development, may impact on the anticipated risk profiles and thus on these specifications. Constant assessment of risks and review of control/management measures by PP OHS Risk Consultants, the PRINCIPAL CONTRACTORS and other CONTRACTORS are vital components of effective risk control.

1.2 PURPOSE OF THE HEALTH AND SAFETY SPECIFICATION

To assist in achieving compliance with the Occupational Health and Safety Act, Act 85/1993 (OHS Act) and the promulgated Construction Regulations (2014) in order to reduce damage, incidents and injuries. These specifications shall act as the basis for the drafting of the Health and Safety plan by the PRINCIPAL CONTRACTOR and all subsequent Health and Safety plans by CONTRACTORS.

The specification sets out the requirements to be followed by the PRINCIPAL CONTRACTOR and other CONTRACTORS so that the Health and Safety of all employees and other persons potentially at risk may receive the same priority as other facets of the project e.g. cost, programme, environment, quality etc.

This specification will be applicable to all construction work during the construction, repairs and maintenance of the rock revetments on the St Francis Bay beach front.

1.3 INTRODUCTION TO THIS THE HEALTH AND SAFETY SPECIFICATION

This specification forms an integral part of the contract, and the PRINCIPAL CONTRACTOR is required to use it when compiling its project-specific Health and Safety plan.

This specification does not replace the Construction Regulations 2014, but is a supplementary specification as required in terms of the Regulations. Partial references to or quotes from the Regulations do not imply that the sections not referred to or quoted from are of lesser importance or are not applicable.

The Principal Contractor is, at all times required to and will remain responsible to fully address all requirements and standards of the Occupational Health and Safety Act (85 of 1993), and the Construction Regulations (2014).

2. HEALTH AND SAFETY SPECIFICATION

2.1 SCOPE OF WORK

This project specific health and safety specifications covers the general requirements for addressing, mitigating and controlling Occupational Health and Safety related risks, problems, incidents and injuries on projects constructed or executed for the KOUGA MUNICIPALITY.

The scope addresses legal compliance, hazard identification, risk assessment, risk control methodology and the promotion of a health and safety culture amongst those working on the Kouga Municipality projects.

The project specific health and safety specifications contains clauses that are generally applicable to building, engineering and construction and imposes controls associated with activities that impact on human health and safety.

The Principal Contractor is required to comply with the provisions of the OHS Act, all applicable Regulations and this project specific health and safety specifications.

Scope of work includes:

- Supply, installation and testing of 3145m of 315mm Ø and 250mm Ø Class 12 water pipeline
- Supply and installation of two pressure reducing valve stations
- Four (4) provincial road crossings (1 currently planned to be completed by means of horizontal drilling)
- One (1) Transnet railway crossing by means of pipe jacking or possibly directional drilling
- Connection into the existing Kwanomzamo Water Reticulation Network

2.1.1 HAZARDOUS AND RISKS ADDRESSED FROM SCOPE OF WORK

From the above scope you are required to identify all activities and the safe controls towards eliminating or mitigating the hazardous or risks which may be encountered during the construction phase.

The scope also addresses legal compliance, hazard identification and risk assessment, risk control and promoting a Health and Safety culture amongst those working on the project. The specification also makes provision for the protection of those persons other than employees, thus including visitors and other members of the public.

Risks to be covered, but should not be limited to the below list:

- Site establishment
- Public safety, including excavations in the built-up areas.
- Use of horizontal drilling / pipe jacking equipment
- Working in road reserves
- Use of construction and earth moving vehicles.
- Working in / near excavations.
- Exposed to hazardous material.
- Height work
- Use of lifting tackle and equipment.

2.1.2 LIMITATIONS OF LIABILITY

The KOUGA MUNICIPALITY and its agent shall not be responsible for any acts or omissions of any Contractor which may directly or indirectly result from the application of the General Health and Safety Specifications or the Project Specific Health and Safety Specifications.

Contractors must ensure that work, equipment, machinery, plant and work practices are, at all times, compliant to the legal requirements as these apply.

The KOUGA MUNICIPALITY and its agent shall limit its responsibility to the application of the Construction Regulations' KOUGA MUNICIPALITY Requirements only.

Any other potential responsibility shall be dealt with in a Mandatory Agreement, as defined in Section 37(2) of the OHS Act. The signed contract must be included in the Health and Safety File.

2.2 INTERPRETATIONS

2.2.1 APPLICATION

This specification is a compliance document compiled in terms of the South African legislation and is therefore binding. It must be read in conjunction with all relevant legislation/regulations and SABS/SANS Codes of Practice.

2.2.2 DEFINITIONS

The definitions as listed in the Occupational Health and Safety Act, Act 85/1993 (OHS Act) and the Construction Regulations (2014) thereto shall mainly apply with minimal additions. All definitions are not referred to in this version of the health and safety specification, but are included for easy reference during future reviews.

Occupational Health and Safety Act, Act 85/1993

1) **"chief executive officer",** in relation to a body corporate or an enterprise conducted by the State, means the person who is responsible for the overall management and control of the business of such body corporate or enterprise;

2) **"danger"** means anything which may cause injury or damage to persons or property;

3) **"employee"** means, subject to the provisions of subsection (2), any person who is employed by or works for an employer and who receives or is entitled to receive any remuneration or who works under the direction or supervision of an employer or any other person;

4) **"hazard"** means a source of or exposure to danger.

5) **"health and safety committee"** means a committee established under section 19 ;

6) **"health and safety equipment"** means any article or part thereof which is manufactured, provided or installed in the interest of the health and safety of any person;

7) **"health and safety representative"** means a person designated in terms of section 17 (1);

8) **"healthy"** means free from illness or injury attributable to occupational causes;

9) **"incident"** means an incident as contemplated in section 24 (1);including other less serious/minor incidents and therefore used as a generic term as well;

10) **"plant"** includes structures, buildings, fixtures, fittings, implements, equipment, tools and appliances, and also anything which is used for any purpose in connection with such plant;

11) **"risk"** means the probability that injury or damage will occur;

12) **"safe"** means free from any hazard;

13) **"substance"** includes any solid, liquid, vapour, gas or aerosol, or combination thereof;

14) This Act" includes any Regulations;

Construction Regulations (July 2014)

15) **"AGENT"** means a competent person who acts as a representative for a KOUGA MUNICIPALITY.

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

17) **"Bulk mixing 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;

18) **"Client"** means any person for whom construction work is being performed; in this instance, it is the KOUGA MUNICIPALITY.

19) **"competent person"** means a person who –

(a) Has in respect of the work or task to be performed the required knowledge, training and experience and, where applicable, qualifications, specific to that work or task: Provided that where appropriate qualifications and training are registered in terms of the provisions of the National Qualification Framework Act, 2000 (Act No.67 of 2000), those qualifications and that training must be regarded as the required qualifications and training; and
(b) Is familiar with the Act and with the applicable regulations made under the Act;

20) **"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;

21) **"construction manager"** means a competent person responsible for the management of the physical construction processes and the coordination, administration and management of resources on a construction site;

22) **"construction site"** means a work place where construction work is being performed;

23) **"construction supervisor"** means a competent person responsible for supervising construction activities on a construction site;

24) **"construction vehicle"** means a vehicle used as a means of conveyance for transporting person or material, or persons and material, on and off the construction site for the purposes of performing construction work;

25) **"construction work"** means any work in connection with-
(a) The construction, erection, alteration, renovation, repair, demolition or dismantling of or addition to building or any similar structure; or
(b) The construction, erection, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system; or the moving of earth, clearing of land, the making of excavation, piling, or nay similar civil engineering structure or type of work;

26) **"construction work permit"** means a document issued in terms of regulation 3

27) **"contractor"** means an employer who performs construction work;

28) **"demolition wor**k" means a method to dismantle, wreck, break, pull down or know down a structure or part thereof by way of manual labour, machinery, or the use of explosives;

29) **"design"** in relation to any structure, includes drawings, calculations, design details and specifications;

30) **"designer"** means –

(a) A competent person who –
(i) Prepares a design,
(ii) Checks and approves a design; or
(iii) Arranges for any person at work under his or her control to prepare a design, including an employee of that person where he or she is the employer); or
(iv) Designs temporary work, including its components,
(b) An architect or engineer contributing to, or having overall responsibility for a design;
(c) A building services engineer designing details for fixed plant;
(d) A surveyor specifying articles or drawing up specifications;
(e) A contractor carrying out design work as part of a design and building project; or
(f) An interior designer, shop-fitter or landscape architect.

31) **"excavation work"** means the making of any man-made cavity, trench, pit or depression formed by cutting, digging or scooping;

32) **"explosive actuated fastening device"** 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.

33) **"fall arrest equipment"** means equipment used to arrest a person in a fall, including personal equipment such as body harness, lanyards, deceleration devices, lifeline or similar equipment.

34) **"fall prevention equipmen**t" means equipment used to prevent persons from falling from a fall risk position, including personal equipment, a body harness, lanysards, lifelines or physical equipment such as guardrails, screens, barricades, anchorages or similar equipment;

35) **"fall protection plan"** means a documented plan, which includes and provides for –

(a) All risks relating to working from a fall risk position, considering the nature of work undertaken;
(b) The procedures and methods to be applied in order to eliminate the risk of falling; and
(c) A rescue plan and procedures

36) **"fall risk"** means any potential exposure to falling either from, off or into:

37) "health and safety file" means a file or other record containing the information in writing required by these Regulations;

38) **"health and safety plan"** means a site, activity or project specific documentation plan in accordance with the KOUGA MUNICIPALITY's health and safety specification;

39) **"health and safety specification"** means a site, activity or project specific document prepared by the KOUGA MUNICIPALITY pertaining to all health and safety requirements related to construction work;

40) **"material hoist"** means a hoist used to lower or raise material and equipment, excluding passengers;

41) **"medical certificate of fitness"** means a certificate contemplated in regulation 7(1)(8);

42) **"mobile plant"** means any machinery, appliance or other similar device that is able to move independently, and is used for the purpose of performing construction work on a construction site;

43) **"National Building Regulations"** means the National Building Regulations made under the National Building Regulations and Building Standards Act, 1977 (Act No. 103 of 1977), and promulgated by Government Notice No. R. 2378 of 30 July 1990, as amended by Government Notices No's R. 432 of 8 March 1991, R. 919 of 30 July 1999 and R. 547 of 30 May 2008.

44) **"person day"** means one normal working shift of carrying out construction work by a person on a construction site;

45) **"Professional Engineer or Professional Certificated Engineer"** means a person holding registration as either a Professional Engineer or Professional Certificated Engineer in terms of the Engineering Professions Act, 2000 (Act No. 46 of 2000);

46) **"Professional Technologist"** means a person holding registration as a Professional Engineering Technologist in terms of the Engineering Profession Act, 2000;

47) **"Provincial Director"** means the provincial director as defined in regulation 1 of the General Administrative Regulations, 2003;

48) **"Scaffold"** means a temporary elevated platform and supporting structure used for providing access to and supporting workmen or materials or both;

49) **"Shoring"** means a system used to support the sides of an excavation and which is intended to prevent the cave-in or the collapse of the sides of an excavation;

50) **"Structure"** means –

a) Any structure, steel or reinforced concrete structure (not being a building), railway line or siding, bridge, waterworks, reservoir, pipe or pipeline, cable, sewer, sewerage works, fixed vessels, road, drainage works, earthworks, dam, wall, mast, tower, tower crane, bulk mixing plant, 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 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 construction work which includes installation, commissioning, decommissioning or dismantling and where any construction work involves a risk of a person falling;

51) **"Suspended Platform"** means a working platform suspended from supports by means of one or more separate ropes from each support;

52) **"Temporary Works"** means any false work, formwork, support work, scaffolding, shoring or other temporary structure designed to provide support or means of access during construction work;

53) **"The Act"** means the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993);

54) **"Tunneling"** 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.

2.3 MINIMUM ADMINISTRATIVE REQUIREMENTS

2.3.1 APPLICATION FOR CONSTRUCTION WORK (CR3) (Not applicable)

A CLIENT who intends to have construction work carried out, must at least 30 days before that work is to be carried out apply to the Provincial Director in wring for a construction work permit to perform construction work if the intended construction work will –

a) Exceed 180 days
b) Will involve more than 1800 person days of construction work; or
c) The works contract is of a value equal to or exceeding thirteen million rand or Construction Industry Development Board (CIDB) grading level 6.

Government Notice dated 7 July 2015: *1. A Client who intends to have construction work carried out, must at least 30 days before that work is to be carried out apply to the provincial director in writing for a construction work permit to perform construction work if the intended construction work starts after the 7th of August 2015 and the works contract if of a value exceeding one hundred and thirty million rand or Construction Industry Development Board (CIDB) grading level 9.) – Must apply for a construction work permit.*

2.3.2 NOTIFICATION OF INTENTION TO COMMENCE CONSTRUCTION WORK (CR4)

A contractor who intends to carry out any construction work other than work contemplated in regulation 3(1), must at least 7 days before that work is to be carried out notify the provincial director in writing in a form similar to Annexure 2 if the intended construction work will –

a) Include excavation work;

b) Include working at a height where there is a risk of falling;

c) Include the demolition of a structure; or

d) Include the use of explosives to perform construction work.

2.3.3 DUTIES OF PRINCIPAL CONTRACTOR AND CONTRACTORS (CR7)

A principal contractor must –

a) Provide and demonstrate to the KOUGA MUNICIPALITY a suitable, sufficiently documented and coherent site specific health and safety plan, based on the KOUGA MUNICIPALITYS documented health and safety specifications.

b) Open and keep on site a health and safety file, which must include all documentation required in terms of the Act and these Regulations, which must be made available on request to an inspector, the KOUGA MUNICIPALITY, the KOUGA MUNICIPALITY's agent or a contractor.

c) Ensure that no contractor is appointed to perform construction work, unless the PRINCIPAL CONTRACTOR is reasonably satisfied that the contractor that he or she intends to appoint, has the necessary competencies and resources to perform the construction work safely;

d) Ensure the CONTRACTOR is registered and in good standing with the Compensation Fund.

e) Appoint each CONTRACTOR in writing for the part of the project on the construction site;

f) Take reasonable steps to ensure that each CONTRACTORS health and safety plan is implemented and maintained on the construction site.

g) Ensure that period site audits and document verification are conducted at intervals mutually agreed upon between the PRINCIPAL CONTRACTOR and any CONTRACTOR, but at least once every 30 days.

2.3.4 MANAGEMENT AND SUPERVISION OF CONSTRUCTION WORK (CR8)

A Principal must in writing appoint one full-time competent person as the Construction Manager with the duty of managing all the construction work on a single site, including the duty of ensuring occupational health and safety compliance, and in the absence of the Construction Manager an alternate must be appointed by the PRINCIPAL CONTRACTOR.

A PRINCIPAL CONTRACTOR must upon having considered the size of the project, in writing appoint one or more Assistant Construction Managers for different sections thereof: Provided that the designation of any such person does not relieve the Construction Manager of any personal accountability for failing in his or her management duties in terms of this regulation.

CR8(5) Due to the size of the project, the degree of danger likely to be encountered or the accumulation of hazards or risks on the site, appoint a full-time Construction Health and Safety Officer in writing to assist in the control of all health and safety related aspects on the site. The Contractor must be reasonably satisfied that the Construction Health and Safety Officer he/she intends to appoint is registered with a statutory body approved by the Chief Inspector and has necessary competencies and resources to assist the contractor.

2.3.5 COMPENSATION OF OCCUPATIONAL INJURIES AND DISEASES ACT 130 OF 1993 (COIDA)

The PRINCIPAL CONTRACTOR shall submit a letter of good standing with its Compensation Insurer to the KOUGA MUNICIPALITY as proof of registration before construction work commences. CONTRACTORS shall submit proof of registration to the PRINCIPAL CONTRACTOR before they commence work on site.

2.3.6 OCCUPATIONAL HEALTH AND SAFETY POLICY

The PRINCIPAL CONTRACTOR and all CONTRACTORS shall submit a Health and Safety policy signed by their Chief Executive Officer. The Policy must outline objectives and how they will be achieved and implemented by the Company / CONTRACTOR.

2.3.7 HEALTH AND SAFETY ORGANOGRAM

The PRINCIPAL CONTRACTOR and all CONTRACTORS shall submit an organogram, outlining the Health and Safety site Management Structure including the relevant appointments / competent persons. In cases where appointments have not been made, the organogram shall reflect the intended positions. The organogram shall be updated when there are any changes in the site management structure.

2.3.8 RISK ASSESSMENT FOR CONSTRUCTION WORK (CR9)

The PRINCIPAL CONTRACTOR must, before the commencement of any construction work and during such construction work, have risk assessments performed by a competent person appointed in writing, which risk assessments form part of the health and safety plan to be applied on the site.

The baseline risk assessment must be included in the health and safety plan.

All risk assessments shall be conducted in terms of an acceptable and documented methodology, prior to commencement of work and in accordance with the provisions of the Construction Regulations.

Issue based risk assessment, risk monitoring and risk review shall be done during the Daily Safe Task Instructions (DSTI) which require:

a) A daily documented listing of hazardous events;

b) A daily documented listing of controls;

c) Proof of communication of the above to all employees.

A CONTRACTOR must ensure that that all employees under his or her control are informed, instructed and trained by a competent person regarding any hazard and the related work procedures and or control measures before any work commences.

2.3.9 HEALTH AND SAFETY REPRESENTATIVE(S) (OHS Act Section 17)

The PRINCIPAL CONTRACTOR and all CONTRACTORS must ensure that for any workplace where more than 20 employees work, the minimum legislative prescribed number of Health and Safety Representatives in a ratio of 1:50 employees be nominated, elected, designated in writing and trained to carry out his/ her functions in his/ her area of responsibility. In addition, it is required that in areas where twenty (20) or less employees are engaged in an activity, at least one Health and Safety Representative be designated in writing in the same manner.

The PRINCIPAL CONTRACTOR /CONTRACTOR must consult in good faith, with registered trade unions where applicable, prior to elections and conclude an agreement on procedures outlined in General Administrative Regulations 6 (1) (a-e).

The PRINCIPAL CONTRACTOR / CONTRACTOR must ensure that all Health and Safety Representatives carry out their functions in their area of responsibility, in accordance with Section 18 of the Occupational Health and Safety Act, Act 85 of 1993.

Health and Safety Representatives shall be required to conduct monthly inspections within their area of responsibility; the records must be kept for KOUGA MUNICIPALITY auditing purposes. All deviations recorded must immediately be reported to the appointed Construction Supervisor and Safety Officer,

where applicable, within the designated person's area. Appropriate action must immediately be taken to eliminate the identified health and safety hazard.

2.3.10 HEALTH AND SAFETY COMMITTEES

The PRINCIPAL CONTRACTOR shall ensure that Health and Safety meetings are held monthly and meetings must be organized and chaired by the PRINCIPAL CONTRACTOR'S Responsible Person.

All CONTRACTOR'S Responsible Persons and Health and Safety Representatives shall attend the monthly Health and Safety meetings. CONTRACTORS shall also have their own internal Health and Safety committees in accordance with the OHS Act 85/1993 and minutes of their meetings shall be forwarded to the PRINCIPAL CONTRACTOR on a monthly basis.

The number of persons nominated to serve on the Health and Safety Committee may not exceed the number of Health and Safety Representatives on that Committee.

All members required to be in attendance shall be notified of such meeting by means of a formal agenda that must be made available to the KOUGA MUNICIPALITY upon request. The PRINCIPAL CONTRACTOR / CONTRACTOR shall ensure an attendance register and minutes are kept for auditing purposes by the KOUGA MUNICIPALITY. A copy of all minutes must be forwarded to the KOUGA MUNICIPALITY monthly.

2.3.11 MEDICAL CERTIFICATES OF FITNESS

All employees on site, must have a valid medical certificate of fitness applicable to the specific construction work being performed on site. Medical certificates to be signed by an Occupational Health Practitioner in the form of Annexure 3.

2.3.12 HEALTH AND SAFETY TRAINING

2.3.12.1 Induction

The PRINCIPAL CONTRACTOR and subsequent CONTRACTORS must provide site specific, risk-based health and safety induction training on commencement of work on site. The KOUGA MUNICIPALITY in turn may offer induction on the legislative overview as it relates to generic health and safety principles and requirements, which complements the required induction training by the PRINCIPAL CONTRACTOR and by no means replaces it.

A record of attendance shall be kept in the Health and Safety file. A suitable venue must be supplied to house this training.

2.3.12.2 Awareness

The PRINCIPAL CONTRACTOR shall ensure that, on site, periodic toolbox talks take place at least once per week and before hazardous work is carried out. These talks should deal with risks relevant to the construction work at hand. A record of attendance shall be kept in the Health and Safety file. All CONTRACTORS have to comply with this minimum requirement and records must be made available to the KOUGA MUNICIPALITY on request.

Daily Safety Task Instructions (DSTI's) to be communicated to employees.

2.3.12.3 Competency

All competent persons shall have the knowledge, experience, training and qualifications specific to the work they have been appointed to supervise, control, and carry out. This must be assessed on a regular

basis (e.g. periodic audits by the KOUGA MUNICIPALITY, progress meetings, etc). The PRINCIPAL CONTRACTOR is responsible to ensure that competent CONTRACTORS are appointed to carry out construction work.

The typical training courses include:

- SAMTRAC / Health and Safety Management Course
- First Aid Level 1 Course
- Basic- Fire Fighting Course
- Safety Representative Course
- Risk Assessment Course
- Construction Supervisor Safety Course
- At least half a day of Management Health and Safety training (compulsory for "responsible persons" appointed relevant to corresponding level).

2.3.13 GENERAL RECORD KEEPING

The PRINCIPAL CONTRACTOR and all CONTRACTORS must keep and maintain Health and Safety records to demonstrate compliance with this Specification, with the OHS Act 85/1993, and with the Construction Regulations (July 2003).

The PRINCIPAL CONTRACTOR shall ensure that all records of incidents / accidents, emergency procedures training, inspections, audits, etc. are kept in a Health and Safety file kept at the site office.

The PRINCIPAL CONTRACTOR must ensure that every CONTRACTOR keeps its own Health and Safety file, maintains the file and make it available on request (The file must include the CONTRACTOR'S health and safety plan). These records are crucial for inclusion in the PRINCIPAL CONTRACTOR'S consolidated health and safety file for handover to the KOUGA MUNICIPALITY on completion of construction work.

Checklists and Registers to be maintained:

- Daily Safe Task Instructions (daily)
- Daily excavations checklists
- Daily traffic accommodation checklists
- Construction vehicles and mobile plant (daily)
- Portable electrical tools (daily)
- Hand tools (monthly)
- PPE checklist (monthly)
- Lifting equipment/tackle inspection checklists.

2.3.14 HEALTH AND SAFETY AUDITS, MONITORING AND REPORTING

The KOUGA MUNICIPALITYs appointed Health and Safety Agent (PP OHS & Risk Consultants) shall conduct monthly Health and Safety compliance audits of the work operations including two site inspections of physical site activities on site.

The PRINCIPAL CONTRACTOR / CONTRACTOR must ensure a copy of all Health and Safety records generated during the course of construction, are handed over to the KOUGA MUNICIPALITY upon completion of construction, which should include design drawings of formwork, false work and other permanent and temporal structures.

2.3.15 EMERGENCY PROCEDURES

The PRINCIPAL CONTRACTOR shall submit a detailed Emergency Procedure for approval by the KOUGA MUNICIPALITY prior to commencement on site. The procedure shall detail the response plan including the following key elements, which needs to be reviewed on a monthly basis:

- List of key competent personnel,
- Details of emergency services envisaged to be used to be available on file and on display. Liaison *with the relevant service providers responsible for emergency procedures essential to ensure that PRINCIPAL CONTRACTOR/CONTRACTORS plan is aligned with the overall emergency plan of the KOUGA MUNICIPALITY,*
- Actions or steps to be taken in the event of the specific types of emergencies,
- Information on hazardous material / situations.
- Information on evacuation routes, periodic drills and assembly points to be displayed and otherwise documented and implemented.

Emergency procedure(s) shall include, but shall not be limited to fire, spills, accidents to employees, use of hazardous substances, bomb threats, major incidents / accidents, etc. The PRINCIPAL CONTRACTOR shall advise the KOUGA MUNICIPALITY in writing forthwith, of any emergencies, together with a record of action taken. A list of all services providers (Fire Department, Ambulance, Police, Medical and Hospital, etc) must be maintained and displayed to site personnel.

2.3.16 FIRST AID BOXES AND FIRST AID EQUIPMENT

The PRINCIPAL CONTRACTOR and all CONTRACTORS must ensure that all working areas are adequately provided with first aid attendants, appointed in writing, whether there are ten (10) employees or less engaged on the contract. The First Aid attendants must be trained in accordance with the requirements set out in the Act with a recognized and accredited service provider. Valid first aid certificates are to be kept on the site safety file.

The PRINCIPAL CONTRACTOR / CONTRACTOR must ensure that first aid boxes are adequately filled as per the annexure listing of General Safety Regulation 3 of the Act and checked monthly of which record must be kept. This is the *minimum* requirement and additional needs be considered in terms of prevailing risk/activities and the first-aid equipment to be available at all times and accessible to all. The KOUGA MUNICIPALITY shall inspect the contents of the first aid box and dressing record from time to time.

2.3.17 ACCIDENT / INCIDENT REPORTING, INVESTIGATION AND STATISTICS

Injuries are to be categorized into first aid, medical, disabling and fatal. The PRINCIPAL CONTRACTOR must stipulate in its Health and Safety plan how it will handle each of these categories.

The appointed investigators of the PRINCIPAL CONTRACTOR or CONTRACTORS must investigate and report on all incidents to the PRINCIPAL CONTRACTOR at least monthly. However, the PRINCIPAL CONTRACTOR and all CONTRACTORS must ensure that incidents are fully investigated within seven days of the incident in the form on Annexure 1 (General Administrative Regulations) and immediately forward a copy of the completed investigation report to the KOUGA MUNICIPALITY, with the original report to be kept on the site Health and Safety file, where it

may be accessed by an Inspector of the Department of Labour, Health and Safety Representatives or other interested parties.

All serious incidents reportable in terms of the provision of Section 24 of the OHS Act, 85/1993 must be reported to the local Department of Labour and to the KOUGA MUNICIPALITY in the prescribed manner ***without delay and before disturbing the scene of the accident***. Injured persons may however be removed by qualified emergency personnel**.** Photographs and witness statements need to be taken and sketches made to gather as much information possible during such an emergency and the PRINCIPAL CONTRACTORS must make this available to the KOUGA MUNICIPALITY, who must also be ***notified immediately*** of such an event and the KOUGA MUNICIPALITY reserves the right to participate in all investigations of incidents.

The PRINCIPAL CONTRACTOR and CONTRACTORS must keep updated statistics reflecting on their Disabling Incident Frequency Rate *(DIFR) and Disabling Injury Severity Rate (DISR) and number and type of injury. Record of all injuries other than lost time injuries, such as near misses, first aid and medically treated incidents are also to be kept.

*DIFR (Disabling Injury Frequency Rate) $\frac{\text{DI's x 1 000 000}}{\text{Man-hours}}$

DISR (Disabling Injury Severity Rate) $\frac{\text{Days Lost x 1 000 000}}{\text{Man-hours}}$

2.3.18 HAZARDS AND POTENTIAL SITUATIONS

The PRINCIPAL CONTRACTOR shall immediately notify the Resident Engineer of any hazardous or potentially hazardous situations that may arise during the performance of construction activities, which include the placement of warning signs. PRINCIPAL CONTRACTORS shall notify the KOUGA MUNICIPALITY of such situations.

2.3.19 PERSONAL PROTECTIVE EQUIPMENT (PPE) AND CLOTHING

The PRINCIPAL CONTRACTOR must comply with the requirements of the OHS Act's General Safety Regulation 2, to provide PPE and must identify the specific PPE needs per activity and then issue the PPE accordingly. PPE must be provided to visitors as well by the PRINCIPAL CONTRACTOR and adequate quantities of SANS approved PPE must be available on site at all times.

The PRINCIPAL CONTRACTOR must ensure that adequate training in the use of PPE is provided to all employees, and proof of training shall be kept on the Health and Safety file for auditing purposes.

THE PRINCIPAL CONTRACTOR shall clearly outline procedures to be taken when PPE or clothing are:

- Lost or stolen,
- Worn out or damaged

Replacements must be made immediately and in line with the requirements of the Act. The above procedure applies to CONTRACTORS and their SUB-CONTRACTORS, as they are all Employers in their own right.

PPE required: (but not limited to)

- Hard Hats
- Overalls

- Safety shoes
- Hearing protection
- Eye protection
- Reflective vests
- Dust masks

2.3.20 OCCUPATIONAL HEALTH AND SAFETY SIGNAGE

The PRINCIPAL CONTRACTOR must provide adequate on-site health and safety signage, as per risk identified, including ***but not limited*** to the following signs

- Name of company and project
- Emergency contact telephone numbers
- Names of Supervisor, Health and Safety Representative and First Aider
- no unauthorized entry
- report to site office
- required PPE on site
- site office
- beware of overhead work
- hard hat area
- deep excavations
- "construction work" signage
- Traffic accommodation signage

Signage shall be posted up at all entrances to site as well as on site in strategic locations. The PRINCIPAL CONTRACTOR and CONTRACTORS shall also maintain the signage to ensure its effectiveness at all times and under all conditions. Signage, which cannot be repaired or are lost/stolen, must be replaced.

2.3.21 CONTRACTORS AND SUB-CONTRACTORS

- The PRINCIPAL CONTRACTOR shall ensure that all CONTRACTORS appointed by him/her comply with this Specification, the OHS Act 85/1993, Construction Regulations (July 2003), and all other relevant legislation that may relate to their activities directly or indirectly. The CONTRACTOR, when appointing other CONTRACTORS as 'SUB-CONTRACTORS", shall mutatis mutandis ensure compliance as if it was the PRINCIPAL CONTRACTOR.
- The PRINCIPAL CONTRACTOR may only appoint a CONTRACTOR after approving the CONTRACTOR'S health & safety plan. The PRINCIPAL CONTRACTOR must audit each of its CONTRACTORS on a monthly basis, with audit reports filed in the health & safety file on site. The audit must include an administrative assessment as well as a physical inspection of the CONTRACTOR'S health & safety system.
- The PRINCIPAL CONTRACTOR must stop any CONTRACTOR from carrying out construction work that is not in accordance with the PRINCIPAL CONTRACTOR'S or CONTRACTOR'S health & safety plan or if there is an immediate threat to the health and safety of persons.
- The PRINCIPAL CONTRACTOR shall take all reasonable steps necessary to ensure co-operation between all CONTRACTORS to enable each of those CONTRACTORS to comply with the provisions of these regulations;
- The PRINCIPAL CONTRACTOR shall take all reasonable steps to ensure that each 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 PRINCIPAL CONTRACTOR and CONTRACTORS, but at least once every month;
- The PRINCIPAL CONTRACTOR must ensure that where changes are brought about to the design and construction, that sufficient health and safety information and appropriate resources are made available to CONTRACTORS so as to allow them to execute the work safely;
- The PRINCIPAL CONTRACTOR must ensure that every CONTRACTOR is registered and in good standing

with a recognized compensation fund or with a licensed compensation insurer prior to work commencing on site;

- The PRINCIPAL CONTRACTOR must ensure that potential CONTRACTORS submitting tenders have made separate provision for the cost of health and safety measures during the construction process; The PRINCIPAL CONTRACTOR shall discuss and negotiate with the CONTRACTOR the contents of the health and safety plan and shall finally approve that plan for implementation;
- The PRINCIPAL CONTRACTOR shall hand over a consolidated health and safety file to the KOUGA MUNICIPALITY upon completion of the construction work and shall include a record of all drawings, designs, materials used and other similar information concerning the completed structure;
- The PRINCIPAL CONTRACTOR shall not appoint a CONTRACTOR to perform construction work unless the PRINCIPAL CONTRACTOR is reasonably satisfied that the CONTRACTOR he or she intends to appoint has the necessary competencies and resources to perform the construction work safely.
- The PRINCIPAL CONTRACTOR must co-operate with the KOUGA MUNICIPALITY at all times and incorporate in the health and safety plan any additional requirements/ precautionary measures that may become necessary in the interest of health and safety of employees, visitors, members of the public or other affected parties. The anticipation of new or potential risks may therefore necessitate the immediate review of the health and safety plan on realization of such need by the PRINCIPAL CONTRACTOR, subsequent CONTRACTOR or by the KOUGA MUNICIPALITY.

2.3.22 CONSTRUCTION SAFETY OFFICER

The Principal Contractor is to appoint a **full-time construction safety officer** in writing to assist in the control of all safety related aspects on site. It is compulsory to provide the name and CV of your appointed, competent construction safety officer to the KOUGA MUNICIPALITY, prior to work commencing on site. The Safety Officer shall have a minimum qualification of SAMTRAC and/or NEBOSH IGCC and relevant site experience.

Full-time Construction OHS Officer CR 8(5)

The successful principal contractor shall appoint a full-time Construction OHS Officer to the contract for its duration.

The candidate needs to have a competency profile that is at least equivalent to the following:

Education: Grade 12 (Matric) + 3 years further study (360 NQF credits in OHS).

Alternatively, Grade 12 (Matric) + all of the following accredited courses:

- OHS Representative (SAQA U/S 259622)
- Risk Assessment (RA) (SAQA U/S 120330)
- Incident Investigation (SAQA U/S 120335)
- OHS Act Training (SAQA U/S 120344)
- Planned Task Observations (SAQA U/S 120337)
- SAMTRAC or equivalent (minimum SAQA U/S 244283)
- OHSAS 18000 training (SAQA U/S 116785)
- Advanced RA Training (SAQA U/S 244287, 244508)
- Advanced Incident Investigation training (SAQA U/S 244518)
- Advanced Legal Training (SAQA U/S 244514)
- Management Training (SAQA U/S 15231 or similar)

Experience: 5 (five) years of relevant work experience in construction OHS practice.

Professional Registration: In the Construction Health and Safety Officer category, as contemplated in the Construction Regulations, 2014, Government Notice No. R. 85, Item 3, and, as to be demonstrated by contractors by the 07 August 2014.

The construction safety officer must assist with the control of all safety related aspects on site and be utilised to provide input at early stages of the project, to assist in compiling the health and safety plan. In addition his/her duties to include:

a) Health and safety audits and inspections including administrative and physical audits of all CONTRACTOR'S health and safety plans, files and activities, and record findings in the form of audit reports that are to be kept in the health and safety file;

b) Maintain the PRINCIPAL CONTRACTOR'S health and safety plan and file and make documents available on request of the KOUGA MUNICIPALITY;

c) Assist with investigations of near misses, incidents and injuries;

d) Co-ordinate the function of reviewing the hazard identifications and risk assessments;

e) Assisting with method statements (safe work procedures) and checking that the responsible persons follow these procedures.

f) Assist with the implementation, monitoring and enforcement of occupational health and safety control measures in order to minimize all risks.

g) Medical Examinations and Certificates of Fitness

It should be noted that all contractor's must ensure that all his or her employees have a valid medical certificate of fitness specific to the construction work to be performed and issued by an occupational health practitioner in the form of Annexure 3 to the Construction Regulations, 2014.

2.4 PHYSICAL REQUIREMENTS

2.4.1 EXCAVATION, SHORING, DEWATERING OR DRAINAGE (CR13)

The PRINCIPAL CONTRACTOR shall make provision in the tender for adjacent barricading, shoring within, and dewatering or drainage of any excavation that requires it, unless otherwise stipulated elsewhere in the contracts. If an excavation is more than 1 meter deep, a safe working procedure shall be submitted to the KOUGA MUNICIPALITY and a permit will be issued to the CONTRACTOR to proceed with the excavation work. The CONTRACTOR shall make sure that:

(1) A contractor must –

(a) Ensure that all excavation work is carried out under the supervision of a competent person who has been appointed in writing for that purpose; and

(b) Evaluate, as far as is reasonably practicable, the stability of the ground before excavation work begins.

(2) A contractor who performs excavation work –

(a) Must take reasonable and sufficient steps in order to prevent, as far as reasonably practicable, any person from being buried or trapped by a fall or dislodgement of material in an excavation;

(b) May not require or permit any person to work in an excavation which has not been adequately shored or braced: Provided that shoring and bracing may not be necessary where -

(i) The sides of the excavation are sloped to at least the maximum angle of repose measured relative to the horizontal plane; or

(ii) Such an excavation is in stable material: provided that –

(aa) permission has been given in wiring by the appointed competent person contemplated

in subregulation (1) upon evaluation by him or her of the site conditions; and

(bb) where any uncertainty pertaining to the stability of the soil still exists, the decision from a professional engineer or a professional technologist competent in excavations is decisive and such a decision must be noted in writing and signed by both the competent person contemplated in subregulation (1) and the professional engineer or technologist, as the case may be;

(c) Must take steps to ensure that the shoring or bracing contemplated in paragraph (b) is designed and constructed in a manner that renders it strong enough to support the sides of the excavation in question;

(d) Must ensure that no load, material, plant or equipment is placed or moved near the edge of any excavation where it may cause its collapse and consequently endangers the safety of any person, unless precautions such as the provision of sufficient and suitable shoring or bracing are taken to prevent the sides from collapsing;

(e) Must cause convenient and safe means of access to provided to every excavation in which persons are required to work, and such access may not be further than six meters from the point where any worker within the excavation is working;

(f) Must ascertain, as far as is reasonably practicable, the location and nature of electricity, water, gas or other similar services.

(g) Must ensure that every excavation, including all bracing and shoring, is inspected –

- Daily, prior to the commencement of each shift;
- After every blasting operation;
- After an unexpected fall of ground;
- After damage to supports; and
- After rain.

by the competent person.

(h) Must cause every excavation which is accessible to the public or which is adjacent to public roads or thoroughfares, or whereby the safety of persons may be endangered, to be –

- Adequately protected by a barrier or fence of at least one meter in height and as close to the excavation as is practicable; and
- Provided with warning illuminants or any other clearly visible boundary indicators at night or when visibility is poor.

All excavations to be closed as soon as possible. Detailed planning is required by the Principal Contractor.

2.4.2 TUNNELLING (CR15)

No person may enter a tunnel, which has a height dimension of less than 800 millimetres.

2.4.3 STACKING OF MATERIALS

The PRINCIPAL CONTRACTOR and other relevant CONTRACTORS must ensure that all stacking will be supervised by a competent person that is appointed in writing to supervise over the activities, and that clearly defined and allocated storage areas are provided for and identified. All materials being stored within this area must be stacked in accordance with sound stacking principles of sort-by-sort, maintained access, level surfaces, and a height to base ratio of no more than three. Double handling of material should be avoided and for this purpose, pallets and other stacking options should be used.

Housekeeping must also be maintained at all times as this will be inspected and evaluated by the KOUGA MUNICIPALITY during monthly audits.

2.4.4 SPEED RESTRICTIONS AND TRAFFIC ACCOMODATION

The PRINCPAL CONTRACTOR must develop a detailed traffic management plan which must work in correlation with the South African Road Traffic Manual. The traffic management plan and applicable drawings must be approved by the local traffic department and KOUGA MUNICIPALITYs Agent.

The PRINCIPAL CONTRACTOR shall ensure that all persons in its employ, all CONTRACTORS and all those that are visiting the site are aware and comply with the speed regulations.

Contractor to ensure a traffic management plan be submitted to the OHS Agent to ensure that construction vehicles adhere to the required speeds and access routes.

2.4.5 HAZARDOUS CHEMICAL SUBSTANCES (HCS)

The PRINCIPAL CONTRACTOR and other relevant CONTRACTORS shall provide the necessary training and information regarding the use, transport and storage of HCS. The PRINCIPAL CONTRACTOR shall ensure that the use, transport and storage of HCS are carried out as prescribed by the HCS Regulations. The CONTRACTOR shall ensure that all hazardous chemicals on site have a Material Safety Data Sheet (MSDS) on site and that the users are made aware of the hazards and precautions that need to be taken when using the chemicals. The first aiders must be made aware of the MSDS and how to treat HCS incidents appropriately. The KOUGA MUNICIPALITY must be afforded access to HCS records and MSDS's at all times.

Fuel / Diesel

- Bulk storage areas must be demarcated, secured and signage displayed with the relevant warning pictograms.
- Bulk storage areas must be adequately bunded to ensure containment of 110% of the stored product.
- Re-fuelling must be conducted in designated re-fuelling areas only.
- Receptacles must be earthed during decanting.
- Spill-kits must be available at all times in these designated areas.
- The surface of the bunded areas and walls must be of impermeable material.
- The bunded area must be sloped towards a collection pit.
- Adequate firefighting equipment must be provided at such areas.

STRUCTURES (CR11) AND EXISTING STRUCTURES

(1) A PRINCIPAL CONTRACTOR must ensure that –

(a) All reasonably practicable steps are taken to prevent the uncontrolled collapse of any new or existing structure or any part thereof, which may become unstable or is in a temporary state of weakness or instability due to the carrying out of construction work;

(b) No structure or part of a structure is loaded in a manner which would render it unsafe; and

(c) All drawings pertaining to the design of the relevant structure are kept on site and are available on request to an inspector, other contractors, the KOUGA MUNICIPALITY and the KOUGA MUNICIPALITY's agent for employee.

Any adjacent structures that may be affected by work must be considered in the planning process. The health and safety of occupants must be regarded. Precautionary measures must be detailed and applied to prevent damage and/or loss to property and persons during the entire construction phase. Where a serious risk of damage to existing structures is likely, an assessment by means of a structural inspection and report shall be compiled by a competent person and forwarded to the KOUGA MUNICIPALITY and PRINCIPAL CONTRACTOR before any persons are exposed to the risk. Inspections of these existing structures must be conducted in compliance with the recommendations of the same competent person. All relevant health & safety information must be brought to the attention of the PRINCIPAL CONTRACTOR and CONTRACTORS forthwith.

2.5 PLANT AND MACHINERY

2.5.1 CONSTRUCTION PLANT

Construction Plant includes all types of plant including but not limited to cranes, piling rigs, excavators, road vehicles and all lifting equipment.

The PRINCIPAL CONTRACTOR must ensure that all such plant complies with the Requirements of the OHS Act 85/1993, Driven Machinery Regulations and Construction Regulations (2014) in relation to its operation and maintenance thereof.

- Records of service and maintenance of the vehicles must be of a high standard at all times.
- All plant shall, subject to design, be fitted with back-up alarms and audible indicating devices.
- The PRINCIPAL CONTRACTOR and CONTRACTORS shall ensure that all construction plant's moving parts are adequately protected.
- Pre-start inspections shall be conducted on all motorised equipment daily: deviations of such inspections shall be recorded.
- Construction plant identified for use shall only be operated by a trained and authorised operator.
- All construction plant shall be operated under the direct supervision of a person competent to identify potential hazards involved in the work he/she is conducting.
- Work involving the use of construction plant shall be conducted in accordance with an approved Risk Assessment.
- The PRINCIPAL CONTRACTOR and CONTRACTORS shall ensure all operators are equipped with the necessary PPE namely; safety shoes, overall, safety glasses, gloves and additional equipment identified as per risk assessment.
- All Plant shall be fitted with an extinguisher where practicable.
- Washing shall be conducted in the designated washing areas.
- The PRINCIPAL CONTRACTOR and CONTRACTORS shall ensure that all equipment moving to and from site is adequately secured.
- Load test certificates of all lifting equipment must be available on site.

The PRINCIPAL CONTRACTOR and all relevant CONTRACTORS shall inspect and keep records of inspections of the construction plant used on site. Only authorized / competent persons are to use machinery under proper supervision and The PRINCIPAL CONTRACTOR and all relevant CONTRACTORS must provide proof of ***medical and psychological fitness including training of all operators*** engaged in the construction activity. Appropriate PPE and clothing must be provided and maintained in good condition at all times, as legally required.

2.5.2 PRESSURE EQUIPMENT AND GAS BOTTLES

The PRINCIPAL CONTRACTOR and all relevant CONTRACTORS shall comply with the Pressure Equipment Regulations, including:

- Ensuring all vessels owned and hired, comply with the 36-month pressure vessel inspection requirement,

and a certificate of testing is available on site for inspection by the KOUGA MUNICIPALITY.

- Ensuring that all personnel who shall use this equipment are competent and trained.
- Ensuring the users of this equipment are issued with the required PPE.
- Ensuring the area is adequately identified as a noise area and warnings are posted.
- Ensuring daily pre-start inspections are carried out on all the equipment and the findings recorded.
- Ensuring the correct fire prevention and fighting equipment is available at all times.
- Noise levels where possible shall be kept within reasonable operating norms.
- Ensure proper use and storage of gas during construction, which may include trolleys upon which bottles are moved and chains to prevent bottles falling over.
- Ensure that flash back arrestors are affixed where applicable.

The inspection of these activities must be included in the PRINCIPAL CONTRACTOR'S monthly safety inspections/audits.

2.5.3 FIRE EXTINGUISHERS AND FIRE FIGHTING EQUIPMENT

The PRINCIPAL CONTRACTOR and relevant CONTRACTORS shall provide adequate and serviced firefighting equipment located at strategic points on site. The appropriate notices and signs must be displayed as required.

The PRINCIPAL CONTRACTOR / CONTRACTOR shall ensure that all fire equipment to be used on site comply with the following:

- Extinguishers shall be placed in positions to ensure that fast and easy access is maintained at all times.
- Placement of all extinguishers shall be depicted with the required pictograms.
- Extinguishers specific to the classes of fire likely to occur to be installed.
- Extinguishers shall be inspected monthly and serviced once annually, and after discharge or visible signs of depressurizations.
- The PRINCIPAL CONTRACTOR / CONTRACTOR shall ensure all employees are adequately trained in the safe use of the extinguishers and proof of training is kept on site for inspection by the KOUGA MUNICIPALITY.
- The PRINCIPAL CONTRACTOR / CONTRACTOR shall ensure a person is appointed to inspect the extinguishers on a monthly basis and the results of which are to be entered into a register designed for that purpose.

2.5.4 CONSTRUCTION VEHICLES AND MOBILE PLANT (CR23)

The PRINCIPAL CONTRACTOR shall ensure that any hired plant and machinery used on site is safe for use. The necessary requirements as stipulated by the OHS Act 85/1993 and Construction Regulations 23 (2014) shall apply. The PRINCIPAL CONTRACTOR / CONTRACTOR shall ensure the following criteria is adhered to when considering the use of Construction Vehicles and mobile plant:

A contractor must ensure that all construction vehicles and mobile plant –

(a) Are of an acceptable design and construction;

(b) Are maintained in a good working order;

(c) Are used in accordance with their design and the intention for which they were designed, having due regard to safety and health;

(d) Are operated by a person who –

  (i) Has received appropriate training, is certified competent and in possession of proof of competency

and is authorized in wiring to operate those construction vehicles and mobile plant;

(j) Has a medical certificate of fitness to operate those construction vehicles and mobile plant, issued by an occupational health practitioner in the form of Annexure 3.

(e) Have safe and suitable means of access and egress;

(f) Are properly organized and controlled in any work situation by providing adequate signaling or other control arrangements to guard against the dangers relating to the movement of vehicles and plant, in order to ensure their continued safe operations;

(g) Are prevented from falling into excavations, water or any other area lower than the working surface by installing adequate edge protection, which may include guardrails and crash barriers;

(h) Are fitted with structures designed to protect the operator from falling material or from being crushed should be vehicle or mobile plant overturn;

(i) Are equipped with an acoustic warning device.

(j) Are equipped with an automatic acoustic reverse alarm; and

(k) Are inspected by the authorized operator or driver on a daily basis using a relevant checklist prior to use and that the findings of such inspection are recorded in a register kept in the construction vehicle or mobile plant.

2.5.5 TEMPORARY WORKS (CR12)

The PRINCIPAL CONTRACTOR must appoint a temporary works designer in writing to design, inspect and approve the erected temporary works on site before use.

The PRINCIPAL CONTRACTOR must ensure that the provisions of section 12 of the Construction Regulations (2014) are adhered to. These provisions must include, but not be limited to, ensuring that all equipment used is examined for suitability before use, that all formwork and support work is inspected by a competent person immediately before, during and after placement of concrete or any other imposed load and thereafter on a daily basis until the formwork and support work has been removed. Records of all inspections must be kept in a register on site.

All temporary works structures are done with close reference to the structural design drawings, and where any uncertainty exists the structural designer should be consulted.

Detailed activity specific drawings pertaining to the design of temporary works structures are kept on the site and are available on request to an inspector, other contractors, the KOUGA MUNICIPALITY, the KOUGA MUNICIPALITY's agent or any employee.

All persons required to erect, move or dismantle temporary works structures are provided with adequate training and instruction to perform those operations safely.

All equipment used in temporary works structure are carefully examined and checked for suitability to a competent person, before being used;

2.5.6 LIFTING MACHINES AND TACKLE

The PRINCIPAL CONTRACTOR and all CONTRACTORS must ensure that lifting machinery and tackle is inspected before use and thereafter in accordance with the Driven Machinery Regulations and Construction Regulation 22 (2014). There must be competent lifting machinery and lifting tackle inspectors who must inspect the equipment daily or before use, taking into account that:

- All lifting machinery and tackle must carry a load test certificate renewed annually and must have an

inspection register.

- All lifting machinery and tackle has a safe working load clearly indicated,
- Monthly inspection and servicing is carried out and daily pre-start checks shall also be conducted on all Lifting Machinery and Tackle,
- There is proper supervision in terms of guiding the loads that includes a trained banks man to direct lifting operations and check lifting tackle,
- The tower crane bases have been approved by an engineer,
- The operators are competent as well as physically and psychologically fit to work and in possession of a medical certificate of fitness which shall be available on site.
- A valid logbook shall be maintained for all lifting machinery, which will comply with a minimum six-monthly service and maintenance.

2.5.7 LADDERS AND LADDER WORK

- The PRINCIPAL CONTRACTOR shall ensure that all ladders are clearly numbered, inspected and reflected on a register.
- A competent person shall be identified and appointed as the ladder inspector.
- Where aluminium ladders cannot be used, then wooden ladders shall be straight grained and unpainted to allow for proper inspection of the grain for cracking.
- Ladders shall be secured at the top and chocked at the base to prevent slipping.
- Where chocking of the base is not possible, then the user shall ensure that the ladder is held in position by another employee when ascending the ladder.
- Ladders shall be inspected daily before use and once per month by the person appointed as the ladder inspector, and a record kept.
- Proper storage shall be provided for all ladders when not in use.
- Ladders must be of the correct height for the task, extended at least 1m above the landing, fastened and secured, and at a safe angle.

2.5.8 GENERAL MACHINERY

The PRINCIPAL CONTRACTOR and relevant CONTRACTORS shall ensure compliance with the Driven Machinery Regulations and General Machinery Regulations which include inspecting machinery regularly, appointing a competent person to inspect and ensure maintenance, issuing PPE or clothing, and training those who operate machinery.

In accordance with General Machinery Regulation 2(1), The PRINCIPAL CONTRACTOR /CONTRACTOR must:

- Ensure a competent person be appointed as defined in the above clause from the Occupational Health and Safety Act, Act 85 of 1993 and Regulations, to service and maintain all machinery in use on site.
- The PRINCIPAL CONTRACTOR / CONTRACTOR shall appoint additional competent persons to assist the competent person mentioned above in accordance with General Machinery Regulation 2(7)(a), as and when required.
- The PRINCIPAL CONTRACTOR / CONTRACTOR shall ensure that records are maintained of all services conducted.
- The PRINCIPAL CONTRACTOR / CONTRACTOR shall provide to the KOUGA MUNICIPALITY a copy of the above appointments prior to work commencing on site.

2.5.9 PORTABLE ELECTRICAL TOOLS, EXPLOSIVE POWER TOOLS, HAND TOOLS

The PRINCIPAL CONTRACTOR / CONTRACTOR must ensure the following procedure is adhered to regarding Portable Electrical Tools and Hand tools:

- Minimum compliance with legislation;
- Power tools to be well guarded, not over loaded and earthed.
- No work under wet conditions allowed with power tools.
- Only competent persons shall be permitted to conduct routine and monthly inspections on the equipment.
- Persons competent to inspect the equipment must be appointed in writing.
- Persons must be trained to operate such equipment and must be appointed and shall be the only authorised person to operate the equipment.
- The PRINCIPAL CONTRACTOR / CONTRACTOR must ensure operation of the equipment is in accordance with an approved Risk Assessment and Safe Working Procedure.
- All users must undergo regular awareness training to ensure compliance.
- The PRINCIPAL CONTRACTOR / CONTRACTOR must ensure the required PPE and clothing is provided and maintained.
- No privately owned or home- made hand tools to be used on site.
- All hand tools to be kept in a clean and sound condition.
- The right tools for the task to be used.

2.5.10 ELECTRICAL EQUIPMENT AND INSTALLATIONS (CR24)

If high voltage electrical lines are present on the site perimeter, the PRINCIPAL CONTRACTOR must be aware of the location and have to demarcate their position. These demarcations must be maintained throughout the duration of the construction work. The minimum safety clearances as per Electrical Machinery Regulation 15 must be adhered to. All installation must comply with SANS 10142 and the regulations of the OHS Act 85/1993.

The PRINCIPAL CONTRACTOR / CONTRACTOR must ensure lighting circuits and power circuits are fitted with suitable earth leakage protection systems and installed by an approved authority.

The PRINCIPAL CONTRACTOR / CONTRACTOR must ensure that

- Earth leakage system will be tested monthly.
- A temporary certificate of compliance is obtained.
- All existing services must be assumed live at all times.
- Malfunctions shall be repaired immediately or replaced.
- Lighting shall be so positioned as not to interfere with construction activities.
- Lighting shall be provided to ensure adequate visibility under all conditions.
- Lighting and electrical installations shall be weatherproof.
- The PRINCIPAL CONTRACTOR / CONTRACTOR must ensure operation of the equipment is in accordance with an approved Risk Assessment and Safe Working Procedure.
- All users must undergo regular awareness training to ensure compliance.
- The PRINCIPAL CONTRACTOR / CONTRACTOR must ensure the required PPE and clothing is provided and maintained.
- The PRINCIPAL CONTRACTOR / CONTRACTOR must ensure the use of flameproof equipment when entering confined spaces where volatile gasses may be present.

2.5.11 PUBLIC AND SITE VISITOR HEALTH AND SAFETY

The PRINCIPAL CONTRACTOR shall ensure that every person working on or visiting the site, as well as the public in general, shall be made aware of the dangers likely to arise from site activities, including the precautions to be taken to avoid or minimise those dangers.

Appropriate Health and Safety notices and signs shall be displayed, but shall not be the only measure taken. The PRINCIPAL CONTRACTOR has a duty in terms of the OHS Act 85/1993 to do all that is reasonably practicable to prevent members of the public and site visitors from being affected by the construction activities. Site visitors must be briefed on the hazards and risks they may be exposed to and what measures are in place or should be taken to control these hazards and risks. A record of these inductions must be kept on site in accordance with the Construction Regulations. The PRINCIPAL CONTRACTOR to ensure that no unauthorized persons enter the construction area.

The contractor to ensure that the public's safety is of the utmost importance. The public must be informed of all expected risk during the construction period. All warning signage and barricading to be in place. Photographic evidence to be maintained of barricaded excavations.

2.5.12 NIGHT WORK

Night work shall only be conducted upon approval of the KOUGA MUNICIPALITY, with the same safety standard being applied for these activities as required for day work activities.

The PRINCIPAL CONTRACTOR must ensure that adequate lighting is provided to allow for work to be carried out safely and to safeguard the health and safety of persons other than employees, e.g. visitors and members of the public. Adequate warning signs e.g. flashing lights and reflectors to be provided to ensure visibility and to serve as warning to employees and other persons in the area of the construction site after dark. In the event where night work is not performed, the construction site may still pose a danger under poor visibility conditions and such warning signs shall then also be displayed.

2.5.12 TRANSPORT OF WORKERS

No worker may be transported in, or on the rear of a construction vehicle (bakkie included), or with plant and materials to, on, or from site. The number of passengers in any vehicle is limited to what is stated on the license disc.

2.6 OCCUPATIONAL HEALTH

2.6.1 OCCUPATIONAL HEALTH AND HYGIENE

As per CR(8) A CONTRACTOR must ensure that all his employees have a valid medical certificate of fitness to the construction work to be performed and issued by an occupational health practitioner in the form of Annexure 3.

Exposure of workers to occupational health hazards and risks is very common in any work environment, especially in construction. Occupational health hazards must also be considered during risk assessments as occupational exposure is a major problem and PRINCIPAL CONTRACTORS and CONTRACTORS must ensure that proper health and hygiene measures are put in place to prevent exposure to these hazards. Prevent inhalation, ingestion, absorption and noise.

2.6.2 ALCOHOL AND OTHER DRUGS

The PRINCIPAL CONTRACTOR must not permit any person who is under the influence of an intoxicating liquor or drugs, to enter or remain on site. The PRINCIPAL CONTRACTOR must ensure that no person on site partakes or offer another person the same or is in possession of such intoxicating liquor or drugs.

Any person suspected of being under the influence of alcohol or other drugs must be refused entry and the prescribed disciplinary procedure must be followed by the PRINCIPAL CONTRACTOR and the KOUGA MUNICIPALITY must be informed. Records of such proceedings must be kept and made available to the KOUGA MUNICIPALITY on request.

An alcohol tester to be available on site.

ANNEXURE A - (Example)

Contents and numbering system for the health and safety plan and file

No.	Content			Approved Yes No
1	Index to H&S Plan/File			
2	Scope of Works			
3	Notification to Commence Construction Work			
4	H&S Agreement Section 32(2)			
5	Letter of Good Standing			
6	H&S Plan	6.1	Refer to H&S Specification	
		6.3	Environmental Management Plan (Process waste management/spillage control/ disposal certificates)	
7	Hazard Identification Risk Assessment & Applicable Method Statements	7.1	Baseline Risk Assessment	
		7.2	Issue Based Risk Assessment	
		7.3	Risk Register	
8	Method Statements			
9	Safe Working Procedures			
10	Traffic Management Plan			
8	Emergency Plan and Response			
9	H&S Policy	9.1	Signed by CEO	
10	Organisational Chart			
11	Appointment Letters	11.1	Signed	
12	Medical Certificates	12.1	Mobile plant & equipment	
		12.3	Confined Space entry	
		12.4	All employees involved with construction work.	
13	Training and Competency Management	13.1	CV's	
		13.2	Competency Certificates	
		13.3	Induction	
		13.4	Safety/Tool Box Talks	
		13.5	Safety Awareness Posters	

14	Accident / Incident Management including First Aid Facilities	14.1	Section 24 Procedures – Annexure 1 & WCL2	
		14.2	Injury recording	
		14.3	Incident investigation	
		14.4	Non compliance reporting	
		14.5	Preventative & corrective action	
15	Construction Plant, Machinery & Equipment Management	15.1	Vehicles/ Mobile Crane/ Skyjacks & Material Hoist / Compactors / TLB's / Batch plant etc	
16	Access, Traffic Control & Public Safety Management	16.1	Security	
		16.2	Employee / Visitors / Public	
		16.3	Vehicular	
17	Hazardous & Flammable Substance Management	17.1	MSDS	
		17.2	Storage	
		17.3	Demarcation	
		17.4	Signage	
		17.5	Handling & Decanting	
		17.6	Disposal	
18	Hazardous & Dangerous Work Management & Control	18.1	Confined Spaces	
		18.2	Demolition Work	
		18.3	Electrical Installations, Equipment & Machinery	
		18.4	Explosive & Blasting	
		18.5	Explosive Powered Tools	
		18.6	Excavation / Trenching	
		18.7	Energy Source & Lockout	
		18.8	Elevated Working at Heights	
		18.9	Formwork & Support work	
		18.10	Hot Work	
		18.11	Hazardous Chemical Substances	
		18.12	Moving Equipment	
		18.13	Scaffolding	

19	Facilities Management (male / female)	19.1	Washing	
		19.2	Sanitary	
		19.3	Change Rooms	
		19.4	Sheltered Eating	
		19.5	Accommodation / Trasnsportation	
20	PPE Management	20.1	PPE Needs analysis	
		20.2	PPE Issue	
21	Sub Contractor Management	21.1	H&S Agreement Section 37(2) Signed	
		21.2	Appointments signed	
		21.3	H&S Plan	
		21.4	Letter of Good Standing	
22	H&S Committee Meeting minutes			
23	Work Procedures			
24	Work Instructions			
25	Audits & Inspections		Internal & External	
26	Record keeping management		Completed Audit / Inspections / Registers / Checklists	

ANNEXURE B

APPOINTMENT LETTERS REQUIRED (Example)

No.	DESIGNATION	LEGAL REFERENCES	TYPE OF CONSTRUCTION WORK
1	Assigned Responsibility Designation	OHS Act 16(2) & CR5.3(b)	All construction work
2	Construction Manager	CR8(1)	All construction work
4	Assistant Construction Manager	CR8(2)	All construction work
5	Contractor	CR5(1)(k)	When using a sub contractor
6	Emergency Evacuation Controller	CR29(1)	All construction work
7	Fire extinguisher inspector	CR29(h) – VUPR11	All construction work
8	Fire team member	CR29	All construction work
8	First Aider	GSR3	All construction work
9	Health and Safety Officer	CR8(5)	All construction work
10	Health and Safety Reps	OHS Act Section 17	When more than 20 persons on site for more than 3 months
11	H&S Committee Members	OHS Act Section 19	When more than 20 persons on site for more than 3 months
12	Incident Investigator	GAR9	All construction work
13	Excavation work supervisor	CR13	When excavating
14	Risk Assessor	CR9	All construction work
15	Demolition work supervisor	CR12	When demolishing
16	Explosives Manageer	Exp R 12(1)	When using explosives for blasting
17	Explosives Supervisor	Exp R 12(3)	When using explosives for blasting
18	Fall Protection Plan developer	CR8(1)(a)&(b)	When there is a risk of persons falling
19	Fall Protection Plan supervisor	CR8(1)(a)&(b)	When there is a risk of persons falling
20	Bulk Mixing Plant Supervisor	CR20(1)	When operating a batch plant
21	Batch Plant operator	CR20(1)(2)	When operating a batch plant
22	Construction Vehicle & Mobile Plant Inspector	CR23(1)(k)	When using construction vehicles; and when using mobile plant
23	Construction Vehicle & Mobile Plant Operators	CR23(1)	When using construction vehicles; and when using mobile plant

24	Electrical Installation Inspector	CR24	When any electrical installations are brought to site or used on site or installed on site
25	Explosive Powered Tools Inspector	CR21	When explosive powered tools are used
26	Explosive Powered Tools Controller / Issuer	CR21	When explosive powered tools are used
27	Explosive Powered Tools Operator	CR21	When explosive powered tools are used
28	Temporary Works Inspector	CR12(3)(f)	When form work is used; and when support work is used
29	Temporary Works Supervisor	CR12(2)	When formwork and support work is being used.
29	Ladder Inspector	GSR13A	When ladders are used
30	Lifting Machine & Equipment Inspector	DMR18(5)	When cranes, block and tackle, gantries or A frames are used for lifting; or when riggings is done
31	Lifting Machine Operator	DMR18	When cranes, block and tackle, gantries or A frames are used for lifting; or when riggings is done
32	Material Hoist Operator	CR19	When material hoist is used
33	Mixer Operator	CR120	When a concrete mixer is used
34	Portable Electrical Equipment Inspector	EMR9	When portable electrical equipment is used
35	Pressure Vessel Inspector	VUPR 17	When compressors with pressure vessels are used
36	Scaffold Erector	SANS 10085-1:2003 Item 16.1(a)	When scaffolds are used / different person to be inspector
37	Scaffold Inspector	SANS 10085-1:2003 Item 16.1(c) CR16(1)	When scaffolds are used / different person to be the erector
38	Scaffold Supervisor	CR16(1)	When scaffolds are used
39	Scaffold Team Leader	SANS 10085-1:2003 Item 16.1(b) and 10.11	When scaffolds are used
40	Suspended Platform Operational Compliance Plan Developer	CR15(2)(c)	When suspended platforms are used
41	Suspended Platform Erector	Cr15(2)	When suspended platforms are used
42	Suspended Platform Inspector	CR15(10)	When suspended platforms are used
43	Stacking & Storage Supervisor, including chemicals	CR28	All construction work
44	Hazardous & flammable chemical substances controller	CR25(a)	All construction work
44	Tower Crane Operator	CR22	When tower cranes are used
45	Tower Crane Inspector	DMR18 and CR22	When tower cranes are used

ANNEXURE C

DESIGN RISK ASSESSMENT

	Task	Hazard	Risk	Suggested mitigation
	Installation of water pipeline			
1	Excavation in a built-up area	• Depth of excavation +-1.5M • Traffic & public	Collapse, water, falling-both employees, public, animals and MVA	• Batter excavation to angle of repose when required. • Sequence excavation installations of pipes and backfilling to ensure minimal excavations are open during the night and over weekends. • Traffic management. • Barricade.
2	Placing of layer works	• Vibration • Moving material into excavation	Collapses	• Monitor. • Specify safe distance.
3	Spoil	• Close to edge of excavation	Collapses	• Specify safe distance from edge. • Consider pedestrians and road users when placing spoil.
4	Installation of Re enforced steel	• Awkward material handling leading to ergonomic issues	Injury-sprains and strains Cuts and bruise	• Training.
5	Access to excavation and egress	• Falls	Injury	• Supply enough ladders. • Ladders to be maximum 6M apart.
6	Work in confined spaces – Tie into reservoir	• Access restriction	Poor air quality	• Confined entry procedure.
7	Casting of concrete	• Noise	N.I.H.L.	• Check silencer on drive unit.
8	Backfilling	• Vibration	Collapse	• Monitor edge of excavation.
9	Excavation and casting of foundations – valve chambers	• Trench collapse	Trapped in excavation	• Excavation inspector.
10	Building wall below NGL – valve chambers	• Trench collapse	Trapped in excavation	• Excavation inspector.
11	Placing of pre – cast chamber lids	• Weight of the chamber lids 1.8 tons	Crane work possible collapse	• Competent crane operator • Load test inspections.
12	Casting of floors	• Awkward material handling leading to ergonomic issues	Injury-sprains and strains	• Training.

13	Excavations next to an existing tar road	• Public, road users, staff & animals	Fall MVA and pedestrians	• Barricade excavations. • Warn traffic and daily traffic management records kept. • Provide a safe place for pedestrians.
14	Excavations and road crossing	• Traffic, members of the public • Large amount of pedestrian and pedestrian traffic at opening and closing times • High volume of traffic over weekends	Fall MVA	• Sequence excavation installations of pipes and backfilling to ensure minimal excavations are open during the night and over weekends. • Provide a safe place for pedestrians. • Traffic management. • Traffic management plan to be approved by engineer. • Install in half width.
15	River crossing	• Water in excavation	Drowning of children	• Plan work during dry season. • Barricade excavation. • Plan work to be completed during a working week.
16	Laying of bedding	• Compacting - use of machines. • Ergonomics •	Collapse White knuckle disease Sprains and strains	• Check excavation. • Rotate staff. • Use TLB where possible.
17	Laying of pipes (81.18 kg/6m length)	• Weight of pipe and change in level	Sprains and strains	• Use crane to lower into trench. • Train in manual handling.
18	Back filling	• Vibration	Collapse	• Monitor edge of excavation.
19	Horizontal drilling	• Injury due to malfunction	Machine failure	• Appoint competent operator. • Pre use checks.

THE CONTRACT

PART 4 (OF 4): SITE INFORMATION

C4.1 **Scope**

C4.2 **Subsoil Investigation**

C4.3 **Site Mapping & Hydrological Data**

C4.4 **Interpretation of Geotechnical Investigation**

C4.5 **Existing Services**

C4.6 **Existing Buildings & Structures**

C4.7 **Atmospheric & Environmental Criteria**

C4.8 **Finishing off of the Site**

C4.1 SCOPE

For the purposes of the Contract, it will be deemed that, prior to submitting their Tender, the Contractor has acquainted himself fully with the specifications, information and data provided within the various and applicable SANS/SABS specifications, the EMP, the Health and Safety specifications, subsequent Health and Safety Plan, the Conditions of Contract as well as the various clauses within the Scope of Work.

The Contractor shall have no claim against the Employer in respect of geotechnical or subsurface conditions encountered during the course of the Contract.

The documentation included in this section describes the site as at the time of tender to enable the tenderer to price his tender and to decide upon his method of working and programming.

Only actual information about physical conditions on the site and its surroundings have been included in this section and interpretation is a matter for the tenderers.

C4.2 SUBSOIL INVESTIGATIONS, BOREHOLE RECORDS AND TEST RESULTS

No geotechnical investigation has been undertaken.

Tenderers who wish to dig trial holes as part of their own pre tender soil investigations shall do so at their own cost and risk, and they must first notify the Engineer to obtain information to ensure that existing underground services are not damaged when trial holes are made.

C4.3 REPORTS OBTAINED BY THE EMPLOYER CONCERNING THE PHYSICAL CONDITIONS WITHIN THE SITE OR ITS SURROUNDINGS INCLUDING MAPPING, HYDRO-GRAPHIC DATA, AND HYDROLOGICAL INFORMATION

Nil

C4.4 REFERENCES TO PUBLICLY AVAILABLE INFORMATION ABOUT THE SITE AND ITS SURROUNDINGS SUCH AS PUBLISHED PAPERS AND INTERPRETATIONS OF THE GEOTECHNICAL INVESTIGATION

Nil

C4.5 INFORMATION ABOUT PIPED AND OTHER SERVICES BELOW THE SURFACE OF THE SITE FOR CONTRACTS INVOLVING GROUND WORKS, AND ABOUT HOOK-UP AND BOUNDARY DETAILS FOR CONTRACTS WITH PLANT INTERFACES, IN ADDITION TO ANYTHING ABOUT THE PHYSICAL SITE WHICH IMPACTS UPON THE CONTRACT

The Contractor is responsible for locating all existing services and should contact the relevant officials at the Kouga Local Municipality in order to determine the exact location and operation of the services. The Contractor is responsible for the protection of all affected existing services for the duration of construction.

The Contractor's attention is further directed to the various specifications and conditions under the SANS 1200 A Standardized Specification as amended under the Scope of Work as well as to the applicable Clauses within the Conditions of Contract.

C4.6 INFORMATION ABOUT ADJACENT BUILDINGS AND STRUCTURES, AND ABOUT EXISTING BUILDINGS AND STRUCTURES ON THE SITE (RESTRICTIONS FOR HEAVY LOADS ETC.)

Nil

C4.7 ATMOSPHERIC AND ENVIRONMENTAL CRITERIA

The Contractor shall comply with National Environmental Management Act (Act 107 of 1998, as amended) as well as Particular Specification PB: Environmental Management Plan Implementation Specifications

The Contractor's attention is further directed to the various specifications and conditions under the SANS 1200 A Standardized Specification as amended under the Scope of Work as well as to the applicable Clauses within the Conditions of Contract.

C4.8 FINISHING-OFF OF THE SITE

The site shall be finished-off in accordance with the specifications and to the satisfaction of the Employer's Agent.

APPENDIX A

LIST OF TENDER DRAWINGS

List of Tender Drawings:

DRAWING No.	DESCRIPTION
GENERAL:	
2298-T-001	LOCALITY PLAN
2298-T-002	EXISTING SERVICES KEY PLAN
2298-T-003	EXISTING SERVICE LAYOUT (SHEET 1 OF 2)
2298-T-004	EXISTING SERVICE LAYOUT (SHEET 2 OF 2)
2298-T-005	PROJECT NAMEBOARD
PLAN LAYOUTS:	
2298-T-100	PROPOSED WATER INFRASTRUCTURE UPGRADES
2298-T-101	KEY PLAN
COMPOSITE PLAN AND LONG SECTIONS:	
2298-T-200	KWANOMZAMO BULK WATER PIPELINE (SHEET 1 OF 5)
2298-T-201	KWANOMZAMO BULK WATER PIPELINE (SHEET 2 OF 5)
2298-T-202	KWANOMZAMO BULK WATER PIPELINE (SHEET 3 OF 5)
2298-T-203	KWANOMZAMO BULK WATER PIPELINE (SHEET 4 OF 5)
2298-T-204	KWANOMZAMO BULK WATER PIPELINE (SHEET 5 OF 5)
DETAILS:	
2298-T-300	HUMANSDORP WTW RESERVOIR OUTLET CHAMBER DETAILS
2298-T-301	ISOLATION AND AIR VALVE CHAMBER DETAILS
2298-T-302	AIR VALVE CHAMBER DETAILS
2298-T-303	SCOUR VALVE CHAMBER DETAILS
2298-T-304	150mm Ø PRV CHAMBER DETAILS - NEW 315mm Ø BULK PIPELINE SECTION
2298-T-305	80mm Ø PRV CHAMBER DETAILS - EXISTING 100mm Ø PIPELINE
2298-T-306	TYPICAL TRENCH DETAILS
2298-T-307	TYPICAL DETAILS - WATERCOURSE, VALVE MARKERS AND THRUST BLOCKS