MAQUASSI HILLS LOCAL MUNICIPALITY

TENDER No.: MHLM/MIG/09/2026/27

UNDERGROUND RESOURCE MANAGEMENT, DESIGN, CONSTRUCTION, MONITORING OF THE EXPLORATION AND EQUIPPING OF BOREHOLES

(CIDB CATERGORY: 6CEPE/7CE OR HIGHER)

TENDER DOCUMENT

Issued by:	**Prepared By:**
MAQUASSI HILLS LOCAL MUNICIPALITY Private Bag X3 Wolmaransstad 2630 Tel: 018 596 1068/018 596 1325 Fax: 018 596 1555	**NEP CONSULTING ENGINEERS (PTY)** P.O. Box 2082 Klerksdorp 2570 Tel: 018 451 1005 Fax: 018 451 1012 CONSULTING ENGINEERS

Name of Tenderer	
Total price including VAT	
Address of Tenderer	
Telephone Number	
CIBD Registration No.	
CSD Reg No.	
Construction Duration	**6 Months**
Tender Closing Date	**26 October 2026**

EXPANDED PUBLIC WORKS PROGRAMME
Creating opportunities towards human fulfilment

mig | Municipal Infrastructure Grant

CHECK LIST FOR TENDER SUBMISSION

The Tenderer is to indicate in the checkboxes provided that he has completed the required section of the tender document. Completion of this checklist will assist the Tenderer in ensuring that he has attended to all the required items for submission with this Tender.

Page	Description		Completed		For office use		
			Yes	No	Yes	No	Comments
Cover	Name of Tenderer						
	Contact Details						
	Tender Sum						
	Schedule: 1A	Compulsory Enterprise Questionnaire					
	Schedule : 1B	Authority of Signatory					
	Schedule: 1C	Certificate of Authority for Joint Ventures (if applicable)					
	Schedule : 1D	Record of Addenda to Tender Documents					
	Schedule : 1E	Personnel Schedule (if applicable)					
	Schedule : 1F	Schedule of Plant and Equipment available for the Contract					
	Schedule : 1G	Schedule of Work satisfactorily carried out by the Tenderer					
	Schedule : 1H	Schedule of Proposed Subcontractors					
	Schedule : 1I	Certificate Of Attendance At Clarification Meeting					
	Schedule : 1J	Proposed Amendments and Qualifications					
	Schedule : 1K	Preferential Procurement Schedule					
	Schedule : 2A	Certificate of Contractor Registration issued by the CIDB					
	Schedule : 2B	Proof of Authority of Signatory					
	Schedule : 2C	Original Valid Tax Clearance Certificate					
	Schedule : 2D	Joint Venture Agreement, if applicable					
	Schedule : 2E	Proof of registration for regional levies if preference is claimed for being registered in the MAQUASSI HILLS LOCAL MUNICIPALITY					
	Schedule : 2F	Audited Financials for the past three years					
	Schedule : 2G	Particulars of any contract awarded by an organ of state during the last five years including particulars of any material non-compliance or dispute concerning their execution of this period (if>R10 000 incl. VAT); and					
	Schedule : 2H	Contractor's Bank Details					
	C1.1	Form of Offer and Acceptance					
	C1.2	Contract Data (Part 2)					
	C1.3	Completed Schedule of Quantities					

TABLE OF CONTENTS

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
T2.2 Returnable Schedules

THE CONTRACT

PART C1 AGREEMENT AND CONTRACT DATA
C1.1 Form of Offer and Acceptance
C1.2 Contract Data (Part 1)
C1.2 Contract Data (Part 2)
C1.3 Form of Guarantee
C1.4 Occupational Health and Safety Agreement

PART C2 PRICING DATA
C2.1 Pricing Instructions
C2.2 Bills 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

PART C4 SITE INFORMATION
C4.1 Locality of Site

PART C5 ANNEXURES
Annexure A Health and Safety Specifications
Annexure B EPWP Specifications
Annexure C Locality Plan
Annexure D Tender Drawings

PART T1: TENDERING PROCEDURES

TABLE OF CONTENTS

T1.1 Tender Notice and Invitation to Tender 3

T1.2 Tender Data 11

MAQUASSI HILLS LOCAL MUNICIPALITY

TENDER ADVERT

TENDER No	PROJECT NAME AND DESCRIPTION	CIDB GRADING
MHLM/MIG/09/2026/27	UNDERGROUND RESOURCE MANAGEMENT, DESIGN, CONSTRUCTION, MONITORING OF THE EXPLORATION AND EQUIPPING OF BOREHOLES IN MAQUASSI HILLS LOCAL MUNICIPALITY	6CEPE/7CE or higher

Maquassi Hills Local Municipality invites bids from suitably qualified and experienced Civil Engineering Contractors for the construction of the above stated project.

NB: TENDER DOCUMENTS ARE DOWNLOADABLE FOR FREE FROM THE NATIONAL TREASURY'S e-TENDER PORTAL

(http://www.etenders.gov.za/content/advertised-tenders)

Bidders should have a CIDB registration stated in the table above or higher. Joint Ventures or potentially emerging enterprises that satisfy the criteria stated in the tender data are eligible to tender.
Work on this contract will be in terms of the principles laid down by the Expanded Public Works Programme whereby the use of sustainable, labour intensive methods utilizing resources from the target community is to be optimized.
Queries relating to the issuing of these documents may be addressed in writing to Ms. R. Kgobe (rosinahm@maquassihills.org), responsible for issuing of tender documents and Technical enquiries related to scope of works and pricing instructions may be addressed to Mr. N. Mwase (mwasenel@gmail.com) OR Engineer Project Manager Piet Steyn (piet@nepgroup.co.za)

Tender Closing Date: 26th October 2026 at 12h00

Maquassi Hills Local Municipality Supply Chain Policy will apply, and bids will be evaluated in terms of the 80/20 points system as set out in the PPPFA and Functionality will be used to determine the best tenderer where bidders will be required to score minimum of 70% to proceed to Price. The Municipality shall adjudicate and award tenders in accordance with the Preferential Procurement Policy Framework Act 5 of 2000 as amended.

Tenders will remain valid for 90 (ninety) days. The municipality's decision is final.
Duly completed tender documents sealed in an envelope marked with the tender number and the closing date are to be deposited into the tender box at Maquassi Hills Local Municipality, 19 Kruger Street, Wolmaransstad, 2630 by no later than **12h00 on Monday, the 26th October 2026.** Telegraphic, telefaxed or posted tenderswill not be accepted.

Requirements for sealing, addressing, delivering, opening and assessment of Tenders are stated in the Tender Data.
The Bid committee of Maquassi Hills Local Municipality does not bind itself to accept the lowest or any tender, or to furnish any reason for the acceptance or rejection of a tender. The municipality reserves the right to appoint or not to appoint to lowest bidder in an event the bidder is below the market related rates.

This Tender is drawn up in line with Municipality's Supply Chain Policy.

MS. N.J. Mbonani
Municipal Manager

QUALIFICATION SCORE CARD:

KEY ASPECT OF CRITERION	MAXIMUM POTENTIAL SCORE	POINTS CLAIMED	BID EVALUATION COMMITTEE SCORES	PAGE REF.NO.
Experience of the Bidder **(**Name of traceable reference with contact details to be included for verification)	**35**			
Qualifications and experience of a site agent	**15**			
Experience of foreman	**10**			
Locality of the Service Provider	**15**			
Plant and Equipment (relevant to the tendered project). Relevant ownership document copies are to be included in this tender verification purposes	**25**			
TOTAL	**100**			

<u>THE FOLLOWING IS APPLICABLE TO ALL BIDS</u>:

The minimum number of evaluation points for Functionality is 70 points. Only those tenderers who achieve the minimum number of Functionality evaluation points (or greater) will be eligible to have their tenders further evaluated and bidder must be rejected if obtain a zero in any scoring points item. The municipality reserves the right to appoint or not to appoint to lowest bidder in an event the bidder is below the market related rates.

PLEASE NOTE:

1. **BIDDERS ARE REQUIRED TO SUBMIT SUPPORTING DOCUMENTS TO SCORE FULL POINTS**

EVALUATION CRITERIA

Key aspect of criterion	Basis for points allocation	Max. Points	Verification Method
Experience of the Bidder (Name of traceable reference with contact detailsto be included for verification)	At least Five (5) completed (exploration and equipping of boreholes) in the past 5 years.	35	Appointment letter, completion certificates and References to be attached
	At least four (4) completed (exploration and equipping of boreholes) in the past 5 years.	20	Appointment letter, completion certificates and References to be attached
	At least three (3) completed (exploration and equipping of boreholes) in the past 5 years.	15	Appointment letter, completion certificates and References to be attached
	At least two (2) completed (exploration and equipping of boreholes) in the past 5 years.	10	Appointment letter, completion certificates and References to be attached
	Less than 2 projects completed	0	Appointment letter, completion certificates and References to be attached
Qualifications and experience of a site agent	NQF Level 7 or Higher in Civil Engineering and at least 5 years' experience.	15	CV with Certified Copy of Qualifications to be attached
	NQF Level 6 in Civil Engineering with SACPCMP and at least 5 years' experience in exploration and equipping of boreholes. '	10	CV with Certified Copy of Qualifications to be attached
	NQF Level 6 in Civil Engineering with less than five (5)years experience in exploration and equipping of boreholes.	5	CV with Certified Copy of Qualifications to be attached

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Experience of foreman	5 or more years' experience in exploration and equipping of boreholes	10	Curriculum Vitae to be attached
	3 to 4 years' experience in exploration and equipping of boreholes	5	Curriculum Vitae to be attached
	Less than 3 years' experience in exploration and equipping of boreholes	3	Curriculum Vitae to be attached
	No submission	0	None
Locality of Bidder or Joint Venture	Within Maquassi Hills Local Municipality	15	Municipal account
	Within District Municipality	12	Municipal account
	Within Province	8	Municipal account
	Outside Province	5	Municipal account
Plant and Equipment (relevant to the tendered project). Relevant ownership document copies are to be includedin this tender verification purposes	Tenderer Own All Plant required for All Borehole and Water Supply Infrastructure Construction Projects: TLB – 4 points Excavator – 4 points Tipper Trucks x 3 – 6 points Water Tanker – 2 points Smooth or padfoot – 2 points LDV – 1 point	19	Certified Copies of Plant Ownership documents tobe attached
	For ownership, please score extra 1 point per Plant type	6	Copies of Plant Ownership documents to be attached
	For hired Plant score 3 points for submission of the letter.	2	Letter of intent to supply with Plant.

Experience of the Bidder (Name of traceable reference with contact details to be included for verification) (maximum of 35 points)

The Bidder must attach to this a copy of their Proof of Experience.

Qualifications and experience of a site agent (Maximum 15 POINTS)

The Bidder must attach to this page the Proof of Qualified professional staff.

Experience of foreman (Maximum 10 POINTS)

The Bidder must attach to this page the Proof of Qualified professional staff.

LOCALITY OF SERVICE PROVIDER OR JOINT VENTURE (Maximum 15 POINTS)

A minimum of 20% local sub-contractor JV will be required for the project in order for you to bid.

Plant and Equipment (relevant to the tendered project). Relevant ownership document copies are to be included in this tender verification purposes or Letter of Intent to provide Plant once the bidder is successful. (Maximum – 25 POINTS)

T1.2.1: TENDER DATA: STANDARD CONDITIONS OF TENDER

The Conditions of Tender are the Standard Conditions of Tender of the CIDB Standard for Uniformity in Construction Procurement (refer: www.cidb.co.za).

F.1 GENERAL

F.1.1 Actions

F1.1.1 The Employer and each tenderer submitting a tender offer shall comply with these Conditions of Tender. In their dealings with each other, they shall discharge their duties and obligations, as set out in F.2 and F.3, timeously and with integrity, and behave equitably, honestly and transparently comply with all legal obligations and not engage in anticompetitive practices.

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

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

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

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

F.1.2 Tender documents

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

F.1.3 Interpretation

F.1.3.1 The Tender Data and additional requirements contained in the tender schedules that are included in the returnable documents are deemed to be part of the Conditions of Tender.

F.1.3.2 The Conditions of Tender, the Tender Data and tender schedules which are only required for tender evaluation purposes, will not form part of any contract arising from the invitation to tender.

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

a) **conflict of interest** means any situation in which:

i) someone in a position of trust has competing professional or personal interests which make it difficult to fulfil his or her duties impartially;
ii) an individual or organisation is in a position to exploit a professional or official capacity in some way for their personal or corporate benefit; or

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

b) **comparative offer** means the tenderer's financial offer after all tendered parameters that will affect the value of the financial offer have been taken into consideration in order to enable comparisons to be made between offers on a comparative basis

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

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

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

f) **quality (functionality)** means the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs

F.1.4 Communication and Employer's agent

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

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

F.1.5.1 The employer may accept or reject any variation, deviation, tender offer, or alternative tender offer, and may cancel the tender process and reject all tender offers at any time before the formation of a contract. The employer shall not accept or incur any liability to a tenderer for such cancellation and rejection but will give written reasons for such action upon written request to do so.

F.1.5.2 The employer may not subsequent to the cancellation or abandonment of a tender process or the rejection of all responsive tender offers re-issue a tender covering substantially the same scope of work within a period of six months unless only one tender was received and such tender was returned unopened to the tenderer.

F.1.6 Procurement procedures

F.1.6.1 General

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

F.1.6.2 Competitive negotiation procedure

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

F.1.6.2.2 All responsive tenderers, or not less than three responsive tenderers that are highest ranked in terms of the evaluation method and evaluation criteria stated in the tender data, shall be invited in each round to enter into competitive negotiations, based on the principle of equal treatment and keeping confidential the proposed solutions and associated information. Notwithstanding the provisions of F.2.17, the employer may request that tenders be clarified, specified and 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.

F1.6.2.3 At the conclusion of each round of negotiations, tenderers shall be invited by the employer to make a fresh tender offer, based on the same evaluation criteria, with or without adjusted weightings. Tenderers shall be advised when they are to submit their best and final offer.

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

F.1.6.3 Proposal procedure using the two stage-system.

F.1.6.3.1 Option 1

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

F.1.6.3.2 Option 2

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

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

F.2 TENDERER'S OBLIGATIONS

F.2.1 Eligibility

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

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

F.2.1.3 Only those tenderers who have in their employ management and supervisory staff satisfying the requirements of the scope of work for labour-intensive competencies for supervisory and management staff are eligible to submit tenders.

F.2.2 Cost of tendering

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

F.2.3 Check documents

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

F.2.4 Confidentiality and copyright of documents

Treat as confidential all matters arising in connection with the tender. He shall use and copy the documents issued by the Employer only for the purpose of preparing and submitting a Tender Offer in response to the invitation.

F.2.5 Reference documents

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

F.2.6 Acknowledge addenda

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

F.2.7 Clarification meeting

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

F.2.8 Seek clarification

Request clarification of the tender documents, if necessary, by notifying the Employer at least five working days before the closing time for submission of tenders stated in the Tender Data.

F.2.9 Insurance

Be aware that the extent of insurance to be provided by the Employer (if any) might not be for the full cover required in terms of the Conditions of Contract identified in the Contract Data. The Tenderer is advised to seek qualified advice regarding insurance.

F.2.10 Pricing the Tender Offer

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

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

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

F.2.10.4 State the rates and prices in Rand unless instructed otherwise in the Tender Data. The Conditions of Contract identified in the Contract Data may provide for part payment in other currencies.

F.2.11 Alterations to documents

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

F.2.12 Alternative Tender Offers

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

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

F.2.13 Submitting a Tender Offer

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

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

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

F.2.13.4 Sign the original and all copies of the Tender Offer where required in terms of the Tender Data. The Employer will hold all authorized signatories liable on behalf of the Tenderer. Signatories for tenderers proposing to contract as joint ventures shall state, which, of the signatories is the lead partner whom the Employer shall hold liable for the purpose of the Tender Offer.

F.2.13.5 Seal the original and each copy of the Tender Offer as separate packages marking the packages as "ORIGINAL" and "COPY". Each package shall state on the outside the Employer's address and identification details stated in the Tender Data, as well as the Tenderer's name and contact address.

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

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

F.2.13.8 Accept that the Employer will not assume any responsibility for the misplacement of premature opening of the Tender Offer if the outer package is not sealed and marked as stated.

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

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

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

F.2.15 Closing time

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

F.2.15.2 Accept that, if the Employer extends the closing time stated in the Tender Data for any reason, the requirements of the Conditions Tender apply equally to the extended deadline.

F.2.16 Tender Offer validity

F.2.16.1 Hold the Tender Offer(s) valid for acceptance by the Employer at any time during the validity period stated in the Tender Data after the closing time stated in the Tender Data.

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

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

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

F.2.17 Clarification of Tender Offer after submission

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

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

F.2.18 Provide other material

F.2.18.1 Provide, on request by the Employer, any other material that has a bearing on the Tender Offer, the Tenderer's commercial position (including notarised 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 being non-responsive.

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

F.2.18.3 The tenderer shall, when requested by the Employer to do so, submit the names of all management and supervisory staff that will be employed to supervise the labour-intensive portion of the works together with satisfactory evidence that such staff members satisfy the eligibility criteria.

F.2.19 Inspections, tests and analyses

Provide access during working hours to premises for inspections, tests and analyses as provided for in the Tender Data.

F.2.20 Submit securities, bonds, policies, etc

If requested, submit for the Employer's acceptance before formation of the contract, all securities, bonds, guarantees, policies and certificates of insurance required in terms of the Conditions of Contract identified in the Contract Data.

F.2.21 Check final draft

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

F.2.22 Return of other tender documents

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

F.2.23 Certificates

Include in the tender submission or provide the Employer with any certificates as stated in the Tender Data.

F.3 EMPLOYER'S UNDERTAKINGS

F.3.1 Respond to requests from the tenderer

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

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

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

F.3.2 Issue addenda

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

F.3.3 Return late Tender Offers

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

F.3.4 Opening of tender submissions

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

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

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

F.3.5 Two-envelope system

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

F.3.5.2 Evaluate the quality of the technical proposals offered by Tenderers, then advise Tenderers who remain in contention for the award of the contract of the time and place when the financial proposals will be opened. Open only the financial proposals of Tenderers who score in the quality evaluation more than the minimum number of points for quality stated in the Tender Data, and announce the score obtained for the technical proposals and the total price and any preferences claimed. Return unopened financial proposals to Tenderers whose technical proposals failed to achieve the minimum number of points for quality.

F.3.6 Non-disclosure

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

F.3.7 Grounds for rejection and disqualification

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

F.3.8 Test for responsiveness

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

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

F.3.8.2 A responsive tender is one that conforms to all the items, 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 do not allow it to be subsequently made responsive by correction or withdrawal of the non-conforming deviation or reservation.

F.3.9 Arithmetical errors, omissions and discrepancies

F.3.9.1 Check 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.

F3.9.2 Check the highest ranked tender or tenderer with the highest number of tender evaluation points after the evaluation of tender offers in accordance with F.3.11 for:

a) the gross misplacement of the decimal point in any unit rate;
b) omissions made in completing the pricing schedule or bills of quantities; or
c) arithmetic errors in:

i) line item totals resulting from the product of a unit rate and a quantity in bills of quantities or schedules of prices; or
ii) the summation of the prices.

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

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

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

F.3.10 Clarification of a Tender Offer

Obtain clarification from a Tenderer on any matter that could give rise to ambiguity in a contract arising from the Tender Offer.

F.3.11 Evaluation of Tender Offers

F.3.11.1 General

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

F.3.11.2 **Method 1**: **In the case of a Financial Offer**:

(a) Rank Tender Offers from the most favorable to the least favorable comparative offer.
(b) Recommend the highest ranked tenderer for the award of the contract, unless there are compelling and justifiable reasons not to do so.
(c) Re-rank all tenderers should there be compelling and justifiable reasons not to recommend the highest ranked tenderer and recommend the highest ranked tenderer, unless there are compelling and justifiable reasons not to do so and the process set out in this sub clause is repeated.

F.3.11.3 **Method 2**: **In the case of a Financial Offer and Preferences**:

In the case of a financial offer and preferences:

a) Score each tender in respect of the financial offer made and preferences claimed, if any, in accordance with the provisions of F.3.11.7 and F.3.11.8.
b) Calculate the total number of tender evaluation points (T_{EV}) in accordance with the following formula:

$$T_{EV} = N_{FO} + N_P$$

where: N_{FO} is the number of tender evaluation points awarded for the financial offer made in accordance with F.3.11.7;
N_P is the number of tender evaluation points awarded for preferences claimed in accordance with F.3.11.8.

c) Rank tender offers from the highest number of tender evaluation points to the lowest.
d) Recommend the tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.
e) Rescore and re-rank all tenderers should there be compelling and justifiable reasons not to recommend the tenderer with the highest number of tender evaluation points, and recommend the tenderer with the highest number of tender evaluation points, unless there are compelling and justifiable reasons not to do so and the process set out in this sub clause is repeated

F.3.11.4 **Method 3**: **In the case of a Financial Offer and Quality**:

In the case of a financial offer and quality:

a) Score each tender in respect of the financial offer made and the quality offered in accordance with the provisions of F.3.11.7 and F.3.11.9, rejecting all tender offers that fail to score the minimum number of points for quality stated in the tender data, if any.
b) Calculate the total number of tender evaluation points (T_{EV}) in accordance with the following formula:

$$T_{EV} = N_{FO} + N_Q$$

where: N_{FO} is the number of tender evaluation points awarded for the financial offer made in accordance with F.3.11.8;
N_Q is the number of tender evaluation points awarded for quality offered in accordance with F.3.11.9.

c) Rank tender offers from the highest number of tender evaluation points to the lowest.
d) Recommend tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.
e) Rescore and re-rank all tenderers should there be compelling and justifiable reasons not to recommend the tenderer with the highest number of tender evaluation points and recommend the tenderer with the highest number of tender evaluation points, unless there are compelling and justifiable reasons not to do so and the process set out in this sub clause is repeated.

F.3.11.5 Method 4: **In the case of a Financial Offer, Quality and Preferences:**

In the case of a financial offer, quality and preferences:

a) Score each tender in respect of the financial offer made, preference claimed, if any, and the quality offered in accordance with the provisions of F.3.11.7 to F.3.11.9, rejecting all tender offers that fail to score the minimum number of points for quality stated in the tender data, if any.
b) Calculate the total number of tender evaluation points (hv) in accordance with the following formula, unless otherwise stated in the Tender Data

$T_{EV} = N_{FO} + N_P + N_Q$

where: N_{FO} is the number of tender evaluation points awarded for the financial offer made in accordance with F.3.11. 7;
N_P is the number of tender evaluation points awarded for preferences claimed in accordance with F.3.11.B.
N_Q is the number of tender evaluation points awarded for quality offered in accordance with F.3.11.9.

c) Rank tender offers from the highest number of tender evaluation points to the lowest.
d) Recommend the tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.
e) Rescore and re-rank all tenderers should there be compelling and justifiable reasons not to recommend the tenderer with the highest number of tender evaluation paints and recommend the tenderer with the highest number of lender evaluation points, unless there are compelling and justifiable reasons not to do so and the process set out in this sub clause is repeated.

F.3.11.6 Score financial offers, preferences and quality, as relevant, to two decimal places.

F.3.11.7 Scoring Financial Offers

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

$N_{FO} = W_1 \times A$

Where N_{FO} is the number of tender evaluation points awarded for the financial offer;
W_1 is the maximum possible number of tender evaluation points awarded for the financial offer as stated in the Tender Data;
A is the number calculated using the formula and option described in table F 1 as stated in the tender data.

TABLE F.1 – FORMULAE FOR THE VALUE OF A

FORMULA	BASIS FOR COMPARISON	VALUE OF "A"	
		Option 1	Option 2
1	Highest price or discount	A = [1+(P-Pm) / Pm]	P/Pm
2	Lowest price or percentage commission / fee	A = [1-(P-Pm) / Pm]	Pm/P

Where:

Pm = is the comparative offer which is the most favorable

P = is the comparative offer of the tender under consideration

F.3.11.8 Points awarded for Specific goals

a. In terms of the Preferential Procurement Regulations, preference points must be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

B-BBEE Status Level of Contributor	Number of points (80/20 system)
Female	5
Youth	5
Disability	5
Locally	5
Non-compliant contributor	0

b. Bidders who qualify as tabled above, need to submit proof that their company is owned by female, youth, person with disability and that the company is owned locally.

c. A trust, consortium or joint venture, will qualify for points as a legal entity, provided that the entity submits documents as stipulated above.

F.3.11.9 Scoring Quality (functionality)

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

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

$N_Q = W_2 \times S_o / M_s$

where: S_o is the score for quality allocated to the submission under consideration;
M_s is the maximum possible score for quality in respect of a submission; and
W_2 is the maximum possible number of tender evaluation points awarded for the quality as stated in the tender data

F.3.12 Insurance provided by the Employer

If requested by the proposed successful Tenderer, submit for the Tenderers information the policies or certificates of insurance (or both) which the Conditions of Contract identified in the Contract Data require the Employer to provide.

F.3.13 Acceptance of Tender Offer

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

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, bankrupt or being wound up, has his affairs administered by a court or a judicial officer, has suspended his business activities, or is subject to legal proceedings in respect of any of the foregoing,
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.

F.3.14 Prepare contract documents

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

(a) addendum issued during the tender period;
(b) inclusion of some of the returnable documents;
(c) other revisions agreed between the Employer and the successful Tenderer,

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

F.3.15 **Complete adjudicator's contract**

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

F.3.16 Notice to unsuccessful tenderers

F.3.16.1 Notify the successful tenderer of the employer's acceptance of his tender offer by completing and returning one copy of the form of offer and acceptance before the expiry of the validity period stated in the tender data, or agreed additional period**.** Providing the form of offer and acceptance does not contain any qualifying statements, it will constitute the formation of a contract between the employer and the successful tenderer as described in the form of offer and acceptance.

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

F.3.17 Provide copies of the contracts

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

F.3.18 Provide written reasons for actions taken

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

T1.2.2: TENDER DATA: APPLICABLE TO THIS TENDER

The Conditions of Tender applicable to this contract are the Standard Conditions of Tender as contained in Annex F of the May 2010 edition of the CIDB Standard for Uniformity in Construction Procurement (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. Each item of data given below is cross-referenced to the Clause in the Standard Conditions of Tender to which it mainly applies.

Clause	Wording (Data)
F.1.1	The employer is the **Maquassi Hills Local Municipality**.

F.1.2	The tender documents issued by the employer comprise: **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 T2.2: Returnable Schedules **PART C1: AGREEMENTS AND CONTRACT DATA** C1.1: Form of Offer and Acceptance C1.2: Contract Data C1.3: Form of Guarantee C1.4: Adjudicator's Agreement (if app **PART C2: PRICING DATA** C2.1: Pricing InstructionsC2.2: Bills of Quantities **PART C3: SCOPE OF WORKS** C3 Scope of Work C3.1 Description of the Works C3.2 Engineering C3.3 Procurement C3.4 Construction C3.5 Management C3.6 Project Specifications C3.7 Particular Specifications **PART C4** **: SITE INFORMATION** **ANNEXURES**
F.1.4	The Employer's agent is: Name: **NEP CONSULTING ENGINEERS (PTY) LTD**

Clause	Wording (Data)
	Physical address: N12 between Klerksdorp & Wolmaransstad at Bona Bona Game Lodge 2630 Tel Nr.: 018 451 1005 Email: info@nepgroup.co.za **Postal address:** P.O. Box 2082 Klerksdorp 2570: Fax. Nr.: 018 451 1012 Email 2: avt@nepgroup.co.za
F.2.1	Only those tenderers who satisfy the following eligibility criteria are eligible to submit tenders: a) Availability of resources. b) Availability of skills to manage and perform the contract – including staff which satisfies EPWP requirements (if applicable). c) Previous experience on contracts of a similar value and nature. d) Financial standing and capability.
F.2.1	Only those tenderers who are registered with the CIDB or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a **6CEPE/7CE** or higher class of construction work, are eligible to submit tenders. Joint ventures are eligible to submit tenders provided that: 1. every member of the joint venture is registered with the CIDB; 2. the lead partner has a contractor grading designation in the **6CEPE/7CE** or higher class of construction work;and 3. the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a **6CEPE/7CE** class ofconstruction works.
F.2.1	The following tenderers who are registered with the CIDB, or are capable of being so registered prior to the evaluation of submissions, are eligible to submit tenders: a) contractors who have a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a **6CEPE/7CE** or higher Class of construction work, and b) contractors registered as potentially emerging contractors with the CIDB who are registered in one contractor grading designation lower than that required in terms of (1) above and who satisfy the following criteria: Joint ventures are eligible to submit tenders provided that: 1. every member of the joint venture is registered with the CIDB; 2. the lead partner has a contractor grading designation in the **6CEPE/7CE** class of construction work;and 3. The combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a **6CEPE/7CE** class of construction work, are eligible to submit tenders.
F.2.7	The arrangements for a clarification meeting are: not applicable.

Clause	Wording (Data)
	Location: Not applicable Starting time: **Not applicable.**
F.2.12	If, a tenderer wishes to submit an alternative offer, the only criteria permitted for such alternative tender offer is that it demonstrably satisfies the Employer's standards and requirements, the details of which may be obtained from the Employer's Agent. Calculations, drawings and all other pertinent technical information and characteristics, as well as modified or proposed Pricing Data must be submitted with the alternative tender offer to enable the Employer to evaluate the efficacy of the alternative and its principal elements, to take a view on the degree to which the alternative complies with the Employer's standards and requirements and to evaluate the acceptability of the pricing proposals. Calculations must be set out in a clear and logical sequence and must clearly reflect all design assumptions. Pricing Data must reflect all assumptions in the development of the pricing proposal. Acceptance of an alternative tender offer will mean acceptance in principle of the offer. It will be an obligation of the contract for the tenderer, in the event that the alternative is accepted, to accept full responsibility and liability that the alternative offer complies in all respects with the Employer's standards and requirements The modified Pricing Data must include an amount equal to 5% of the amount tendered for the alternative Employer's confirming ility design before it is constructed.
F.2.13.3	Parts of each tender offer communicated on paper shall be submitted as an original, plus 0 (nil) copies.
F.2.13.5 F.2.15.1	The Employer's address for delivery of tender offers and identification details to be show n on each tender offer package are: Location of tender box: Maquassi Hills Local Municipality Identification details: " Municipal Manager, Maquassi Hills Local Municipality: **UNDERGROUND RESOURCE MANAGEMENT, DESIGN, CONSTRUCTION, MONITORING OF THE EXPLORATION & EQUIPPING OF BOREHOLES IN MAQUASSI HILLS LOCAL MUNICIPALITY** **CLOSING DATE: 26th October 2026** Postal address: Maquassi Hills Local Municipality 19 Kruger Street Wolmaransstad, 2630
F.2.13	A two-envelope procedure will **not** be followed.
F.2.15	The closing time for submission of tender offers is **As per advert**
F.2.15	Telephonic, telegraphic, telex, facsimile or e-mailed tender offers will **not** be accepted.
F.2.16	The tender offer validity period is **90** days.
F2.18	The tender shall, when requested by the Employer to do so, submit the names of all management and supervisory staff that will be employed to supervise the labour-intensive portion of the works together with satisfactory evidence that such staff members satisfy the eligibility requirements

F.2.23	The tenderer is required to submit the following certificates with his tender: 1) Either a Certificate of Contractor Registration issued by the Construction Industry Development Board *OR* a copy of the Application Form for registration in terms of the Construction Industry Development Board Act (Form F006) and an original valid Tax Clearance Certificate issued by the South African Revenue Services. 2) a certificate certifying that the enterprise has no undisputed commitments to a municipality or other service provider in respect of which payment is overdue by more than 30 days (if greater than R10 million incl. VAT);

Clause	Wording (Data)
	3) particulars of any contracts awarded by an organ of state during the last five years including particulars of any material non-compliance or dispute concerning their execution over this period (if >R10 000 incl. VAT); and
	4) 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 or payment from the municipality or municipal entity is expected to be transferred out of the Republic (if greater than R10 million incl. VAT).
F3.4	The time and location for opening of the tender offers are in accordance with F.2.15 & F2.13.5
F.3.11	The procedure for evaluation of responsive Tender Offers will be **Method 4: (Financial Offer, preferences and quality (functionality))** with the 80/20 Preference Point System. Score quality, rejecting all Tender Offers that fail to score the minimum number of points for quality stated in the Tender Data. The total score awarded will be the addition of the two scores for price and preference. 1) **Financial Offer** The financial offer will be scored using the following formula Nf = W1 x [1-(P-Pm) / Pm]zxcq where: W1 = **80** for financial values up to R 50,000,000.00 (inclusive of VAT) of all responsive tenders received, and **90** for financial values over R 50,000,000.00; Pm = the value of the comparative offer of the most favourable tender; P = the value of the comparative offer under consideration The Maquassi Hills Local Municipality subscribes to the Preferential Procurement Policy Framework Act 2000 (Act No 5 of 2000), which gives preference to bids from emerging contractors or joint venture with emerging contractors. In the application of the 90/10 preference point system, if all bids received are below R50,000,000.00, the bid must be cancelled. If one or more of the acceptable bid(s) received are above the R 50,000,000.00 threshold, all bids received must be evaluated on the 90/10 preference point system. **(2) Preferences** Up to **20** points (for financial values up to R 50,000,000.00) or **10** points (for financial values over R 50,000,000.00) will be awarded to tenderers who complete the preferencing schedule and who are found to be eligible for the preference claimed. **(3) Quality** The score for quality is to be calculated using the following formula: $W_Q = W_2 x S_O / M_S$ where: W_2: is the percentage score given to quality and equals **40** S_O: is the score for quality allocated to the submission under consideration M_S: is the maximum possible score for quality in respect to the submission Score quality, rejecting all tender offers that fail to score the minimum number of **70%** of points for quality stated in the tender data.

Clause	Wording (Data)
	Tenderers are advised to study: ***Maquassi Hills Local Municipality Supply Chain Management Procurement Policy*** when completing **Schedule 1K** and claiming points.
F.3.13.1	Tender offers will only be accepted on condition that : a) the tenderer has in his or her possession an Valid Tax Clearance Pin issued by the South African Revenue Services; b) the tenderer is registered with the Construction Industry Development Board in an appropriate contractor grading designation;
	c) the tenderer or any of its directors is not listed in the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector; and
	d) the tenderer has not: i) abused the Employer's Supply Chain Management System; or ii) failed to perform on any previous contract and has been given a written notice to this effect; and e) has completed the Compulsory Enterprise Questionnaire and there are no conflicts of interest which may impact on the tenderer's ability to per form the contract in the best interests of the employer or potentially comprise the tender process.
F.3.18	The number of paper copies of the signed contract to be provided by the Employer is ONE (1).

T1.2 3: TENDER DATA: SPECIAL CONDITIONS OF TENDER

1. QUALIFICATION CRITERIA

The Qualification Scorecard is as per the Table below.

Key aspect of criterion	Basis for points allocation	Max. Points	Verification Method
Experience of the Bidder (Name of traceable reference with contact detailsto be included for verification)	At least Five (5) completed (exploration and equipping of boreholes) in the past 5 years.	35	Appointment letter, completion certificates and References to be attached
	At least four (4) completed (exploration and equipping of boreholes) in the past 5 years.	20	Appointment letter, completion certificates and References to be attached
	At least three (3) completed (exploration and equipping of boreholes) in the past 5 years.	15	Appointment letter, completion certificates and References to be attached
	At least two (2) completed (exploration and equipping of boreholes) in the past 5 years.	10	Appointment letter, completion certificates and References to be attached
	Less than 2 projects completed	0	Appointment letter, completion certificates and References to be attached
Qualifications and experience of a site agent	NQF Level 7 or Higher in Civil Engineering and at least 5 years' experience.	15	CV with Certified Copy of Qualifications to be attached
	NQF Level 6 in Civil Engineering with SACPCMP and at least 5 years' experience in exploration and equipping of boreholes.	10	CV with Certified Copy of Qualifications to be attached
	NQF Level 6 in Civil Engineering with less than five (5)years experience in exploration and equipping of boreholes.	5	CV with Certified Copy of Qualifications to be attached

Experience offoreman	5 or more years' experience in exploration and equipping of boreholes	10	Curriculum Vitae to be attached
	3 to 4 years' experience in exploration and equipping of boreholes	5	Curriculum Vitae to be attached
	Less than 3 years' experience in exploration and equipping of boreholes	3	Curriculum Vitae to be attached
	No submission	0	None
Locality of Bidder or Joint Venture	Within Maquassi Hills Local Municipality	15	Municipal account
	Within District Municipality	12	Municipal account
	Within Province	8	Municipal account
	Outside Province	5	Municipal account
Plant and Equipment (relevant to the tendered project). Relevant ownership document copies are to be includedin this tender verification purposes	Tenderer Own All Plant required for All Borehole and Water Supply Infrastructure Construction Projects: TLB – 4 points Excavator – 4 points Tipper Trucks x 3 – 6 points Water Tanker – 2 points Smooth or padfoot – 2 points LDV – 1 point	19	Certified Copies of Plant Ownership documents tobe attached
	For ownership, please score extra 1 point per Plant type	6	Copies of Plant Ownership documents to be attached
	For hired Plant score 3 points for submission of the letter.	2	Letter of intent to supply with Plant.

SCORING OF POINTS FOR PREFERENTIAL PROCUREMENT STATUS LEVEL CONTRIBUTOR

Points must be awarded to a Tenderer in accordance with the table below.

Preferential Procurement Level of Contributor	Number of points (80/20 system)
Female	5
Youth	5
Disability	5
Locally	5
Non-compliant contributor	0

The minimum number of evaluation points for Functionality is **70 points**. Only those tenderers who achieve the minimum number of Functionality evaluation points (or greater) will be eligible to have their tenders further evaluated.

NB: Bidders are required to submit supporting documents to score full points.

Bidder MUST SCORE AT LEAST 70 points FOR QUALITY, TO QUALIFY FOR FURTHER EVALUATION

NOTE: Must use METHOD 4

LIC NQF REQUIREMENTS

[NQF Level 5 and 7 Certificates for labour intensive construction for Supervisory and Managerial staff to be employed on site are to be provided with the tender submission]

KEY PERSONNEL	TRAINING INSTITUTION	NQF REQUIREMENTS	YEAR OBTAINED
Contracts Manager		NQF 7	
Site Agent		NQF 6	
General Foreman		NQF 4	
LIC NQF attachments should be of key personnel that will be attached on schedule 1E of the document. Attach NQF requirements to this page. **Failure to attach this will invalidate your bid.**			

NOTE:

i) BIDDERS ARE REQUIRED TO PROVIDE PROOF FOR EACH OF THE ABOVE NAMELY COMPANY REGISTRATION, QUALIFICATIONS DOCUMENTS, AND REFERENCE LETTERS FOR PREVIOUSLY COMPLETED PROJECTS. FAILURE TO DO SO WILL RENDER THE BID INVALID.

ii) PROVIDE PROOF FOR ALL OF THE ABOVE, INCLUDING CONTACT DETAILS, NAMES OF COMPANIES AND CONTACT DETAILS WHERE REFERENCE CHECKS CAN BE UNDERTAKEN.

iii) FAILURE TO COMPLETE THE QUALIFICATION SCORE CARD WILL DISQUALIFY YOUR PROPOSAL AND BIDDERS NEED TO SCORE A MINIMUM OF 70% TO BE ELIGIBILE FOR FURTHER EVALUATION

SPECIAL CONDITIONS

2. DURATION OF CONTRACT

The project must be completed within **6 months** from contract start date.

3. PAYMENTS

All payments will be made to the Service Provider within thirty (30) days of verification of an invoice. All invoices should be submitted by the 20th of each month. No payments will be made to the contractor if **it does not adhere to the EPWP requirements.**

4. SERVICE LEVEL AGREEMENT

4.1 A service level agreement will be entered into with the successful bidder.
4.2 Negotiations in respect of the service level agreement must be finalized within fourteen (14) calendar days of receipt of the letter of acceptance by the successful bidder."
4.3 Service level agreement entered into with the successful bidder will capture the time frames for performance applying to this contract.
4.4 Should no consensus be reached within fourteen (14) calendar days of finalizing the Service Level Agreement (SLA), the Municipality will be entitled to:
  i) Cancel its acceptance of the bid, or
  ii) Extend the negotiation period without prejudice to any of its other rights in terms of this contract or common law.

5. PENALTIES

Penalties will be levied at R 3 500.00 per day in the event of non-compliance.

6. PRICE

This Tender shall be a **Fixed Price Contract**. Contract price adjustment is not applicable to this Tender.

7. BID VALIDITY

This bid shall not be withdrawn during a period of ninety (90) days from the date on which it is to be lodged and it may be accepted at any time during that period.

8. BID COMPLIANCE

The Bid must comply with the following:

The VAT component of the price must be indicated separately.
This bid or part thereof may not be ceded.
The bid documents submitted must be in the form and order as issued by the Municipality in order to assist the Municipality with the evaluation of same

9. MEETINGS

Progress meetings will be held once a month as agreed with the Engineer and Technical Meetings will be on an ongoing basis as and when is deemed necessary by the Engineer.

10. PROGRAMME/PERFORMANCE

The Service provider will be required to submit a program of confirmed activities to be undertaken in the project which will form an Annexure to the Service Level Agreement within 14 days from the commencement date.

The Service Provider will also be required to submit monthly progress reports.

11. RETURNABLE DOCUMENTS

The issued documents must be returned in the form and order in which they were issued to assist the Municipality to expedite adjudication of the bids. The Maquassi Hills Local Municipality reserves the right to disqualify a bid in the event that the bidder does not fully comply with this provision.

12. MANDATORY OBJECTION PERIOD

All administrative actions and decisions taken by the Maquassi Hills Local Municipality through its officials may become subject to an objections and appeals process. As such, in terms of Section 62 of the Municipal Systems Act 32 of 2000, a period of Fourteen (14) days will be set aside to allow for the submission of appeals against the award/process of making the award to a particular bidder by any interested party. Except in scenarios where the decision of a duly appointed panel sets aside the appointment of the successful bidder as service provider of this contract, the appointment will then be confirmed by the Maquassi Hills Local Municipality in writing.

13. PERFORMANCE SECURITY

A fixed amount of 10% in respect of Performance Security is applicable in respect of each bid and must apply for the duration of the contract.

The Performance Security shall be secured within thirty (14) calendar days of award of the bid and shall apply from the date of award of the bid.

The Performance Security submitted has to be approved by the Maquassi Hills Local Municipality.

14. OTHER MATTERS

Bidders must also submit three year audited financial statements of the company.

Bidders must certify that he/she have no outstanding debts due to the Municipality where the bidder originates and any other Municipality or any service provider.

PART T2: RETURNABLE DOCUMENTS

TABLE OF CONTENTS

Page Colour

T2.1 List of Returnable Documents (Yellow)

T2.2 Returnable Schedules (Yellow)

T2.1: LIST OF RETURNABLE DOCUMENTS

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

A. Compulsory Enterprise Questionnaire
B. Certificate of Authority
C. Certificate Of Authority for Joint Ventures
D. Record of Addenda to Tender Documents
E. Personnel Schedule
F. Plant and Equipment
G. Experience of Tenderer
H. Certificate of Attendance at Clarification meeting
I. Amendments, Qualifications and Alternatives
J. Preferential Procurement Schedule
2A Certificate of Contractor registration issued by CIDB
2B Proof of authority of Signatory
2C Tax Clearance Certificate with Tax Pin Number
2D Joint Venture Agreement if applicable
2E Rates and Municipal Services Clearance Certificate/Lease agreement
2F Audited Financials for the past 3 years
2G Particulars of any contracts awarded by an organ of state during the last 5 years
2H Bank Rating

- Invitation to Bid – MBD 1
- Pricing Schedule – MBD 3.1
- Pricing Schedule Non-Firm Prices – MBD 3.2
- Declaration of Interest MBD 4
- Declaration for Procurement above R 10 million (all applicable taxes included)
- Regulations 2022- MBD 6.1
- Contract Form = purchase of goods/ works – MBD 7.1
- Contract Form rendering of services – MBD 7.2
- Declaration of Tenderers past Supply Chain Management Practices – MBD 8
- Certificate of Independent Tender Determination - MBD 9
- Company Registration Certificate/Agreement/ID Document
- Contractors Health and Safety Plan – **(Only lead Partner)**
- Curriculum Vitae of Key Personnel and Certified Copies of Qualifications – **(Only lead Partner)**
- Preliminary Programme – **(Only lead Partner)**
- Contractors Health and Safety Declaration
- Form of Intent to Provide a Performance Guarantee
- Certified Identity document for Company and Directors
- Unemployment Insurance Fund (UIF) Registration Certificate (Circular No 2B/2022 of the UIF states that the UIF certificate is no longer mandatory: however we will accept any form of valid proof that shows compliant status with the UIF Act.) – **(Only lead Partner)**
- CSD proof of registration with banking details
- LIC NQF LEVEL 7, 5 or 4

ELIMINATION CRITERIA (certified copies)

- Company/ CC/ Trust/ Partnership registration – **certified**
- Workman compensation Certificates (Letter of Good standing – **certified)**
- Original Bank Code C – Grading from Bank (Only A, B and C is acceptable) – **(Only lead Partner)**
- Joint Venture agreement and Power of attorney in case of Joint Ventures
- Municipal Account or Lease of agreement for both Company and Directors as per the CIPC, proof of residence will be accepted from Tribal Authorities for both Company and Directors as per the CIPC.
- Registered on CSD (Central Supply Database)
- CIDB Certificate with grading applicable to this Tender – **certified**
- SARS Tax PIN – **certified**
- ID documents of directors/ owners/ Members/shareholders – **certified**
- Updated Company Profile
- Contractors Health and Safety Plan – **(Only lead Partner)**
- 3-year Audited Financial Statements – **(Only lead Partner)**
- For self-printing (downloads), printing in sectional colours as per the document will not be mandatory, therefore no disqualification in this regard
- A minimum of 20% Joint Venture will be required for the project with a local service provider within the Maquassi Hills Local Municipality

SCHEDULE A: 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 any provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999)
- ☐ a member of an accounting authority of any national or provincial public entity
- ☐ an employee of Parliament or a provincial legislature

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

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 any provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999)
- ☐ a member of an accounting authority of any national or provincial public entity
- ☐ an employee of Parliament or a provincial legislature

Name of 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.

Signed ..... Date .....

Name ..... Position .....

Enterprise name .....

* The schedule should be used where tenders are subject to the local Government: Municipal Finance Management Act

SCHEDULE B: CERTIFICATE OF AUTHORITY

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	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 ....., was authorized to sign all documents in connection with this tender for contract…… and any contract resulting from it on behalf of the company.

As witnesses :

1. ..... Chairman : .....
   Date :
2. ....

Tenderers must attach a copy of the Resolution of the Board - refer Schedule 2B.

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 ....to sign all documents in connection with the tender for Contract ....and any contract resulting from it on our behalf.

NAME	ADDRESS	SIGNATURE	DATE

NOTE : This certificate is to be completed and signed by all of the key partners upon whom rests the direction of the affairs of the Partnership as a whole

C. Certificate for Joint Venture

We, the undersigned, are submitting this tender offer in Joint Venture and hereby authorise Mr/Ms ....., authorised signatory of the company ...., acting in the capacity of lead partner, to sign all documents in connection with the tender offer for Contract.....and any contract resulting from it on our behalf.

This authorization is evidenced by the attached power of attorney signed by legally authorized signatories of all the partners to the Joint Venture.

NAME OF FIRM	ADDRESS	AUTHORISING SIGNATURE, NAME & CAPACITY
Lead partner		

D. Certificate for Sole Proprietor

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

As witnesses:

1. ..... Signature : Sole owner : .....
2. ..... Date : .....

E. Certificate for Close Corporation

We, the undersigned, being the key members in the business trading as .... hereby authorize Mr/Ms ..... acting in the capacity of ....., to sign all documents in connection with the tender for Contract ..... and any contract resulting from it on our behalf.

NAME	ADDRESS	SIGNATURE	DATE

NOTE: This certificate is to be completed and signed by all of the key-partners upon who rests the direction of the affairs of the Partnership as a whole.

SCHEDULE C: CERTIFICATE OF AUTHORITY FOR JOINT VENTURES (if applicable)

This returnable schedule is to be completed by joint ventures.
We, the undersigned, are submitting this tender offer in joint venture and hereby authorize Mr/Ms .....

……., authorised signatory of the company, close corporation or partnership .....

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

NAME OF FIRM	ADDRESS	DULY AUTHORISED SIGNATORY
Lead partner		**Signature** ..... **Name** ..... **Designation** .....
		Signature ..... **Name** ..... **Designation** .....
		Signature ..... **Name** ..... **Designation** .....

NOTE: A copy of the Joint Venture Agreement showing clearly the **percentage contribution of each partner** to the Joint Venture shall be appended to this schedule.

SCHEDULE D: RECORD OF ADDENDA TO TENDER DOCUMENTS

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

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

Attach additional pages if more space is required.

Signed ..... Date .....

Name ..... Position .....

Tenderer .....

SCHEDULE E: PERSONNEL SCHEDULE

Job Description	Non-Local	Local
Contract Manager		
Site Agent		
Quantity Surveyor		
Surveyors		
General Foreman		
Foremen		
Community Officers		
Clerks		
Operators		
Bricklayers		
Learner Bricklayers		
Steel fixers		
Watchmen		
Pipe Layers		
Labourers		
* Other		
* Other		
* Other		

* To be filled in by Tenderer

Signed ..... Date .....

Name ..... Position .....

Tenderer .....

SCHEDULE F: SCHEDULE OF PLANT AND EQUIPMENT AVAILABLE FOR THE CONTRACT

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 this contract.

Quantity	Description, Size, Capacity, etc

Attach additional pages if more space is required.

(b) Details of major equipment that will be hired or acquired for this contract if my/our tender is acceptable.

Quantity	Description, Size, Capacity, etc

Attach additional pages if more space is required.

Signed ..... Date .....

Name ..... Position .....

Tenderer .....

SCHEDULE G: SCHEDULE OF WORK SATISFACTORILY CARRIED OUT BY THETENDERER

The following is a statement of similar work successfully executed by myself/ourselves:

Employer, contact person and telephone number	Description of Contract	Value of Work Inclusive of VAT (Rand)	Date Completed

Name ..... Position .....

SCHEDULE H: 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 the 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

No.	Name and Address of Proposed Subcontractor	Nature and Extent of Work	Previous Experience with Subcontractor
1.	N/A		
2.			
3.			
4.			
5.			
6.			
7.			

Signed ..... Date .....

Name ..... Position .....

Tenderer .....

SCHEDULE I: CERTIFICATE OF ATTENDANCE AT CLARIFICATION MEETING

This is to certify that

..... (Tenderer)

of..... (address)

.....

was represented by the person(s) named below at the compulsory meeting held for all tenderers at .....

..... (Location) on ..... (date), starting at .....

We acknowledge that the purpose of the meeting was to acquaint ourselves with the site of the works and / or matters incidental to doing the work specified in the tender documents in order for us to take account of everything necessary when compiling our rates and prices included in the tender.

Particulars of person(s) attending the meeting:

Name ..... Signature .....

Capacity .....

Name ..... Signature .....

Capacity .....

Attendance of the above persons at the meeting is confirmed by the Employer's representative, namely:

Name ..... Signature .....

Capacity ..... Date & Time .....

SCHEDULE J: PROPOSED AMENDMENTS AND QUALIFICATIONS

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

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

Page	Clause or Item	Proposal

Signed ..... Date .....

Name ..... Position .....

Tenderer .....

SCHEDULE K: PREFERENTIAL PROCUREMENT SCHEDULE

Tenderers who wish to claim preference points in terms of Clause 3.11 of the Tender Data must complete the schedule and sign the Declaration at the end of the schedule. Failure on the part of the tenderer to fill in and/or to sign this schedule will be interpreted to mean that preference points are not claimed.

A. POINTS FOR PREFERENTIAL PROCUREMENT

Tenderers who wish to claim points for this goal must complete the attached scorecard.

No points will be awarded if the total percentage score is less than 40 %.

For competitive bids / price quotations up to a Rand value of R50 million:

NB: The total score out of 100 % must be converted to a point out of a maximum of 10 points for preferential procurement. For competitive bids with a Rand value above R 50 million:

NB: The total score out of 100 % must be converted to a point out of a maximum of **20** points for preferential procurement.

B. POINTS FOR LOCAL TENDERERS

B.1 Points Claimed

Points will be awarded as follows:

Tenderers operating from the jurisdiction of the Maquassi Hills Local Municipality may claim 15 points. From within the District the Tenderer may claim 10 points. Within the province the Tenderer may claim 8 points from beyond the Province.

Points claimed:	=	……..

The claim/award of points will be based on the information furnished in Section B2.

B.2 Declaration with regard to Locality

State full particulars of locality of enterprise as well as that of Head Office:

B.2.1 Address of head office of enterprise: Physical:

Postal: .....

.....

Telephone: ..... Fax: .....

RSC levy payer's registration number: .....

NB: A Valid Levy Registration Certificate must be attached - refer Schedule 2E

B.2.2 Address of local enterprise within MAQUASSI HILLS LOCAL Local Municipality:

Physical: .....

Postal: .....

.....

Telephone: ..... Fax: .....

RSC levy payers registration number:.....

B.2.3 Address of local enterprise within ……..Municipality:

Physical: .....

Postal: .....

.....

Telephone: ..... Fax: .....

RSC levy payer's registration number: .....

Failure by the Tenderer to provide the information in Section B2 will result in no preference points being awarded for this category.

C. DECLARATION

I/we, the undersigned, who warrants that he/she is duly authorised to do so on behalf of the firm certify that points claimed, based on the equity ownership, indicated in paragraph 8 of the foregoing certificate, qualifies the firm for the preference(s) shown and I / we acknowledge that:

i) The information furnished is true and correct.
ii) In the event of a contract being awarded as a result of points claimed, the contractor may be required to furnish documentary proof to the satisfaction of the employer that the claims are correct.
iii) If the claims are found to be incorrect, the employer may, in addition to any other remedy it may have -
   a) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct; and
   b) 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;

- .....
  WITNESSES

SIGNATURE (S) OF TENDERER(S)

- .....
  WITNESSES

DATE: .....

ADDRESS .....

.....

.....

SCHEDULE 2A: CERTIFICATE OF CONTRACTOR REGISTRATION ISSUED BY THE CIDB

The Tenderer must attach to this page a copy of their CIDB Certificate.

SCHEDULE 2B: PROOF OF AUTHORITY OF SIGNATORY

The Tenderer must attach to this page an original letter of proof of Authority of Signatory.

SCHEDULE 2C: VALID TAX CLEARANCE CERTIFICATE

The Tenderer must attach to this page an original Tax Clearance Certificate from the South African Revenue Services in respect of his/her company, close corporation or partnership. In the case of a joint venture between two or more firms, the tenderer shall attach an original/copy of the Tax Clearance Certificate for each of the joint venture partners.

SCHEDULE 2D: JOINT VENTURE AGREEMENT (Only if applicable)

The Tenderer must attach to this page the Joint Venture agreement document, if applicable.

SCHEDULE 2E: MUNICIPAL LEVY PAYMENT

The tenderer must attach to this page proof of registration with the Municipalities (local and/or district) as a payer of municipal levies.

SCHEDULE 2F: AUDITED FINANCIALS FOR THE PAST THREE YEARS

The Tenderer must attach to this page a copy of the Audited Financial Statements.

SCHEDULE 2G: PARTICULARS OF ANY CONTRACTS AWARDED BY AN ORGAN OF STATE DURING THE LAST FIVE YEARS

The Tenderer must attach to this page their particulars as requested.

SCHEDULE 2H: CONTRACTOR BANK DETAILS

The Tenderer must attach to this page their particulars as requested.

MBD 1

INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE MAQUASSI HILLS LOCAL MUNICIPALITY

BID NUMBER: ……CLOSING DATE: …… CLOSING TIME: ……..

DESCRIPTION……

The successful bidder will be required to fill in and sign a written Contract Form (MBD 7).

BID DOCUMENTS MAY BE POSTED TO:

……..

……

OR

DEPOSITED IN THE BID BOX SITUATED AT *(STREET ADDRESS)*

……

……

Bidders should ensure that bids are delivered timeously to the correct address. If the bid is late, it will not be accepted for consideration.

The bid box is generally open 8 hours a day, 5 days a week.
ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS – (NOT TO BE RE-TYPED)

THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT

NB: NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE (as defined in regulation 1 of the local government: municipal supply chain management regulations)

THE FOLLOWING PARTICULARS MUST BE FURNISHED
(FAILURE TO DO SO MAY RESULT IN YOUR BID BEING DISQUALIFIED)

NAME OF BIDDER ……

POSTAL ADDRESS

……

STREET ADDRESS ……..

TELEPHONE NUMBER CODE……NUMBER……

CELLPHONE NUMBER ……_____.....

FACSIMILE NUMBER CODE …… .NUMBER……

E-MAIL ADDRESS ……

VAT REGISTRATION NUMBER ……..

HAS AN ORIGINAL AND VALID TAX CLEARANCE CERTIFICATE BEEN ATTACHED? (MBD 2) YES/NO

HAS A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE BEEN SUBMITTED? (MBD 6.1) YES/NO

IF YES, WHO WAS THE CERTIFICATE ISSUED BY?

AN ACCOUNTING OFFICER AS CONTEMPLATED IN THE CLOSE CORPORATION ACT (CCA) □
A VERIFICATION AGENCY ACCREDITED BY THE SOUITH AFRICAN NATIONAL ACCREDITATION SYSTEM (SANAS) □
A REGISTERED AUDITOR □
(Tick applicable box)

(**A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE**)

ARE YOU THE ACCREDITED REPRESENTATIVE
IN SOUTH AFRICA FOR THE GOODS/SERVICES/WORKS OFFERED?

YES/NO
(IF YES ENCLOSE PROOF)

SIGNATURE OF BIDDER ……

DATE ……

CAPACITY UNDER WHICH THIS BID IS SIGNED ……..

TOTAL BID PRICE…… TOTAL NUMBER OF ITEMS OFFERED ……

ANY ENQUIRIES REGARDING THE BIDDING PROCEDURE MAY BE DIRECTED TO:

Municipality / Municipal Entity: ……

Department ……

Contact Person: ……

Tel: ……

Fax: ……..

ANY ENQUIRIES REGARDING TECHNICAL INFORMATION MAY BE DIRECTED TO:

Contact Person: ……

Tel: ……

Fax: ……..

MBD 3.1

PRICING SCHEDULE – FIRM PRICES (PURCHASES)

NOTE: ONLY FIRM PRICES WILL BE ACCEPTED. NON-FIRM PRICES (INCLUDING PRICES SUBJECT TO RATES OF EXCHANGE VARIATIONS) WILL NOT BE CONSIDERED

IN CASES WHERE DIFFERENT DELIVERY POINTS INFLUENCE THE PRICING, A SEPARATE PRICING SCHEDULE MUST BE SUBMITTED FOR EACH DELIVERY POINT

Name of Bidder……	Bid Number……..
Closing Time …… …..	Closing Date ……

OFFER TO BE VALID FOR **90** DAYS FROM THE CLOSING DATE OF BID.

ITEM NO.	QUANTITY	DESCRIPTION	BID PRICE IN RSA CURRENCY **(ALL APPLICABLE TAXES INCLUDED)

- Required by: ……
- At: ……
  ……
- Brand and Model ……
- Country of Origin ……

- Does the offer comply with the specification(s)? *YES/NO
- If not to specification, indicate deviation(s) ……
- Period required for delivery ……
  *Delivery: Firm/Not firm
- Delivery basis ……

Note: All delivery costs must be included in the bid price, for delivery at the prescribed destination.

** "all applicable taxes" includes value- added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies.

*Delete if not applicable

MBD 3.2

PRICING SCHEDULE – NON-FIRM PRICES (PURCHASES)

NOTE: PRICE ADJUSTMENTS WILL BE ALLOWED AT THE PERIODS AND TIMES SPECIFIED IN THE BIDDING DOCUMENTS.

IN CASES WHERE DIFFERENT DELIVERY POINTS INFLUENCE THE PRICING, A SEPARATE PRICING SCHEDULE MUST BE SUBMITTED FOR EACH DELIVERY POINT

Name of Bidder……	Bid number……
Closing Time ……	Closing Date ……

OFFER TO BE VALID FOR……DAYS FROM THE CLOSING DATE OF BID.

ITEM NO.	QUANTITY	DESCRIPTION	BID PRICE IN RSA CURRENCY **(ALL APPLICABLE TAXES INCUDED)

- Required by: ……
- At: ……..……
- Brand and model ……..……
-
- Country of origin ……...……
- Does the offer comply with the specification(s)? *YES/NO
- If not to specification, indicate deviation(s) ……
- Period required for delivery
  ……
- Delivery: *Firm/Not firm

** "all applicable taxes" includes value- added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies.

*Delete if not applicable

MBD 3.2

PRICE ADJUSTMENTS

A NON-FIRM PRICES SUBJECT TO ESCALATION

1. IN CASES OF PERIOD CONTRACTS, NON-FIRM PRICES WILL BE ADJUSTED (LOADED) WITH THE ASSESSED CONTRACT PRICE ADJUSTMENTS IMPLICIT IN NON FIRM PRICES WHEN CALCULATING THE COMPARATIVE PRICES

2. IN THIS CATEGORY PRICE ESCALATIONS WILL ONLY BE CONSIDERED IN TERMS OF THE FOLLOWING FORMULA:

$$Pa = (1 - V)Pt\left(D1\frac{R1t}{R1o} + D2\frac{R2t}{R2o} + D3\frac{R3t}{R3o} + D4\frac{R4t}{R4o} \right) + VPt$$

Where:

Pa	=	The new escalated price to be calculated.
(1-V) Pt	=	85% of the original bid price. **Note that Pt must always be the original bid price and not an escalated price.**
D1, D2..	=	Each factor of the bid price eg. labour, transport, clothing, footwear, etc. The total of the various factors D1,D2 etc. must add up to 100%.
R1t, R2t……	=	Index figure obtained from new index (depends on the number of factors used).
R1o, R2o	=	Index figure at time of bidding.
VPt	=	15% of the original bid price. This portion of the bid price remains firm i.e. it is not subject to any price escalations.

3. The following index/indices must be used to calculate your bid price:

Index……. Dated……. Index……. Dated……. Index……. Dated…….

Index……. Dated……. Index……. Dated……. Index……. Dated…….

4. FURNISH A BREAKDOWN OF YOUR PRICE IN TERMS OF ABOVE-MENTIONED FORMULA. THE TOTAL OF THE VARIOUS FACTORS MUST ADD UP TO 100%.

eg. Labour, transport etc.)	ENTAGE OF BID PRICE

MBD 3.2

B PRICES SUBJECT TO RATE OF EXCHANGE VARIATIONS

1. Please furnish full particulars of your financial institution, state the currencies used in the conversion of the prices of the items to South African currency, which portion of the price is subject to rate of exchange variations and the amounts remitted abroad.

PARTICULARS OF FINANCIAL INSTITUTION	ITEM NO	PRICE	CURRENCY	RATE	PORTION OF PRICE SUBJECT TO ROE	AMOUNT IN FOREIGN CURRENCY REMITTED ABROAD
				ZAR=		
				ZAR=		
				ZAR=		
				ZAR=		
				ZAR=		
				ZAR=		

2. Adjustments for rate of exchange variations during the contract period will be calculated by using the average monthly exchange rates as issued by your commercial bank for the periods indicated hereunder: (Proof from bank required)

AVERAGE MONTHLY EXCHANGE RATES FOR THE PERIOD:	DATE DOCUMENTATION MUST BE SUBMITTED TO THIS OFFICE	DATE FROM WHICH NEW CALCULATED PRICES WILL BECOME EFFECTIVE	DATE UNTIL WHICH NEW CALCULATED PRICE WILL BE EFFECTIVE

MBD 4

DECLARATION OF INTEREST

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

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

3.1 Full Name: _____

3.2 Identity Number: _____

3.3 Company Registration Number: .....

3.4 Tax Reference Number: .....

3.5 VAT Registration Number: .....

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

3.6.1 If so, furnish particulars.

.....

.....

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

---

* MSCM Regulations: "in the service of the state" means to be –
(a) a member of –
(i) any municipal council;
(ii) any provincial legislature; or
(iii) the national Assembly or the national Council of provinces;

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

3.7.1 If so, furnish particulars.

……

……

3.8 Do you, have any relationship (family, friend, other) with persons in the service of the state and who may be involved with the evaluation and or adjudication of this bid?

3.8.1 If so, furnish particulars. **YES / NO**

……

……

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

3.9.1 If so, furnish particulars **YES / NO**

……

……

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

3.10.1 If so, furnish particulars.

……

……

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

3.11.1 If so, furnish particulars.

……

……

CERTIFICATION

I, THE UNDERSIGNED (NAME) _____

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

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

…….. ……..
Signature Date

…… ……
Position Name of Bidder

MBD 5

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

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

1 **Are you by law required to prepare annual financial statements for auditing?**

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

……

……

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

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

2.2 If yes, provide particulars.

……

…….

…….

……..

*** Delete if not applicable**

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

4.1 If yes, furnish particulars

…….

……

***YES / NO**

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

4.1 If yes, furnish particulars

……..

……..

CERTIFICATION

I, THE UNDERSIGNED (NAME) ……

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

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

…….. **……..**
Signature **Date**

……. **…….**
Position **Name of Bidder**

MBD 6.1

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

2

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

---

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

---

1. GENERAL CONDITIONS

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

- the 80/20 system for acquisition of goods or services for Rand value equal to or above R2 001 and up to R50 000 000 (all applicable taxes included); and
- the 90/10 system for acquisition of goods or services with a Rand value above R50 000 000 (all applicable taxes included).

1.2 The value of this bid is estimated to exceed/not exceed R50 000 000 (all applicable taxes included) and therefore the……..system shall be applicable.

1.3 Preference points for this bid shall be awarded for:

(a) Price; and
(b) Specific Goals

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

		POINTS
1.3.1.1	**PRICE**	…….
1.3.1.2	**SPECIFIC GOALS**	_____
	Total points for Price and B-BBEE must not exceed	**100**

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

1.5. The purchaser reserves the right to require of a bidder, either before a bid is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the purchaser.

2. DEFINITIONS

2..1 **"all applicable taxes"** includes value-added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies;

2.2 "**B-BBEE**" means broad-based black economic empowerment as defined in section 1 of the Broad Based Black Economic Empowerment Act;

2.3 "**B-BBEE status level of contributor**" means the B-BBEE status received by a measured entity based on its overall performance using the relevant scorecard contained in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;

2.4 **"black designated groups"** has meaning assigned to it in the codes of good practice issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;

2.5 **"people black"** has the meaning assigned to it in section 1 of the Broad-Based Black Economic Empowerment Act;

2.6 "**bid**" means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of services, works or goods, through price quotations, advertised competitive bidding processes or proposals;

2.7 "**Broad-Based Black Economic Empowerment Act** " means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);

2.8 **"co-operative"** means a co-operative registered in terms of section 7 of the Co-operatives Act, 2005 (Act No. 14 of 2005);

2.9 **"designated group"** means-

(a) black designated groups;
(b) black people;
(c) women;
(d) people with disabilities; or
(e) small enterprises, as defined in section 1 of the National Small Enterprise Act, 1996 (Act No. 102 of 1996)

2.10 **"designated sector"** means a sector, sub-sector or industry or product designated in terms of regulation 8(1)(a);

2.11 **"EME"** means an exempted micro enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;

2.12 **"functionality"** means the ability of a tenderer to provide goods or services in accordance with specifications as set out in the tender documents;

2.13 **"military veteran"** has the meaning assigned to it in section 1 of the Military Veterans Act, 2011 (Act No. 18 of 2011);

2.14 **"National Treasury"** has the meaning assigned to it in section 1 of the Public Finance Management Act, 1999 (Act No. 1 of 1999);

2.15 **"people with disabilities"** has the meaning assigned to it in section 1 of the Employment Equity Act, 1998 (Act No. 55 of 1998);

2.16 **''proof of B-BBEE status level of contributor''** means-
(a) the B-BBEE status level certificate issued by an authorised body or person;
(b) a sworn affidavit as prescribed by the B-BBEE Codes of Good Practice; or
(c) any other requirement prescribed in terms of the Broad-Based Black Economic Empowerment Act;

2.17**''QSE''** means a qualifying small business enterprise in terms of code of good practice on black economic empowerment issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;

2.18 **''Rand value''** means the total estimated value of a contract in Rand, calculated at the time of the tender invitation;

2.19 **''rural area''** means **–**

(a) a sparsely populated area in which people farm or depend on natural resources, including villages and small towns that are dispersed through the area; or
(b) an area including a large settlement which depends on migratory labour and remittances and government social grants for survival, and may have a traditional land tenure system;

2.20**''stipulated minimum threshold''** means the minimum threshold stipulated in terms of regulation 8(1)(b);

2.21 **''the Act''** means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000);

2.22 **''township''** means an urban living area that any time from the late 19th century until 27 April 1994 , was reserved for black people, including areas developed for historically disadvantaged individuals post 27 April 1994;

2.23 **''treasury''** has the meaning assigned to it in section 1 of the Public Finance Management Act, 1999 (Act No. 1 of 1999); and

2.24**''youth''** has the meaning assigned to it in section 1 of the National Youth Development Agency Act, 2008 (Act No. 54 of 2008)

2.25 "**comparative price**" means the price after the factors of a non-firm price and all unconditional discounts that can be utilized have been taken into consideration;

2.26 "**consortium or joint venture**" means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract;

2.27 "**contrac**t"means the agreement that results from the acceptance of a bid by an organ of state;

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

2.29 "**non-firm prices**" means all prices other than "firm" prices;

2.30 "**person**" includes a juristic person;

2.31 "**sub-contract** " means the primary contractor's assigning, leasing, making out work to, or employing, another person to support such primary contractor in the execution of part of a project in terms of the contract;

2.32 **"total revenue"** bears the same meaning assigned to this expression in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act and promulgated in the *Government Gazette* on 9 February 2007;

2.33 **"trust"** means the arrangement through which the property of one person is made over or bequeathed to a trustee to administer such property for the benefit of another person; and

2.34 **"trustee"** means any person, including the founder of a trust, to whom property is bequeathed in order for such property to be administered for the benefit of another person.

3. ADJUDICATION USING A POINT SYSTEM

3.1 The bidder obtaining the highest number of total points will be awarded the contract.

3.2 Preference points shall be calculated after prices have been brought to a comparative basis taking into account all factors of non-firm prices and all unconditional discounts;.

3.3 Points scored must be rounded off to the nearest 2 decimal places.

3.4 In the event that two or more bids have scored equal total points, the successful bid must be the one scoring the highest number of preference points for B-BBEE.

3.5 However, when functionality is part of the evaluation process and two or more bids have scored equal points including equal preference points for B-BBEE, the successful bid must be the one scoring the highest score for functionality.

3.6 Should two or more bids be equal in all respects, the award shall be decided by the drawing of lots.

4. POINTS AWARDED FOR PRICE

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

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

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

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

Where

Ps = Points scored for comparative price of bid under consideration

Pt = Comparative price of bid under consideration

Pmin = Comparative price of lowest acceptable bid

5. Points awarded for Specific Goals

5.1

Specific Goals	**Number of points (80/20 system)**
Female	5
Youth	5
Disability	5
Locally	5
Non-compliant contributor	0

6. BID DECLARATION

8 SUB-CONTRACTING

8.1 Will any portion of the contract be sub-contracted? YES / NO (delete which is not applicable)

8.1.1 If yes, indicate:
(i) what percentage of the contract will be subcontracted? _____……%
(ii) the name of the sub-contractor? ……
(iii) whether the sub-contractor is an EME? YES / NO (delete which is not applicable)

9 DECLARATION WITH REGARD TO COMPANY/FIRM

9.1 Name of firm : .....

9.2 VAT registration number : .....

9.3 Company registration number ……
:

9.4 TYPE OF COMPANY/ FIRM

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

9.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

……
……
……

9.6 COMPANY CLASSIFICATION

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

9.7 MUNICIPAL INFORMATION

Municipality where business is situated
……
Registered Account Number ……
Stand Number ……

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

(i) The information furnished is true and correct;

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

(iii) In the event of a contract being awarded as a result of points claimed as shown in paragraph 7, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;

WITNESSES:

1. ……

……
SIGNATURE(S)OF BIDDER(S)

2. ……

DATE:……..

ADDRESS:……..

……

……

……

MBD 7.1

CONTRACT FORM - PURCHASE OF GOODS/WORKS

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

PART 1 (TO BE FILLED IN BY THE BIDDER)

1. I hereby undertake to supply all or any of the goods and/or works described in the attached bidding documents to (name of institution)…… in accordance with the requirements and specifications stipulated in bid number…….. at the price/s quoted. My offer/s remain binding upon me and open for acceptance by the purchaser during the validity period indicated and calculated from the closing time of bid.

2. The following documents shall be deemed to form and be read and construed as part of this agreement:

   (i) Bidding documents, *viz*
   - Invitation to bid;
   - Tax clearance certificate;
   - Pricing schedule(s);
   - Technical Specification(s);
   - Declaration of interest;
   - Declaration of bidder's past SCM practices;
   - Certificate of Independent Bid Determination;
   - Special Conditions of Contract;

   (ii) General Conditions of Contract; and
   (iii) Other (specify)

3. I confirm that I have satisfied myself as to the correctness and validity of my bid; that the price(s) and rate(s) quoted cover all the goods and/or works specified in the bidding documents; that the price(s) and rate(s) cover all my obligations and I accept that any mistakes regarding price(s) and rate(s) and calculations will be at my own risk.

4. I accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on me under this agreement as the principal liable for the due fulfilment of this contract.

5. I declare that I have no participation in any collusive practices with any bidder or any other person regarding this or any other bid.

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

NAME (PRINT) ……

CAPACITY ……

SIGNATURE ……

NAME OF FIRM

DATE

……

……

WITNESSES

1 ……

2. ……

DATE: ……

MBD 7.1

CONTRACT FORM - PURCHASE OF GOODS/WORKS

PART 2 (TO BE FILLED IN BY THE PURCHASER)

1. I…… in my capacity as……..….. accept your bid under reference number ……dated……for the supply of goods/works indicated hereunder and/or further specified in the annexure(s).

2. An official order indicating delivery instructions is forthcoming.

3. I undertake to make payment for the goods/works delivered in accordance with the terms and conditions of the contract, within 30 (thirty) days after receipt of an invoice accompanied by the delivery note.

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

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

SIGNED AT ……ON……..

NAME (PRINT) ……

SIGNATURE ……

OFFICIAL STAMP

WITNESSES

1. ……

2. ……

DATE ……

MBD 7.2

CONTRACT FORM - RENDERING OF SERVICES

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

PART 1 (TO BE FILLED IN BY THE SERVICE PROVIDER)

1. I hereby undertake to render services described in the attached bidding documents to (name of the institution)…… in accordance with the requirements and task directives / proposals specifications stipulated in Bid Number…….. at the price/s quoted. My offer/s remain binding upon me and open for acceptance by the Purchaser during the validity period indicated and calculated from the closing date of the bid.

2. The following documents shall be deemed to form and be read and construed as part of this agreement:

   (iv) Bidding documents, *viz*
   - Invitation to bid;
   - Tax clearance certificate;
   - Pricing schedule(s);
   - Filled in task directive/proposal;
   - Preference claims for Broad Based Black Economic Empowerment Status Level of Contribution in terms of the Preferential Procurement Regulations 2011;
   - Declaration of interest;
   - Declaration of Bidder's past SCM practices;
   - Certificate of Independent Bid Determination;
   - Special Conditions of Contract;

   (v) General Conditions of Contract; and
   (vi) Other (specify)

3. I confirm that I have satisfied myself as to the correctness and validity of my bid; that the price(s) and rate(s) quoted cover all the services specified in the bidding documents; that the price(s) and rate(s) cover all my obligations and I accept that any mistakes regarding price(s) and rate(s) and calculations will be at my own risk.

4. I accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on me under this agreement as the principal liable for the due fulfillment of this contract.

5. I declare that I have no participation in any collusive practices with any bidder or any other person regarding this or any other bid.

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

NAME (PRINT) ……

CAPACITY ……

SIGNATURE ……

NAME OF FIRM ……

DATE ……

WITNESSES

1 ……

2 ……

DATE: ……..

MBD 7.2

CONTRACT FORM - RENDERING OF SERVICES

PART 2 (TO BE FILLED IN BY THE PURCHASER)

1. I…… in my capacity as……..…… accept your bid under reference number ……dated……for the rendering of services indicated hereunder and/or further specified in the annexure(s).

2. An official order indicating service delivery instructions is forthcoming.

3. I undertake to make payment for the services rendered in accordance with the terms and conditions of the contract, within 30 (thirty) days after receipt of an invoice.

3.1 DESCRIPTION OF 3.2 SERVICE	PRICE (ALL APPLICABLE TAXES INCLUDED)	COMPLETION DATE	B-BBEE STATUS LEVEL OF CONTRIBUTION	MINIMUM THRESHOLD FOR LOCAL PRODUCTION AND CONTENT (if applicable)

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

SIGNED AT …… ON ……..

NAME (PRINT) ……

SIGNATURE ……

OFFICIAL STAMP

WITNESSES

1 ……

2 ……

DATE: ……..

MBD 8

DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

1 This Municipal Bidding Document must form part of all bids invited.

Item	Question	Yes	No
4.1	Is the bidder or any of its directors listed on the National Treasury's Database of Restricted Suppliers as companies or persons prohibited from doing business with the public sector? (Companies or persons who are listed on this Database were informed in writing of this restriction by the Accounting Officer/Authority of the institution that imposed the restriction after the *audi alteram partem* rule was applied). **The Database of Restricted Suppliers now resides on the National Treasury's website(**www.treasury.gov.za**) and can be accessed by clicking on its link at the bottom of the home page.**	Yes ☐	No ☐
4.1.1	If so, furnish particulars:		
4.2	Is the bidder or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)? **The Register for Tender Defaulters can be accessed on the National Treasury's website (www.treasury.gov.za) by clicking on its link at the bottom of the home page.**	Yes ☐	No ☐
4.2.1	If so, furnish particulars:		
4.3	Was the bidder or any of its directors convicted by a court of law (including a court of law outside the Republic of South Africa) for fraud or corruption during the past five years?	Yes ☐	No ☐
4.3.1	If so, furnish particulars:		

Item	Question	Yes	No
4.4	Does the bidder or any of its directors owe any municipal rates and taxes or municipal charges to the municipality / municipal entity, or to any other municipality / municipal entity, that is in arrears for more than three months?	Yes ☐	No ☐
4.4.1	If so, furnish particulars:		

MBD 8

4.5	Was any contract between the bidder and the municipality / municipal entity or any other organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes ☐	No ☐
4.7.1	If so, furnish particulars:		

2 It serves as a declaration to be used by municipalities and municipal entities in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse of the supply chain management system.

3 The bid of any bidder may be rejected if that bidder, or any of its directors have:

a. abused the municipality's / municipal entity's supply chain management system or committed any improper conduct in relation to such system;
b. been convicted for fraud or corruption during the past five years;
c. willfully neglected, reneged on or failed to comply with any government, municipal or other public sector contract during the past five years; or
d. been listed in the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004).

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

CERTIFICATION

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

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

…….. ……..
Signature **Date**

…….. ……..
Position **Name of Bidder**

Js367bW

MBD 9

CERTIFICATE OF INDEPENDENT BID DETERMINATION

1 This Municipal Bidding Document (MBD) must form part of all bids[1] invited.

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

3 Municipal Supply Regulation 38 (1) prescribes that a supply chain management policy must provide measures for the combating of abuse of the supply chain management system, and must enable the accounting officer, among others, to:

a. take all reasonable steps to prevent such abuse;

b. reject the bid of any bidder if that bidder or any of its directors has abused the supply chain management system of the municipality or municipal entity or has committed any improper conduct in relation to such system; and

c. cancel a contract awarded to a person if the person committed any corrupt or fraudulent act during the bidding process or the execution of the contract.

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

5 In order to give effect to the above, the attached Certificate of Bid Determination (MBD 9) must be completed and submitted with the bid:

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

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

MBD 9

CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

_____

(Bid Number and Description)

in response to the invitation for the bid made by:

_____

(Name of Municipality / Municipal Entity)

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

I certify, on behalf of:_____that:
(Name of Bidder)

1. I have read and I understand the contents of this Certificate;
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign, the bid, on behalf of the bidder;
5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:

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

MBD 9

6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium [3] will not be construed as collusive bidding.
7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
    (a) prices;
    (b) geographical area where product or service will be rendered (market allocation)
    (c) methods, factors or formulas used to calculate prices;
    (d) the intention or decision to submit or not to submit, a bid;
    (e) the submission of a bid which does not meet the specifications and conditions of the bid; or
    (f) bidding with the intention not to win the bid.
8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.
9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.

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

MBD 9

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

……	……
Signature	Date
……	……
Position	Name of Bidder

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PART C1: AGREEMENT AND CONTRACT DATA

TABLE OF CONTENTS

C1.1 Form of Offer and Acceptance 98

C1.2 Contract Data 101

C1.3 Form of Guarantee 112

C1.4 Occupational Health and Safety Agreement 117

C1.1: FORM OF OFFER AND ACCEPTANCE

1. OFFER

The employer, identified in the acceptance signature block, has solicited offers to enter into a contract for the procurement of:

UNDERGROUND, RESOURCE MANAGEMENT, DESIGN, CONSTRUCTION, MONITORING OF THE EXPLORATION AND EQUIPPING OF BOREHOLES IN MAQUASSI HILLS LOCAL MUNICIPALITY

The tenderer, identified in the offer signature block, has examined the documents listed in the tender data and addenda thereto as listed in the tender schedules, and by submitting this offer has accepted the conditions of tender.

By the representative of the tenderer, deemed to be duly authorized, signing this part of this form of offer and acceptance, the tenderer offers to perform all of the obligations and liabilities of the Contractor under the contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the Conditions of Contract identified in the Contract Data.

The offered total of the prices inclusive of Value-Added Tax is
.....
.....

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

This offer may be accepted by the employer by signing the acceptance part of this form of offer and acceptance and returning one copy of this document to the tenderer before the end of the period of validity stated in the tender data, whereupon the tenderer becomes the party named as the contractor in terms of the conditions of contract identified in the contract data.

Signature(s) ....

Name(s) ....

Capacity ....

for the **Tenderer** .....
(Name and address of organization)

Name……and signature

of witness ..... Date .....

2. ACCEPTANCE

By signing this part of this form of offer and acceptance, the employeridentified below accepts the tenderer's offer. In consideration thereof, the employer shall pay the contractor the amount due in accordance with the conditions of contract identified in the contract data. Acceptance of the tenderer's offer shall form an agreement between the employer and the tenderer upon the terms and conditions contained in this agreement and in the contract that is the subject of this agreement.

The terms of the contract are contained in

Part C1 : Agreements and contract data (which includes this agreement)

Part C2 : Pricing data

Part C3 : Scope of work

Part C4 : Site Information

and drawings and documents or parts thereof, which may be incorporated by reference into Parts C1 to C4 above.

Deviations from and amendments to the documents listed in the tender data and any addenda thereto, as 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.

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 insurance and any other documentation to be provided in terms of the conditions of contract identified in the contract data. Failure to fulfil any of 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) working days of the date of such receipt, notifies the employer in writing of any reason why he cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the parties.[1]

Signature(s) ....

Name(s) ....

Capacity ....

for the **Employer** .....
(Name and address of organization)

Name…….. and signature

of witness ..... Date .....

[1] As an alternative the following wording may be used:

Notwithstanding anything contained herein, this agreement comes into effect two (2) working days after the submission by the Employer of one fully completed original copy of this document, including the schedule of deviations (if any), to a courier-to-counter delivery / counter-to-counter delivery / door-to-counter delivery / door-to-door delivery / courier service (delete that which is not applicable), provided that the Employer notifies the Tenderer of the tracking number within 24 hours of such submission. Unless the tenderer (now contractor) within seven (7) working days of the date of such submission notifies the Employer in writing of any reason whyhe cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the parties.

3. SCHEDULE OF DEVIATIONS

Notes:

1. The extent of deviations from the tender documents issued by the employer before 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, be 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 .....

By the duly authorized 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.

C1.2: CONTRACT DATA (PART 1)

The Conditions of Contract are the General Conditions of Contract for Construction Works (2015) published by the South African Institution of Civil Engineering (SAICE). Copies of these conditions of contract may be obtained from the SAICE Tel no.: (0)11 805 5947.

The General Conditions of Contract for Construction Works make several references to the Contract Data. The Contract Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the General Conditions of Contract.

Each item of data given below is cross-referenced to the clause in the General Conditions of Contract for Construction Works to which it mainly applies.

PART 1: DATA PROVIDED BY THE EMPLOYER

Clause	Description
1.1.14 1.2.2	The Employer is the **Maquassi Hills Local Municipality** The Employer's address for receipt of communications and noticesis : Telephone: (018)-596-3925 Facsimile: (018)-596-1555 Address (Postal): Private Bag X3 (Physical): 19 Kruger Street Wolmaransstad Wolmaransstad 2630
1.1.15 1.2.2	The Engineer is **NEP Consulting Engineers (PTY) Ltd** The Engineer's address for receipt of communications and notices is: N12 between Klerksdorp & Wolmaransstad at Bona Bona Game Lodge 2630 Tel: 018 451 1005 Fax: 018 451 1012 E-mail: info@nepgroup.co.za / avt@nepgroup.co.za
1.1.13	The time for completing the works is **6 months**.
1.6 and 38	The special non-working days are **public holidays**, **Sundays** and the **year-end break**. These days will be excluded from time calculations.
1.6	The year-end break commences on **11 December 2026** and ends **11 January 2027.**
2.3	The Engineer is required to obtain the specific approval of the Employer before executing any of the following functions or duties: a) The issuing of a variation order in terms of Clause 36.2. b) Approval of extension of time in terms of Clause 42.2. c) Approval of penalties in terms of Clause 43.1. d) Approval to utilize the contingencies
4.5.2	Replace the term "Safety" with "Occupational Health and Safety"

Clause	Description
7	The time to deliver the Deed of Guarantee is **14 days** of the Commencement Date The Form of Guarantee is to contain the wording of the document included in C1.3. The liability of the Guarantee shall be for **10 %** of the Tender Price.
10	The Contractor shall commence executing the Works within **14 days** of the Commencement Date.
12.2	The Contractor shall deliver his programme of work within **14 days** of the Commencement Date.
35.1.1.2.2	The value of the materials supplied by the Employer to be included in the insurance sum is **R0-00 (Nil).**
35.1.1.2.3	The amount to cover professional fees for repairing damage and loss to be included in the insurance sum is **14%.**
35.1.3	The limit of indemnity for the liability insurance required is **R10 million**.
37.2.2.3	The percentage allowance to cover overhead charges for work executed on a day-work basis is **25%**
43.1	The penalty for failing to complete the Works is **0,05%** of the total Tender Sum per day, up to a maximum limit of twenty-five thousand rand per day (R25000,00 per day).
46.2	The Contract is a Fixed Price Contract: ***Contract Price Adjustment will not apply to this contract***
46.3	Price adjustments for variations in the costs of special materials will not apply to this contract. Refer Contract Data (Part 2).
49.1.5	The percentage advance on materials not yet built into the Permanent Works is **80 %.**
49.3	The percentage retention on the amounts due to the Contractor is **10 %.**
49.3	The limit of retention money is **10 %** of the Contract Price. No interest will be paid on retention money
49.6	A Retention Money Guarantee is permitted. Replace the term "Bank" with "Bank or Insurance Company" in Clauses 49.6.1 to 49.6.3.
51.5.3	Delete Clause 51.5.3 as retention monies shall not be halved at completion.
53.1	The Defects Liability Period is **12 months** measured from the date of the Certificate of Completion.
55.1.8	Replace subclause with: The Contractor or anyone on his behalf or in his employ would pay, offer or offer as payment to any person in the employ of the Employer, or in the employ of the Engineer, a gratuity or reward or commission.
Additional Conditions of Contract	**EXTENSION OF TIME FOR ABNORMAL RAINFALL** Extensions of time in respect of clause 42 in respect of abnormal rainfall shall be calculated using the following formula for each calendar month or part thereof: $V = (Nw - Nn) + \left(\frac{Rw - Rn}{X}\right)$ Where:

Clause	Description
	V = Extension of time in calendar days in respect of the calendar month under consideration. Nw = Actual number of days during the calendar month on which a rainfall of 10 mm or more has been recorded. Nn = Average number of days in the relevant calendar month, as derived from existing rainfall records, as stated in the Scope of Work, on which a rainfall of 10mm or more has been recorded for the calendar month. Rw = Actual average rainfall in mm recorded for the calendar month under consideration. Rn = Average rainfall in mm for the calendar month as derived from existing rainfall records as stated in the Scope of Work. For purposes of the Contract Nn, Rn, X and Y shall have those values assigned to them in the Scope of Work. If V is negative and its absolute value exceeds Nn, then V shall be taken as equal to minus Nn. The total extension of time shall be the algebraic sum of all monthly totals for the period under consideration, but if the total is negative the time for completion shall not be reduced due to subnormal rainfall. Extensions of time for part of a month shall be calculated using pro rata values of Nn and Rn. This formula does not take account flood damage which could cause further or concurrent delays and will be treated separately as far as extension of time is concerned. The factor (Nw Nn) shall be considered to represent a fair allowance for variations from the average in the number of days during which rainfall exceeds 10 mm. The factor (Rw-Rn) shall be considered to represent a fair allowance for variations from the average in the number of days during which the rainfall did not exceed 10 mm but wet conditions prevented or disrupted work. For the purpose of applying the formula, accurate rain gauging shall be taken at a suitable point on the Site and the Contractor shall at his own expense, take all necessary precautions to ensure that rain gauges cannot be interfered with by unauthorized persons.
Additional Clause	**Description**
	Payment for the labour-intensive component of the works Payment for works identified in the Scope of Work as being labour-intensive shall only be made in accordance with the provisions of the Contract if the works are constructed strictly in accordance with the provisions of the scope of work. Any non-payment for such works shall not relieve the Contractor in any way from his obligations either in contract or in delict. **Applicable labour laws** The Ministerial Determination, Special Public Works Programmes, issued in terms of the Basic Conditions of Employment Act of 1997by the Minister of Labour in Government Notice N° R63 of 25 January 2002, as reproduced below, shall apply to works described in the scope of work as being labour intensive and which are undertaken by unskilled or semi-skilled workers.

1. Introduction

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

1.2 In this document

(a) "department" means any department of the State, implementing agent or contractor;

(b) means any department agency or contractor that hires workers to work in elementary occupations on a EPWP;

(c) "worker" means any person working ELEMTARY occupation on a EPWP;

(d) "elementary occupation" means any occupation involving - skilled work;

(e) "management" means any person employed by a department or agency to administer or execute an EPWP;

(f) "task" means a fixed quantity of work;

(g) - paid performing a task;

(h) - completed;

(i) - means a worker paid length of time worked.

2. Terms of Work

2.1 Workers on a EPWP are employed on a temporary basis.

2.2 A worker may NOT be employed for longer than 24 months in any five-year cycle on a EPWP.

2.3 Employment on a EPWP does not qualify as employment as a contributor for the purposes of the Unemployment Insurance Act 30 of 1966.

Clause	Description
	3. Normal Hours of Work 3.1 An employer may not set tasks or hours of work that require a worker to work– (a) more than forty hours in any week (b) on more than five days in any week; and (c) for more than eight hours on any day. 3.2 An employer and worker may agree that a worker will work four days per week. The worker may then work up to ten hours per day.
	4. Meal Breaks 4.1 A worker may not work for more than five hours without taking a meal break of at least thirty minutes duration. 4.2 An employer and worker may agree on longer meal breaks. 4.3 A worker may not work during a meal break. However, an employer may require a worker to perform duties during a meal break if those duties cannot be left unattended and cannot be performed by another worker. An employer must take reasonable steps to ensure that a worker is relieved of his or her duties during the meal break. 4.4 A worker is not entitled to payment for the period of a meal break. However, a worker who is paid on the basis of time worked must be paid if the worker is required to work or to be available for work during the meal break.
	5. Special Conditions for Security Guards 5.1 A security guard may work up to 55 hours per week and up to eleven hours per day. 5.2 A security guard who works more than ten hours per day must have a meal break of at least one hour or two breaks of at least 30 minutes each.
	6. Daily Rest Period Every worker is entitled to a daily rest period of at least eight consecutive hours. The daily rest period is measured from the time the worker ends work on one day until the time the worker starts work on the next day.
	7. Weekly Rest Period Every worker must have two days off every week. A worker may only work on their day off to perform work which must be done without delay and cannot be performed by workers during their ordinary hours of work ("emergency work")
	8. Work on Sundays and Public Holidays 8.1 A worker may only work on a Sunday or public holiday to perform emergency or security work. 8.2 Work on Sundays is paid at the ordinary rate of pay. 8.3 A task-rated worker who works on a public holiday must be paid – (a) the worker's daily task rate, if the worker works for less than four hours; (b) double the worker's daily task rate, if the worker works for more than four hours. 8.4 A time-rated worker who works on a public holiday must be paid –

Clause	Description
	(a) the worker's daily rate of pay, if the worker works for less than four hours on the public holiday; (b) double the worker's daily rate of pay, if the worker works for more than four hours on the public holiday.
	9. Sick Leave 9.1 Only workers who work four or more days per week have the right to claim sick-pay in terms of this clause. 9.2 A worker who is unable to work on account of illness or injury is entitled to claim one day's paid sick leave for every full month that the worker has worked in terms of a contract. 9.3 A worker may accumulate a maximum of twelve days' sick leave in a year. 9.4 Accumulated sick-leave may not be transferred from one contract to another contract. 9.5 An employer must pay a task-rated worker the worker's daily task rate for a day's sick leave. 9.6 An employer must pay a time-rated worker the worker's daily rate of pay for a day's sick leave. 9.7 An employer must pay a worker sick pay on the worker's usual payday. 9.8 Before paying sick-pay, an employer may require a worker to produce a certificate stating that the worker was unable to work on account of sickness or injury if the worker is— (a) absent from work for more than two consecutive days; or (b) absent from work on more than two occasions in any eight-week period. 9.9 A medical certificate must be issued and signed by a medical practitioner, a qualified nurse or a clinic staff member authorised to issue medical certificates indicating the duration and reason for incapacity. 9.10 A worker is not entitled to paid sick-leave for a work-related injury or occupational disease for which the worker can claim compensation under the Compensation for Occupational Injuries and Diseases Act.
	10. Maternity Leave 10.1 A worker may take up to four consecutive months' unpaid maternity leave. 10.2 A worker is not entitled to any payment or employment-related benefits during maternity leave. 10.3 A worker must give her employer reasonable notice of when she will start maternity leave and when she will return to work. 10.4 A worker is not required to take the full period of maternity leave. However, a worker may not work for four weeks before the expected date of birth of her child or for six weeks after the birth of her child, unless a medical practitioner, midwife or qualified nurse certifies that she is fit to do so. 10.5 A worker may begin maternity leave :— (a) four weeks before the expected date of birth; or (b) on an earlier date :—

Clause	Description
	(i) if a medical practitioner, midwife or certified nurse certifies that it is necessary for the health of the worker or that of her unborn child; or (c) on a later date, if a medical practitioner, midwife or certified nurse has certified that the worker is able to continue to work without endangering herhealth. 10.6 A worker who has a miscarriage during the third trimester of pregnancy or bears a stillborn child may take maternity leave for up to six weeks after the miscarriage or stillbirth. 10.7 A worker who returns to work after maternity leave, has the right to start a new cycle of twenty-four months employment, unless the SPWP on which she was employed has ended.
	11. Family responsibility leave 11.1 Workers, who work for at least four days per week, are entitled to three days paid family responsibility leave each year in the following circumstances :- (a) when the employee's child is born; (b) when the employee'schild is sick; (c) in the event of a death of– (i) the employee's spouse or life partner; (ii) the employee's parent, adoptive parent, grandparent; child, adopted child, grandchild or sibling.
	12. Statement of Conditions 12.1 An employer must give a worker a statement containing the following details at the start of employment :– (a) the employer's name and address and the name of the SPWP; (b) the tasks or job that the worker is to perform; and (c) the period for which the worker is hired or, if this is not certain, the expected duration of the contract; (d)the worker's rate of pay and how this is to be calculated; (e) the training that the worker will receive during the SPWP 12.2 An employer must ensure that these terms are explained in a suitable language to any employee who is unable to read the statement. 12.3. An employer must supply each worker with a copy of these conditions of employment.
	13. Keeping Records 13.1 Every employer must keep a written record of at least the following :– (a) the worker's name and position; (b) in the case of a task-rated worker, the number of tasks completed by the worker; (c) in the case of a time-rated worker, the time worked by the worker; (d) payments made to each worker.

Clause	Description
	13.2 The employer must keep this record for a period of at least three years after the completion of the SPWP.
	14. Payment 14.1 An employer must pay all wages at least monthly in cash or by cheque or into a bank account. 14.2 A task-rated worker will only be paid for tasks that have been completed. 14.3 An employer must pay a task-rated worker within five weeks of the work being completed and the work having been approved by the manager or the contractor having submitted an invoice to the employer. 14.4 A time-rated worker will be paid at the end of each month. 14.5 Payment must be made in cash, by cheque or by direct deposit into a bank account designated by the worker. 14.6 Payment in cash or by cheque must take place : (a) at the workplace or at a place agreed to by the worker; (b) during the worker's working hours or within fifteen minutes of the start or finish of work; (c) in a sealed envelope which becomes the property of the worker. 14.7 An employer must give a worker the following information in writing : (a) the period for which payment is made; (b) the numbers of tasks completed or hours worked; (c) the worker's earnings; (d) any money deducted from the payment; (e) the actual amount paid to the worker. 14.8 If the worker is paid in cash or by cheque, this information must be recorded on the envelope and the worker must acknowledge receipt of payment by signing forit 14.9 If a worker's employment owingto that worker within one month of the termination of employment the employer must pay all monies. monies
	15. Deductions 15.1 A n employer may not deduct money from payment a worker's unless the deduction is required in terms of a law. 15.2 An employer must deduct and pay to the SA Revenue Services any income tax that the worker is required to pay. 15.3 An employer who deducts money from a worker's pay for payment to another person must pay the money to that person within the time period and other requirements specified in the agreement law, court order or arbitration award concerned. 15.4 An employer may not require or allow a worker to : (a) repay any payment except an overpayment previously made by the employer by mistake;

Clause	Description
	(b) state that the worker received a greater amount of money than the employer actually paid to the worker; or (c) pay the employer or any other person for having been employed.
	16. Health and Safety 16.1 Employers must take all reasonable steps to ensure that the working environment is healthy and safe. 16.2 A worker must :– (a) work in a way that does not endanger his/her health and safety or that of any other person; (b) obey any health and safety instruction; (c) obey all health and safety rules of the SPWP; (d) use any personal protective equipment or clothing issued by the employer; (e) report any accident, near-miss incident or dangerous behaviour by another person to their employer or manager.
	17. Compensation for Injuries and Diseases 17.1 It is the responsibility of the employers (other than a contractor) to arrange for all persons employed on a SPWP to be covered in terms of the Compensation for Occupational Injuries and Diseases Act, 130 of 1993. 17.2 A worker must report any work-related injury or occupational disease to their employer or manager. 17.3 The employer must report the accident or disease to the Compensation Commissioner. 17.4 An employer must pay a worker who is unable to work because of an injury caused by an accident at work 75% of their earnings for up to three months. The employer will be refunded this amount by the Compensation Commissioner. This does NOT apply to injuries caused by accidents outside the workplace such as road accidents or accidents at home.
	18. Termination 18.1 The employer may terminate the employment of a worker for good cause after following a fair procedure. 18.2 A worker will not receive severance pay on termination. 18.3 A worker is not required to give notice to terminate employment. However, a worker who wishes to resign should advise the employer in advance to allow the employer to find a replacement. 18.4 A worker who is absent for more than three consecutive days without informing the employer of an intention to return to work will have terminated the contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period. 18.5 A worker who does not attend required training events, without good reason, will have terminated the contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period.

	19. Certificate of Service 19.1 On termination of employment, a worker is entitled to a certificate stating – (a) the worker's full name; (b) the name and address of the employer; (c) the SPWP on which the worker worked; (d) the work performed by the worker; (e) any training received by the worker as part of the SPWP; (f) the period for which the worker worked on the SPWP; (g) any other information agreed on by the employer and worker.

C1.2 : CONTRACT DATA (PART 2)

PART 2: DATA PROVIDED BY THE CONTRACTOR.

Clause	Description
1.1.8	The Contractor is the …… *[Enter the Legal name of the Contractor]*.
1.2.2	The Contractor's address for receipt of communications and notices is : Telephone: ..... Facsimile: ..... E-mail : ..... Address (Postal) : ..... Address (Physical) : ....
37.2.2.3	The percentage allowance to cover all overhead charges is ..... **.....**
42.1	The Works shall be completed in ..... days/weeks/months *(delete one). *[State the total number of days, weeks, months or years which must include the special non-working days and the year end break].* The Works shall be completed for the portions as set out in the Scope of Works for : Portion 1 within ..... (To be completed by the Compiler) Portion 2 within ..... The whole of the Works shall be complete within .....
46.3	The variation in cost of special materials is : Type of Material Unit Rate or Price ....

C1.3 : PERFORMANCE GUARANTEE

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

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means: .....

"Physical" address:.....

"Employer" means:.....

"Contractor "means: .....

"Employer's Agent" means:.....

"Works" means: .....

"Site" means: .....

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

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

Amount in words: .....

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

Amount in words: .....

Type of Performance Guarantee……(Insert Variable or Fixed)

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

CONTRACT DETAILS

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

1. VARIABLE PERFORMANCE GUARANTEE

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

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

R……

(Amount in words ……)

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

R ……

(Amount in words ……)

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

2. FIXED PERFORMANCE GUARANTEE

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

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

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

3. CONDITIONS APPLICABLE TO VARIABLE AND FIXED PERFORMANCE GUARANTEES

3.1 The Guarantor hereby acknowledges that:

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

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

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

3.2.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Employer's Agent in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 3.2.2;

3.2.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 3.2.1 and the sum certified has still not been paid;

3.2.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 3.2.

3.3 Subject to the Guarantor's maximum liability referred to in 1.1 or 2.1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:

3.3.1 the Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 3.3; or

3.3.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 3.3; and

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

3.4 It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 3.2 and 3.3 shall not exceed the Guarantor's maximum liability in terms of 1.1 or 2.1

3.5 Where the Guarantor has made payment in terms of 3.3, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Guarantor showing how all monies received in terms of this Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Performance Guarantee shall bear interest at the prime overdraft rate of the Employer's bank

compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.

3.6 Payment by the Guarantor in terms of 3.2 or 3.3 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.

3.7 Payment by the Guarantor in terms of 3.3 will only be made against the return of the original Performance Guarantee by the Employer.

3.8 The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may 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.

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

3.10 This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 1.1.2 or 2.2, where after no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.

3.11 This Performance Guarantee, with the required demand notices in terms of 3.2 or 3.3, shall be regarded as a liquid document for the purposes of obtaining a court order.

3.12 Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the 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: OCCUPATIONAL HEALTH AND SAFETY AGREEMENT

MEMORANDUM OF AGREEMENT CONCLUDED BY AND BETWEEN:MAQUASSI

HILLS LOCAL MUNICIPALITY

(HEREINAFTER REFERRED TO AS THE MUNICIPALITY)

herein represented by _____

in his capacity as

of the Municipality, he being duly authorised thereto

and

(hereinafter referred to as the Mandatory)

herein represented by_____

in his capacity as _____

of the Mandatory, he being duly authorised thereto

WHEREAS:

1. The Municipality and the mandatory entered into a written, alternatively oral agreement on the……..Day of ……20…… in terms of which the Mandatory undertook to carry out the following work for the Municipality , viz. (give a short description of the type of contract work to be done as well as the address where work will be done)

   _____

   *(The said contract work is hereinafter referred to as the **Work**)*

2. The Occupational Health and Safety Act, Act 85 of 1993 as amended (hereinafter referred to as **the Act**) contains amongst others certain provisions with regard to the health and safety of people at work and in connection with the usage of plant and machinery, as well as the protection of other persons than persons at work against hazards to health and safety that originates from or in connection with the activities of persons at work.

3. Section 37(2) of the Act makes provision for the exclusion by the parties, by way of a written agreement, of supposition and accompanying liability of the Municipality as stipulated in section 37(1) of the Act.

4. The parties have reached consensus with regard to the terms and conditions to which they agree in terms of the provisions of section 37(2) of the Act.

NOW THEREFOR THE PARTIES AGREE AS FOLLOWS

1. WRITTEN AGREEMENT

The parties herewith agree in terms of section 37(2) of the Act on the arrangements and procedures that must be followed to ensure compliance with the provisions of the Act by the Mandatory.

2. ACKNOWLEDGEMENT BY THE MANDATARY

The mandatory acknowledge herewith that he is fully acquainted with the contents of the Act, as well as with all regulations and SABS codes of practice that have been made in terms of section 43 of the Act.

3. UNDERTAKING BY MANDATARY

(a) The Mandatory hereby undertakes and binds himself to the Municipality to ensure prompt and strict compliance with the provisions of the Act and the said regulations as well as with the provisions included in this Safety Agreement at all times during the execution of the Works

(b) It is hereby recorded that the provisions of this Safety Agreement as set out hereinafter are in no way intended to restrict the duties of the Mandatory, nor to exempt the Mandatory from his obligation in accordance with the Act and the said regulations

4. PERSONAL PROTECTIVE EQUIPMENT

(a) It is compulsory to wear equipment for eye protection when working in an eye protection zone or where the Work requires eye protection.

(b) It is compulsory to wear safety helmets when working in a safety helmet zone or where the Work requires safety helmets.

(c) It is compulsory to wear hearing protection when working in a noise zone or where the Work requires hearing protection.

(d) The wearing of other protective clothing and equipment as prescribed by the Occupational Health and Safety Officer of Maquassi Hills Local Municipality is compulsory.

(e) The Mandatory shall ensure that the statutory requirements are complied with at all times.

5. FENCING AND GENERAL MACHINERY PROTECTION

No shield or fencing may be removed from or be moved at any machinery or installation without written permission.

6. SCAFFOLDING, LADDERS, TOOLS, ETCETERA

The Mandatory without the written permission of the Municipality may use no equipment or tools that belong to the Municipality.

Except where agreed beforehand the Mandatory shall provide enough tools and equipment to enable him to complete the Works and the Mandatory shall provide all storerooms, offices and eating halls that he may need. The Mandatory will be responsible for all his material on site.

In special case where the Municipality may lend equipment, tools or materials to the Mandatory, the Mandatory will use such equipment, tools and/or materials at his own risk and the Mandatory herewith indemnifies the Municipality against any liability of whichever nature or from any cause whatsoever, whether direct or indirect, that may arise from such usage.

7. SERVICES AND WORKING METHODS

The written permission of the Chief Executive/Municipal Manager of the Municipality shall be obtained where any work which must be undertaken by the Mandatory is connected with a working process or machineryor any other service in connection therewith, or may possibly affect it, before he commences with suchwork.

Approval shall be obtained from the City Electrical Engineer of the Municipality before any equipment is connected to the electrical supply of the Municipality All equipment shall be isolated before any equipment is connected to the electrical supply of the Municipality. It shall be isolated and be provided with earth leakage protection. Electrical machinery, portable electrical tools and portable lights must comply with the requirements of the applicable regulations.

Work permits must be issued in terms of the Occupational Health and Safety Act and Regulations when the nature of the work requires it. Permits must be issued by the relevant departmental head where necessary.

8. EXCAVATIONS

Written permission for excavations shall be obtained from the City Engineer of the Municipality and the Mandatory shall make sure of the existence and position of electrical cables, discharge pipes, gas lines, water conduits, et cetera before he commences with any excavation work.

All excavations and obstructions and/or any openings in platforms or floors shall be enclosed in a safe way and warning notices shall be erected to ensure absolute safety. An adequate number of red or orange caution lights shall be provided when it is dark or should bad light prevail.

The area surrounding excavations shall be kept in a safe, orderly and tidy condition. No loose material of whatever nature may be left in walkways or workplaces or be allowed to block walkways or workplaces.

Nobody may enter into any restricted area in which hazardous fumes or a shortage of oxygen exists without a permit giving permission to do so, issued by the head of the relevant department of the Municipality and until it has been certified safe for entrance by the Occupational Health and Safety Officer and the Health Inspector of the Municipality.

9. RESTRICTION TO WORKPLACE

Employees of the Mandatory shall be restricted to their workplaces except when they have to leave their area for work purposes or when they visit toilets.

10. SUBCONTRACTORS

The Mandatory shall ensure that all subcontractors receive a copy of this safety agreement and must ensure they comply with it.

11. OCCUPATIONAL HEALTH AND SAFETY OFFICER AND THE REPORTING OF ALL ACCIDENTS

The Occupational Health and Safety Officer of the Municipality is available for consultation, and he will make periodical visits to the workplace of the Mandatory. Any hazardous occurrence or incident to the employees of the Mandatory that results in absence from work for a period longer than three days shall be reported in writing to the Occupational Health and Safety Officer of the Municipality within forty eight hours as well as to the Department of Labour as specified by the Act. Every user, employer, occupier, builder or excavator must, under this Act, keep record of all accidents that occur.

In the case of an accident that results in loss of life, nobody may disturb the scene of the accident or any articles involved in the accident prior to the arrival of the Occupational Health and Safety Officer and the Inspector, unless it is to prevent another accident from happening or the prevention of loss of life or to remove corpses.

The Occupational Health and Safety Officer will issue contravention notices to the Mandatory or a sub-contractor when there is a non-compliance and will specify the time in which it must be rectified.

The Occupational Health and Safety Officer will issue work stop notices to the Mandatory or sub-contractor whenever he is of the opinion that the health and safety of any person at work is threatened or that the contravention notices are not adhered to.

12. FIRST AID

Where five or more persons are employed at a workplace, the Mandatory shall provide and maintain an adequately equipped first-aid box that meets the following requirements.

(a) Every first-aid box shall contain the minimum contents as prescribed by the Occupational Health and Safety Act.
(b) Nothing except articles and equipment required for first-aid purposes may be kept in the first-aid box.
(c) Each first-aid box shall be kept in a place readily accessible in case of an accident.
All first-aid boxes shall be placed under control of a responsible person except where five or less persons are at work. The responsible person must be in the possession of a valid first-aid certificate issued by one of the following organisations:

A South-African Red Cross Society
B St. John's Ambulance Foundation
C South-African First-Aid League

A notice indicating where the first-aid box is kept as well as the name of the person in charge, shall be affixed in a conspicuous place. The first-aid facilities of the Municipality may be used during emergencies.

13. FIRE PREVENTION MEASURES AND STORAGE OF FLAMMABLE MATERIAL

The Fire department of the Municipality shall be notified before any welding, oxyacetylene welding, cutting, burning of paint or tar from floors or roofs is undertaken so that the necessary fire prevention measures can be arranged. All "NO SMOKING AND OPEN SURFACE FIRES/LIGHTS PROHIBITED" notices shall be adhered to. The Mandatory and his senior employee shall acquaint themselves and their fellow workers with the fire prevention measures of the Municipality, which will also include fire alarm notices and exits in case of fire, and they shall ensure that these rules are strictly complied with.

14. COMPLETION OF WORK

Before the mandatory or his sub-contractors leaves the site they shall inform the Head of the relevant Department of the Municipality and obtain his/her written approval that the work has been completed satisfactory and that the site of the work is left in a good condition.

15. SALVAGED MATERIAL AND EQUIPMENT

Any building demolished or equipment or materials that are salvaged whilst carrying out the work shall remain the property of the Municipality, unless the contract specifically provides otherwise.

16. BREAKING OF THESE RULES AND POOR CONDUCT

The Mandatory is warned that no behavior that causes danger to their own employees, to the employees of the Municipality or general public will be tolerated. The Occupational Health and Safety Officer of the Municipality reserves the right of the withdrawal of any employees of the Mandatory or Municipality from the premises in the case of any default or breach of the agreement and to order that the completion of the work be stayed, pending compliance with this agreement; alternatively to cancel the agreement referred to in par.2 in which event the Municipality will be entitled to appoint an alternative contractor to complete the work and recover the costs thereof from the mandatory, without prejudice to any alternative or additional right or action or remedy to the Municipality, to recover from the mandatory damages for the default or breach and the cancellation.

The senior employees of the Mandatory shall sign a note of acknowledgement of this safety agreement to certify that they have received the regulations as included herein and that they understand the regulations

17. INTOXICATION

Nobody that is in a state of intoxication or that is in any other condition that causes or may cause his/her incapability to control him/herself or persons under his control may and shall not be permitted on the premises of the Municipality. The Occupational Health and Safety Officer of the Municipality reserves the right to the withdrawal of any employees of the Mandatory or Municipality from the premises in the case of any transgression of this nature.

18. CONFIDENTIALLY

The Mandatory shall at all times treat data and information that have been made known to him or that he requires in connection with his work from the Municipality as confidential and he may not make unauthorized use thereof. He must also ensure that such data and information are not communicated to anybody else that is not an employee of the Mandatory without obtaining prior written approval from the Municipality and he must further ensure that such persons do in fact know that the said information is confidential and that they are obliged to treat it as such.

The Mandatory shall provide for adequate physical protection for any confidential documents, sketches, et cetera that he receives from the Municipality in connection with the work as well as for any copies thereof that he makes. He shall hand back all documents sketches and copies thereof to the Municipality upon completion of the work, or earlier, if so requested by the Municipality. The Mandatory shall inform the Municipality immediately should any such documents or sketches become lost.

19. INDEMNIFICATION BY THE MANDATORY

The following conditions will be applicable to the Mandatory:

(a) The Mandatory is liable and herewith indemnifies the Municipality irrevocably and in full against any claim for loss or damage to property or arising from death or injury of any person and any associated loss or damage suffered, and against all lawsuits, claims, demands, costs, expenses, and charges that may arise when the said occurrences are caused on purpose or through the negligence, violation of legal obligations or failure by the Mandatory or its employees.

(b) Whenever any of the employees of the Municipality is busy with work to, or with the supply of material that will be used during the execution of the work by the Mandatory, or otherwise busy with work under the instruction and supervision of the Mandatory, in as far as they may be negligent or fail to do there duty, they will be regarded as employees of the mandatory

(c) All installations, equipment, hoisting-apparatus and other implements, scaffolding, ladders, material, et cetera that are borrowed from the Municipality by the Mandatory for usage during the execution of the work, will be used entirely at the risk of the Mandatory or employees of the Mandatory and the Mandatory herewith indemnifies the Municipality irrevocably and in full against any liability that may arise from such usage.

20. AMENDMENTS MUST BE IN WRITING

The parties agree herewith that this safety agreement is the only safety agreement between them and that no amendment thereof will be valid unless it is in writing and signed by both parties.

21. JURISDICTION AND LEGAL COSTS

In the event of any legal action being instituted pertaining to this agreement the party in default or breach will be liable for the other party's legal costs on the scale as between attorney and own Employer and the parties consent to the jurisdiction of the magistrate's court for purpose of any legal action being instituted.

PARTICULARS OF THE MANDATORY

Name (Mandatory) _____

C.E.O. (Section 16(1)) _____

ID NO _____

Designation _____

Name of Business _____

Address of Business _____

Tel number_____(h)_____(w) e-mail _____

Number of employees employed _____

Registration number as allocated to the Mandatory by the Workman's Compensation Commissioner

Date allocated

Thus done and signed on this_____day of_____ 20

As witnesses:

_____ (Signature) _____ (Name in print)

_____ (Signature) _____ (Name in print)

_____ (Signature) _____ (Name in print)

THE MANDATORY

Thus done and signed on this day of 20

_____

As witnesses:

_____ (Signature) _____ (Name in print)

_____ (Signature) _____ (Name in print)

_____ (Signature) _____ (Name in print)

THE MUNICIPALITY

Acknowledgement of receipt of the agreement:

_____

THE MANDATARY

PART C2: PRICING DATA

TABLE OF CONTENTS

C2.1 Pricing Instructions **122**

C2.2 Schedule of Quantities **124**

C2.1: PRICING INSTRUCTIONS

C2.1.1 Measurement and payment shall be in accordance with Clause 8 of the SANS 1200 Standardised Specifications for Civil Engineering Construction referred to in the Scope of Works, subject to the variations and amendments contained in the section "Applicable SANS 1200 standardised specifications".

C2.1.2 Descriptions in the Bills of Quantities are abbreviated and comply generally with those in the Standardised Specifications. Clause 8 of each Standardised 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 Standardised Specification, or the Scope of Work, conflict with the terms of the Bill, the requirements of the Standardised or Scope of Work, as applicable, shall prevail.

C2.1.3 The clauses in a specification in which further information regarding the Bill item can be obtained appear under "Reference clause" in the Bills of Quantities. The reference clauses indicated are not necessarily the only sources of information in respect of schedule items. Further information and set specifications may be found elsewhere in the contract documents. Standardised Specifications are identified by the letter or letters which follow SANS in the SANS 1200 series of specifications, e.g. G for SANS 1200 G.

C2.1.4 Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance is made for waste.

C2.1.5 The quantities set out in these Bills of Quantities are approximate and do not necessarily represent the actual amount of work to be done. The quantities of work accepted and certified for payment will be used for determining payments due and not the quantities given in the Bills of Quantities.

C2.1.6 The prices and rates to be inserted in the Bills 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. The prices will be used as a basis for assessment of payment for additional work that may have to be carried out.

C2.1.7 It will be assumed that prices included in these Bills of Quantities are based on Acts, Ordinances, Regulations, By-laws, International Standards and National Standards that were published 28 days before the closing date for tenders. (Refer to www.stanza.org or www.iso.org for information on standards).

C2.1.8 Where the Scope of Work requires detailed drawings and designs or other information to be provided, all costs associated therewith are deemed to have been provided for and included in the unit rates and sum amount tendered such items.

C2.1.9 A price or rate is to be entered against each item in the Schedule/Bills of Quantities, whether the quantities are stated or not. An item against which no price is entered will be considered to be covered by the other prices or rates in the Bills of Quantities. A single lump sum will apply should a number of items be grouped together for pricing purposes.

C2.1.10 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.

C2.1.11 The units of measurement described in the Bills of Quantities are metric units. Abbreviations used in the Bills of Quantities are as follows:

ha	=	hectare	h	=	hour
k/	=	kilolitre	kg	=	kilogram
km	=	kilometre	kW	=	kilowatt
Km-pass	=	kilometre pass	MN	=	Mega Newton
kPa	=	kilopascal	MN.m	=	Mega Newton-metre
/	=	litre	%	=	per cent
m	=	metre	PC sum	=	Prime Cost sum
mm	=	millimetre	Prov sum	=	Provisional sum
m^2	=	square metre	No.	=	number
m^2.pass	=	square metre-pass	R/only	=	Rate only
m^3	=	cubic metre	sum	=	lump sum
m^3.km	=	cubic metre-kilometre	t	=	ton (1 000 kg)
MPa	=	Megapascal	W/day	=	Work day

C2.1.12 Those parts of the contract to be constructed using labour-intensive methods have been marked in the Bills of Quantities with the letters LI in a separate column filled in against every item so designated. The works, or parts of the works so designated are to be constructed using labour-intensive methods only. The use of plant to provide such works, other than plant specifically provided for in the scope of work, is a variation to the contract. The items marked with the letters LI are not necessarily an exhaustive list of all the activities which must be done by hand, and this clause does not over-ride any of the requirements in the generic labour intensive specification in the Scope of Works.

C2.1.13 Payment for items which are designated to be constructed labour-intensively (either in this schedule or in the Scope of Works) will not be made unless they are constructed using labour-intensive methods. Any unauthorised use of plant to carry out work which was to be done labour-intensively will not be condoned and any works so constructed will not be certified for payment**.**

C2.2: SCHEDULE OF QUANTITIES

INSERT BOQ & SUMMARY OF BOQ IN HERE
(COMPLETED IN BLACK INK)

SECTION A: PRELIMINARY AND GENERAL **TENDER NO: MHLM/MIG/09/2026/27**

ITEM NO	PAY REF	DESCRIPTION	UNIT	QUANT	RATE	AMOUNT
1	**SANS1200A**	**SCHEDULE 1 PRELIMINARY & GENERAL**				
1.1	**8.3**	**FIXED-CHARGE ITEMS**				
1.1.1	PS1-8 PSAA8.3.1	Contractual requirements	Sum	1		
1.1.2	8.3.2	Establish facilities on site				
1.1.2.1	PS7	Office and equipment for Engineer as and when required	Sum	1	160,000.00	160,000.00
1.1.2.2		Name boards as detailed on **DWG NW404/20/8,7,15/35/9**	No	1		
1.1.2.3		Survey Assistant and equipment	Sum	1		
1.1.3	8.3.2.2	Facilities for Contractor				
1.1.3.1		Office and storage sheds	Sum	1		
1.1.3.2		Living accommodation	Sum	1		
1.1.3.3		Ablution facilities	Sum	1		
1.1.3.4		Tools and equipment	Sum	1		
1.1.3.5		Water, electricity power and communication	Sum	1		
1.1.3.6	8.3.3	Other fixed-charge obligations	Sum	1		
1.1.3.7	8.3.4	Remove Contractor's site establishment on completion	Sum	1		
1.1.3.8		Survey (Ground control)	Sum	1	150,000.00	150,000.00
1.2		**TIME RELATED ITEMS**				
1.2.1	8.4.1	Contractual requirements	Sum	1		
1.2.2	8.4.2	Operate and maintain facilities on site for the Engineer and the Contractor	Sum	1	175,000.00	175,000.00
1.2.3	8.4.3	Supervision	Sum	1		
1.2.4	8.4.4	Company and head office overhead cost for the duration of the contract	Sum	1		
1.2.5	8.4.5	Other time related items	Sum	1		
		CARRIED TO NEXT PAGE				

Client	Witness 1	Witness 2	Contractor	Witness 1	Witness 2

SECTION A: PRELIMINARY AND GENERAL **TENDER NO: MHLM/MIG/09/2026/27**

ITEM NO	PAY REF	DESCRIPTION	UNIT	QUANT	RATE	AMOUNT
1	SANS1200A	**SCHEDULE 1** **PRELIMINARY & GENERAL**	**BROUGHT FORWARD**			
1.3	**8.5**	**SUMS STATED PROVISIONALLY BY ENGINEER**				
1.3.1		Training and capacity building	Sum	1		
1.3.2		Community involvement, PSC payment	Sum	1	180,000.00	180,000.00
1.3.3		Adherence to the Health & Safety Specifications	Sum	1		
1.4		**Testing and commisioning** All testing and commisiong to be done to satisfaction of Engineer. Pricing to include the use of approved methods and laboratory by Engineer. All prices to include approved plant, equiptment, materials and specialist calibrated equiptment with certificates where required. Picing to include all labour, supervision.				
1.4.1.A		Testing of earthworks: Layerworks, bedding, blanket and backfilling	Sum	1	60,000.00	60,000.00
1.4.1.B		Testing of pressure pipeline.	Sum	1	90,000.00	90,000.00
		TOTAL CARRIED TO SUMMARY PAGE				

Client	Witness 1	Witness 2	Contractor	Witness 1	Witness 2

SECTION B: BULK WATER SUPPLY TO WOLMARANSSTAD EXT 17-19 **TENDER NO: MHLM/MIG/09/2026/27**

ITEM NO	PAY REF	DESCRIPTION	UNIT	QUANT	RATE	AMOUNT
2	**SANS 1200DB**	**SCHEDULE 2: WATER PIPE TRENCHES**				
2.1	**PSC**	**SITE CLEARANCE**				
2.1.1	8.3.1(a)	Clear vegetation 2m wide and trees of girth up to 1 m	m	2800		Rate Only
2.1.2	8.3.1(b)	Clear trees of girth over 2m up to 3m	No	4		Rate Only
2.2	**PSDB**	**EXCAVATIONS**				
	8.3.2(a)	**Machine excavate** in all materials for trenches backfill, compact and dispose of surplus and unsuitable materials within the free haul distance for:				
2.2.1		for up to 400mm dia uPVC pipes for depth of:				
2.2.1.1		0 m up to 1,1 m	m	2800		Rate Only
2.2.1.2		1,1 m up to 2,0 m	m	10		Rate Only
	8.3.2(a)	**Hand excavate** in all materials for trenches backfill, compact and dispose of surplus and unsuitable materials within the free haul distance for:				
2.2.2		for up to 400mm dia uPVC pipes for depth of:				
2.2.2.1		0 m up to 1,1 m	m	2800		Rate Only
2.2.2.2		1,1 m up to 2,0 m	m	1		Rate Only
2.2.3	8.3.2(b)	Extra over items 2.2.1 and 2.2.2 for excavation in hard rock material. Rate shall include the spoiling of unsuitable hard rock material within free haul distance	m3	246		Rate Only
2.2.4	8.3.2('c)	Excavate unsuitable material from the trench bottom and dispose within the free haul distance	m3	25		Rate Only
2.2.5	**8.3.3.1**	**Make up Deficiency of Backfill Material**				
2.2.5.1	DB 8.3.3.1.a	Make up deficiency in **backfill material** due to spoiling of surplus / unsuitable and / or rock material from **other necessary excavations** within free haul distance (compaction of this material measured under Items 6.2.1 - 6.2.7).	m3	246		Rate Only
2.2.5.2	8.3.3.1.b	Make up deficiency in **backfill material** due to spoiling of surplus / unsuitable and / or rock material by **importation from designated borrow pits** within free haul distance (compaction of this material measured under Items 6.2.1 - 6.2.7).	m3	25		Rate Only
		CARRIED TO NEXT PAGE				

Client	Witness 1	Witness 2	Contractor	Witness 1	Witness 2

SECTION B: BULK WATER SUPPLY TO WOLMARANSSTAD EXT 17-19 **TENDER NO: MHLM/MIG/09/2026/27**

ITEM NO	PAY REF	DESCRIPTION	UNIT	QUANT	RATE	AMOUNT
2	**SANS 1200LB**	**SCHEDULE 2: WATER PIPE TRENCHES**	**BROUGHT FORWARD**			
2.3	**SANS LB**	**BEDDING PIPES**				
	8.2.1	Provision of bedding material to position adjacent to placing position alongside trench for provision from trenches excavated **by machine**: **see DWG NW404/20/8,7,15/35/6**				
2.3.1	PSLB3	**Selected granular** material for bedding Class B, placed and compacted	m3	85		Rate Only
2.3.2	PSLB3	**Selected fill** material for blanket as specified for A, B and C bedding and compacted see **DWG NW404/20/8,7,15/35/6**	m3	198		Rate Only
	8.2.2	Provision of bedding material to position adjacent to placing position alongside trench for provision from trenches excavated **by machine from borrow pits** designated:				
2.3.3		**Selected granular** material for bedding Class B, placed and compacted	m3	284		Rate Only
2.3.4		**Selected fill** material for blanket as specified for A, B and C bedding placed and compacted	m3	662		Rate Only
	8.2.3	Provision of bedding and covering **from commercial sources**:				
2.3.5		**Selected granular** material for bedding Class B, placed and compacted	m3	284		Rate Only
2.3.6		**Selected fill** material for blanket as specified for A, B and C bedding placed and compacted	m3	662		Rate Only
2.3.7		19mm Stones to be used for bedding if requested by the Engineer's representative in the site instruction book. Item shall cover the cost of acquiring material regardless of the distance, delivering to points alongside the trenches, and the disposal of material displaced by such importation	m3	115		Rate Only
2.3.8	8.2.4 PSLD2	Encasement of pipes with 15MPa concrete if requested by the Engineer	m3	3		Rate Only
2.3.9	DB 8.3.3.2	Opening up and closing down designated borrow pit if new material source is requested by the Engineer's representative, rate shall include the managing of overburden	Sum	1	15,000.00	Rate Only
2.4	SANS A 8.8.6	Provisional sum covering all activities related to the control of abnormal circumstances of ground water activity which in the opinion of the Engineer and/or his representative may hinder the work activities on a specified area of the site. Refer to SANS 1200A Item 5.5. Dates, places and nature of occurrences shall be recorded in the site instruction book and forwarded with the relevant certificates	Sum	1	7,500.00	Rate Only
		CARRIED TO NEXT PAGE				

Client	Witness 1	Witness 2	Contractor	Witness 1	Witness 2

SECTION B: BULK WATER SUPPLY TO WOLMARANSSTAD EXT 17-19 **TENDER NO: MHLM/MIG/09/2026/27**

ITEM NO	PAY REF	DESCRIPTION	UNIT	QUANT	RATE	AMOUNT
2	**SANS**	**SCHEDULE 2: WATER PIPE TRENCHES**	**BROUGHT FORWARD**			
2.5	**SANS DB**	**EXISTING SERVICES**				
	8.3.5 PS8.1	(Provisional) Excavate by hand services that **intersect** a trench and provide permanent or temporary protection: see **DWG NW404/20/8,7,15/35/6** for typical crossings				
2.5.1		Main Water pipes	No	3		Rate Only
2.5.2		Main bulk supply lines	No	1		Rate Only
2.5.3		Sewer pipes	No	3		Rate Only
2.5.4		Stormwater channel	No	1		Rate Only
2.5.5		Electrical cables	No	1		Rate Only
2.5.6		Telkom Office cables	No	1		Rate Only
2.5.7		Tar Roads - Surface to be replaced to original state and layer work measured elsewhere	No	1		Rate Only
2.5.8		Other services not specified	No	5		Rate Only
		Services that **adjoin** trenches (excavate by hand and provide permanent or temporary protection):				
2.5.9		All services	m3	5		Rate Only
2.6	**8.3.6**	**SURFACE FINISHING**				
2.6.1	8.3.6.1.a	Reinstate gravel roads areas with all existing layer works and compacted to 98% Mod AASHTO back to original conditions. Including the importation of material from the designated borrow pits if necessary	m3	10		Rate Only
		TOTAL CARRIED TO SUMMARY PAGE				

Client	Witness 1	Witness 2	Contractor	Witness 1	Witness 2

SECTION B: BULK WATER SUPPLY TO WOLMARANSSTAD EXT 17-19 **TENDER NO: MHLM/MIG/09/2026/27**

ITEM NO	PAY REF	DESCRIPTION	UNIT	QUANT	RATE	AMOUNT
3	**SANS 1200L**	**SCHEDULE 3: WATER MAINS**				
3.1	**8.2.1**	**WATER PIPES** Supply, laying, handle and jointing on bed Class B, bedding, transport, inspect, cut pipes where necessary, test and disinfect various water pipes of the following sizes and types: Cutting of pipes and the supplying and fixing of extra coupling if required must be included in 3.1.1				
3.1.1		75 mm dia PN10 HDPE SDR 17 pipes	m	2800		Rate Only
3.2	**8.2.2**	**BENDS AND TEES** Extra-over 3.1.1 for the Supplying, cutting, laying, and Bedding of Specials Complete with Couplings				
3.2.1		75 mm x 90 degree	No	5		Rate Only
3.2.2		75 mm x 45 degree	No	3		Rate Only
3.2.3		75 mm x 22,5 degree	No	5		Rate Only
3.2.4		75 mm x 11,25 degree	No	1		Rate Only
3.2.1		**TEES**				
3.2.1.1		75 mm x 75mm equal	No	2		Rate Only
3.3		**TAPS**				
3.3.1		Supply, transport, excavate and install new communal stand tap on main connection as detailed on **DWG NW404/20/8,7,15/35/7**	No	6		Rate Only
3.4		**ELEVATED TANK**				
3.4.1		10000 litre Plastic water tank on a 6 m stand, including all fittings and foundations as per **DWG** NW404/20/8,7,15/35/7 or suppliers spesifications	No	6		Rate Only
3.5	**8.3.8** PSL5.1.3 PSL5.1.4	**CONNECTION TO EXISTING PIPELINES:**				
3.5.1		Excavate in all materials to locate existing pipelines, (transport, supply and install, complete cut and join with necessary Cast Iron fittings to existing pipe measured under Item 3.1)	No	2		Rate Only
3.6	**8.2.11**	**ANCILLARY ITEMS**				
3.6.1	8.2.11	Anchor thrust blocks and pedestals using mass concrete of a mix of 15 Mpa strength	m3	3		Rate Only
		TOTAL CARRIED TO SUMMARY PAGE				

Client	Witness 1	Witness 2	Contractor	Witness 1	Witness 2

SECTION B: BULK WATER SUPPLY TO WOLMARANSSTAD EXT 17-19 **TENDER NO: MHLM/MIG/09/2026/27**

ITEM NO	PAY REF	DESCRIPTION	UNIT	QUANT	RATE	AMOUNT
4	**SANS 1200**	**SCHEDULE 4: BOREHOLE ESTABLISHMENT**				
4.1		**Provisional Sum for Specialist**				
4.1.1		Appointment of Specialist Geohydrological Inspection, cleaning /development, verification testing, aquifer re-testing where instructed, ground water analysis, CCTV inspection where required , interpretation and reporting , all by a specialist contractor nominated by the Engineer	Prov Sum	1	360,000.00	360,000.00
4.1.2		Provide General attendance, coordination , acess, liaison and assistance to the nominated specialist Geohydrological contactor, including the contractors' overheads and profit applicable to the specialist	%			
4.2		**Provisional Sum for Chemical Treatment**				
4.2.1		Appointment of Specialist for chemical treatment , for the complete supply, installation and commissioning of chemical treatment of borehole water All shall be expended only upon written instruction by the Engineer and adjusted to the actual approved cost of the nominated specialist contractor. All by a specialist contractor nominated by the Engineer	PC Sum	1	2,188,300.00	Rate Only
4.2.2		Provide General attendance, coordination , acess, liaison and assistance to the nominated specialist chemical dosing contactor, including the contractors' overheads and profit applicable to the specialist	%			Rate Only
		TOTAL CARRIED TO SUMMARY PAGE				

SECTION B: BULK WATER SUPPLY TO WOLMARANSSTAD EXT 17-19 **TENDER NO: MHLM/MIG/09/2026/27**

ITEM NO	PAY REF	DESCRIPTION	UNIT	QUANT	RATE	AMOUNT
Client	**Witness 1**	**Witness 2** **Contractor**	**Witness 1**		**Witness 2**	
5	**SANS 1200**	**SCHEDULE 5: BOREHOLE EQUIPPING**				
5.1		Supply, transport and construct complete 2,4m fencing including acess gate as detailed on **DWG NW404/20/8,7,15/35/8** around pump houses				
5.1.2		New pump house	m	100		Rate Only
5.2		Supply, transport and Construction of new concrete pump houses as **detailed on DWG NW404/20/8,7,15/35/8**	No	4		Rate Only
5.3		**Provisional Sum for Equipping of Boreholes**				
5.2.1		Appointment of suitably qualified specialist borehole equipping contract for the complete supply, installation and commissioning of permanent pumping equipment and all associated mechanical, electrical, control and borehole headworks required for the equipping of boreholes . including all fittings, accessories, cabling, protection equipment, controls, flow measurement, testing, commissioning, documentation and all imcidental work necessary for complete and operational installation Pump selection, duty and installation depth shall be subject to approval by the Engineer prior to procurement. All shall be expended only upon written instruction by the Engineer and adjusted to the actual approved cost of the nominated specialist contractor. All by a specialist contractor nominated by the Engineer	PC Sum	1	880,000.00	Rate Only
5.2.2		Provide General attendance, coordination , acess, liaison and assistance to the nominated borehole equipping contractor, including the contractors oveheads and profit applicable to the specialist	%			Rate Only
5.3		**Provisional Sum for Solar Supply to Boreholes**				
5.3.1		Appointment of suitably qualified contractor for the complete design , supply , installation and commissioning of solar power systems, including solar PV panels, support Frames/structures, Solar pump controllers and /or inverters, MCC/control panels, isolators, protection equipment, cabling, earthing, lightning protection, all associated electrical accessories and all incidental work necessary for a complete installation Each system shall be sized to suit the approved borehole pump duty and operating requirements and shall be subject to approval by the Engineer proir to procurement All shall be expended only upon written instruction by the Engineer and adjusted to the actual approved cost of the nominated specialist contractor. All by a specialist contractor nominated by the Engineer	PC Sum	1	560,000.00	Rate Only
5.3.2		Provide General attendance, coordination , acess, liaison and assistance to the nominated solar supply contractor, including the contractors oveheads and profit applicable to the specialist	%			Rate Only
		TOTAL CARRIED TO SUMMARY PAGE				

SECTION C: BULK WATER SUPPLY TO LEBALENG **TENDER NO: MHLM/MIG/09/2026/27**

ITEM NO	PAY REF	DESCRIPTION	UNIT	QUANT	RATE	AMOUNT
2	**SANS 1200DB**	**SCHEDULE 2: WATER PIPE TRENCHES**				
2.1	**PSC**	**SITE CLEARANCE**				
2.1.1	8.3.1(a)	Clear vegetation 2m wide and trees of girth up to 1 m	m	3000		
2.1.2	8.3.1(b)	Clear trees of girth over 2m up to 3m	No	2		
2.2	**PSDB**	**EXCAVATIONS**				
	8.3.2(a)	**Machine excavate** in all materials for trenches backfill, compact and dispose of surplus and unsuitable materials within the free haul distance for:				
2.2.1		for up to 400mm dia uPVC pipes for depth of:				
2.2.1.1		0 m up to 1,1 m	m	3000		
2.2.1.2		1,1 m up to 2,0 m	m	10		Rate Only
	8.3.2(a)	**Hand excavate** in all materials for trenches backfill, compact and dispose of surplus and unsuitable materials within the free haul distance for:				
2.2.2		for up to 400mm dia uPVC pipes for depth of:				
2.2.2.1		0 m up to 1,1 m	m	3000		Rate Only
2.2.2.2		1,1 m up to 2,0 m	m	1		Rate Only
2.2.3	8.3.2(b)	Extra over items 2.2.1 and 2.2.2 for excavation in hard rock material. Rate shall include the spoiling of unsuitable hard rock material within free haul distance	m3	263		
2.2.4	8.3.2('c)	Excavate unsuitable material from the trench bottom and dispose within the free haul distance	m3	26		
2.2.5	**8.3.3.1**	**Make up Deficiency of Backfill Material**				
2.2.5.1	DB 8.3.3.1.a	Make up deficiency in **backfill material** due to spoiling of surplus / unsuitable and / or rock material from **other necessary excavations** within free haul distance (compaction of this material measured under Items 6.2.1 - 6.2.7).	m3	263		
2.2.5.2	8.3.3.1.b	Make up deficiency in **backfill material** due to spoiling of surplus / unsuitable and / or rock material by **importation from designated borrow pits** within free haul distance (compaction of this material measured under Items 6.2.1 - 6.2.7).	m3	26		
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Client	Witness 1	Witness 2	Contractor	Witness 1	Witness 2

SECTION C: BULK WATER SUPPLY TO LEBALENG **TENDER NO: MHLM/MIG/09/2026/27**

ITEM NO	PAY REF	DESCRIPTION	UNIT	QUANT	RATE	AMOUNT
2	**SANS 1200LB**	**SCHEDULE 2: WATER PIPE TRENCHES**	**BROUGHT FORWARD**			
2.3	**SANS LB**	**BEDDING PIPES**				
	8.2.1	Provision of bedding material to position adjacent to placing position alongside trench for provision from trenches excavated **by machine**: **see DWG NW404/20/8,7,15/35/6**				
2.3.1	PSLB3	**Selected granular** material for bedding Class B, placed and compacted	m3	91		
2.3.2	PSLB3	**Selected fill** material for blanket as specified for A, B and C bedding and compacted see **DWG NW404/20/8,7,15/35/6**	m3	213		
	8.2.2	Provision of bedding material to position adjacent to placing position alongside trench for provision from trenches excavated **by machine from borrow pits** designated:				
2.3.3		**Selected granular** material for bedding Class B, placed and compacted	m3	304		
2.3.4		**Selected fill** material for blanket as specified for A, B and C bedding placed and compacted	m3	709		
	8.2.3	Provision of bedding and covering **from commercial sources**:				
2.3.5		**Selected granular** material for bedding Class B, placed and compacted	m3	304		Rate Only
2.3.6		**Selected fill** material for blanket as specified for A, B and C bedding placed and compacted	m3	709		Rate Only
2.3.7		19mm Stones to be used for bedding if requested by the Engineer's representative in the site instruction book. Item shall cover the cost of acquiring material regardless of the distance, delivering to points alongside the trenches, and the disposal of material displaced by such importation	m3	115		Rate Only
2.3.8	8.2.4 PSLD2	Encasement of pipes with 15MPa concrete if requested by the Engineer	m3	3		Rate Only
2.3.9	DB 8.3.3.2	Opening up and closing down designated borrow pit if new material source is requested by the Engineer's representative, rate shall include the managing of overburden	Sum	1	15,000.00	15,000.00
2.4	SANS A 8.8.6	Provisional sum covering all activities related to the control of abnormal circumstances of ground water activity which in the opinion of the Engineer and/or his representative may hinder the work activities on a specified area of the site. Refer to SANS 1200A Item 5.5. Dates, places and nature of occurrences shall be recorded in the site instruction book and forwarded with the relevant certificates	Sum	1	7,500.00	7,500.00
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Client	Witness 1	Witness 2	Contractor	Witness 1	Witness 2

SECTION C: BULK WATER SUPPLY TO LEBALENG **TENDER NO: MHLM/MIG/09/2026/27**

ITEM NO	PAY REF	DESCRIPTION	UNIT	QUANT	RATE	AMOUNT
2	**SANS**	**SCHEDULE 2: WATER PIPE TRENCHES**	**BROUGHT FORWARD**			
2.5	**SANS DB**	**EXISTING SERVICES**				
	8.3.5 PS8.1	(Provisional) Excavate by hand services that **intersect** a trench and provide permanent or temporary protection: see **DWG NW404/20/8,7,15/35/6** for typical crossings				
2.5.1		Main Water pipes (100mm up to 1500mm)	No	1		
2.5.2		Main bulk supply lines	No	1		Rate Only
2.5.3		Sewer pipes	No	1		
2.5.4		Stormwater channel	No	1		
2.5.5		Electrical cables	No	1		Rate Only
2.5.6		Telkom Office cables	No	1		Rate Only
2.5.7		Tar Roads - Surface to be replaced to original state and layer work measured elsewhere	No	1		Rate Only
2.5.8		Other services not specified	No	5		Rate Only
		Services that **adjoin** trenches (excavate by hand and provide permanent or temporary protection):				
2.5.9		All services	m3	5		
2.6	**8.3.6**	**SURFACE FINISHING**				
2.6.1	8.3.6.1.a	Reinstate gravel roads areas with all existing layer works and compacted to 98% Mod AASHTO back to original conditions. Including the importation of material from the designated borrow pits if necessary	m3	15		
		TOTAL CARRIED TO SUMMARY PAGE				

Client	Witness 1	Witness 2	Contractor	Witness 1	Witness 2

SECTION C: BULK WATER SUPPLY TO LEBALENG **TENDER NO: MHLM/MIG/09/2026/27**

ITEM NO	PAY REF	DESCRIPTION	UNIT	QUANT	RATE	AMOUNT
3	**SANS 1200L**	**SCHEDULE 3: WATER MAINS**				
3.1	**8.2.1**	**WATER PIPES** Supply, laying, handle and jointing on bed Class B, bedding, transport, inspect, cut pipes where necessary, test and disinfect various water pipes of the following sizes and types: Cutting of pipes and the supplying and fixing of extra coupling if required must be included in 3.1.1				
3.1.1		75 mm dia PN10 HDPE SDR 17 pipes	m	3000		
3.2	**8.2.2**	**BENDS AND TEES** Extra-over 3.1.1 for the Supplying, cutting, laying, and Bedding of Specials Complete with Couplings				
3.2.1		75 mm x 90 degree	No	7		
3.2.2		75 mm x 45 degree	No	3		
3.2.3		75 mm x 22,5 degree	No	1		
3.2.4		75 mm x 11,25 degree	No	1		
3.2.1		**TEES**				
3.2.1.1		75 mm x 75mm equal	No	2		
3.3		**TAPS**				
3.3.1		Supply, transport, excavate and install new communal stand tap on main connection as detailed on **DWG NW404/20/8,7,15/35/7**	No	8		
3.4		**ELEVATED TANK**				
3.4.1		10000 litre Plastic water tank on a 6 m stand, including all fittings and foundations as per **DWG** DWG NW404/20/8,7,15/35/7 or suppliers spesifications	No	8		
3.5	**8.3.8** PSL5.1.3 PSL5.1.4	**CONNECTION TO EXISTING PIPELINES:**				
3.5.1		Excavate in all materials to locate existing pipelines, (transport, supply and install, complete cut and join with necessary Cast Iron fittings to existing pipe measured under Item 3.1)	No	5		
3.6	**8.2.11**	**ANCILLARY ITEMS**				
3.6.1	8.2.11	Anchor thrust blocks and pedestals using mass concrete of a mix of 15 Mpa strength	m3	6		
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Client	Witness 1	Witness 2	Contractor	Witness 1	Witness 2

SECTION C: BULK WATER SUPPLY TO LEBALENG **TENDER NO: MHLM/MIG/09/2026/27**

ITEM NO	PAY REF	DESCRIPTION	UNIT	QUANT	RATE	AMOUNT
4	**SANS 1200**	**SCHEDULE 4: BOREHOLE ESTABLISHMENT**				
4.1		**Provisional Sum for Specialist**				
4.1.1		Appointment of Specialist Geohydrological Inspection, cleaning /development, verification testing, aquifer re-testing where instructed, ground water analysis, CCTV inspection where required , interpretation and reporting , all by a specialist contractor nominated by the Engineer	Prov Sum	1	270,000.00	270,000.00
4.1.2		Provide General attendance, coordination , acess, liaison and assistance to the nominated specialist Geohydrological contactor, including the contractors' overheads and profit applicable to the specialist	%			
4.2		**Provisional Sum for Chemical Treatment**				
4.2.1		Appointment of Specialist for chemical treatment , for the complete supply, installation and commissioning of chemical treatment of borehole water All shall be expended only upon written instruction by the Engineer and adjusted to the actual approved cost of the nominated specialist contractor. All by a specialist contractor nominated by the Engineer	PC Sum	1	2,654,210.90	2,654,210.90
4.2.2		Provide General attendance, coordination , acess, liaison and assistance to the nominated specialist chemical dosing contactor, including the contractors' overheads and profit applicable to the specialist	%			
		TOTAL CARRIED TO SUMMARY PAGE				

Client	Witness 1	Witness 2	Contractor	Witness 1	Witness 2

SECTION C: BULK WATER SUPPLY TO LEBALENG **TENDER NO: MHLM/MIG/09/2026/27**

ITEM NO	PAY REF	DESCRIPTION	UNIT	QUANT	RATE	AMOUNT
5	**SANS 1200**	**SCHEDULE 5: BOREHOLE EQUIPPING**				
5.1		Supply, transport and construct complete 2,4m fencing including acess gate as detailed on **DWG NW404/20/8,7,15/35/8** around pump houses				
5.1.2		New pump house	m	75		
5.2		Supply, transport and Construction of new concrete pump houses as **detailed on DWG NW404/20/8,7,15/35/8**	No	3		
5.3		**Provisional Sum for Equipping of Boreholes**				
5.2.1		Appointment of suitably qualified specialist borehole equipping contract for the complete supply, installation and commissioning of permanent pumping equipment and all associated mechanical, electrical, control and borehole headworks required for the equipping of boreholes . including all fittings, accessories, cabling, protection equipment, controls, flow measurement, testing, commissioning, documentation and all imcidental work necessary for complete and operational installation Pump selection, duty and installation depth shall be subject to approval by the Engineer prior to procurement. All shall be expended only upon written instruction by the Engineer and adjusted to the actual approved cost of the nominated specialist contractor. All by a specialist contractor nominated by the Engineer	PC Sum	1	660,000.00	660,000.00
5.2.2		Provide General attendance, coordination , acess, liaison and assistance to the nominated borehole equipping contractor, including the contractors oveheads and profit applicable to the specialist	%			
5.3		**Provisional Sum for Solar Supply to Boreholes**				
5.3.1		Appointment of suitably qualified contractor for the complete design , supply , installation and commissioning of solar power systems, including solar PV panels, support Frames/structures, Solar pump controllers and /or inverters, MCC/control panels, isolators, protection equipment, cabling, earthing, lightning protection, all associated electrical accessories and all incidental work necessary for a complete installation Each system shall be sized to suit the approved borehole pump duty and operating requirements and shall be subject to approval by the Engineer proir to procurement All shall be expended only upon written instruction by the Engineer and adjusted to the actual approved cost of the nominated specialist contractor. All by a specialist contractor nominated by the Engineer	PC Sum	1	420,000.00	420,000.00
5.3.2		Provide General attendance, coordination , acess, liaison and assistance to the nominated solar supply contractor, including the contractors oveheads and profit applicable to the specialist	%			
		TOTAL CARRIED TO SUMMARY PAGE				

Client	Witness 1	Witness 2	Contractor	Witness 1	Witness 2

SECTION D: BULK WATER SUPPLY TO KGAKALA **TENDER NO: MHLM/MIG/09/2026/27**

ITEM NO	PAY REF	DESCRIPTION	UNIT	QUANT	RATE	AMOUNT
2	**SANS 1200DB**	**SCHEDULE 2: WATER PIPE TRENCHES**				
2.1	**PSC**	**SITE CLEARANCE**				
2.1.1	8.3.1(a)	Clear vegetation 2m wide and trees of girth up to 1 m	m	3500		
2.1.2	8.3.1(b)	Clear trees of girth over 2m up to 3m	No	2		
2.2	**PSDB**	**EXCAVATIONS**				
	8.3.2(a)	**Machine excavate** in all materials for trenches backfill, compact and dispose of surplus and unsuitable materials within the free haul distance for:				
2.2.1		for up to 400mm dia uPVC pipes for depth of:				
2.2.1.1		0 m up to 1,1 m	m	3500		
2.2.1.2		1,1 m up to 2,0 m	m	10		Rate Only
	8.3.2(a)	**Hand excavate** in all materials for trenches backfill, compact and dispose of surplus and unsuitable materials within the free haul distance for:				
2.2.2		for up to 400mm dia uPVC pipes for depth of:				
2.2.2.1		0 m up to 1,1 m	m	3500		Rate Only
2.2.2.2		1,1 m up to 2,0 m	m	1		Rate Only
2.2.3	8.3.2(b)	Extra over items 2.2.1 and 2.2.2 for excavation in hard rock material. Rate shall include the spoiling of unsuitable hard rock material within free haul distance	m3	307		
2.2.4	8.3.2('c)	Excavate unsuitable material from the trench bottom and dispose within the free haul distance	m3	31		
2.2.5	**8.3.3.1**	**Make up Deficiency of Backfill Material**				
2.2.5.1	DB 8.3.3.1.a	Make up deficiency in **backfill material** due to spoiling of surplus / unsuitable and / or rock material from **other necessary excavations** within free haul distance (compaction of this material measured under Items 6.2.1 - 6.2.7).	m3	307		
2.2.5.2	8.3.3.1.b	Make up deficiency in **backfill material** due to spoiling of surplus / unsuitable and / or rock material by **importation from designated borrow pits** within free haul distance (compaction of this material measured under Items 6.2.1 - 6.2.7).	m3	31		
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Client	Witness 1	Witness 2	Contractor	Witness 1	Witness 2

SECTION D: BULK WATER SUPPLY TO KGAKALA **TENDER NO: MHLM/MIG/09/2026/27**

ITEM NO	PAY REF	DESCRIPTION	UNIT	QUANT	RATE	AMOUNT
2	**SANS 1200LB**	**SCHEDULE 2: WATER PIPE TRENCHES**	**BROUGHT FORWARD**			
2.3	**SANS LB**	**BEDDING PIPES**				
	8.2.1	Provision of bedding material to position adjacent to placing position alongside trench for provision from trenches excavated **by machine**: **see DWG NW404/20/8,7,15/35/6**				
2.3.1	PSLB3	**Selected granular** material for bedding Class B, placed and compacted	m3	106		
2.3.2	PSLB3	**Selected fill** material for blanket as specified for A, B and C bedding and compacted see **DWG NW404/20/8,7,15/35/6**	m3	248		
	8.2.2	Provision of bedding material to position adjacent to placing position alongside trench for provision from trenches excavated **by machine from borrow pits** designated:				
2.3.3		**Selected granular** material for bedding Class B, placed and compacted	m3	354		
2.3.4		**Selected fill** material for blanket as specified for A, B and C bedding placed and compacted	m3	827		
	8.2.3	Provision of bedding and covering **from commercial sources**:				
2.3.5		**Selected granular** material for bedding Class B, placed and compacted	m3	354		Rate Only
2.3.6		**Selected fill** material for blanket as specified for A, B and C bedding placed and compacted	m3	827		Rate Only
2.3.7		19mm Stones to be used for bedding if requested by the Engineer's representative in the site instruction book. Item shall cover the cost of acquiring material regardless of the distance, delivering to points alongside the trenches, and the disposal of material displaced by such importation	m3	115		Rate Only
2.3.8	8.2.4 PSLD2	Encasement of pipes with 15MPa concrete if requested by the Engineer	m3	3		Rate Only
2.3.9	DB 8.3.3.2	Opening up and closing down designated borrow pit if new material source is requested by the Engineer's representative, rate shall include the managing of overburden	Sum	1	15,000.00	15,000.00
2.4	SANS A 8.8.6	Provisional sum covering all activities related to the control of abnormal circumstances of ground water activity which in the opinion of the Engineer and/or his representative may hinder the work activities on a specified area of the site. Refer to SANS 1200A Item 5.5. Dates, places and nature of occurrences shall be recorded in the site instruction book and forwarded with the relevant certificates	Sum	1	7,500.00	7,500.00
		CARRIED TO NEXT PAGE				

Client	Witness 1	Witness 2	Contractor	Witness 1	Witness 2

SECTION D: BULK WATER SUPPLY TO KGAKALA **TENDER NO: MHLM/MIG/09/2026/27**

ITEM NO	PAY REF	DESCRIPTION	UNIT	QUANT	RATE	AMOUNT
2	**SANS**	**SCHEDULE 2: WATER PIPE TRENCHES**	**BROUGHT FORWARD**			
2.5	**SANS DB**	**EXISTING SERVICES**				
	8.3.5 PS8.1	(Provisional) Excavate by hand services that **intersect** a trench and provide permanent or temporary protection: see **DWG NW404/20/8,7,15/35/6** for typical crossings				
2.5.1		Main Water pipes (100mm up to 1500mm)	No	1		Rate Only
2.5.2		Main bulk supply lines	No	1		Rate Only
2.5.3		Sewer pipes	No	1		Rate Only
2.5.4		Stormwater channel	No	1		
2.5.5		Electrical cables	No	1		Rate Only
2.5.6		Telkom Office cables	No	1		Rate Only
2.5.7		Tar Roads - Surface to be replaced to original state and layer work measured elsewhere	No	1		Rate Only
2.5.8		Other services not specified	No	5		Rate Only
		Services that **adjoin** trenches (excavate by hand and provide permanent or temporary protection):				
2.5.9		All services	m3	5		
2.6	**8.3.6**	**SURFACE FINISHING**				
2.6.1	8.3.6.1.a	Reinstate gravel roads areas with all existing layer works and compacted to 98% Mod AASHTO back to original conditions. Including the importation of material from the designated borrow pits if necessary	m3	15		
		TOTAL CARRIED TO SUMMARY PAGE				

Client	Witness 1	Witness 2	Contractor	Witness 1	Witness 2

SECTION D: BULK WATER SUPPLY TO KGAKALA **TENDER NO: MHLM/MIG/09/2026/27**

ITEM NO	PAY REF	DESCRIPTION	UNIT	QUANT	RATE	AMOUNT
3	**SANS 1200L**	**SCHEDULE 3: WATER MAINS**				
3.1	**8.2.1**	**WATER PIPES** Supply, laying, handle and jointing on bed Class B, bedding, transport, inspect, cut pipes where necessary, test and disinfect various water pipes of the following sizes and types: Cutting of pipes and the supplying and fixing of extra coupling if required must be included in 3.1.1				
3.1.1		75 mm dia PN10 HDPE SDR 17 pipes	m	3500		
3.2	**8.2.2**	**BENDS AND TEES** Extra-over 3.1.1 for the Supplying, cutting, laying, and Bedding of Specials Complete with Couplings				
3.2.1		75 mm x 90 degree	No	6		
3.2.2		75 mm x 45 degree	No	2		
3.2.3		75 mm x 22,5 degree	No	3		
3.2.4		75 mm x 11,25 degree	No	1		
3.2.1		**TEES**				
3.2.1.1		75 mm x 75mm equal	No	4		
3.3		**TAPS**				
3.3.1		Supply, transport, excavate and install new communal stand tap on main connection as detailed on **DWG NW404/20/8,7,15/35/7**	No	12		
3.4		**ELEVATED TANK**				
3.4.1		10000 litre Plastic water tank on a 6 m stand, including all fittings and foundations as per **DWG NW404/20/8,7,15/35/7** or suppliers spesifications	No	2		
3.4.1		20000 litre Plastic water tank on a 6 m stand, including all fittings and foundations as per **DWG NW404/20/8,7,15/35/7** or suppliers spesifications	No	5		
3.5	**8.3.8** PSL5.1.3 PSL5.1.4	**CONNECTION TO EXISTING PIPELINES:**				
3.5.1		Excavate in all materials to locate existing pipelines, (transport, supply and install, complete cut and join with necessary Cast Iron fittings to existing pipe measured under Item 3.1)	No	6		
3.6	**8.2.11**	**ANCILLARY ITEMS**				
3.6.1	8.2.11	Anchor thrust blocks and pedestals using mass concrete of a mix of 15 Mpa strength	m3	8		
		CARRIED TO NEXT PAGE				

Client	Witness 1	Witness 2	Contractor	Witness 1	Witness 2

SECTION D: BULK WATER SUPPLY TO KGAKALA **TENDER NO: MHLM/MIG/09/2026/27**

ITEM NO	PAY REF	DESCRIPTION	UNIT	QUANT	RATE	AMOUNT
4	**SANS 1200**	**SCHEDULE 4: BOREHOLE ESTABLISHMENT**				
4.1		**Provisional Sum for Specialist**				
4.1.1		Appointment of Specialist Geohydrological Inspection, cleaning /development, verification testing, aquifer re-testing where instructed, ground water analysis, CCTV inspection where required , interpretation and reporting , all by a specialist contractor nominated by the Engineer	Prov Sum	1	270,000.00	270,000.00
4.1.2		Provide General attendance, coordination , acess, liaison and assistance to the nominated specialist Geohydrological contactor, including the contractors' overheads and profit applicable to the specialist	%			
4.2		**Provisional Sum for Chemical Treatment**				
4.2.1		Appointment of Specialist for chemical treatment , for the complete supply, installation and commissioning of chemical treatment of borehole water All shall be expended only upon written instruction by the Engineer and adjusted to the actual approved cost of the nominated specialist contractor. All by a specialist contractor nominated by the Engineer	PC Sum	1	2,210,572.34	2,210,572.34
4.2.2		Provide General attendance, coordination , acess, liaison and assistance to the nominated specialist chemical dosing contactor, including the contractors' overheads and profit applicable to the specialist	%			
		TOTAL CARRIED TO SUMMARY PAGE				

Client	Witness 1	Witness 2	Contractor	Witness 1	Witness 2

SECTION D: BULK WATER SUPPLY TO KGAKALA **TENDER NO: MHLM/MIG/09/2026/27**

ITEM NO	PAY REF	DESCRIPTION	UNIT	QUANT	RATE	AMOUNT
5	**SANS 1200**	**SCHEDULE 5: BOREHOLE EQUIPPING**				
5.1		Supply, transport and construct complete 2,4m fencing including acess gate as detailed on **DWG NW404/20/8,7,15/35/8** around pump houses				
5.1.2		New pump house	m	75		
5.2		Supply, transport and Construction of new concrete pump houses as **detailed on DWG NW404/20/8,7,15/35/8**	No	3		
5.3		**Provisional Sum for Equipping of Boreholes**				
5.2.1		Appointment of suitably qualified specialist borehole equipping contract for the complete supply, installation and commissioning of permanent pumping equipment and all associated mechanical, electrical, control and borehole headworks required for the equipping of boreholes . including all fittings, accessories, cabling, protection equipment, controls, flow measurement, testing, commissioning, documentation and all imcidental work necessary for complete and operational installation Pump selection, duty and installation depth shall be subject to approval by the Engineer prior to procurement. All shall be expended only upon written instruction by the Engineer and adjusted to the actual approved cost of the nominated specialist contractor. All by a specialist contractor nominated by the Engineer	PC Sum	1	660,000.00	660,000.00
5.2.2		Provide General attendance, coordination , acess, liaison and assistance to the nominated borehole equipping contractor, including the contractors oveheads and profit applicable to the specialist	%			
5.3		**Provisional Sum for Solar Supply to Boreholes**				
5.3.1		Appointment of suitably qualified contractor for the complete design , supply , installation and commissioning of solar power systems, including solar PV panels, support Frames/structures, Solar pump controllers and /or inverters, MCC/control panels, isolators, protection equipment, cabling, earthing, lightning protection, all associated electrical accessories and all incidental work necessary for a complete installation Each system shall be sized to suit the approved borehole pump duty and operating requirements and shall be subject to approval by the Engineer proir to procurement All shall be expended only upon written instruction by the Engineer and adjusted to the actual approved cost of the nominated specialist contractor. All by a specialist contractor nominated by the Engineer	PC Sum	1	420,000.00	420,000.00
5.3.2		Provide General attendance, coordination , acess, liaison and assistance to the nominated solar supply contractor, including the contractors oveheads and profit applicable to the specialist	%			
		TOTAL CARRIED TO SUMMARY PAGE				

Client	Witness 1	Witness 2	Contractor	Witness 1	Witness 2

MAQUASSI HILLS LOCAL MUNICIPALITY

UNDERGROUND RESOURCE MANAGEMENT, DESIGN, CONSTRUCTION, MONITORING OF THE EXPLORATION AND EQUIPPING OF BOREHOLES IN MHLM

BOQ SUMMARY

TENDER NO: MHLM/MIG/09/2026/27

SECTION A: PRELIMINARY & GENERAL		
SCHEDULE 1 :	PRELIMINARY & GENERAL	
SUB TOTAL 1		
SECTION B: BULK WATER SUPPLY IN WOLMARANSSTAD EXT 17-19		
SCHEDULE 2:	WATER PIPE TRENCHES	Rate Only
SCHEDULE 3:	WATER MAINS	Rate Only
SCHEDULE 4:	BOREHOLE ESTABLISHMENT	
SCHEDULE 5:	BOREHOLE EQUIPPING	Rate Only
SUB TOTAL 2		
SECTION C: BULK WATER SUPPLY IN LEBALENG		
SCHEDULE 2:	WATER PIPE TRENCHES	
SCHEDULE 3:	WATER MAINS	
SCHEDULE 4:	BOREHOLE ESTABLISHMENT	
SCHEDULE 5:	BOREHOLE EQUIPPING	
SUB TOTAL 3		
SECTION D: BULK WATER SUPPLY IN KGAKALA		
SCHEDULE 2:	WATER PIPE TRENCHES	
SCHEDULE 3:	WATER MAINS	
SCHEDULE 4:	BOREHOLE ESTABLISHMENT	
SCHEDULE 5:	BOREHOLE EQUIPPING	
SUB TOTAL 4		
SUB TOTAL 1-4		
CONTINGENCIES 10%		
SUB TOTAL 5		
VAT 15%		
TOTAL PROJECT COST		

PART C3: SCOPE OF WORKS

TABLE OF CONTENTS

C3.1	Description of the Works	152
C3.2	Engineering	158
C3.3	Procurement	159
C3.4	Construction Specifications	165
C3.5	Management	205

C3.1 DESCRIPTION OF WORKS

Note that dimensions and quantities stated in this description are approximate and for demonstration of order size purposes only.

C3.1.1 Description of Works

Maquassi Hills Local Municipality intends to implement a groundwater resource development and water-supply infrastructure project under Bid No. MHLM/MIG/09/2026/27 – Underground Resource Management, Design, Construction, Monitoring of the Exploration and Equipping of Boreholes in Maquassi Hills Local Municipality.

All boreholes forming part of this project were previously drilled under Phase 1. The purpose of the current contract is to inspect, re-test and assess the existing boreholes, determine their operational condition and sustainable water yields, equip suitable boreholes with appropriate pumping systems, and construct the associated water-supply infrastructure required to provide functional and reliable water-supply systems.

The Works are intended to improve the availability, reliability and accessibility of potable water to identified communities within Maquassi Hills Local Municipality through the rehabilitation, equipping and integration of existing groundwater sources with appropriate water-storage and water-reticulation infrastructure.

The Contractor shall undertake the Works in accordance with the Contract Documents, approved drawings, specifications, applicable legislation, the Engineer's instructions and the approved programme of Works. The Contractor shall be responsible for coordinating all inspection, testing, installation and construction activities to ensure that the completed borehole systems operate as integrated and functional water-supply systems.

The principal objectives of the Contract are to:

- Inspect and assess the condition of existing boreholes drilled during Phase 1.
- Re-test existing boreholes to establish their current yields, performance and suitability for water-supply purposes.
- Determine the sustainable yields and operational requirements of suitable boreholes.
- Equip successful boreholes with appropriate pumping systems.
- Provide solar-powered electrical systems for borehole operation.
- Construct pump houses and protective fencing.
- Construct rising mains from boreholes to water-storage facilities.
- Construct elevated water-storage facilities.
- Construct gravity and distribution mains.
- Construct communal standpipes.
- Connect the new water-supply infrastructure to existing water-reticulation systems, where applicable.
- Test, commission and hand over complete, operational water-supply systems.
- Rehabilitate areas disturbed by construction activities.
- Provide all required inspection, testing, commissioning, monitoring and as-built documentation.

The Contractor shall further support local economic development through the appropriate utilization of local labour, local suppliers and targeted enterprises in accordance with the requirements of the Contract.

The current contract does not include the drilling of new boreholes or groundwater exploration activities. All boreholes covered by the Works have already been drilled under Phase 1. The scope is limited to the inspection, re-testing, assessment and equipping of existing boreholes and the construction, installation, testing and commissioning of the associated water-supply infrastructure.

C3.1.2 General Description of the Project Route

The Works will be undertaken at designated groundwater development and water-supply sites within the jurisdiction of Maquassi Hills Local Municipality.

The principal areas identified under this Contract are:

- Wolmaransstad Ext. 17-19
- Lebaleng
- Kgakala

The Contractor shall verify all borehole locations, pipeline routes, storage-tank positions, standpipe positions and associated infrastructure on site before commencing the relevant Works.

The locations shown on the tender drawings shall be regarded as the basis for tendering and construction. The final position of infrastructure shall be confirmed by the Engineer and, where necessary, adjusted to accommodate actual site conditions, existing services, access requirements, topography, environmental constraints and the results of borehole exploration and testing.

The Contractor shall undertake a detailed site reconnaissance prior to construction and shall identify existing services, access constraints, overhead and underground infrastructure, property boundaries, existing water infrastructure and any other conditions that may affect the Works.

C3.1.3 Extent of Works

The main work items to be undertaken involves the following:

Under this contract, the successful Contractor will be required to undertake the following works:

A. General Site Establishment and Preparation

- Establish the construction site and approved temporary facilities.
- Mobilise all necessary plant, equipment, personnel and materials.
- Establish appropriate site controls and safety measures.
- Provide suitable access to work areas.
- Survey and set out the Works.
- Identify and protect existing services.
- Clear only those areas required for the Works.
- Maintain the working areas in a safe and orderly condition.
- Rehabilitate disturbed areas upon completion.

B. Groundwater Exploration and Borehole Development

- Setting out and verification of borehole positions.
- Inspection, cleaning / development where required.
- Re-testing and verification of existing boreholes by a nominated specialist
- Recording of drilling information and geological conditions.
- Pump testing and yield determination.
- Recording of water-level and recovery information.
- Assessment of borehole suitability for production purposes.
- Submission of borehole test results and relevant records to the Engineer.

The borehole drilling and testing programme shall comprise the following:

Wolmaransstad Ext 17–19 – Rate Only:

- Inspection and re-testing of 3 previously drilled boreholes.
- Equipping of existing boreholes by nominated specialist subcontractor.
- Solar-powered pumping installations without battery storage.
- Construction of pump houses and associated fencing.
- Construction of approximately 2,800 m of 75 mm HDPE PN10 SDR17 pipelines, including rising and gravity mains.
- Installation of 6 × 10,000 L elevated storage tanks on 6 m stands.
- Construction of 6 communal standpipes.
- Installation of water treatment systems by nominated specialist subcontractor.

Lebaleng:

- Inspection and re-testing of 3 previously drilled boreholes.
- Equipping of 3 boreholes by nominated specialist subcontractor.
- Solar-powered pumping installations without battery storage.
- Construction of 3 pump houses and associated security fencing.
- Construction of approximately 3,000 m of 75 mm HDPE PN10 SDR17 pipelines, including rising and gravity mains.
- Installation of 8 × 10,000 L elevated storage tanks on 6 m stands.
- Construction of 8 communal standpipes.
- Installation of water treatment systems by nominated specialist subcontractor.

Kgakala:

- Inspection and re-testing of 3 previously drilled boreholes.
- Equipping of 3 boreholes by nominated specialist subcontractor.
- Solar-powered pumping installations without battery storage.
- Construction of associated security fencing.
- Construction of approximately 3,500 m of 75 mm HDPE PN10 SDR17 pipelines, including rising and gravity mains.
- Installation of 2 × 10,000 L elevated storage tanks on 6 m stands.
- Installation of 5 × 20,000 L elevated storage tanks on 6 m stands.
- Construction of 12 communal standpipes.
- Installation of water treatment systems by nominated specialist subcontractor.
- Construction of 3 new pump houses.

C. Borehole Testing and Monitoring

- All drilled boreholes shall be properly developed and tested in accordance with the Contract requirements.
- Testing shall establish borehole performance, sustainable yield, pumping characteristics, water-level response, recovery characteristics and suitability for equipping and production.
- All test results shall be recorded and submitted to the Engineer.
- No borehole shall be permanently equipped until the relevant testing has been completed and the Engineer has confirmed the requirements for the permanent installation.
- The Contractor shall maintain complete borehole records, including drilling logs, construction details, testing information and equipment records.

D. Solar-Powered Borehole Equipping

- The borehole pumping systems will operate from solar power without battery storage.
- Works shall include selection and installation of suitable borehole pumps, pump rising equipment, solar photovoltaic panels, support structures, control and electrical protection equipment, cabling and connections.
- The Contractor shall test and commission each complete pumping system.

E. Pump Houses and Security Fencing

- Construct pump houses and associated security fencing at designated borehole sites.
- Works shall include site preparation, setting out, excavation, foundations, concrete works, walls, roof, doors, ventilation, electrical/control installations, finishes, drainage and commissioning.
- Security fencing shall protect borehole and equipment areas against unauthorized access, vandalism and damage.

F. Rising Mains

- Construct rising mains conveying water from equipped boreholes to elevated storage reservoirs.
- Works shall include setting out, service identification, trench excavation, bedding, 75 mm HDPE PE100 PN10 SDR17 pipelines, fittings, valves, thrust/anchor blocks where required, crossings and protection, backfilling, compaction, pressure testing, flushing and connections.
- Approximate lengths are Wolmaransstad 2,800m, Lebaleng 3 000 m and Kgakala 3 500 m.

G. Elevated Storage Tanks

- Construct elevated storage facilities including setting out, foundations, reinforced concrete works, support structures, tank installation, inlet/outlet connections, overflow and drainage, valves and fittings, access/safety arrangements, testing and commissioning.
- The scope provides for 6 × 10 kℓ tanks at Wolmaransstad, 8 × 10 kℓ at Lebaleng and 2 × 10 kℓ and 5 x 20 kℓ at Kgakala on 6m stands.

H. Gravity and Distribution Mains

- Construct 75 mm HDPE PE100 PN10 SDR17 gravity/distribution mains from elevated storage facilities to communal standpipes and connection points.
- Works shall include setting out, excavation, bedding, pipe installation, jointing, fittings, valves, thrust protection, backfilling, compaction, pressure testing, flushing and final reinstatement.

I. Communal Standpipes

- Construct communal standpipes at approved locations.
- Works shall include setting out, excavation, foundations, concrete works, standpipe assemblies, connections, valves and fittings, drainage, testing, finishing and reinstatement.
- The identified scope provides for 6 standpipes at Wolmaransstad, 8 at Lebaleng and 12 at Kgakala.

J. Connection to Existing Infrastructure

- Where indicated on the drawings or instructed by the Engineer, connect the new water infrastructure to existing water-reticulation infrastructure.
- Verify existing infrastructure, coordinate approvals, protect existing services, undertake approved isolation where required, complete connections safely, test and reinstate.

K. Testing, Commissioning and Performance Verification

- Test each borehole supply system as an integrated installation.
- Testing shall include borehole pumps, solar systems, electrical systems, rising mains, storage tanks, distribution mains and standpipes, as applicable.
- Rectify defects and demonstrate satisfactory operation to the Engineer before handover.

L. Rehabilitation and Reinstatement

- Remove excess materials and construction waste.
- Backfill and compact temporary excavations.
- Reinstate surfaces and access routes.
- Rehabilitate disturbed ground.
- Remove temporary facilities where instructed.
- Clean all work areas.

C3.1.4 Temporary Works

- Temporary access arrangements to borehole and construction sites.
- Temporary site establishment facilities.
- Temporary fencing and barricading.
- Temporary protection of excavations.
- Temporary support and protection of existing services.
- Temporary water-management measures.
- Temporary power and lighting where required.
- Temporary storage areas.
- Temporary traffic and pedestrian control measures.
- Temporary diversion or protection of existing water services where required.
- Temporary works associated with drilling operations.
- Temporary works required for pipeline construction.
- Temporary protection of completed infrastructure.
- Any other temporary facilities required for safe execution of the Works.

All Temporary Works shall be designed and implemented by the Contractor and shall be subject to the Engineer's approval where required. Temporary Works shall not adversely affect existing infrastructure, properties, public access, the environment or the permanent Works and shall be removed upon completion unless otherwise instructed.

C3.1.5 General Information

C3.1.5.1 Access, Traffic and Public Safety

- Maintain safe access to properties, public areas and existing infrastructure.
- Provide barricading and warning signs.
- Control construction vehicles and plant.
- Protect pedestrians and provide safe trench crossings where required.
- Coordinate construction activities with affected communities.
- Obtain approval for temporary access restrictions.

C3.1.5.2 Existing Services

- Undertake detailed reconnaissance and investigation before excavation or drilling.
- Identify water, sewer, electrical, telecommunications, road, stormwater and other services.
- Protect existing services and immediately repair any damage caused by negligence.
- Do not excavate until services have been adequately identified and protected.

C3.1.5.3 Construction Materials

- All permanent materials shall comply with the Contract Documents and approved specifications.
- Materials include borehole components, pumps, solar equipment, electrical equipment, 75 mm HDPE PE100 PN10 SDR17pipes, valves, fittings, bedding, concrete, reinforcement, storage tanks, steelwork, fencing and standpipe components.
- Submit material data and certificates where required.

C3.1.5.4 Drawings and Design Information

All drawings necessary to complete the works are bound in Contract Drawings. The drawings indicating the extent of the works along the borehole installations, pipelines, storage tanks and associated water supply infrastructure are for tendering purpose only. The final extent of thework will be as instructed by the engineer.

Any information in the possession of the contractor which is required by the resident engineer to complete his as-built drawings shall be supplied to the resident engineer before a certificate of completion will be issued.

C3.1.5.5 Power Supply and other Services

The contractor shall make his own arrangements regarding the supply of electrical power and all other services. No direct payment will be made for the provision of electrical and other services. The cost thereof shall be deemed to be included in the rates and amounts tendered for the various items of work for which these services are required.

C3.1.5.6 Water for Construction Purposes

The contractor shall make his own arrangements regarding a suitable supply of water for the project and he must make adequate provision in his tender for all negotiations and procurement of water for construction activities and all related costs will be deemed to be included in his tendered rates.

C3.1.5.7 Construction in Confined Areas

It may be necessary for the Contractor to work within confined areas. No additional payment will be made for work done in restricted areas, except in the case of structures as described in Subclause 6108(d) of the Standard Specifications. In certain places the width of the fill material and pavement layers may decrease to zero and the working space may be confined. The method of construction in these confined areas largely depends on the Contractor's constructional plant.

However, the Contractor must note that measurement and payment will be in accordance with the specified cross-sections and dimensions only, irrespective of the method used for achieving these cross-sections and dimensions and that the tendered rates and amounts shall include full compensation for all special equipment and construction methods and for all difficulties encountered when working in confined areas and narrow widths, and at or around obstructions, and that no extra payment will be made nor will any claim for additional payment be considered in such cases.

- Plan for restricted residential areas, water-reticulation corridors, narrow servitudes, borehole sites, road reserves and areas requiring continued public access.
- Include appropriate labour, plant, equipment, temporary works and construction methods in the tendered rates

C3.1.5.8 Contractor's Camp Site

The contractor shall make his own arrangements regarding the establishment of a campsite and housing for his construction personnel. The choice of all sites for the establishment of camps is subject to the approval of the engineer. Camp sites within the road reserve will not be permitted.

The establishment of all labour, plant and materials on site is the responsibility of the Contractor and all arrangements in this respect are the Contractors' responsibility; however:

- Provision has been made in the Schedule of Quantities for the Contractor to tender for his independent establishment on site;

- Base camp(s) established by the Contractor for his use must be approved by the Engineer before the Contract begins and this approval must be obtained in writing but must also meet the approval of the local authorities, headmen or resident's associations, as well as the Environmental Management Programme with regard to batching plants, bitumen storage areas and plant maintenance areas.

The Contractor shall provide and maintain a continuous means of on-site communication between his site supervision staff (i.e. the people responsible for the day to day running of the Contract) and the staff of the Engineer's Representative. The Contractor must provide the Engineer with at least two cell phones which will be paid for under Item specified in schedule of quantities. The provision and use of cellular phones for the Contractor's personnel will be for his own cost.

C3.1.5.9 Security

The contractor shall be responsible for the security of his personnel and construction plant on and around the site of the works and for the security of his camp, and no claims in this regard shall be considered by the employer. The Contractor shall also be responsible for the security of the areas around the Engineer's offices.

C3.1.5.10 Programme of the Work

The contractor shall take note of various factors contained in these specifications which will have a significant influence on the compilation of the programme of work. Detailed directives for compiling the programme of work are given in clause B1204 of section 1200 of the project specifications.

It shall be noted that the specified contract period is six months.

- Prepare a detailed programme covering site establishment, surveying, borehole drilling and testing, design confirmation, procurement, pump houses, fencing, rising mains, tanks, solar systems, pumps, distribution mains, standpipes, testing, commissioning, rehabilitation and handover.
- Allow for inspections, approvals, testing, procurement lead times and coordination with the Engineer and Municipality.
- Update the programme regularly and notify the Engineer of matters affecting completion.

C3.1.5.11 Environmental Requirements

The Contractor shall be responsible for implementing and managing an Environmental Management Plan (also referred to as the "Environmental Management Programme") in terms of C3.5.2.

The Contractor's authorised agent shall report to the Engineer regarding compliance with the conditions as stipulated in the Environmental Management Plan.

The Contractor shall take the utmost care to minimise the impact of his establishment and other construction activities on the environment and shall adhere to the requirements as set out in C3.5.2. The Contractor shall prepare a detailed Method Statement to the Engineer detailing his construction activities and what measures will be implemented to prevent the pollution of streams, rivers and countryside through the spilling of fuels, bituminous binders, sewage from the temporary toilets and other deleterious materials. Where in the opinion of the Engineer, the Contractor has not adhered to these requirements; the Contractor shall rectify the damage at his own cost and to the satisfaction of the Engineer.

(Refer C3.5.2: Environmental Management Plan).

C3.1.5.12 Minimum requirements for sub-contractors, females, local labour and training

Refer to Clause C3.3 relating to procurement and training.

C3.1.5.13 Labour Enhanced Construction

(Refer C3.3.3: Labour Enhanced Construction).

C3.1.5.14 Training

(Refer C3.3.5: Training).

C3.1.5.15 Occupational Health and Safety (OHS)

(Refer C3.5.1: Occupational Health and Safety Act 1993: Health and Safety Specification.

(a) General statement

It is a requirement of this contract that the Contractor shall provide a safe and healthy working environment and to direct all his activities in such a manner that his employees and any other persons, who may be directly affected by his activities, are not exposed to hazards to their health and safety. To this end the Contractor shall assume full responsibility to conform to all the provisions of the Occupational Health and Safety (OHS) Act (Act 85 and Amendment Act 181) of 1993, and the Construction Regulations 2014 issued in February 2014 by the Department of Labour. Contractor to complete Schedules T2.1 K: Occupational Health and Safety.

The additional specification regarding health and safety issues on this contract have been included in Part C3.5: Management.

For the purpose of this contract the Contractor is required to confirm his status as mandatory to the Employer (Client) and employer in his own right for the execution of the contract, and he shall enter into an agreement in respect of the Occupational Health and Safety Act in the schedule as included in Part T2.4: Other Schedules and Documents that will be Incorporated in the Contract (Schedule T2.4 B).

(b) Health and Safety Specifications and Plans to be submitted at tender stage

(i) Employer's Health and Safety Specification

The Employer's Health and Safety Specification will be included in the tender documents as part of the Project Specifications.

(ii) Tenderer's Health and Safety Plan

The Tenderer shall submit with his tender sufficient proof that he has a Health and Safety Plan in place. The Contractor will, however, have to submit his Health and Safety Plan on request by the Employer during the tender evaluation stage.

In terms of the OHS Act the tender will be disqualified if the tenderer has no Health and Safety Plan.

The Contractor's Health and Safety Plan will be subject to approval by the Employer, or amendment if necessary, before commencement of construction work. The Contractor will not be allowed to commence work, or his work will be suspended if he had already commenced work, before he has obtained the Employer's written approval of his Health and Safety Plan.

The Contractor shall not be entitled to claim for extension of time or standing time and the related costs for any delays due to delayed commencement or suspension of the work arising from the lack of approval of an approved Health and Safety Plan.

C3.1.5.14 Temporary latrines

The Contractor shall provide sufficient portable chemical latrine units for the use of his employees. Furthermore, the Contractor shall also provide a portable chemical latrine unit at each temporary traffic control facility. He shall be entirely responsible for enforcing their use and for maintaining such latrines in a clean, orderly and sanitary condition to the satisfaction of the Engineer and the Employer. Latrines shall be positioned within walking distance from wherever employees or labourers are employed on the Works.

Where required, latrines shall be provided at the rate of one for ten persons and where applicable, the Contractor shall make his own arrangements and pay all charges for the removal of sewage.

No separate payment shall be made for this requirement and the costs thereof shall be deemed to be included in the rates tendered for the Contractor's time-related obligations.

C3.2 ENGINEERING DESIGN

C3.2.1 Design

- The employer's engineer is responsible for the design of the permanent civil works as reflected in these contract documents unless otherwise stated.
- The main contractor is responsible for the temporary works, while specialist suppliers Are responsible for their respective equipment designs and certifications.
- The contractor shall supply all details necessary to assist the engineer in the compilation of the as-built drawings.

C3.2.2 Employer's Design

C3.2.2.1 Detail description of Works

- **Wolmaransstad Ext. 17-19 – Rate Only**
  - Inspection and re-testing of 3 previously drilled boreholes.
  - Equipping of existing boreholes by nominated specialist subcontractor.
  - Solar-powered pumping installations without battery storage.
  - Construction of pump houses and associated fencing.
  - Construction of approximately 2,800 m of 75 mm HDPE PN10 SDR17 pipelines, including rising and gravity mains.
  - Installation of 6 × 10,000 L elevated storage tanks on 6 m stands.
  - Construction of 6 communal standpipes.
  - Installation of water treatment systems by nominated specialist subcontractor.

- **Lebaleng**
  - Inspection and re-testing of 3 previously drilled boreholes.
  - Equipping of 3 boreholes by nominated specialist subcontractor.
  - Solar-powered pumping installations without battery storage.
  - Construction of 3 pump houses and associated security fencing.
  - Construction of approximately 3,000 m of 75 mm HDPE PN10 SDR17 pipelines, including rising and gravity mains.
  - Installation of 8 × 10,000 L elevated storage tanks on 6 m stands.
  - Construction of 8 communal standpipes.
  - Installation of water treatment systems by nominated specialist subcontractor.

- **Kgakala**
  - Inspection and re-testing of 3 previously drilled boreholes.
  - Equipping of 3 boreholes by nominated specialist subcontractor.
  - Solar-powered pumping installations without battery storage.
  - Construction of associated security fencing.
  - Construction of approximately 3,500 m of 75 mm HDPE PN10 SDR17 pipelines, including rising and gravity mains.
  - Installation of 2 × 10,000 L elevated storage tanks on 6 m stands.
  - Installation of 5 × 20,000 L elevated storage tanks on 6 m stands.
  - Construction of 12 communal standpipes.
  - Installation of water treatment systems by nominated specialist subcontractor.
  - Construction of 3 new pump houses.

C3.2.3 Drawings

The drawings for the design of the permanent Works are supplied during the contact. Contractor and engineer to maintain master lists indicating the supply and revision of such documents. The contractor will be supplied with one set of A1 plans and a CD containing all the plans.He can have copies made as required at his own cost.

C3.2.4 Design Procedures

All designs and modifications thereto shall be communicated in writing and the contractor and engineer shall maintain master lists to record and track all transactions.

C3.3 PROCUREMENT, LOCAL LABOUR AND TRAINING

C3.3.1 Procurement

C3.3.1.1 Minimum Preferential Procurement Requirements

The following minimum preferential procurement requirements apply:

(a) Empowerment of Subcontractors and Females

Contract Participation Goal

It is required that:
A Contract Participation Goal of at least 30% of the Contract Price excluding VAT and contingencies be achieved by the Contractor to benefit local black emerging contractor(s) which is 51% owned by youth or women(black).

TENDERER'S PARTICIPATION IN JOB CREATION USING LOCAL LABOUR

The Contractor shall be required to participate in job creation (employment of local labour) by executing various portions of the Works using local labour (unskilled or semi-skilled), recruited from the local community, who are South African Citizens or foreigners in possession of a work visa issued by the Department of Home Affairs (only one such foreigner may be employed on any project). Proof of citizenship or work visa may be audited during the contract period.

The creation of one job shall mean the employment, for any period of time, of one such unskilled or semi-skilled labourer from the local community.

The Tenderer shall note the requirements for Job Creation Reporting for EPWP as set out in Part F: Requirements of the Expanded Public Works Programme (EPWP) of the project specifications.

The number of jobs to be created using such local labour is inclusive of the local labour employed to execute various portions of the Works by both the main Contractor and any subcontractors, including the small development subcontractors in terms of Part G: Small Contractor Development of the project specifications.

The number of jobs to be created using such local labour shall include for a minimum percentage allocation to the following individual targeted groups:
• 55% Women;
• 55% Youth; and
• 2% Disabled.

The minimum required content of such local labour for this project shall be calculated as follows:
Minimum required content of such local labour (%)

$$= \frac{(100 \times \text{amount spent on wages for such local labour (excluding VAT)})}{(\text{Total value of the project (excluding VAT)})}$$

The minimum required content of such local labour for this project shall be **10 %.**
For purposes of completing the table on the next page containing the Tenderer's declaration with respect to participation in job creation using local labour, the total value of the project shall be the amount of the Tender Offer.

C3.3.1.2 Definitions

Percentages stated in clause C3.3.1.1 (a)

Percentages of the Contract Value (Excluding VAT) are calculated from the agreed financial values of the work performed by the various types of sub-contractors excluding VAT, based on the appropriate quantitiesin the contractor's approved statements of payment (in terms of clause 6.10 of the General Conditions of Contract), including the applicable proportional values of general costs derived from sections 1200, 1300, 1400 and 1500 of the Bill of Quantities. In the event that agreement cannot be reached, the engineer's ruling shall prevail.

B-BBEE Status Level

The certified status level in-terms of the Preferential Procurement Regulations promulgated on 6 June 2011.

Qualifying Small Enterprises (QSE's) or Exempted Micro Enterprises (EME's)

The QSE and EME's certified status in terms of the B -BBEE Code of Good Practice and the Preferential Procurement Policy Framework Act, 05 of 2000 and Regulations of 2022.

EME's are deemed to have the status of a level 4 contributor and in instances where black ownership is greater than 50%, the status of a level 3 contributor.

Average weighted equivalent B-BBEE Status level

The Average Weighted B-BBEE Status level =

$$\left(\frac{\sum (s \times v)}{\sum (v)} \right)$$

Σ = The sum of the values in parenthesis ( )
S = status level of each individual, QSE or EME sub-contractor
V = Value of the work performed, including the proportion of General costs incurred, by each individual QSE or EME Sub-contractor.

Female Owned
Female owned enterprises are enterprises that can provide proof of more the ant 50% female ownership, in the form of written certification by a registered professional auditor.

Worker
As defined in Part C of the project specifications.

Salaries and Wages
The total gross remuneration of the workforce, (as defined in Part C of the Project Specification) as reported regularly to the engineer in an acceptable format.

The gross remuneration shall exclude the proportions of salaries and wages of labourers when such workers are not performing work directly related to the contract.

The gross remuneration shall only include the remuneration or proportional remuneration of :

- Key Personnel*
- The Workforce*
- Local Labour*
- Sub-contractors
- The Community Liaison Officer*
- Other labour specifically approved by the engineer.

* As defined in Part C of the Project Specifications

The engineer may require certification by a registered professional auditor of the values reported.

Local Labour
"Local labour" are defined in Part C of the Project Specifications.

Youths
Youths are Local Labour between the ages of 15 and 35.

C3.3.1.3 QSE and EME Subcontractor work.

The contractor is expected to demonstrate to what extent he can meet the minimum requirements (See C3.3.1.5 hereafter).

In order to further assist the contractor to attain and exceed the minimum requirements stated in Clause C3.3.1.1 (a) above, the CLO and the employer's social facilitator (as defined in Part C of the Project Specifications) will provide the contractor with a list of local QSEs and ESEs.

Examples of some of the construction activities included in the works which are considered suitable to be undertaken by QSE and EME sub-contractors include:

- Supply and delivery of approved construction materials, aggregates, bedding materials, concrete materials, pipes, fittings and other non-specialist materials.
- Site establishment support, site clearing, access preparation and minor site preparation works.
- Traffic and pedestrian control, temporary barricading, warning signage and related accommodation-of-traffic measures where required.
- Trenching, excavation, bedding, backfilling and compaction associated with 75 mm HDPE PE100 PN10 SDR17 rising mains and gravity/distribution pipelines.
- Supply and installation of 75 mm HDPE PE100 PN10 SDR17 pipelines, fittings, valves and associated minor pipeline works, subject to the Contractor's supervision and the Engineer's approval.
- Construction of minor concrete works associated with communal standpipes, drainage, foundations, slabs and related infrastructure.
- Construction of communal standpipes, including excavation, foundations, concrete works, pipe connections, valves, fittings, drainage and reinstatement.
- Construction support for pump houses, including excavation, foundations, concrete works, masonry, roofing, finishes, drainage and associated minor works.
- Supply and installation of security fencing and gates around borehole, pump-house and related infrastructure sites.
- Construction support for elevated water-storage tank foundations and associated civil works.
- Reinstatement of disturbed areas, access routes and surfaces following pipeline and infrastructure construction.
- Landscaping, rehabilitation, topsoil placement, grassing and other environmental reinstatement activities where required.
- Cartage, handling and distribution of approved construction materials.
- Cleaning, finishing and general site housekeeping associated with completion and handover.
- Other suitable construction, supply or support activities identified by the Contractor and approved by the Engineer.

Specialist activities such as groundwater exploration, borehole testing, pump testing, specialist solar photovoltaic systems, electrical/control installations and other specialist works shall be undertaken by suitably qualified and competent service providers in accordance with the Contract requirements.

The Contractor is encouraged to identify additional suitable opportunities for QSE and EME participation, provided that such participation does not compromise the technical integrity, quality, safety or performance requirements of the Works.

C.3.3.1.4 Examples of Employment Creation

Key objectives of this contract are:

- That Local Labourers that are employed during the course of the contract (as specified in Part C of the Project Specification), be permanently employed (i.e., for at least 230 person days).
- That work on the project be performed in a way which will maximize employment through the utilization of labour intensive instead of mechanical intensive construction methods.

The following activities included in the works are examples of work considered as suitable for labour enhanced construction:

- Site establishment and general site preparation.
- Clearing and grubbing of areas required for the Works, excluding specialist tree removal where specialist services are required.
- Manual clearing of access routes and work areas.
- Accommodation of traffic, pedestrian control, barricading and installation of temporary warning signage.
- Excavation and backfilling for pipeline trenches and minor water infrastructure where suitable.
- Preparation and placement of bedding material for pipelines.
- Manual handling and placement of suitable pipeline materials under competent supervision.
- Construction of concrete foundations, slabs, minor drainage works and communal standpipe bases.
- Construction and finishing of communal standpipes.
- Minor concrete works associated with pump houses, tank foundations and related infrastructure.
- Erection of fencing and gates around borehole and water-supply infrastructure.
- Backfilling, compaction and reinstatement of pipeline trenches.
- Finishing of disturbed areas and construction sites.
- Spreading of topsoil and rehabilitation of disturbed ground.
- Grass establishment, landscaping and environmental rehabilitation where specified.
- Cleaning, housekeeping and removal of construction waste.
- Assistance with material handling, site logistics and general non-specialist construction activities.
- Other labour-enhanced activities proposed by the Contractor and approved by the Engineer.

The contractor is encouraged innovate and add additional activities.

Labour enhanced construction activities, shall be clearly identified by the contractor and approved by the engineer.

No variation in payment shall be made for labour enhanced work identified by the contractor.

C3.3.1.5 Demonstrating how the minimum Preferential Procurement requirements are to be achieved.

The contractor shall take cognisance of the minimum criteria and their contribution to the utilisation of employment creation. Within six (6) weeks after the commencement date he will be required to demonstrate how he proposes to achieve the minimum requirements in Clause C3.3.1 (a) and (b) above.

C3.3.1.6 Penalties for failure to comply with the minimum requirements of Clause 3.3

Failure or refusal on the part of the contractor to take the necessary steps to ensure that the required Minimum Empowerment of Subcontractors and Females (MESF) is achieved, shall be sufficient cause for the engineer to deduct penalties as follows:

MESF Penalty = Tender sum (excluding CPA & VAT) x (required MESF% -actual MESF %)

Failure, or refusal on the part of the contractor to take the necessary steps to ensure that the required percentages of Minimum Employment Creation (MEC) are met, shall be sufficient cause for the Engineer to deduct penalties as follows:

MEC Penalty = Tender sum (excluding CPA & VAT) x (required MEC % - actual MEC %)

The penalty amounts shall be agreed between the contractor and the engineer. In the event that agreement of the penalties' amounts cannot be reached, the engineer's ruling shall prevail.

The contractor agrees that the penalty amounts maybe deducted from the contractor's payment certificates

No additional payment (negative discounts) will be applicable if the contractor exceeds the minimum requirements.

C3.3.2 Compulsory training

Compulsory training shall be implemented for local Labour, QSE's and EME's by the contractor as specified in Part D of the Project Specifications.

Provisional sums are included in Section 1200 of the Bill of Quantities for accredited training providers. This sum will be spent at the sole discretion of the engineer in consultation with the employer.

The contractor will, inter alia be responsible for:

- Arranging Construction Education and Training Authority (CETA) approved courses (Payment being by way of the Provisional Sum allowances in the Bill of Quantities).
- Payment of trainees' wages during training (the contractor will be reimbursed for these wages by way of the Provisional Sum allowances in the Bill of Quantities)
- Provision of training facilities and, if required, transport to the training, venue; (Payment to the contractor being included in the contractor's General obligations as specified in section 1300 of the Project Specifications).

The attendance and completion of each course by selected individuals must be CETA certified, and copies of such certificates must be submitted to the engineer.

No additional payment shall be made for informal training.

C3.3.2 SUBCONTRACTING

C3.3.2.1 Scope of mandatory subcontract works

The portions of the Works identified in the Contract Documentation as mandatory subcontract works shall be subcontracted to suitably qualified and, where applicable, CIDB-registered contractors or specialist subcontractors.

The appointment of nominated specialist subcontractors shall be undertaken in accordance with the procedure set out in Clause C3.3.2.3 below. The Main Contractor shall not subcontract any portion of the Works requiring the Engineer's nomination without obtaining the Engineer's prior written approval.

C.3.3.2.2 Preferred subcontractors / suppliers

Preference shall be given to competent local subcontractors and suppliers, where suitably qualified and capable of executing the required work, to promote local economic development, skills transfer and the creation of employment opportunities within the project area.

Materials, goods and services shall preferably be sourced from local suppliers, provided that the required quality, specifications, availability, pricing and delivery requirements are met. Specialist materials and equipment that are not reasonably available locally may be sourced from elsewhere.

All subcontractors shall comply with the applicable contractual requirements, health and safety regulations, quality standards, statutory obligations and project specifications.

C3.3.2.3 Subcontracting and Appointment procedures

Portions of the works shall be subcontracted to CIDB registered contractors in Accordance with the subcontracting procedures described hereunder.

a) Nomination of Specialist Subcontractors

Where specialist subcontract work is identified in the Contract Documentation as requiring nomination, the Engineer shall identify and nominate a suitably qualified specialist subcontractor in accordance with the applicable tender requirements and the Employer's procurement procedures.

The nomination shall be communicated to the Main Contractor in writing and shall include, where applicable, the scope of work, relevant technical requirements and the accepted tender or quotation.

b) Appointment by the Main Contractor

Following the Engineer's written nomination and subject to compliance with the Contract and applicable procurement requirements, the Main Contractor shall enter into a written subcontract agreement with the nominated specialist subcontractor.

The subcontract agreement shall be based on the NEC Engineering and Construction Subcontract, unless another specific form is expressly prescribed in the Contract Data. The agreement shall contain only those project-specific amendments necessary to suit the Works and shall not materially alter the intended use of the selected standard form.

The Main Contractor shall ensure that the subcontract agreement is consistent with the obligations, specifications, programme, quality requirements and health and safety provisions of the main contract.

c) Tendering and Evaluation

Where competitive tendering is required for subcontract works, the tender process shall comply with the applicable provisions of the CIDB Standard for Uniformity in Construction Procurement, the Contract Documentation and the Employer's procurement requirements.

For nominated specialist subcontractors, the Engineer shall be responsible for the nomination process in accordance with the applicable contractual and procurement requirements. The Main Contractor shall not independently substitute a nominated specialist subcontractor without the Engineer's prior written approval and compliance with the applicable contractual procedures.

d) Responsibility of the Main Contractor

The appointment of a nominated specialist subcontractor shall not relieve the Main Contractor of any obligations or liabilities under the main contract. The Main Contractor shall remain responsible for the coordination, supervision, integration and overall delivery of the subcontracted Works, including compliance with the approved programme, quality requirements, health and safety requirements and contractual obligations.

The Main Contractor shall facilitate access to the Site, coordinate interfaces between the specialist subcontractor and other trades, and ensure that the specialist subcontractor’s work is properly integrated into the overall construction programme.

e) Subcontract Administration

All subcontract agreements, nominations, approvals and related correspondence shall be recorded and retained by the Main Contractor as part of the project documentation. Any proposed change to a nominated specialist subcontractor shall be referred to the Engineer for written approval before the change is implemented, subject to the terms of the main contract.

C3.4 CONSTRUCTION

C3.4.1 STANDARD SPECIFICATIONS

The following specifications shall apply for the construction of the Works.

(a) The COLTO Standard Specifications for Road and Bridge Works for State Road Authorities (1998).

The contractor may purchase copies from the South African Institution of Civil Engineers.

SAICE
SAICE House
Block 19
Thornhill Office Park
Becker Street
Vorna Valley X21
MIDRAND

/ Postnet Suite 81
/ Private Bag X65
/ Halfwayhouse
/

Tel : (011) 805-5947
Fax : (011) 805-5971

Contact Person : Angeline Aylward

1685

(b) SABS or BS Specifications and Codes of Practice

Wherever any reference is made to the South African Bureau of Standards (SABS) and the British Standards Specification (BSS) in either these Bill of Quantities or the Specification of Materials and Methods to be Used (OOG-001E), this reference shall be deemed to read "SABS or equivalent standard" and BS or equivalent standard" respectively.

(c) Various other specifications specified in the COLTO Standard Specifications or the Project Specifications.

C3.4.2 PROJECT SPECIFICATIONS: GENERAL

These specifications shall address project specific matters such as:

- Restrictions on construction
  - Site usage
  - Permits and wayleaves
  - Confined areas
- Services
- Materials
- Traffic Volumes
- Drawings
- Site Establishment
  - Contractor and engineers camp
  - Security, etc
  - Water for construction
  - Power supply
  - Telkom Service
  - Other Services
  - Survey control
  - Notices, signs and advertisements

C3.4.3 PROJECT SPECIFICATIONS RELATING TO STANDARD SPECIFICATIONS

C3.4.3.1 General Conditions of Contract Referred to in the Standard Specifications

The references to the General Conditions of Contract appearing in the COLTO Standard Specifications refer to the COLTO General Conditions of Contract which is superseded in this contract by the General Conditions of Contract for Construction Works 2015. The corresponding clauses in the latter document pertaining to the reference in the COLTO Standard Specifications are listed in the table in Section 1100: Definitions and Terms

C3.4.3.2 Particular Project Specifications

The following specifications, in addition to the standard specification, apply:

Part B	Matters relating to the COLTO Standard Specification
Part C	Employment of Local Labour
Part D	Provision of Compulsory Training
Part E	Health and Safety Specification
Part F	HIV AIDS Specification

C3.4.4 SPECIFIED MANAGEMENT REQUIREMENTS

The requirements stated in the Management part of the contract shall be considered as further specified requirements of the contract.

PROJECT SPECIFICATIONS

MATTERS RELATING TO THE STANDARD SPECIFICATIONS

PROJECT SPECIFICATIONS REFERRING TO THE STANDARD SPECIFICATIONS AND ADDITIONAL SPECIFICATIONS

The Standard Specifications for Road and Bridge Works for State Road Authorities 1998, prepared by the Committee of Land Transport Officials (COLTO), as amended, shall apply to this Contract. The amendments are those issued by COLTO and reproduced below, together with additional amendments as set out herein.

1 STANDARD AMENDMENTS TO THE STANDARD SPECIFICATIONS ISSUED BY COLTO

No amendments have been issued.

2 PROJECT SPECIFICATIONS REFERRING TO THE STANDARD SPECIFICATIONS AND ADDITIONAL SPECIFICATIONS

In certain clauses the Standard Specifications allow a choice to be specified in the project specifications between alternative materials or methods of construction and for additional requirements to be specified to suit a particular contract. Details of such alternatives or additional requirements applicable to this Contract are contained in this part of the Project Specifications. It also contains some additional specifications required for this particular Contract.

The number of each clause and each payment item in this part of the Project Specifications consists of the prefix B followed by a number corresponding to the number of the relevant clause or payment item in the Standard Specifications. The number of a new clause or a new payment item which does not form part of a clause or a payment item in the Standard Specifications and which is included here, is also prefixed by B followed by a new number. The new numbers follow on the last clause or item number used in the relevant section of the Standard Specifications.

C3.5: CONSTRUCTION

C3.5.2 AMENDMENTS TO THE STANDARD SPECIFICATIONS

The following variations and additions to the Standard and Particular Specifications will beapplicable to this contract.

The various documents listed in C3.4.1 shall be treated as mutually explanatory. However,should any requirement of Section C3.4.2 or C3.4.3 conflict with any requirement of Standardised Specifications or with any requirements of the Particular specifications, then the requirement of Sections C3.4.2 and C3.4.3 shall prevail.

PSA GENERAL

PSA1 SPECIFICATION DRAWINGS (Clause 2.7)

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

PSA2 QUALITY (Clause 3.1)

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

PSA2.1 DEFINITIONS

PSA2.1 Definitions

Add the following :

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

PSA3 MATERIALS

PSA3.1 Supply of Materials

The Contractor will be responsible to supply all the materials necessary for the proper execution of the works. He shall also be fully responsible for quality of materials used and / or installed.

PSA4 PLANT (Clause 4.3)

Except where the use of plant is essential in order to meet the specified requirements by theDue Completion Date, the Contractor shall use only hand tools and equipment in the construction of those portion(s) of the Works that are required in terms of the Project Specifications to be constructed using labour intensive construction methods.

PSA5 CONSTRUCTION

PSA5.1 Setting Out of the Works

Where labour-intensive work is specified, the Contractor shall also be responsible for thesetting out of daily tasks.

PSA6 TESTING (Clause 7)

(a) All test results obtained by the Contractor in the course of his process control of theWorks shall be submitted to the Employer's Agent or his Representative prior to requesting inspection of the relevant portions of the Works. Any request for inspectionshall be submitted on the prescribed forms that are appended as annexures to theSpecifications.

b) The Contractor shall make suitable arrangements for process control prior to commencement with the Works. Should he intend using site personnel for this purposehe shall ensure that suitably trained and competent personnel take charge of the necessary test work, and that the necessary equipment is at their disposal prior tocommencement of the Works. Failure to comply with these requirements shall be just cause for the Employer's Agent to order suspension of the Works without additional remuneration in terms of Clause 39 of the Conditions of Contract, or for him to recommend determination to the Employer in terms of Clause 55 thereof.

c) The Contractor shall deliver to the Employer's Agent, for his consideration, quality assurance programmes (as obtained from all the Contractor's proposed suppliers ofpipes, valves and specials) prior to the Contractor's appointment of any suppliers.

PSA7 SITE CORRESPONDENCE

PSA7.1 Instructions by the Employer's Agent

Site instructions by the Employer's Agent, addressed to the Contractor at his office on the Site, will be numbered consecutively and will be deemed to have been received by the Contractor's Representative unless a break in the sequence of numbers is brought to thenotice of the Employer's Agent in writing immediately.

PSA7.2 Site Diary

A site diary, which will be supplied by the Employer's Agent, must be filled in on a daily basisand submitted to the Employer's Agent on a monthly basis. No claims will be considered without the site diary's schedule properly completed (on a daily basis) and submitted. A sitediary will be kept one per site.

PSA8 SITE MEETINGS

Refer to Section C3.5.1.10

PSA9 PAYMENT (Clause 8.2)

Refer to Section C3.5.1.11.

PSA10 REPORTS

The submission of each monthly payment certificate shall be accompanied by a completedProgress Report.

This report is a pre-requisite for the approval of each monthly payment certificate and shallbe completed in full to illustrate all work completed the preceding month, as well as work inprogress at the time of submission of the report.

Each of these reports must be accompanied with the relevant, completed appurtenant Borehole Schedules (refer to the Annexures). Relevant day work reference must be attached to each Equipping Schedule.

Labour intensive activities must be reported separately.

PSA11 SUMS STATED PROVISIONALLY (Clause 8.5)

PSA11.1 Contingencies

No provisional sum has been included in Schedule 1 for contingencies. No percentagemark-up will be applicable to any payments made using contingency money other thanthose included in prices for variations determined in terms of Clause 6.4 of the Conditions ofContract.

PSA11.2 Contract Price Adjustment

No provisional sum has been included in Schedule 1 for Contract Price Adjustment (CPA). No percentage mark-up will be applicable to any payments made using CPA money otherthan as determined by the CPA Formula applicable to the Contract.

PSA11.3 Materials for Dayworks

A Provisional Sum has been included in Schedule 1 for materials to be used during the execution of dayworks. In addition to the abovementioned amount, provision is made inSchedule 1 for a mark-up on the materials used during the execution of the dayworks by theContractor. Payment made shall be regarded as full compensation for overheads, charges and profit on the materials that are used when executing dayworks.

PSA11.4 Royalties for Borrow Materials

A Provisional Sum has been included in Schedule 1 for any royalties that may become payable by the Contractor in obtaining suitable borrow materials from sources designated by the Engineer. Payment will be based on the royalties actually and necessarily paid. In addition to the above amounts, provision is made in Schedule 1 for a mark-up on any payments made by the Contractor in this regard. The mark-up shall be regarded as full compensation for overheads, charges and profits as provided for in clause 6.6 of the Conditions of Contract.

PSA11.5 Chlorine Dosing Plant (Supply of Materials)

A Provisional Sum has been included in Schedule 1 for the supply of a Chlorine Dosing Plant.The rate shall include for the design, manufacturing, transport to site and off-loading of all material, tanks, pipes, valves, meters, filter media, dosing equipment, chemicals, pumps, motors, electrical panels etc required for the proper installation of the plant. The mark-up shall be regarded as full compensation for overheads, charges and profits as provided forin clause 6.6 of the Conditions of Contract.

PSA12 PRIME COST ITEMS (Clause 8.6)

PSA12.1 Acceptance Control Testing of Earthworks

A Prime Cost Item has been included in Schedule 1 for acceptance control testing of earthworks ordered by the Employer's Agent to be undertaken by a commercial laboratory. Payment will be based on the actual invoicing by the laboratory to the Contractor. In addition to the above-mentioned amount, provision is made in Schedule 1 for a mark-up on any payments made by the Contractor in this regard. The mark-up shallbe regarded as full compensation for overheads, charges and profits as provided for inClause 6.6 of the Conditions of Contract.

PSA12.2 Labour Desk Officers

A prime cost item has been included in Schedule 1 for the compensation of the LabourDesk Officer. Payments

will be done to the Labour Desk Officer on instruction of the Employer's Agent, in writing. In addition to the abovementioned amount, provision ismade in Schedule 1 for a mark-up on the payments made to Labour Desk Officers. Thismark-up shall be regarded as a full compensation for overheads, charges and profits as provided for Clause 6.6 of the Conditions of Contract.

PSA12.3 Artisan and Skills Training

A Prime Cost Item has been included in Schedule 1 for payments to be made to specialists for the training of unskilled or semi-skilled persons in industry accredited management andgeneric skills. Payment to the Contractor will be based on invoices certified by the Employer's Agent and issued by training specialists to the Contractor for work undertakenin terms of this item.

In addition to the above amounts, provision is made in Schedule 1 for a mark-up on any payments made by the Contractor in this regard. The mark-up shall be regarded as fullcompensation for overheads, charges and profits as provided for in Clause 6.6 of the Conditions of Contract.

PSA12.4 Telephone Calls and Rental

A Prime Cost Item has been included in Schedule 1 for telephone calls and facsimile transmissions as well as rental and maintenance associated with the telephone(s) to besupplied to the Employer's Agent's Representative(s) for the duration of the Contract as specified in section PSAB below. Payment will be based on call and rental costs, but excluding any deposits and installation costs which shall be priced under the preliminary and general items. In addition to the above amount, provision is made in Schedule 1 fora mark-up on any payments made by the Contractor. This mark-up shall be regarded as full compensation for overheads, charges and profits as provided for in Clause 6.6 of the Conditions of Contract.

PSA12.5 Electrical Connection Fees

A prime cost has been included in Schedule 1 for payments to Eskom in respect of electrical connection fees for borehole equipment. In addition to the above-mentionedamount, provision is made in Schedule 1 for a mark-up on the connection fees paid. This mark-up shall be regarded as full compensation for overheads, changes, administration and profits as provided for in Clause 6.6 of the Conditions of Contract.

PSA12.6 Specialist Contractors

A prime cost has been included in Schedule 1 for payments made to Specialist Contractors, which will be executed specialist work. In addition to the above-mentioned amount provision is made in Schedule 1 for a mark-up on the Specialist Contractors paid. This mark-up shall be regarded as full compensation for overheads, charges, administrationand profits as provided for in Clause 6.6 of the Conditions of Contract.

PSA12.7 Prepaid Water Meters

A prime cost has been included in Section 1 for the supply and delivery of pre-paid water meter units and accessories. In addition to the abovementioned amount, provision ismade in Schedule 1 for a mark-up for paying for the supply of pre-paid water meters and accessories. This mark-up shall be regarded as full compensation for overheads, charges and profits provided for Clause 6.6 of the Conditions of Contract.

PSA12.8 Initializing of Pre-paid Meters and Household Tokens

A prime cost has been included in Section 1 for the initializing of pre-paid meters andhousehold tokens as well as the registration of households. In addition to the abovementioned amount, provision is made in Schedule 1 for a mark-up for paying for theinitializing of pre-paid meters and household tokens as well as the registration of households. This mark-up shall be regarded as full compensation for overheads, charges and profits provided for clause 6.6 of the conditions of Contract.

PSA12.9 Accommodation for Employer's Agent's Representative

A Prime Cost Item has been included in Schedule 1 for accommodation to be supplied to the Employer's Agent's Representative(s) for the duration of the Contract as specified in section PSAB below. Payment will be based rental

costs and include any deposits and /or booking costs. In addition to the above amount, provision is made in Schedule 1 for amark-up on any payments made by the Contractor. This mark-up shall be regarded as full compensation for overheads, charges and profits as provided for in Clause 6.6 of the Conditions of Contract.

PSA12.10 Management of approved emerging local sub-contractors

A prime cost has been included in Schedule 1 for management of approved emerginglocal sub-contractors, which will be executed during works. In addition to the above-mentioned amount provision is made in Schedule 1 for a mark-up on amounts paid to the approved emerging local sub-contractors. This mark-up shall be regarded as full compensation for overheads, charges, administration and profits as provided for in Clause 6.6 of the Conditions of Contract

PSA13 ADJUSTMENT OF PRELIMINARY AND GENERAL ITEMS DUE TO RAIN

Should the period for completion be automatically extended due to abnormal weatherconditions occurring during execution of the Contract as provided for in the Project Specifications, no adjustment to the total for time-related preliminary and general items will be applicable.

PSA14 ADJUSTMENT OF PRELIMINARY AND GENERAL TIME-RELATED ITEMS

An approved extension of time will qualify the Contractor to receive additional paymentfor each relevant time related item at a unit rate based on the sum originally tendered forsuch item, and which shall be fair and reasonable as contemplated in Clause 6.4 of theGeneral Conditions of Contract.

PSA15 ADJUSTMENT OF PRELIMINARY AND GENERAL ITEMS DUE TO INTERRUPTION IN WORK SCHEDULE

Should the period of completion be automatically extended in terms of clause PS5.6 as a result of interruption in the contractors work schedule during execution of the contract, noadjustment to the total for time related preliminary and general items would be applicable. Time related preliminary and general items will be paid only if the Contractor has beenestablished on site during a specific period. Therefore, if the Contractor was not established on site, time related P & G-items will not be paid.

If he was on site for only a limited period during a specific month, time related P&G items are to be paid in full for such a month.

PSA16 PAYMENT FOR ESTABLISHMENT OF FACILITIES AND ADDITIONAL ESTABLISHMENT OF FACILITIESON THE CONTRACTS

PSA16.1 Amend clause 8.3.2 of SABS 1200 A as follows:

Change the heading of clause 8.3.2 to :

"First establishment of facilities on site at the depot or contractors main camp."Item 8.3.2.1. to 8.3.3 as per the SABS 1200 A : No change

The purpose of this payment item is to remunerate the contractor for all establishmentcosts at the single main depot/camp where the contractor will establish for the duration of the contract. (Only payable at first establishment. For re-establishment, see Clause PSA16.4).

Important Note :

The contractor will also not be paid any additional establishment costs in each Local Municipality or inter-borehole movements, when the contractor moves into a Local Municipality to re-do defective or maintenance work in that Local Municipality.

PSA16.2 Amend clause 8.3.4 of SANS 1200A as follows: Change the heading of clause 8.3.4 to:

"Remove Contractor's site establishment on completion of contract or interim de-establishment (on instruction of the Engineer)."

The purpose of this clause is to remunerate the contractor for all de-establishment costs(interim or at the end of the contract) and shall provide for the making good and restoring of the site to the satisfaction of the Engineer……..Unit : Sum

PSA16.3 **Include the following Clause 8.3.6:**

Village Movement / Site Movement

All movements ordered by the Employer's Agent, shall be priced as follow: Distances measured in one direction only along the shortest, most feasible route:

(a) This rate to make provision for fixed charge items relating to movement from the Contractor's base camp to an equipping site where construction is in progress, and shall include all actions necessary to temporarily establish at therequired village, all travelling costs to and from that borehole, as well as re-establishment at the borehole where construction had been interrupted or completed.This rate to apply to the equipping of boreholes, construction of rudimentary networks, secondary networks and/or house connections 10 km or less in distance from where construction is in progress for the following:

- As per Engineers Instruction less than R500 000 in construction value (Excluding Schedule 1 items) ……. Unit: No

- As per Engineers Instruction where the construction Value (Excluding Schedule 1 is greater than R500 000.00 but less than R1 000 000.00

  ……. Unit: No

- As per Engineers Instruction where the construction value (Excluding Schedule 1 Items) is greater than R1 000 000.00 but less than

  R5 000 000.00 …… Unit: No

- As per Engineers Instruction where the construction value (Excluding Schedule 1 items) is exceeding R5 000 000.00 ……. Unit: No

(b) This rate to be an extra-over rate above PSA16.3(a) activities in excess of 10 km from where programmed construction is in progress measured in one direction only along the shortest, most possible route ……. Unit: Km

Site movement will be paid only once. For example, if a reticulation is to beinstalled in a village, a "site movement" will be paid only once, irrespective if such installation could be spread over a long period.

(c) The client reserved the right to replace the site movement items (a) and (b) withdaywork rates for any specific Engineers Instruction.

PSA16.4 **Include the following clause 8.3.6**

"Additional establishment cost payable to the Contractor on re-establishment."

- This item must cover all costs incurred by the Contractor when re-establishing after a previous de-establishment on instruction of the Engineer. Such re-establishment cost must no be confused with the initial establishment costs …… Unit: Sum

PSA16.5 Time Related Items All time related items will be for the programme and not per single instruction or village.

PSAB EMPLOYER'S AGENT'S OFFICE

PSAB1 NAME BOARDS (Clause 3.1)

Two name boards confirming to the standard requirements of the South African Association of Consulting Engineers and as shown on drawing 2020-08/G/D/001-002 must be provided and erected at points to be designated by the Employer's Agent during the duration of the Contract for this purpose.

PSAB2 OFFICE BUILDING (Clause 3.2)

An office building shall be provided per appointed Contractor and maintained for the duration of the Contract. The following variations and additions to the requirements of SANS1200AB shall apply:

a) The office shall have a floor area of at least 32 m^2.
The office to be divided into two equal sections with access between offices.
b) The minimum glazed area shall be 6 m^2.
c) The minimum window opening shall be 4.0 m^2.
d) Ten (10) office chairs and three (3) desks of 1.5 m^2 are required in addition to those furnishings specified in SANS 1200AB.
e) Rack for hanging contract drawings shall be provided.
f) One 15 amp plug point is to be installed within each of the offices.
g) A 0,75kW air conditioner with suitable power supply (reverse cycle/compressor type) is to be installed in each of the offices.

PSAB3 TELEPHONE (Clause 5.4)

Two cellular telephone of an approved type shall be provided for the exclusive use of the Employer's Agent's Representative for the duration of the Contract.

The Contractor shall make all arrangements necessary for the provision of the cell phone, and shall pay all necessary deposits and installation costs that may be applicable. A prime cost item has been allowed in Schedule 1 to cover all call and rental costs that are associated with the provision of this facility for the Employer's Agent's Representative.

PSAB4 PERSONAL COMPUTER

The Contractor shall provide and maintain in good working order two personal computers and printers on site for the exclusive use of the Employer's Agent's Representatives with the following specifications:

(a) Computer:

- Dell Inspiron 3593 i5 1035G1 Notebook
- Windows 10
- 15.6-inch HD Anti-Glare Display
- 8GB RAM & 1TB HDD
- 10th Gen Intel Core i5 1035G1 Processor
- 3-Cell Battery, 42WHr (Integrated)
- Intel UHD Graphics
- WIFI 802.11ac 2x2
- Gigabit LAN port, Bluetooth
- 3 USB ports, HDMI 1.4b slot
- 5-in-1 Card reader, HDMI HD (720p) Webcam with Single Digital Microphone

(b) Printer

- HP Laser MFP137fnw All-in-One or similar approved
- 20ppm

PSAB5 SURVEY ASSISTANTS (Clause 5.5)

Two suitably educated and trained survey assistant shall be made available for the sole useof the Employer's Agent's Representative(s) for the duration of the construction.

PSAB6 SURVEY EQUIPMENT

The survey equipment listed hereunder shall be made available for the exclusive use of theEmployer's Agent for the duration of the Contract. Equipment shall be insured and maintained for the full duration of the Contract.

(a)	Automatic surveyor's level complete with tripod and leather carrycase such as Zeiss N1-2 or equivalent	2 No.
(b)	20-second tachometer with optical plum bob complete with tripod and leather carry case such as Sokkisha TM20C or equivalent	2 No.
(c)	Nylon-coated steel surveyor's tape 100m long and 10mm wide	2 No.
(d)	5m long steel tape	2 No.
(e)	5m long three-piece telescopic survey staves (metric double-face) complete with angle bracket level	2 No.
(f)	2kg hammer with rubber handle	2 No.
(g)	Steel pegs, 300mm long and 12mm dia	200 No.
(h)	Measuring wheel	2 No
(i)	Tripod holders for ranging rods (heavy duty)	4 No.
(j)	Optical square (Sokkisha or Wild), complete with telescopic aluminium road and bubble	2 No.
(k)	100m long 50 kg strength fish line	2 No.
(l)	One metre long spirit level	2 No.
(m)	DCP	2 No.
(n)	100m Dip meter (water level meter)	2 No.
(o)	A Troxler nuclear system complete with accessories and store in a suitable transit caseas supplied by the manufacturer. A detailed description of each unit and principles of operation should be given in the manual for the nuclear instrument. (Troxler Model341B).	

PSAB7 CARPORTS

The Contractor shall provide four carports of at least 30 m^2 each, two at each EngineersOffice, which is so constructed as to provide shelter for the vehicles from the rain and thedirect rays of the sun. The floor shall consist of crushed aggregate to alleviate dusty andmuddy conditions.

PSAB8 DIGITAL CAMERA

The Contractor shall provide, insure and maintain for the full duration of the contract two approved digital cameras complete with data zoom features.

PSAB9 LABORATORY

No laboratory buildings or fittings are required by the Engineer. The Employer's Agent will arrange separately with a commercial laboratory or designate specialists to carry out allacceptance control testing including cube testing, but excepting for density control tests. See clause PSA12 for detail of the Prime Cost item provided for this purpose. The Contractorshall remain responsible for carrying out the process control testing that is required by the Standardised, Particular and Project Specifications.

The Contractor shall supply the following equipment and maintain same for the duration ofthe Contract:

(a) Twelve concrete cube moulds, 150mm nominal size.

PSC SITE CLEARANCE

PSC1 DISPOSAL OF MATERIAL (Sub-Clauses 3.1 and 8.2.1)

Materials arising from clearing and grubbing shall be disposed of at a site to be arrangedby the Contractor, in accordance with the provisions of Clause PSD4. Trees and stumpsnecessarily removed shall not be burnt unless authorised by the Employer's Agent, but shallbe cut and stacked at areas designated by the Engineer.

PSC2 AREAS TO BE CLEARED AND GRUBBED (Clause 5.1)

The areas to be cleared and grubbed will be indicated by the Engineer. Should a portionor the whole of the site have been cleared and grubbed by nature or by others prior to the start of construction, then no clearing and grubbing will be ordered or payment made with respect to the applicable portion of the site.

PSC3 PRESERVATION OF TREES AND SHRUBS (Sub-Clause 5.2.3)

The penalty in respect of every individual tree and shrub designated as a tree or shrub to bepreserved that is damaged or removed unnecessarily by the Contractor, shall be

R2 000. Trees that fall within areas upon which the Works are to be constructed or within areas that the Contractor must occupy for the proper construction of the Works will not be designated for preservation.

PSC4 OVERHAUL (New Sub-Clause)

No overhaul will be payable on the disposal of material arising from clearing and grubbing.

Section C.3.4.2 - PSDA Earthworks (Small Works)

PSDA EARTHWORKS (SMALL WORKS)

PSDA1 FREEHAUL AND OVERHAUL (Clause 5.2.5)

The freehaul distance for all material to be imported or spoiled shall be considered as 5 km for mechanically driven vehicles and a 200m for wheelbarrows from the outer ring of houseswhich defines the village, or as agreed upon in the specified case of "wheelbarrow haul".

PSDA2 BORROW PITS (Clause 5.2.2.2)

Borrow materials shall be obtained from designated borrow pits approved by the Engineer.

PSDA3 DISPOSAL OF SURPLUS MATERIAL

All surplus or unsuitable materials arising from excavation shall be spoiled and spread whereindicated by the Engineer. The Employer's Agent shall determine the point of spoil andspreading depending on the nature of the material.

PSDA4 HAUL AND SPOIL ROADS

The contractor shall be responsible for the provision of all haul and spoil roads that he may require for the construction of the works and that the employer's Agent may approve. No additional payment will be made in this regard.

PSDB EARTHWORKS (PIPE TRENCHES)

PSDB1 MATERIALS (Clause 3)

PSDB1.1 Methods of classifying (Clause 3.1)

Replace the contents of this sub-clause with the following:

PSDB1.1.1 Save and except in respect of those portions of the Works which are specified in Portion1 of the Project Specifications to be executed utilising Labour Intensive Construction Methods, the Contractor may use any method he chooses to excavate any class material, but his chosen method of excavation shall not determine the classification ofthe excavation. The Employer's Agent will determine the classification of the materials.

PSDB1.1.2 The classification will be based on the specified construction methods, inspection of the material to be excavated and on the criteria given in PSDB1.2 below, as applicable.

PSDB1.1.3 Where the utilisation of Labour Intensive Construction Methods is specified in Portion 1 of the Project Specification for certain classes of excavation only, the material for those classes of material to be excavated using Labour Intensive Construction Methods will be classified in terms of PSDB1.2.2 and for those classes of excavation which are not required to be executed by Labour Intensive methods, classification will be based on the criteria given in PSDB1.2.1

(i.e. Where it is specified that the excavation of soft materials only shall be executed using Labour Intensive Construction Methods, the classification of the soft material to be so excavated will be based on the criteria given in PSDB1.2.2(a)and the Contractor will be required to excavate all such soft material by Labour Intensive methods. However, when the material is classified in terms of PSDB1.2.2(b) to be "intermediate" and is thus no longer required to be excavatedby Labour Intensive methods, the classification of the material not required to be excavated using Labour Intensive methods will be based on the criteria given in PSDB1.2.1 (thus a material classified as "intermediate" in terms of PSDB1.2.2(b) mayin terms of PSDB1.2.1 be deemed to be "soft" and will be measured and paid as such under such circumstances.).

PSDB1.1.4 All tools and equipment referred to in PSDB1.2 shall be in good mechanical and operational condition.

PSDB1.1.5 "Efficiently" as used in PSDB1.2.2(a) - (c) shall be taken to mean "in a manner that can be reasonably expected of a Contractor, having regard to the production achieved".

PSDB1.1.6 The classification of material other than "soft excavatability" shall be agreed upon before excavation may commence.

PSDB1.1.7 The Contractor shall immediately inform the Employer's Agent if and when the natureof the material being excavated changes to such an extent that a new classificationis warranted for further excavation. Failure on the part of the Contractor to advise theEmployer's Agent in good time shall entitle the Employer's Agent to reclassify, at his discretion, such excavated material.

PSDB1.2 Classes of Excavation (Sub-Clause 3.1) Add the following new sub-clause:

PSDB1.2.1 Classes of excavation where Labour Intensive Construction Methods are NOT specified

The excavation of material will, in the case of work which is NOT required in terms of theContract to be executed utilising Labour Intensive Construction Methods, be classified according to SANS 1200D for the purpose of measurement and payment.

Add the following new sub-clause:

PSDB1.2.2 Classes of excavation where Labour Intensive Construction Methods are specified

The excavation of material will, in the case of work which is required in terms of the Contract to be executed utilising Labour Intensive Construction Methods, be classified in accordance with Table B.1 and Table B.2 in Annex B of SANS 1921-5:2004, i.e. basedon the number of blows which causes a dynamic cone penetrometer (DCP) to dropby 100mm. Failing such classification, the excavation of material will be classified in accordance with Table B.3 of the same document (pro-rated to an 8 hour task). The said appendix makes provision for the following material classifications:

a) Soft excavation, Class 1,
b) Soft excavation, Class 2,
c) Soft excavation Class 3,
d) Intermediate excavation, and
e) Rock excavation.

For soft excavation classes 1, 2 or 3, the excavation of isolated boulders not exceeding0,04 m³, will be considered to be included in their respective category. The excavationrates are those of an average able bodied labourer or group of such labourers.

The following definitions will in addition to those provided in Table B.1 apply:

a) Intermediate excavation

Intermediate excavation shall be excavation in material which requires ripping or loosening by mechanical means prior to removal of the loosened material utilising the methods described for Soft material.

b) Hard rock excavation

Hard rock excavation shall be excavation of undecomposed boulders exceeding 0,04 m³ and excavation in solid rock occurring in bulk or in banks or ledges, which requires loosening or breaking up by drilling, wedging, splitting or blasting or by otherapproved quarrying methods, prior to being excavated and removed from the excavation utilising only picks, crowbars, shovels and similar hand tools.

(NOTE : Such excavation generally includes materials such as formations of un-weathered rock that can be removed only after blasting.)

The Employer's Agent will instruct which portions of the Works, based on evidence provided from trial holes excavated at approximately 200 m spacing by the Contractor for this purpose, will be executed utilising Labour Intensive Construction methods. The Trial hole shall be excavated to trench depth utilising a Cat 416 Backactor or similar."

PSDB2 PLANT

PSDB2.1 Excavation Equipment (Sub-Clause 4.1)

Replace the contents of this sub-clause with the following:

a) To the extent that the provisions of the Specifications permit the use of mechanical plant and equipment in the excavation of trenches, the Contractor may use trenching plant that will excavate to a width such that the side allowance does notexceed the appropriate value specified in 5.2 by more than 50%, except that wherein terms of the Project Specifications or of the Drawings, the base width of a trench for a pipeline or a portion of a pipeline is not to exceed the minimum base width or astated value, the Contractor may use trenching plant which will produce the requiredtrench width or he shall accept the responsibility for all costs incurred in strengtheningthe relevant pipeline.

PSDB2.2 Compaction Equipment (Sub-clause 4.2)

Replace the contents of this sub-clause with the following:

PSDB2.2.1 Machine Compaction

(a) Where the compaction is not required to be executed utilising Labour Intensive Construction methods, or where the utilisation of mechanical compaction plant and equipment is allowable in terms of the contract, the contractor may use mechanical compaction equipment, but he shall select such equipment and operate it in such amanner that the pipeline, duct or cable is not stressed or damaged during the compaction operation.

(b) Machine compaction shall not be used directly above the pipe until sufficient backfill has been placed to ensure that machine compaction loads transmitted to the top ofthe pipe are no greater than would be imposed by normal traffic loads over a pipelinewith cover of 600mm.

PSDB2.2.2 Labour Intensive Construction Methods

(a) Unless and to the extent as may be otherwise provided in Portion 1 of the Project Specifications, the contractor shall, in the compaction of materials by Labour Intensive Construction methods, utilise only hand held manually powered tampers, rollers and similarcompacting hand tools and equipment.

(b) Compaction shall be carried out in such a manner as to ensure that the pipeline cable or duct is not stressed or damaged. The material above the pipe shall not be compacteduntil sufficient backfill has been placed to ensure that the compaction loads transmittedto the top of the pipe are no greater than would be imposed by normal traffic loads overa pipeline with cover of 600mm.

PSDB3 ACCOMMODATION OF TRAFFIC (Sub-Clause 5.1.3)

Traffic must be accommodated along construction works which falls within or adjacent to any road reserve.

The Contractor shall tender a lump sum in Schedule 8 for accommodating traffic duringthe duration of the Contract, which sum shall cover all his obligations in this regard, including but not limited to temporary barricades; the erection and re-erection of existing and/or temporary traffic signs; lights and flagmen for the guarding and protection of the Works; and for making all necessary arrangements with the applicable traffic authorities. Payment shall be made monthly pro-rata to the overall progress of the Works.

If crossing of the road in half widths is allowed, the road shall remain continuously open totraffic. The Contractor shall make provision to ensure the safe passage of traffic using thispublic road whilst installing the pipe through the road, and to ensure that any disruption tothe public is kept to a minimum providing safe detours when so instructed by the Engineer.Each half width shall be completed in one day. No open trenches will be allowed overnight. If the half width is not completed by 16:00 the trench shall be backfilled, in whichcase the Contractor shall re-excavate the trench at a later stage to complete the work at his own expense. All detours and signs shall be erected and maintained in accordancewith the latest issue of Road Signs Note 13 as issued by CSRA and CUTA.

PSDB4 EXISTING SERVICES (Sub-Clauses 5.1.4)

Where any existing service occurs within the specified trench excavation, and the presence of such service is known before being uncovered, then the protection of theservice will be scheduled and measured as provided for in Clause 8.3.5 of 1200DB. Only known services (as defined in Clause 5.4 of 1200A) shall be measured for payment.

Where an unknown existing service is damaged during construction, and the Employer's Agent orders that the Contractor should undertake the repair of such service, then such repair will either be measured and paid as dayworks or alternatively as a contractual variation in terms of Clause 6.4 of the General Conditions of Contract.

No construction activity which may affect the integrity of telephone or electrical poles or stays may be carried out without the prior written approval of the Employer's Agent, whichapproval shall only be given subject to the acceptance of a modus operandi that will ensure the integrity of such structures during construction.

PSDB5 TRENCH WIDTHS (Sub-Clauses 4.1 and 5.2)

Trenches in general shall not exceed the widths laid down in Sub-Clause 8.2.3. If trenchesexceed the specified width the Contractor shall be liable for the cost of any thicker pipes or more expensive bedding which may be required as a result of the additional trenchwidth.

PSDB6 MINIMUM BASE WIDTH (Sub-clause 5.2)

Side allowance for pipes of diameter 125 mm or more (Sub-clauses 5.2 and 8.2.3):

The minimum base width of trench for pipes of external diameter less than 125 mm but larger than 70 mm laid at a depth of 1,5 m or less shall be 550 mm.

The minimum base width of trenches for pipes of external diameter less than 70 mm laid at a depth of 1,0 m or less shall be 400 mm.

The minimum base width of trenches where labour-based excavation is concerned, shall be at least 150 mm on either side of the pipe's outer diameter to allow proper compactionof backfilling materials.

PSDB7 TRENCH BOTTOMS (Sub-Clause 5.5)

Replace the first paragraph of this sub-clause "Material that ..... compacted as directed" with the following :-

Where a firm foundation cannot be obtained at the grade indicated due to soft or unsuitable material, the Employer's Agent may instruct the Contractor to remove suchunsuitable material and to backfill the excess depth with approved selected material or concrete, as directed by the Employer's Agent in each particular case, at the cost of theEmployer. Backfill other than concrete, shall be placed in layers of 100mm un-compacted thickness, each layer thoroughly compacted to the entire satisfaction of the Employer'sAgent, to provide adequate support for the pipe bedding to be placed on top of it.

Should the Contractor remove more ground than is required to secure the proper gradeof the pipeline, the Contractor must, at his own cost, backfill the excess excavation with approved selected material or concrete, as directed by the Employer's Agent in each particular case.

PSDB8 DISPOSAL OF EXCAVATED MATERIAL Error! Bookmark not defined.(Sub-Clauses 5.6.3 and5.6.4)

All surplus or unsuitable materials arising from excavation shall be disposed of in accordance with Clause PSD4.

PSDB9 FREEHAUL AND OVERHAUL (Sub-Clause 5.6.8)

The provisions of Clause PSD1 shall apply.

PSDB10 AREAS SUBJECTED TO TRAFFIC LOADS (Clause 5.7.2)

The requirements of Clause 5.7.2 shall apply to all pipes crossing roads and streets whetherthe roads and streets are to be constructed under this Contract or to be constructed atsome time in the future. Compaction of pipe trenches running parallel to the roadwayshall be considered areas subject to traffic loads where instructed by the engineer.

PSDB11 REINSTATEMENT OF EXISTING BITUMEN SURFACED ROADS (Clause 3.6 and 5.9.4)

Pipe trenches through the existing bitumen surfaced roads shall be reinstated with a 150mm upper selected subgrade layer compacted to 93 % mod AASHTO density, followed by a 150mm sub base layer compacted to 95 % mod AASHTO density and a 150mm graded crushed stone base compacted to 98 % of mod AASHTO density. The road shall be provided with a 25mm thick asphalt seal.

The upper selected subgrade layer shall have a CBR of at least 15, a grading modulus of at least 0.75 and a maximum PI of 12. The sub base shall conform to SANS 1200 ME andthe base to SANS 1200 MF.

PSDB12 MEASUREMENT AND PAYMENT (Clause 8.3.2)

PSDB12.1 Basic Principles (Clause 8.1)

Insert the following heading for Clause 8.1.2:

"Trenches not required to be excavated by Labour Intensive Construction methods" Add the following new sub-clause : (Clause 8.1.5)

"Works required to be executed utilising Labour Intensive Construction methods

Separate items will be provided for works covered by this Specification which are requiredto be executed by Labour Intensive Construction methods and for works for which the utilisation of such methods is not required.

The trench depth increments referred to in Clause 8.1.2(b) and the trench depth increment for 8.1.5 shall be:

a) up to 1.5 m in depth

Trenches shall be measured volumetrically, irrespective of length.

Measurement and payment for works covered by this Specification and required to beexecuted utilising Labour Intensive Construction (LIC) methods shall, unless otherwise stated, be *mutatis mutandis* in accordance with the provisions of SANS 1200DB as amended in this Project Specification.

PSDB12.2 Excavation (Sub-Clause 8.3.2)

Excavate, in all materials for trenches 0 – 1.0 m wide, backfill, compact and dispose ofsurplus material utilising Labour Intensive Construction methods up to

(a) 1.5 m in depth m^3

Extra over the above for:

(1)	Soft excavation Class 2	(refer PSDB1.2.2)	m^3
(2)	Soft excavation Class 3	(refer PSDB1.2.2)	m^3
(3)	Intermediate excavation	(refer PSDB1.2.2)	m^3
(4)	Hard rock excavation	(refer PSDB1.2.2)	m^3

Excavate, in all materials for trenches 0 – 1.0 m wide, backfill, compact and dispose ofsurplus material utilising Conventional Construction methods

(a) up to 1.5 m in depth m^3

Extra over the above for:

(1) Intermediate material m^3
(2) Hard rock excavation m^3
(3) Backfill and compact by means of Labour Intensive Construction methods m^3
(4) Disposal of surplus material by means of LabourIntensive Construction methods within 20 m from the source of spoil material using wheel barrows m^3

Backfill should be in 200 mm thick layers compacted to 90% Mod AASHTO.

Payment for the excavation and backfilling of trenches shall be made at the tenderedrates and at the following stages of the construction:

(i) upon completion and approval of the trench bottom, prior to bedding : 40 %
(ii) upon completion and approval of top of selected backfill: 70% (cumulative)
(iii) upon completion and approval of the mainfill: remaining 30 %.

PSDB12.3 Excavation of Trial Holes

Excavation of trial holes as described in PSDB1.2.2 will be measured by number and shallinclude for backfilling after inspection.

PSDB12.4 Stone Bedding

Stone bedding will be measured per cubic metre under the appropriate item in SANS1200LB. Type A bedding (crushed stone wrapped in a geotextile blanket) shall be measured per linear metre along the centreline of the trench. The provision, operationand removal of (a) de-watering pump where authorised by the Employer's Agent will be measured as day works under the appropriate item in BoQ.

PSDK GABIONS AND PITCHING

PSDK1 GEOTEXTILE (Sub clause 3.1.4)

Shall be Kaytech Geotechnical Fabric U24, or similar approved.

PSDK2 PITCHING (Sub clause 3.2.1.2)

Type of pitching shall be grouted Ordinary Stone Pitching, unless otherwise instructed by theEngineer.

PSGA CONCRETE (SMALL WORKS)

PSGA1 CEMENT (Sub-Clause 3.2.1)

Only the use of Ordinary Portland Cement to SANS 471 will be permitted.

PSGA2 CONCRETE FINISHES (Sub-Clause 4.4.2)

Concrete against which earth will be backfilled shall be classified as rough. All exposed concrete surfaces shall be classified as smooth. Degree of accuracy II shall prevail.

PSGA3 STRENGTH CONCRETE (Sub-Clause 5.4.1.5)

The grade of concrete and nominal size of aggregate shall be as specified on the Drawings.The successful tenderer will be required to submit samples of the coarse and fine aggregate, which he proposes using, to the Employer's Agent's Representative(s) for tests regarding the suitability of such aggregates. The Contractor shall prepare trail mixes. These mixes shall bedesigned for vibration. All data and reports prepared by the Contractor shall be submitted to the Employer's Agent for information and approval prior to the commencement of concreting operations.

PSGA4 ANCHOR AND THRUST BLOCKS

At tees, bends, terminal valves, end caps, and where otherwise directed, anchor/thrust blocksshall be constructed to dimensions ordered, shown on the Drawings or agreed to by the Engineer. Unless otherwise specified, anchor/thrust blocks and pedestals shall be constructedof prescribed mix 15/37.5 concrete.

The concrete shall be well punned round the pipe and, if in trenches, against the undisturbed faces and bottom of the trench. Backfilling behind or under thrust faces will not be permitted. Excess excavation shall be replaced with the prescribed mix concrete given above for anchor/thrust blocks at the Contractor's expense, unless an item is scheduled to cover payment of over break. Care shall be taken to leave the joints accessible. No anchor/thrust blocks and pedestals shall be concreted until the approval of the Employer's Agent has been obtained.

Anchor and thrust blocks will be measured by volume of concrete; the rate tendered shall include for any form work required constructing the block.

Should the Contractor offer an alternative method of coupling involving flexible joints, he shalldesign suitable thrust and anchor blocks in order to prevent movement of the pipeline under operating and test conditions. The working and test pressure to be used by the Contractor forthe calculation of anchor and thrust blocks shall be in accordance with the design information that is issued together with the tender. The earth bearing pressure to be used for the calculation of anchor and thrust blocks shall be based on field tests. The factor of safety to beused in calculating the above shall be 2.5.

PSGA5 GROUTING TO MACHINE AND STRUCTURAL BED PLATES (Sub-clause 5.5.13)

PSGA5.1 Materials

a) Water. Water for grout shall comply with the requirements given in sub-clause 3.3 ofSANS 1200G.

b) Aggregates. Notwithstanding the requirements of Sub-clause 3.4.1 of SANS 1200G, the grading of fine aggregate (sand) and coarse aggregate (stone or pea gravel) shallconform to the gradings given in Tables 1 and 2, respectively, below.

c) Cement. Cement shall be ordinary Portland cement complying with SANS 471.

d) Admixtures. Admixtures shall comply with the requirements of Sub-clause 3.5 of SANS1200 G, and shall have a proven record of satisfactory performance under conditions encountered in the North West Province.

e) Proprietary Grouting Materials. Unless otherwise approved by the Employer's Agent, Proprietary Grouting Materials shall be obtained ready mixed in sealed pockets as supplied by the manufacturers.

Table 1 – Sand		Table 2 – Stone of Pea Gravel	
1	2	1	2
st sieve Nominal aperture size, mm	assing (by mass)	ve Nominal aperture size, mm	ssing (by mass)
9.5	100	9.5	100
4.75	95-100	4.75	95-100
1.18	45-65	2.36	0-5
0.3(300)	5-15		
0.15 (150)	0-05		

* Portland cement (ordinary, rapid-hardening, and sulphate-resisting)

PSGA5.2 Preparation and Procedures

a) Before a machine or structural bed plate is placed on the concrete the following shallbe carried out:

1) All defective concrete, laitance, dirt, oil, grease and loose material shall be removed from the concrete foundation by bush-hammering, chipping, or other means until sound clean concrete is obtained. The surface of the foundation shall be scabbled, but shall not be so rough as to interfere with proper placing of the grout. All foundation bolt sleeves shall be cut out, or cut off flush if the sleeves cannot be removed. The top of the foundation shall be reshaped ifnecessary.

2) The underside of each steel base, particularly in the bearing areas, shall becleaned and any burrs and ragged edges removed before the base is placedin its final location.

3) All holding-down bolt sleeves shall be thoroughly cleaned of any materials thatmay prevent the grout from flowing freely to the bottom of the bolt sockets.

b) The base shall be properly aligned and levelled and shall be maintained in that positionduring grouting.

c) After the machine or structural bed plate has been placed the following precautionsshall be observed:

1) Shimming shall be kept to a minimum. Steel plates shall be used for packing and shall be ground to the required thickness, where necessary.

2) Before grouting is started all loose dirt, oil, grease and other foreign matter onthe surface of the foundation, the underside of bed plates, and in the bolt holesshall be removed by means of compressed air or other approved means. The surface of the foundation slab shall be thoroughly saturated with clean waterand free water shall be removed from the surface and the bolt holes just beforethe grout is placed.

3) The grouting shall not be carried out until the alignment of all units to be groutedhas been checked and approved by the Engineer.

4) Special care shall be taken with grouting in hot or cold weather to ensure proper setting and gain of strength and, in the case of Proprietary GroutingMaterials, by having ice or hot water available, as the case may be, in accordance with the instructions of the manufacturer. Enclosures shall be provided for the grout such that, until it has set, its temperature will be in the

range 15-27°C. Shields to protect the grout from the sun and from hot windsshall be provided by the Contractor when so ordered.

PSGA5.3 Form work

Form work for grouting shall comply with the applicable requirements of Sub-clause 5.2 of SANS 1200 G. Forms shall be caulked where necessary. Adequate clearance between forms and bed plates shall be provided to enable the grout to be worked into place.

PSGA4.4 Mixing (All free-flowing grouts except epoxy grouts)

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

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

The mixing shall be done as close as possible to the place(s) where the grout is placed. Nomore grout shall be mixed at any one time than can be placed in a period of 20 min. Afterthe grout has been mixed it shall not be retempered by the addition of water.

PSGA4.5 Grouting (All free-flowing grouts except epoxy grouts)

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

Wherever applicable, grout shall be placed from one side only and where this is not practicable, care shall be taken to ensure that any entrapped air is released. After thegrout has taken its initial set :

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

Damage to paint work, if any shall be repaired within 24 hours. Packing plates, shimsand other levelling devices shall remain in position.

PSGA4.6 Dry-packed grout (Standard dry sand and cement grout)

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

a) Where the clearance between bed plate and foundation is 25 mm or less : 1part of Portland cement, and 2 parts of sand;

b) Where the clearance exceeds 25 mm : 1 part of Portland cement, 1 part ofsand and 1 part of pea gravel. Dry-packed grout shall be rammed by meansof tamping rods against form work placed along three sides of the bed plate.

PSGA4.7 Non-shrink grout with metallic aggregate

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

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

PSGA4.8 Expanding grout with powdered aluminium additive

The manufacturer instruction shall be observed when the expanding grout powdered aluminium additive is used.

Where the clearance between the bed plate and the foundation is less than 25 mm,a sand-based mix shall be used. Where the clearance exceeds 25 mm the Employer's Agent may order mix with a base of sand plus pea gravel to be used.

Each batch shall be mixed for at least 6 minutes after the powdered aluminium hasbeen added. Where a ready-mixed grout is used, the powdered aluminium shall be added at the placing site and the batch mixed as specified. Grout shall be placedwithin 45 minutes after the addition of the powdered aluminium.

The Contractor shall not use powdered aluminium additive when the ambienttemperature is below 5^{o}C.

PSGA4.9 Epoxy grout (epoxy mortar type only)

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

PSHA STRUCTURAL STEEL (SMALL WORKS)

PSHA1 GRADE OF STEEL (Sub-Clause 3.1.1)

Structural cold-formed steelwork to be to Grade 43A or 43B with the minimum properties astabled in Table B-2 of SANS 0162-1982.

Structural hot-rolled steelwork to be to Grade 300W with the minimum properties as tabledin "Steel design date: No. 6" of the South African Rolled Steel Producers Co-ordinatingCouncil and the South African Institute of Steel Construction.

PSHA2 SHOP DRAWINGS (Sub-Clause 5.1.2)

The contractor is to provide shop details.

Steelwork generally of welded construction with site connections bolted:All holes 18 dia. for M16 bolts
All gussets ex 8 mm U.O.S.
All welds, 6 mm fillet

The Employer's Agent must be notified, (at least 72 hours before hand) of the completion of the fabricated steelwork at the contractors workshops, to enable him to make an inspection if he so desires. The fabricated steelwork, thus to be inspected shall be in itsprepared specified state immediately before the application of prime coat painting.

PSHA3 WELDING (Sub-Clause 5.3.4)

Delete this clause in its entirety and add the following clause:

Welding shall be done in accordance with the relevant requirements of SABS 0162 BS5135and AWS.D.1/18 (American Welding Society).

Welding shall be Grade B welding.

The qualification of welders shall be in accordance with the relevant clauses of the above standards, and specifically SABS 044 Part III and shall be Grade I welders. Grade 2 weldersshall be permitted only with the Employer's Agent's approval.

The Contractor shall provide evidence, acceptable to the Employer's Agent, that weldingprocedures and welders have been tested in accordance with the requirements of AWSD1.1.

PSHA4 PROTECTIVE TREATMENT (Sub-Clause 5.3.9)

PSHA4.1 Shop Painting

a) Steelwork after fabrication shall be wire brushed to a finish equal to or better than Grade St3 or SIS 05 59 00.

b) Within 4 h after the completion of wire brushing, 2 coats of an approved primersuch as a Type II. Grade 2 red lead, on a zinc chromate or red oxide (see Subclause 3.7 of SABS 1200 H) shall be applied to provide a dry film of thickness between 25 and 30 micron. Except that red lead shall not be sprayed, a primermay be applied by means of brush, roller, or spray.

PSHA4.2 Painting after erection

a) After the erection of steelwork, all areas where the primer coat has been damaged shall be touched up as specified in PSH2.1.

b) An intermediate coat of an approved general-purpose alkyd undercoat shallthen be applied to provide a dry film of thickness between 25 and 30 micron. The paint may be applied by means of brush, roller, or airless or conventional spray.

c) Provided that the undercoat is touch-dry within 2 hours, the finishing coat maybe applied the following day. One coat of an approved alkyd enamel, the non-volatile vehicle of which contains at least 24 % authalic anhydride, shall beapplied to provide a dry film of thickness between 25 and 30 micron.

d) The total dry film thickness of the paint and primer coats shall be between 70 and 100 micron.

PSHA4.3 Galvanising

Where galvanising is specified, it shall be carried out by the hot dip process in accordance with SABS 763-1977 (or latest amendment).

The minimum thickness of the zinc coating shall be for general application and shall inall cases be at least 65 micron, thus giving a minimum equivalent mass per unit of 455g/m^2.

PSHA5 SITE WELDING (NEW CLAUSE)

No welding shall be permitted on site without the express approval of the Employer's Agent, with the exception of those details shown on the drawings as site welded.

PSHA6 CUTTING (NEW CLAUSE)

No oxy-acetylene or other gas cutting and bending will be permitted on site withoutthe Employer's Agent's approval.

The Employer's Agent will have no hesitation in considering any relevant component, member or unit should oxy-acetylene or other gas cutting and bending, process becarried out by the Contractor without the Employer's Agent's approval.

PSHA7 ERECTION PROCEDURE (NEW CLAUSE)

The setting out of all holding-down bolts shall be accurately checked by the Contractor. Any discrepancies in excess of the permissible deviations of the positions of these bolts shall be reported immediately to the Engineer.

The Contractor shall not be permitted to make any relevant adjustment in the steelworkwithout the Employer's Agent's approval. (Refer to paragraph 2 of PSHA6).

PSL MEDIUM PRESSURE PIPELINES

PSL1 WATER SUPPLY MAINS

The pipes to be used for pressure mains are as follows:

1. 50 mm and larger - Unplasticised Poly vinyl Chloride (uPVC)

   Fibre Cement (FC)HDPE

2. 40 mm and smaller - High density Polyethylene Type IV

Couplings for uPVC pipes to be watertight and be able to withstand the relevant test pressures,unless otherwise indicated. uPVC pipe fittings shall be cast iron or aluminium.

Couplings for HDPE pipe fittings shall be compression fittings only.

PSL2 GRADE OF STEEL FOR STEEL PIPES

All steel piping shall be made electric welded low carbon steel pipes in accordance with therequirements of SANS 719-1971 and BS 534-1966. Where non-standard specials have been detailed on the drawings, such dimensions shall be adhered to. All flanged pipes and fittings shall have flanges as specified, and shall be supplied complete with all packings, nuts, bolts andwashers. Steel piping shall be made from Grade A steel. The minimum wall thickness for steel pipes of nominal outside diameter exceeding 500 mm shall be 6 mm. Viking Johnson couplingscomplete with all seals, bolts, nuts, etc. shall be used where detailed. Where new installationscouple up with existing, the Contractor shall ascertain what the flange drillings are the same asall existing fittings prior to any placement or order and shall confirm this information with the Engineer.

PSL2 PIPE COUPLINGS FOR OTHER PIPES (Additional to clause 3.7)

PSL2.1 Polyvinyl Chloride pipes and fittings shall be supplied with factory fitted 'Z type' couplings. Solventwelded joints will be permitted for pipes of diameter smaller than 50 mm. PVC pipefittings shall be Aluminium or Cast Iron.

PSL2.2 Polyethylene pipes shall be supplied suitable for, and with compression or insert type fittings asscheduled. No screwed fitting shall be used without written approval. Polyethylene pipefittings shall be Nylon.

PSL3 FIBRE-CEMENT PIPE FITTINGS (Clause 3.8.1)

Fibre Cement pipe fittings shall be Cast Iron or Steel. Where steel fittings are provided, they shall be adequately reinforced against ovalness (over the entire circumstances and width corresponding to half the width of the approximate standard AC coupling) by means of weldedcollars of minimum thickness 12mm.

PSL4 VALVES (Clause 3.10)

PSL4.1 Gate Valves

i) General

All gate valves in compliance with SANS 664, waterworks application, clockwise closing,with a non-rising spindle and plain thrust collar. Valves and flanges (if any) to be to theclass specified.

Valves to be operated by either hand wheel, cap top and tee-key or extended spindleand hand wheel/tee-key. Operation to be specified.

Valves to be flanged or spigot ended as specified.Note :

"As specified" will mean as described in the schedule of quantities. In the event of nodescription in the schedule the following will prevail:

- Valves to be at least class 10 with a standard hand wheel operator and valves to beflanged.

ii) Gate valves of 300mm diameter or smaller

All gate valves falling into this category to be fitted with resilient seal, rubber lined gatessimilar to "Elypso compression-sealing valves".

PSL4.2 Butterfly valves

All Butterfly valves to be of the 'Boving' (or similar approved) resilient sealing type and shall besupplied complete with geared operator and hand wheel. All geared operators shall havehorizontal spindles.

PSL4.3 Valve spindles

All extended valve spindles shall be supplied at both ends with cast iron tops for valve keyoperation. The spindle shall be fitted into the valve box with a bearing for easy operation. Thelengths of extended spindles are to suit the dimensions of their installation positions, all spindlessupplied supported at 4m max. intervals.

PSL5 STEEL FLANGES (Clause 3.8.3)

PSL5.1 All flanges to be drilled to SANS 1123 table 15 unless otherwise specified.

PSL5.2 All valve and hydrant tee flanges to be drilled as follows:

AIR VALVE SIZE (inlet dia. mm)	FLANGE OD (mm)	BOLTS no. x dia.	PCD
50	203	4 x M16	165
80, 100 and 150	SANS 1123	Table 15	

Flange holes to be drilled to allow exact alignment vertically and horizontally as detailed on thedrawings of all pipe work and equipment.

PSL6 CORROSION PROTECTION (Clause 3.9)

PSL6.1 General

No separate payment will be made for work described in this sub-section.

PSL6.2 Mechanical preparation

The valves shall be rendered smooth and free from undercuts, protrusions, sharp edges and spatter. Edges should have minimum radius of 1 mm.

Cast materials shall only be cast in a mould coated with a suitable mould wash.

Costings shall similarly be ground smooth and surface blow holes accepted after mechanicalinspection shall be filled with weld metals or an approved epoxy filler and ground down to a smooth surface.

PSL6.3 Surface Cleaning

Surfaces to be coated shall be abrasive blast cleaned in accordance with SABS 064, Section 4.3,especially Procedure 4.3.4, to the following parameters.

DESCRIPTION AND MATERIAL	BLASTMEDIUM	PROFILE MICROMETERS	CLEANLINESS SA	RESIDUE
Fabricated or cast iron valves	Clean, finenon-metallic &non-recycled or metallic	Fabricatedmax. 75 CastingMax 50 Min 30	3	0.3%

Other preparation methods, where required or agreed upon shall also be in accordance with SABS 064 as described in the appropriate sections. Laminations, scabs and occluded scale whichbecome visible after cleaning shall be ground out and the ground area re-cleaned. Excessive grinding depth may be repaired by welding, or the metal shall be rejected at the discretion of the Engineer.

PSL6.4 Casting

The first cast shall be applied as soon as possible, but never exceeding 4 hours after blastcleaning if the relative humidity (RH) is below 70% or 2 hours if the RH is between 70% and 85%. Coating shall not take place if the RH is 85% or above, nor when the surface is less than 2 abovedew point.

If unfavourable conditions prevent applications of the first coat, the surface shall be re-cleanedwhen conditions are acceptable.

Strict cleanliness between costs shall be maintained. The directions laid down by the specification and by the paint manufacturer for mixing, curing, use of solvents, suitable environmental conditions, and over-coating times shall be strictly adhered to. Adequate ventilation to remove volatile matter shall be ensured.

PSL6.5 Quality of coating

The fully cured coating system shall be uniform, smooth, glossy and have acceptable adhesion.Excessive runs and sags, wrinkling, bubbling, blisters, change in colour or gloss, excessive orangepeel, dirt, dust or fluff occlusions and other visible defects shall not be permitted. Paint work showing evidence of entrapped solvents after full cure will also be rejected. No inter-cast lamination must take place.

The colour of each coat shall be different to that of the previous coat except where two finishingcosts of the same colour are necessary to achieve colour uniformity.

All coating surfaces for water immersion or frequently wetted in service shall show no electricalinsulation defects when tested in accordance with the inspection parameters.

Finishing coat colours.

In addition to the finishing coat colour, if specified, the colour recommended for identification marking in SANS 0140 shall apply. Where not specified, the selection of paint colours shall be decided.

All damage that occurs during handling, assembly, transport, storage and erection shall berepaired to the requirements of the specifications. All damage sustained during transport will berepaired by the Contractor.

Proprietary items

Components supplied already painted or protected e.g. gear boxes, etc, may be accepted inthis condition provided that they meet the requirements of this specification in general.

Quality control by the Contractor

The Contractor shall produce his own quality control records and tests carried out during allstages of corrosion protection procedures. These shall be made readily available to the Department's Inspector.

PSL6.6 Paint Systems required

All valves and fittings shall be coated as follows:

SURFACE	COATING	THICKNESS (MICROMETERS)
Lining (inside surface)	Epoxy	300
Coating *outside surface)	(i) Epoxy plus (ii) Vinyl enamel colour BrilliantGreen	200 25
Flange faces	Epoxy	125
Stainless steel components	Pickled and passivatedwith Duva chemicals or equivalent	-
Fasteners	Cadmium plated anddichromate (yellow) passivated	15 to 20

The epoxy applied shall be polyamide cured and preferably be solvent free inaccordance with SANS 1217. Solvent containing epoxies will, however, be considered.

All external fasteners shall be Epoxy coated after assembly and testing.

PSL7 HANDLING AND RIGGING (Clause 4.1)

PSL7.1 Transportation

Pipes and valves shall be protected during transportation and handling against damages caused by impact, dropping, etc. Special care shall be taken during transportation to protect pipes. Rubber lined vertical posts shall be spaced on the sides of transporting vehicles to provide adequate support to the loaded pipes. Large diameter fibre cement and concrete pipes (that is, diameter above 800mm) shall be supported on supporting stools in transit. All pipes shall be inspected for defects immediately before laying and faulty pipes or pipes which have suffered damage which would affect their serviceability shall not be used in the Works.

PSL7.2 Off-loading and storage

Pipes which cannot be off-loaded by hand shall only be lifted by means of suitably approved broad band slings. The use of wire, chains, hooks, crowbars and similar items shall not be permitted and the pipes, fittings and specials shall not be handled in such a manner as could cause damage to occur.

Pipes, fittings and specials shall at no time be laid, stacked or rolled directly onto the ground but shall be supported on suitable padded cradles or other approved material near each end of the pipe, fittings or special. Particular care shall be taken where pipes with fitted couplings are handled or stacked to prevent any pressure on the couplings. Where loose AC-couplings are provided the couplings shall be stored flat on their sides and under no condition be rolled or stored in an upright position.

All PVC-pipe work as well as the rubber sealing rings in pipe couplings shall be protected from the elements to prevent deterioration of the pipe work.

PSL7.3 Inspection on delivery

The Employer’s Agent’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 Employer’s Agent shall be removed from the site and shall be replaced by other approved materials by the Contractor at his own expense.

PSL8 SETTING OUT (Clause 4.2)

Alignment of the pipes may be done either by means of infrared sighting equipment or by sight rails. The following method should be followed if alignment is to be done by sight rails :

Prior to the preparation of the pipe bedding, the Contractor is to erect sight rails of 38mm x 150mm timber at intervals of a maximum of 60m or at points of change of pipe gradient, whichever may be the lesser. These shall be supported by wooden posts on each side firmly fixed on solid ground and the rails shall be accurately placed in position as regards alignment and invert level of the proposed trench.

The centre line of the trench (i.e. pipeline) shall be denoted on each sight rail, both back and front by a single vertical line drawn therein, and the rail on either side of the centre line painted in two contrasting colours. The Contractor shall also provide boning rods of an approximate length marked in even decimetres for use in the fixing of the trench bottom to the correct line and level.

PSL9 LAYING AND JOINTS

No pipe laying shall commence on any particular section until the Employer’s Agent has approved of the trenches and bedding. No pipes shall be laid in trenches with free standing water. The pipes shall be laid true to the lines, levels and grades shown on the drawings or ordered by the Employer’s Agent, to within a tolerance specified.

The open ends of all pipes and fittings shall be suitably closed to prevent the ingress of soil or other matter into the pipes. After the pipes have been laid, they shall be inspected and checked by the Employer’s Agent for grade, direction and line. If any pipes have been inaccurately laid, the work shall be rectified as ordered by the Employer’s Agent at the Contractor's expense.

All valves and fittings are to be checked beforehand to ensure their operational order before being placed in the line. They are to be set correctly in position as indicated on the drawings or as ordered by the Employer’s Agent, and where required, are to be supported by bedding or concrete supporting stools. Care shall be taken to ensure that no loose fill material or foreign matters enter the pipes or fittings. After the pipelines have been inspected and passed by the Employer’s Agent, backfilling shall proceed and brought up evenly on both sides of the pipe with selected material as specified.

Jointing of pipes shall be carried out strictly in accordance with the manufacturer's instructions. Ends of pipes and joints shall be completely free of dirt and grit when the joints are assembled.

PSL10 BACKFILL

Following the inspection by the Employer's Agent with respect to the grade, direction and line, as well as the successful testing of the pipeline, the Contractor shall promptly refill trenches and excavations.

PSL10.1 Material and Method

The Contractor shall promptly refill trenches and excavations as soon as the works have been inspected, tested and passed by the Engineer.

The backfilling in contact with pipes and for a distance of 200 mm above the barrels of the pipes shall consists of selected material from the excavations, free form excess clay, vegetable matter and stones. Shortages of selected material in any section of a trench shall be made up free of additional cost by borrowing from adjacent excavations containing a surplus of suitable material.

The selected material shall be brought up in 150mm layers, uniformly moistened to the optimum moisture content to attain the specified compaction and shall be thoroughly compacted round the pipes and joints. Special care shall be taken in filling joint holes and the selected material shall be firmly punned in, slightly moistened if required in order to ensure bearing for the length of each pipe.

Sufficient topsoil shall be set aside during excavation to form not less than the upper 150 mm of backfill material for re-establishment of vegetation.

In no case shall any filling be deposited in water. Trenches shall be kept free of water until backfilling has been completed. From above the top of the selected backfilling, unselected excavated material, excluding stones larger than 150 mm in any dimensions, shall be used for backfilling, which shall be compacted in layers not exceeding 150 mm.

Only equipment approved by the Employer's Agent shall be used for the compaction of the fill.

The superimposed loading resulting from the use of self-propelled or tractor-drawn compaction equipment shall not exceed the maximum external loading for any particular pipe in accordance with H20 Highway Loading as specified by the manufacturers.

The backfill shall be mounded to a height of 100 mm above ground level with gaps allowed at regular intervals for cross drainage.

Immediately after completion of the backfilling all surplus materials shall be levelled off adjacent to the pipeline.

Any settlement during the excavation of the contract and the period of maintenance shall immediately be made good by the Contractor with topsoil of the same type as that adjacent to the trench.

The Contractor shall fill in with approved material and consolidate all cavities caused by slips, rain, floorings, etc. or any other cause whatever at his own expense, to the satisfaction of the Engineer.

The Contractor shall make good promptly, to the entire satisfaction of the Employer's Agent at his own expense, during the whole period that the works are in his hands, including maintenance period and, as often as necessary, any settlement that may occur in the surface of roads, footpaths, private or public property, etc., caused by his trenches or excavations. He shall be liable for any accidents caused thereby and repair at his own cost any damage caused to property by such settlement.

During the execution of the Contract, the Contractor shall maintain a regular patrol, particularly after rains, of all completed backfilled excavations, in order to locate any subsidence, which he shall make good properly without any delay and shall not defer such action until complaints are received.

PSL11 TOLERANCES

The more stringent of SANS 1200 L 6.2 and 6.3, and the following relative deviation shall be applicable to pipe work.

a) Relative Deviation laterally from line : 0,1% of distance between points.
b) Deviation from gradient

Design gradient less than 1% : 0,04% Design gradient greater than 1% : 0,08%

PSL12 PIPELINE MARKERS

A detail of the required concrete pipeline marker is included in the Annexures to the Specifications. Measurements will be per unit and the payment made accordingly shall be full compensation for the supply and installation of the pipeline marker.

PSL13 MARKING OF ROUTE AND POSITION

The route and position of reticulation and bulk supply mains shall be marked on the surface by one of the following methods:

- pipeline route markers
- standard service markers
- painted service marking

PSL15 STANDARD HYDRAULIC PIPE TEST (Clause 7.3)

Field test pressures shall be 1,5 times the recommended maximum working pressure for the class of pipe and/or valves, specials and fittings being tested.

PSL16 MEASUREMENT AND PAYMENT

PSL16.1 Principles

Measurements of the pipelines, specials and valves shall be as per the appropriate items in SANS 1200L i.e. Items 8.2.1, 8.2.2 or 8.2.3.

Payment shall be subdivided as follows:

a) Supply of pipes to site - the percentage allowed for in the Appendix to the Form of Tender. (i.e. 80%)

b) Successful testing of pipeline - remainder of the tendered amount, save for the normal retention.

PSL16.2 Scheduled Items

PSL16.2.1 Supply, Lay and bed Pipes complete with couplings Unit : m

Pipelines will be measured by length over all lengths as laid. No deduction will be made for specials and valves. Separate items will be scheduled for each diameter and each type and class of pipe laid. The rates shall cover the cost of the provision of the pipes complete with couplings, and the costs of the handling, inspecting, transporting, bedding, laying, jointing, cutting, testing and when relevant, disinfecting of the pipes and the joints.

PSL16.2.2 Extra-over 15.2.1 for the supplying, laying and bedding of specials complete with couplings Unit : no

PSL16.2.3 Extra-over 15.2.1 for the supplying, fixing and bedding of valves Unit: no

Specials and valves will be measured by the number of each type, class and size.

The rates which shall be extra-over the rates for 15.2.1, shall cover the cost of provision of each special or valve, complete with couplings and the cost of the handling, fixing, bedding and testing of the special or valve, as applicable and the cutting of the pipes.

No extra payment over and above the rates will be made in respect of any additional cutting, turning and jointing of pipes required for the location of valves, specials, etc., in the positions given on the drawings.

Unless specific provision is made in the schedule, no separate payment will be made for the supply and fitting of any additional joints and jointing materials which may be required for the connection of shortened pipe lengths.

PSLB BEDDING (PIPES)

PSLB1 BEDDING (Sub-Clause 3.3)

PSLB1.2 Rigid Pipes

All steel, clay and concrete pipes shall be laid on a class C bedding as shown on Drawing LB-1 of SANS 1200LB.

PSLB1.3 Flexible pipes

uPVC, mPVC, and polyethylene pipes will be regarded as being flexible and shall be bedded as per Drawing LB-2 of SANS 1200 LB.

PSLB2 MATERIAL NOT AVAILABLE FROM TRENCH EXCAVATION (Clause 3.4.2)

Bedding and selected fill materials shall be obtained from trench excavation, other necessary excavations or from borrow pits in accordance with the provisions of Clause PSD3. The employer's Agent reserves the right to designate alternative sources. He also reserves the right to make a ruling whether special efforts must be made to construct specifically a separate bedding for pipes where the in-situ material proved to be of good quality.

PSLB3 CLASS A BEDDING (Sub-Clause 5.2.1)

Concrete to be used in class A bedding to pipes shall be of grade 20/19.

PSLB4 CONCRETE CASING TO PIPES (Sub-Clause 5.4)

Concrete to be used in the casing of pipes shall be of grade 20/19.

PSLB5 TOLERANCE ON COMPACTION OF BEDDING MATERIAL

Degree of accuracy II shall prevail.

C3.5: CONSTRUCTION – BUILDING WORK

PA BUILDING WORK

PA1 SCOPE

This section of the Specifications deals specifically with all the building work associated with the Works.

Concrete work, steelwork, cladding, pipe laying, mechanical and electrical equipment, etc. forming part of or to be housed in a building erected in terms of this specification shall conform to the requirements of the relevant standardised or particular specifications referred to in the Project Specification.

PA2 INTERPRETATIONS

The relevant SANS 1200 Standardised Specifications such as Site Clearance, Earthworks, Earthworks (pipe trenches), Concrete (structural), Low pressure pipelines, Bedding (pipes), Sewers and Stormwater drainage shall also apply to the work under this section.

PA3 MATERIALS

All materials used for the Building Work shall, where such mark has been awarded for a specific type of material bear the SABS mark.

PA3.1 Brick and Plasterwork

Cement, sand and water shall conform to the requirements of SANS 1200 G - Concrete.

Unless otherwise described cement mortar shall be composed of six parts by volume of sand to one part by volume of cement. The materials are to be mixed dry until the mixture is of a uniform colour and then clean water is to be added gradually through a fine rose and the mixture turned over until the ingredients are thoroughly incorporated.

Cement mortar must be mixed in small quantities and must be used within one hour of mixing, as the use of cement mortar that has commenced to set will not be permitted.

Plaster on concrete ceilings, beams, columns, etc. shall be mixed one part cement to three parts sand.

Bricks shall be of the best quality sound hardburnt pressed bricks or in the absence of clay bricks, concrete bricks; even in size and shape and equal to a sample submitted to an approved by the Employer’s Agent prior to commencement of work.

Clay bricks shall conform with the requirements of SANS 227 and concrete bricks to SANS 987.

Damp proof courses, unless otherwise described, shall be an asphaltic damp proof course with a base of fibre felt, and complying with the requirements of SANS 248

Horizontal Damp Proof Courses, and with a mass of 3,25kg/m2 or a plastic damp proof course of 15 micron thickness as Type B, complying with the requirements of SANS 952.

PA3.2 Fascias, Barge Boards and Window sills

Asbestos cement fascias and barge boards, where specified, shall be 10mm thick pressed sheets, 200mm wide free from cracks, twists, blemishes or other defects and complying with the requirements of SANS 685.

Internal asbestos cement sills shall be in single lengths cut between reveals, fitted with fixing lugs and solidly bedded in 3:1 cement mortar with a slight projection beyond the finished wall face below. Sills shall be pressed asbestos cement of approved manufacture 152 x 15m thick set level.

PA3.3 Paintwork

PA3.3.1 Primers

Plastered surfaces must be cleaned down and have one coat alkali resisting primer of an approved brand applied in strict accordance with the manufacturer's instructions, before any undercoats are applied.

Galvanised metal surfaces must be treated with one coat Metal Elch Primer complying with the requirements of SANS 723.

Steel surfaces must be treated with one coat Tupe Zinc Chromate Primer complying with the requirements of SANS 679.

Steel windows and doors and steel door frames, before being built in, must have all loose primer together with all rust spots, dirt, etc. removed and be treated with one coat red oxide zinc chromate primer complying with the requirements of SANS 909.

Wood surfaces to receive paint finish must be cleaned down, all knots treated with knotting and be primer with Type I Wood Primer externally and Type III Wood Primer internally, both complying with the requirements of SANS 678.

PA3.3.2 Emulsion paint for interior use must be Grade I Emulsion Paint complying with the requirements of SANS 663. Emulsion paint for exterior use must be of the Synthetic Polymer Base Type complying with the requirements of SANS 634.

PA3.3.3 High Gloss Enamel Paint shall be used on all surface other than specified above. High Gloss enamel paint must be Grade I paint complying with the requirements of SANS 630 for decorative High Gloss Enamel Paints with a Non-Aqueous Solvent Base, for Interior and Exterior use.

Undercoats for paints, except Emulsion paints, must be Type I undercoat Paint complying with the requirements of SANS 681.

PA3.4 Doors, Windows and Glazing

PA3.4.1 Doors

Unless indicated otherwise on drawings all doors and door frames shall be of solid hardwood. Frames shall be fitted with suitable tie bars and braces at bottom, and lugs for building in, three to each jamb or frames with fanlights. All doors shall be provided with locks to the requirements of SANS 4 and each lock shall be provided with a duplicate key.

PA3.4.2 Windows

Steel windows must be of approved manufacture and design, constructed of rolled mild steel sections, properly mitred and welded at angles with welding cleaned off smooth on all faces and complying with the requirements of SANS 727. Window types and sizes shall be as specified on the drawings.

PA3.4.3 Glazing

Sheeting glass for glazing, unless otherwise specified, must be flat drawn clear glass of the thicknesses indicated below:

For panes not exceeding 0,65 m2:

3mm For panes exceeding 0,65 m2 and not exceeding 1,5m2 : 4mm

PA3.5 Tiling

PA3.5.1 Adhesive and Grouts

a) Wall adhesive

A grey, cement-based thin bed, wall tile powder adhesive for fixing tiles to walls.

b) Floor adhesive

A grey, cement-based thick bed, floor tile powder adhesive for fixing heavy tiles to floors or walls.

c) Wall grout

A cement-based, plasticized grouting compound for wall tile installation.

d) Bonding agent

A latex modified for use with adhesives and grouts to improve water resistance.

PA3.5.2 Tiles

Tiles shall be of first grade quality, white in colour, a maximum size of 160mm square, of a minimum thickness of 5mm and shall be glazed ceramic tiles (unless specified to the contrary).

PA3.6 Vinyl Asbestos Floor Tiles and Accessories

Vinyl asbestos floor tiles shall be semi-flexible vinyl floor tiles, 300mm x 300mm and 2,5mm thick to the colours specified. The colour scheme shall be approved by the Employer's Agent before any tiles are ordered - irrespective whether colours has already been specified on the drawings.

Skirtings shall match the colour of the floor tiles and shall reach 100mm up against the wall.

Stair nosings shall be provided where vinyl asbestos tiles are to be provided on the stairs.

PA3.7 Electrical connection

Electrical wiring and fittings are to comply with the requirements laid down by:

(i) The latest issue of the "Standard Regulations for wiring of premises" issued by the South African Institute of Electrical Engineers.

(ii) The Factories, Machinery and Building Works Act of 1941.

(iii) The local authorities By-laws and any special requirements of the Local Supply Authority.

PA3.8 Sink units

Sink units shall be fitted with one shelf and a stainless steel sink and fluted drainer unit, with tiling key to one or more sides as required, complying with the requirements of the relevant SANS specification and bearing the standardisation mark of the SANS. The stainless steel shall be of Grade 1770 and of such gauge as laid down for the particular size of fitting. Outlet of bowls shall be fitted with chromium-plated brass work fittings with vulcanite plug and chromium-plated chain. Each 1500mm long sink unit shall have a single bowl, either left hand or right hand as shown, size 460 x 350 x 150mm deep. Each sink to be fitted with chromium-plated bibcocks and connected to hot and cold water supply.

PA3.9 Sanitary equipment

PA3.9.1 Pedestal Water Closet Pans

Pedestal water closet pans shall be of wash-down type approximately 450mm high, of white glazed fireclay or vitreous china, complying with the requirements of the relevant SANS specification.

Pans shall be bedded on the floors in 3:1 cement mortar. Pans shall be fitted with approved plastic seats with double flap of size and shape required to fit the pans and each attached to pan with two non-ferrous metal fixing bolts.

PA3.9.2 Flushing Cisterns

Low level P.V.C cisterns, no less than 12mm thick in any part, shall be provided complying with the relevant SANS specification and shall have a capacity of +- 12 litres and shall be of the valve less siphonic type of approved manufacture.

Cisterns shall be fixed to walls with 6mm brass bolts, 150mm long, two to each cistern, built into walls in 3:1 cement mortar, with leather compression washers and brass nuts.

PA3.9.3 Hand wash basins

Hand wash basins shall be of the bracket type of white fireclay or vitreous china, complying with the requirements of the relevant SANS specification and having overflow, fitted with chromium plated grid.

Unless otherwise specified, basins shall be size 585 x 430mm each fitted with 38mm plug and chromium-plated chain, and with two 12mm chromium-plated brass easy clean pattern screw down pillar to PHS. Basins shall be fixed on concealed wall hangers fixed to walls with 6mm brass bolts, 150mm long.

PA4 PLANT

Plant, equipment, tools, scaffolding, etc. utilised in building work shall be of suitable capacity, condition and design to ensure the satisfactory and timeous completion of the Works within the specified period and in terms of these specifications and good building practices.

Only registered artisans (e.g. plumbers, electricians, etc.) shall be employed on any work where this is compulsory building practise.

PA5 CONSTRUCTION

PA5.1 Brick-and-Plasterwork

PA5.1.1 Normal brick walls

Brickwork, wherever practicable, and not otherwise described, must be built in English bond. Half brick walls, walls in two skins and cavity walls must have the separate skins built in stretcher bond. No false headers are to be used and none but whole bricks except where legitimately required to form bond. The bricks are to be well wetted (saturned in hot weather) with water before being laid and the course of bricks last laid is to be well wetted before bedding fresh bricks upon it. All perpends and angles are to be kept plumb. The brickwork is to have the joints flushed up at every course solid throughout the whole width of the course, and each course is to be laid on a solid bed of mortar. Pointing is to be done as the work proceeds.

The joints of all walls to be plastered or tiled are to be raked out 15mm as the work proceeds to form a key for plaster or screed. All walls are to be built up in regular and horizontal courses and carried out so that no part built is more than 1,2m higher than any adjoining walls. Mortar beds generally are not to exceed 12mm thickness.

PA5.1.2 Face brick walls

In all faced brickwork the bond must be set out on the first level course of brickwork, at floor level internally and two courses below ground level externally. The bond, if necessary, is to be broken in the centre of panels under windows or to piers between windows. All perpend must be kept true and all courses must be built to gauge rods. Facings must be carefully protected from damage, mortar droppings, paint splashes, etc. during the whole period of the Contract and, on completion, they must be thoroughly cleaned down and left perfect. The practice of oiling facings on completion will not be allowed.

PA5.1.3 Cavity Walls

Cavity walls are to be built with two brick skins with a cavity between the skins and the two skins tied together with wire ties, four to the metre square, carefully laid and in no case to fall inwards towards the inner skin of the wall.

Care must be taken to keep the cavity free of mortar droppings or other matter by movable boards or other means, and temporary openings must be left at plinth level through which any such droppings, etc. can be removed, and the openings made good on completion.

At door, window and other openings, the cavities shall be stopped 102,5mm back from heads, jambs and sills of openings.

PA5.1.4 Reinforced Brick Lintels

Brick lintels are to be built of normal, sound, well burnt, good quality building bricks, similar to the facings where exposed properly bonded longitudinally and bedded and pointed in cement mortar as described. Special care must be taken to ensure solid bedding, particularly where the reinforcement occurs.

The lintels are to be reinforced with straight continuous mild steel rods of the size and number scheduled. The rods must each extend 300mm on each side of the opening and are to be evenly spaced across its thickness in the first horizontal joint above the soffit.

Brick lintels in cavity walls must have all rods placed below the solid sections of the walls, excepting for those rods specifically scheduled to occur below the cavity.

Cavity walls must be built solid for the number of courses scheduled above the lintel soffit. This solid section must extend the full width of the opening, plus 300mm on each side. Combined brick and concrete lintels may have the reinforcement divided proportionately between the brick and the concrete skis. Where two or more openings are less than 665mm apart, the lintel shall be continuous over all such openings and the dividing piers, plus 300mm bearing at each extreme end as before, shall have such height and reinforcement as scheduled for widest openings spanned.

Span in mm Min. height of lintels above soffit course, in brick courses Reinforcement per half-brick thickness of wall above for

solid walls Additional reinforcement for cavity, placed below cavity

	No. of Rods	Dia. mm		No. of Rods	Dia. mm
600	2	1	6	1	6
900	3	2	6	2	6
1200	3	3	6	1	6
1500-1800	4	2	10	1	10
2100-2400	5	3	10	1	10

PA5.1.5 Damp proof courses

The sheeting is to be cut into strips of the required width and laid on all foundation walls to the full thickness of the walls to the full thickness of the walls and without any longitudinal joints. At ends, angles and intersections the sheeting must be lapped 150mm and sealed. In cavity walls the sheeting must be laid across the full width of the wall, including the cavity, and must be stepped up one course in the cavity, over a cement triangular fillet, so that the sheeting under the inner skin of the wall is higher than that under the outer skin of the wall.

Under all window sills exposed to the weather, the sheeting must be laid to form damp proof course as detailed above for solid walls and cavity walls.

PA5.1.6 Reinforcing in Brick walls

Reinforcing (brickforce) on an approved manufacture shall be place on every fifth course in all brick walls. In half-brick and cavity walls 80mm wide reinforcing mesh shall be used and 150mm wide mesh in the case of the one-brick walls.

PA5.1.7 Plasterwork

All chases must be cut and electrical conduiting and boxes fixed before any plastering is done. On no account will chasing be allowed in finished plaster work, and if such chasing is necessary, the entire wall surface must be hacked off and re-plastered.

Except where otherwise described, all external plaster is to be finished with a wooden float and all internal plaster is to be finished with steel trowel, all to perfectly true and even surfaces, free from tool marks and other defects on completion.

All finished surfaces are to be protected from injury. All joints in brickwork are to be well raked out, all surfaces, brickwork and concrete, to be plastered must be brushed down to remove all dirt and dust and be thoroughly wetted directly before plastering. Concrete surfaces must be roughened or hacked as necessary to give a proper key for plaster. The surfaces must then be sloshed with coarse cement grout before plastering is commenced. The surfaces of all internal plaster must be steel trowelled to a smooth even and true finish. External plaster must be finished to a true and even surface with a wood float. Plaster must be returned into reveals and soffit of openings and all angles and edges must be true and straight. All plaster surfaces must be free from blemish and any cracks, blisters, or other defects must be cut out and made good and the whole left perfect at completion. Plaster on walls must be not less than 12mm or more than 20mm in thickness, and plaster on concrete work must be not less than 10mm or more than 15mm in thickness, except where specifically otherwise described.

PA5.1.8 Slip Joints

Slip joints shall be provided between brickwork and concrete slabs and beams by level- ling up and steel trowelling smooth the bearing surfaces of brickwork with 3:1 mortar and covering the bearing surface before concrete is cast with 2 layers of 500m five hundred micron) black general purpose sheeting membrane.

The ends and sides of beams and edges of concrete slabs shall be separated from the brickwork with 12mm polystyrene placed vertically against the brickwork before the concrete is cast.

PA5.1.9 Beam Filling

Unless otherwise specified, beam filling shall be half brick thick, built in cement mortar, cut in between roof timbers and carried hard up to underside of roof covering and flushed up in mortar with a groove formed between covering and mortar to the satisfaction of the Engineer.

PA5.1.10 Securing of Roofs

Roof plates shall be fixed to walls with bands of 1,6mm thick galvanised hoop iron, 32mm wide, built six (6) courses deep into brickwork or embedded 300mm deep into concrete, at not exceeding 1,5 metre centres, and well lapped and spiked to plates and to roof trusses where adjacent, otherwise taken up to an lapped round the nearest purlin and well spiked thereto. A layer of brickforce shall be provided at each alternate course above the building in of the hoop iron to fix the roofs.

PA5.2 Rainwater Goods

All gutters, downpipes and flashings shall be 0,6mm thick galvanised sheet iron. Rates for sheet iron eaves gutter and rainwater pipes shall include for short lengths and for lapped, riveted and soldered joints. Eaves gutters are to be screwed or welded to fascia boards or roof timbers/beams with 38 x 3mm galvanised mild steel gutter brackets at approximately 900mm centres, or as otherwise described. Rainwater pipes are to be fixed with sheet iron ears to and including 25 x 76 x 150mm chamfered hardwood blocks, plugged to brickwork or concrete and oiled, or with 38 x 14 gauge galvanised hoop iron straps build into walls not more than 2 meter apart, bent around pipe and bolted at back.

Finishings shall be properly cut, lapped and shaped to render a waterproof finish. Flashings turned up against walls must be finished with cover flashing bent to shape, dressed over the under flashing and with top edge wedged into joint of brickwork and pointed or secured by other approved means.

PA5.3 Paintwork

All surfaces not being painted such as face brickwork, sills, floors and stained woodwork, must be covered up and protected against paint and distemper sports before any painting is commenced. All floors must be swept clean and walls dusted down before any paintwork is commenced and no sweeping or dusting must be done while painting is in progress.

All plastered wall; ceiling and similar surfaces must be perfectly dry and in a fit state to receive the finishings, before the work is put in hand.

All coats of paints, etc. must be thoroughly dry before subsequent coats are applied, and rubbed down where necessary.

All work must be finished to colours approved by the Engineer.

The tints of undercoats must approximate those of the finishing colour and in order to indicate the number of coats applied and to avoid misses when applying a succeeding coat a slight difference shall be made in the tint of each coat.

The Contractor must provide all necessary dust sheets, covers, etc. and shall exercise all necessary care to prevent marking the surfaces of joinery, walls, floors, glass, electrical fittings, etc. and must keep all parts of the works perfectly clean and free at all times from spotting, accumulation of rubbish, debris or dirt arising from the painting operations. Any surface disfigured or otherwise damaged must be completely renovated or replaced as necessary, by the Contractor at his own expense. The premises must be left clean and fit for occupation at the completion of the work.

PA5.4 Floor Finishes

Where a floated concrete floor finish is specified on the drawings, the requirements of SANS 1200G or GA, whichever is irrelevant, shall apply.

Granolithic finish to floors, treads and risers of steps, thresholds, landing etc. must be composed of two parts hard stone chippings; half part sand and one part cement, steel trowelled to a true and even surface. The granolithic must be laid before the concrete surface bed has matured, otherwise the surface of the concrete must be thoroughly cleaned with a wire brush and a coat of neat cement grout applied immediately before the granolithic is laid. The granolithic must be laid in panels not exceeding 6 m2 in areas, and jointed to lines of panels and lined into smaller square as directed with sunk V-joint. The joints between the panels should coincide with joints in the concrete surface bed, where these occur. No dusting on of colouring pigment will be allowed.

Terrazzo floor tiles shall be even in size and shape, free from cracks, chips, twists, blemished or other defect uniform in colour and equal to samples to be submitted to and approved by the Engineer. Special care must be taken to preserve arises and faces during transit and handling.

Pointing, etc.: Terrazzo floor tiles are to be bedded and jointed solidly in cement mortar and unless otherwise described, flush pointed on all exposed faces with semi-dry cement mortar pressed in. On no account must liquid grout be poured in. Terrazzo floor tiles work must be well protected to prevent all possibility of damage or discoloration and thoroughly off cleaned on completion.

Vinyl floor tiles shall be fixed on to a screed of thickness at least 25mm. The screed shall have a wood floated finish and shall be smooth with no obstruction greater than 3mm protruding and with the screeded surface level in such a way that no gap greater than 5mm would show underneath a 3m straight-edge or part thereof.

Vinyl tile adhesives shall carry the same product name as the vinyl tiles and the adhesives shall be applied as stipulated by the suppliers.

The acceptable tolerance of the final filed floor shall be similar to that specified for the screeded surface underlying the tiles.

PA5.5 Tiling Work

The area to be tiled, shall first be plastered as described under plasterwork leaving a wood float finish. The plastered surface shall be left for two weeks to cure before any tiling may start.

Tiles shall only be cut by approved tungsten tile cutters, or for irregular shapes by approved tile saws. The use of nibblers shall not be permitted.

A tiled panel shall be planned beforehand to minimise cuts. An initial perpendicular tiling configuration shall be laid against perpendicular fixed battens. A clear space of 1 to 2mm shall be left between tiles by inserting positive temporary spacers.

Prior to the application of any adhesives the rendering shall be vacuum cleaned. Adhesives shall be mixed with a bonding agent and not with water. The mixing proportions shall be as specified by the supplier. Adhesives shall be applied within a 15minutes period after mixing with those adhesives or used during such time to be thrown away.

Adhesives shall be applied in a solid bed, some 6mm thick and then struck with an approved serrated steel trowel. Adhesives shall not be applied by "the fire point tiling method".

Grouting of the joints shall only start 48 hours after a tiled section has been completed. The grout shall also be mixed with the bonding agent as specified by the supplier. The grout shall be worked off leaving a neat superficial rut in the joint centre. All the faces shall be cleaned directly after grouting.

No tiling shall be done over a structural joint. In large tiled panels, a movement joint shall be left every 3 metres in the horizontal and vertical direction as detailed. At a structural joint (contraction or expansion joint) the rendering, adhesive and tiles shall be interrupted over the joint and the joint sealed at the surface.

The permissible deviation on the final surface shall be a maximum gap of 3mm measured under a 3m straight edge or part thereof.

PA6 TOLERANCES

Where tolerances are not specified in the clauses above those generally accepted as representing good workmanship in the building trades shall apply.

PA7 TESTING

The Employer’s Agent reserves the right to order any tests, whether at place of manufacture or on site, necessary to evaluate the quality of the work and to ensure the finished building conforms to all the specified requirements.

PA8 MEASUREMENT AND PAYMENT

PA8.1 Schedule items

PA8.1.1 Brickwork

Brickwork, if measured as a separate item, shall be measured in square metre of the nett brickwalled area (with the wall width and type of brick-finish, indicated). No adductions will be made for small openings such as air bricks, etc. The tendered price per square metre of brickwork shall include also for the following, if such items are not listed separately:

(a) Plaster work as indicated
(b) Damp proofing
(c) Brick forcing (every fifth layer)
(d) Reinforcing of lintels
(e) Miscellaneous items built into brickwork shown on the drawings such as air bricks.

PA8.1.2 Wall, ceiling, roof and floor finishes

Cement plaster on walls and ceilings, roof screeds, floor screeds, paint and any other finish described or specified, shall if measured as separate item be measured in square metre of the nett surface are. No deductions shall be made for small openings nor shall additions be made for small protrusions and reveals. No separate payment shall be made for the processes involved and material supplied for the complete painting of all fixtures and fittings, as specified herein and the cost thereof shall be included in the tendered price for the supply, manufacturing and erection of all such items to be erected.

PA8.1.3 Miscellaneous

(a) Timber doors and windows shall be measured per unit of door or window complete with door frame, lock keys, glazing, painting, etc., for each type and size of door or window or as a lump sum payment for all doors and windows included in the door and window schedule of the Works.

(b) Other items of building work, fixtures and fittings, shall be measured and paid for in the units of measurements listed in the Schedule of Rates.

PB FENCING

PB1 SCOPE

This sub-section includes all work in connection with the erection of shockproof, vermin proof, residential or security fencing as shown on the drawings or as directed by the Engineer. It also includes any work necessary on the lifting and re-erecting of existing fences. The standard of fencing, the positioning of the gates and the quantities shown in the Schedule of Quantities against each item under this section, may be subject to variation and the Contractor shall ascertain from the Employer’s Agent, the exact location of, and specification to which the fencing shall be constructed, before placing any orders for material. The minimum standards of fencing required are indicated on the drawings.

PB2 MATERIALS

PB2.1 Vermin, Shockproof and Residential Fencing

Straining posts and stays, standards, and droppers shall be either of timer or steel sections. All sections shall be to the dimensions and masses indicated on the drawings. Timber sections shall be of creosote impregnated hardwood. Steel sections shall be either galvanised or painted to the specifications indicated on the drawings.

All plain wire, barbed wire, wire netting, diamond mesh and binding wire shall be according to the diameters and specifications indicated on the drawings.

PB2.2 Security Fencing

All posts, standards and droppers for security fencing shall be galvanised steel sections to the dimensions and details indicated on the drawings. Plain and diamond wire and other fencing materials shall all be according to the details indicated on the drawings.

Gates

All gates shall be to the details indicated on the drawings and components shall either be galvanised or painted according to the specifications on the drawings.

PB2.3 Bolts

Bolts shall be galvanised steel bolts of the required length and diameter which shall not be less than 12mm. Eyebolts to gates of 18mm diameter. All the necessary bolts together with nuts and workers, shall be supplied with each post or gate.

PB3 CONSTRUCTION

PB3.1 Clearing of Fence Site

All brush scrub and other obstructions which may interfere with the proper construction of the fences shall be removed and surface irregularities shall be graded so that the fence will conform to the general contour of the ground.

No separate payment will be made for this clearing and full provision for these costs must be made in the tender.

PB3.2 Connections

Existing cross fences shall be connected to the new fences. Straining posts with stays for every direction of strain shall be placed at the junction with existing fences and the wires in both fences properly fastened to the posts.

PB3.3 Placing of Posts

All posts, struts and standards shall be firmly planted into the natural ground, be it soil, gravel or rock to the depths detailed. Gate posts and struts shall be erected at all gates and straining posts and struts shall be erected at all ends and corners or bends in the line of the fence and at all junctions with other fences. Intermediate straining posts and struts, and standards shall be spaced at the intervals indicated on the drawings.

All posts (except struts), standards and droppers shall be placed in a vertical position except in unusual locations where, in the opinion of the Employer's Agent, it will be more satisfactory to place such member perpendicular to the slope of the ground. All posts, struts, standards and droppers shall be set in holes dug to the specified depth even in rock where blasting might be necessary to obtain the required depth. All gate posts shall be set in concrete and other members shall either be set in concrete or in well compacted backfill as indicated on the drawings. No concreting or backfilling shall be done until all members have been properly aligned.

All posts and struts for security fencing shall be set in concrete as shown on the drawings. Steel members are not buckled or otherwise damaged after being driven in, and provided further that the correct alignment or the driven members is maintained.

PB3.4 Attaching Wire

After all posts, struts and standards have been set firmly and after all concrete has hardened for at least four days the fence wire shall be attached according to the details indicated on the drawings. All wire shall be attached to the sides of the posts and standards furthest from the object being fenced. Wire shall be carefully stretched and strung in true alignment and without sag. Wire shall be attached to each post and standard by one of the following methods:

a) by notching the member and securing the wire by means of binding wire or,

b) by drilling holes through the member and stapling the wire with plain iron staples passing completely through the member, or

c) where iron members are used, by securing the wire by means of binding wire must pass through the hole in the standard.

Droppers shall be placed parallel to the standards at the intervals detailed on the drawings. Droppers shall be fixed to each fence wire with binding wire in such a manner as to prevent any slipping.

PB3.5 Attaching Wire Netting or Diamond Mesh

Wire netting and diamond mesh covering shall be securely fixed to the fence according to the details on the drawings. In addition, the wire netting on vermin proof fencing shall be fixed according to the Employer's Agent's instruction by one of the following methods:

a) by packing stones, placed end to end, on both sides of the fence so that no gaps exist beneath the fence, or

b) by folding back the bottom 150mm of wire netting so that it lies flat on the ground, and packing stones end to end on this flap, or

c) by embedding the lower part of the wire netting at least 100mm into the ground and ramming the earth thoroughly to secure the netting.

PB3.6 Installing Gates

Gates shall be installed in the position indicated by the Engineer. The gates shall be erected so as to swing in a horizontal plane at right angles to gate post clear of the ground in all positions.

PB4 FINISHING: TRIMMING AND PAINTING

Where timber posts have been used, the tops of the posts shall be trimmed after the fencing has been erected, such that the top of the completed fence has a pleasing profile. The cuts shall be liberally painted with creosote. An un-galvanised metal components of fencing has been erected, any chipped or damaged paint work shall be touched according to the same paint specifications.

PB5 MEASUREMENT AND PAYMENT

PB5.1 Vermin proof, Shock proof, Residential and Security Fencing

This fencing shall be measured in metres between the centres of gate and end posts along the general slope of the ground. Payment shall include full compensation for the clearing of the line, for the supply, painting and erection of all standards, intermediate straining posts and stays, droppers, plain wire, barbed wire, binding wire and all other components on the drawings but shall specifically exclude corner, end and gate posts and their stays. Payments shall also include for the concreting of posts where specified.

PB5.2 Corner, Bends and Ends

Corners, bends and ends shall be measured by the number and shall include compensation for the supply, painting and erection of all posts and stays required at such ends, corners or bends and shall include for any concreting where so specified.

PB5.3 Gates

Gates shall be measured by the number. A double gate as required for security fencing shall be measured as one number double gate. Payment shall include full compensation for the supply, painting and erection of the gate and ancillary components, as well as for the supply, painting and erection of gate posts and struts and for the concreting of such posts and struts (where required).

PB5.4 Pay Items

1. Vermin proof Fencing : m
2. Shockproof Fencing : m

3. Residential Fencing : m
4. Security Fencing : m
5. Corners, bends and ends (shall distinguish between the different type of fencing) : no
6. Gates (shall distinguish between the different type of fencing and between the different types and dimensions of gates) : no

PC FINISHING AND CLEANING UP

PC1 GENERAL

No section of the work will be regarded as satisfactorily completed until the final cleaning up has been performed.

PC2 SCOPE

All completed work shall be trimmed and all the debris of construction, such as unsuitable or rejected materials and spillage, shall be removed. The site and its environs shall be rehabilitated, where practically possible, by taking the following measures: -

* The site of work shall be cleaned of all rubbish, excess materials, falseworks, temporary structural installations and abandoned equipment.

* All construction scars resulting from this contract shall be treated to blend with the contour and vegetation of the surroundings.

* All trench subsidence shall be made good and surcharged backfill materials shall be removed unless otherwise directed.

PC3 ACCEPTANCE

Three weeks before the anticipated date of completion of any section to be handed over, the Contractor shall formally request a check list of defects from the Engineer.

Within one week the Employer's Agent will detail in writing the particulars of the work to be done in finishing the Works, and the general standard of aesthetics to be observed in trimming and cleaning.

Before offering the work for acceptance on a completion certificate the Contractor shall satisfy the Employer's Agent's site representative that all the work scheduled on the checklist has been attended to.

PC4 PAYMENT

Payment shall be the tendered lump sum and shall become due on the date of signature of the Certificate of Completion.

PD EQUIPPING OF BOREHOLES

PD1 SCOPE

This sub-section includes all work related to the installation of borehole equipment including but not limited to the following:

- Hand pumps
- Windmills
- Diesel driven engines
- Positive displacement pumps
- Submersible pumps and associated electrical work.
- Solar powered pumps (submersible and positive displacement)

The service to be rendered is the provision, installation, erection and commissioning of all the borehole equipment and appurtenant works.

PD2 GENERAL

Depending on borehole test results, the borehole will be equipped upon the Employer's Agent's site instruction. The pump set shall comprise one complete borehole pump, including all pipe work to couple to main pipeline, electric or diesel driven, pulleys, driving belts, etc. The complete installation is to be housed in the standard pump house as detailed on drawings.

Drawings illustrates the standard layout of equipment and pipe work to be installed in each pump house.

PD3 REMOVAL OF EXISTING EQUIPMENT FROM BOREHOLES

In cases where the boreholes listed are presently equipped (hand pump, power head, engine and shelter or windmill), all such equipment shall be carefully dismantled by the contractor and stored securely at the Contractors' camp, all to be handed over to the Employer. (Refer to clause PS10.9 of Section C3.4.1).

Where boreholes are sealed, the Contractor shall remove these entirely and demolish the seals. All such debris shall be dumped at spoil sites indicated by the Engineer.

The Contractor will only be permitted to expose the boreholes immediately prior to equipping such boreholes as instructed by the Employer's Agent and shall at all times exercise great care to prevent the ingress of debris or any foreign material into the borehole.

PD4 DESIGN, MEASUREMENTS AND RECORDS

PD4.1 Prior to the ordering of any materials to be used for the equipping of boreholes, the Employer's Agent shall issue a selection lists to the Contractor, specifying the equipment to be installed at each borehole.

The contractor shall, before ordering any equipment, verify the specific selection of equipment with the supplier.

The Contractor must proceed with the immediate ordering and/or installation of the specified equipment after reception of these lists.

PD4.2 Prior to equipping of each borehole, the Contractor shall measure and record the diameter of the borehole at natural ground level, the static water level (in metres below ground level), the depth of the casing and the total depth (in metres below ground level). These measurements shall be verified with the Employer's Agent prior to equipping of such borehole.

PD5 HAND PUMPS

Boreholes to be equipped with hand pumps shall be equipped with Reciprocating type or Positive displacement type hand pumps, or similar approved in writing. All handpumps shall be manufactured from Brass HCP (Hard Chrome Plated).

PD6 WINDMILLS AND WINDMILL EQUIPMENT

PD6.1 Windmills

All windmill heads shall be reciprocating double geared, oil lubricated, with the gearbox comprising one single piece casting, positively weather sealed. The main bearings shall be of white metal. All wind-wheels shall have a nominal diameter as specified.

The windmill shall have a concave shaped wheel with a gravity governing action reefing system. The tower is to be galvanised and with the number and quality of legs to the manufacturer's specification.

All components of windmills shall be assembled and erected to the Manufacturer's details and requirements and to the satisfaction of the Engineer. The Contractor shall at all times have at his disposal one neat complete set of erection instruction manuals at the erection site.

All windmills shall be completely covered by the Manufacturer's guarantee of not less than twelve months as dated from the date of commissioning the particular plant.

PD6.1.1General Safety Regulation of Safety Legislation no.13A(6)(a) and 13A(6)(b)(i)

1. An employee shall ensure that every ladder is constructed of sound material and is suitable for the purpose for which it is used, and-

(a) is fitted with non-skid devices at the bottom ends and hooks or similar devices at the upper ends of the stiles which shall ensure that stability of the ladder during normal use; or

(b) is so lashed, held or secured whilst being used as to ensure the stability of the ladder under all conditions and at all times.

2. No employer shall use a ladder, or permit it to be used, if it-

(a)(i) has rungs fastened to the stiles only by means of nails, screws, spikes or in like manner; or

(a)(ii) has rungs which have not been properly let into the stiles;

Provided that in the case of welded ladders or ladders of which the rungs are bolted or riveted to the stiles, the rungs need not be let into the sides; or

(b) has damaged stiles, or damaged or missing rungs.

3. No employer may permit that-

(a) a ladder which is required to be leaned against an object for support be used which is longer than 9m; and

(b) except with the approval of an inspector, the reach of a ladder be extended by fastening together two or more ladders;

Provided that the provisions of this sub-regulation shall not apply to extension or free-standing ladders.

4. In the case of wooden ladders the employer shall ensure that -

(a) the ladders are constructed of straight grained wood, free from defects, and with the grain running in the length of the stiles and rungs; and

(b) the ladders are not painted or covered in any manner, unless it has been established that there are no cracks or other inherent weaknesses; Provided that ladders may be treated with oil or covered with clear varnish or wood preservative.

5. When work is done from a ladder, the employer shall -

(a) take special precautionary measures to prevent articles from falling off; and
(b) provide suitable sheets or receptacles in which hand tools shall be kept when not being used.

6. An employee shall ensure that a fixed ladder which exceeds 5m length and is attached to a vertical structure with an inclination to the horizontal level of 750 or more -

(a) has its rungs at least 150mm away from the structure to which the ladder is attached; and

(b) is provided with a cage which -

(i) extends from a point not exceeding 2,5m from the lower level to a height of at least 900mm above the top level served by the ladder; and

(ii) shall afford firm support along its whole length for the back of the person climbing the ladder, and for which purpose no part of the cage shall be more than 700mm away from the level of the rungs:

Provided that the foregoing provisions of paragraph (b) shall not apply is platforms, which are spaced not more than 8m apart and suitable for persons to rest on, are provided.

Important Note:

One windmill manufacturer was granted the following exemptions for windmill towers:

This exemption is subject to the following conditions:

1. There shall be at least 150mm clear space between each rung of the ladder and any part of the tower horizontally behind it.

2. The cage shall extend from a point not exceeding 3.5m from the lower level to a height of at least the level of the wooden platform.

3. A notice shall be displayed at the top rung of the ladder warning persons to attach their safety belts before proceeding further.

4. A notice shall be displayed on the ladder at a height of approximately 1.8m above ground level warning persons to apply the windmill brake before proceeding to climb the ladder.

5. The notices mentioned in 3.3 and 3.4 shall include symbolic signs which can be understood by all language groups.

PD6.2 Borehole Cylinders

Unless otherwise specified, all boreholes are drilled to a minimum of 150 mm diameter.

Heavy duty mushroom type borehole cylinders, of which the barrel is of seamless brass (alt. stainless steel) tubing shall be used in all cases. The nominal bore of the cylinder shall be as specified. The cylinder stroke shall be in compliance with the windmill specified. Each borehole cylinder is to be fitted complete with suitable brass strainer, screwed directly into the cylinder. Plungers are to be fitted with neoprene buckets.

PD6.3 Borehole Pump Rods

Galvanised solid mild steel pump rods, diameters as specified, with screwed joints in lengths of 3 metres complete with socket and two lock nuts shall be used.

The pump rods shall be supplied, complete with the necessary approved galvanised pump rod couplings to connect the pump rods to the plunger rod of the cylinder, to the packing box rod and to the mill rod connection. Prior to assembly of pump rods, the screwed ends shall receive one coating of an approved protective pipe threading compound in the form of a layer of paste.

Approved galvanised steel mill rod connections complete with bolts and nuts to the Manufacturer's recommendations shall be used to connect the wood mill rods to the pump rods.

PD6.4 Borehole Rising Mains

Screwed and socketed medium galvanised iron piping to SANS62 shall be used for the borehole rising columns. Internal diameters of the rising columns shall be as specified. Prior to assembly of pipe columns, the screwed ends shall receive one coating of an approved protective pipe-threading compound in the form of a layer of paste. Following assembly, all excess paste shall be wiped off, and the pipe area 300 mm above and below the socketed joint shall be covered with a layer of bitumen-based paint. Stabilisers shall be provided at 12 m spacing on the rising mains.

PD6.5 Tee and Spill Pieces (Standpipe)

At the top of the delivery column a galvanised tee-piece shall be provided to take the discharge pipe. Except in the case of packing box installations, a spill piece (standpipe), having an equal diameter to the rising main, shall be provided to prevent water spilling over the top of the column. Standpipes shall be used only in cases where the discharge head is less than 5 metres. The standpipe shall be securely braced to the tower posts at the top end of the pipe.

PD6.6 Packing Box / Stand Pipe Gland / Force head

Heavy duty seamless brass tube type packing boxes with positive neoprene sealing buckets and screwed externally to fit the specified borehole rising main or equivalent units, shall be provided in all cases where the discharge head exceeds 5 metres. Packing boxes shall further comply with the maximum specified discharge head of 12 metres.

Packing boxes shall be installed complete with all necessary fittings required for the proper couplings of pump rods and mill rods.

PD6.7 Base Plates

The Contractor shall supply over each borehole one set of cast iron clamps and base plate of a size conforming to the diameter of the borehole rising main, complete with four 250 mm long by 12 mm dia foundation bolts and nuts. The foundation bolts are to be embedded into a Class 15/20 mix concrete footing of 600 mm minimum depth and 600 mm square surface dimensions. The bolts shall be located thus, that each half of the clamp (provided with slotted holes) can be moved back and forward sufficiently when column pipes are being lowered or raised. The base plate halves shall be clamped together using two bolts.

PD6.8 Discharge Pipe Work

Discharge pipe work comprising one horizontal length piping, GMS to SANS 62.450 mm long, two 900 female bends and one vertical length piping 750 long, shall be fitted to the horizontal outlet of the tee piece at the top of the rising column main. Internal diameters of the discharge piping shall be as follows :

Rising column dia mm	Discharge pipe dia mm
40	40
50	50
65	50

In the latter case, a 65 x 50 reducing bush shall be fitted to the rising main tee outlet. All discharge pipe work shall be medium galvanised steel and pipe lengths shall be screwed both ends.

PD6.9 Air Chambers

Air chambers shall provide adequate capacity of air cushion and be fitted with externally fitted release plugs.

PD6.10 Concrete Foundations

Foundations holes shall be excavated to the positions, depths and widths as recommended by the Manufacturers of the particular plant but shall however not have dimensions of less than 1.00 metre in depth and 1.00 m diameter at the bottom of the foundation hole.

Following completion of the excavation of the foundation holes, a layer of about 150 mm thick concrete, class 15/20 mix, shall be placed in the bottom of the holes ensuring that the concrete surface in the different holes are at the same level. Four 600 mm long 20 mm diameter mild steel bars with 100 mm of both ends bent ninety degrees, shall be placed 150 mm from the circumference of the holes, into the concrete layer of each hole. After the concrete has set, the steel anchor posts of the tower shall be carefully placed and positioned into the holes and each hole shall be filled with another layer of 300 mm of concrete. Care shall be taken that the surface of the older concrete is clean before new concrete is placed. The concrete shall completely cover all foundation plates. By using circular shuttering of approximately 250 mm diameter, concrete shall then be poured around each tower post bringing the top of the concrete to ground level where it shall be neatly rounded off. Earth shall then be rammed around the concrete.

The Contractor shall ensure that the tower is perfectly level when erected and if applicable that the borehole is in the centre of the tower posts and with a plumb line or other means that the centre of the tower cap is directly above the borehole.

PD6.11 ROTARY WINDMILLS

The windmill head, wheel and tail unit, as well as the tower shall be to PD6.1. The rotary screw pumps shall be self-priming positive displacement pumps or similar approved as per PD8.

The windmill shall be supplied with a gearbox of ratio 1:10 and shall translate reciprocal motion into rotary motion. It shall be furnished with a double set of gears. The discharge head shall be to the specifications given under PD8.

The borehole pump rods shall be to PD6.3 for the rods above the gearbox, but shall be as for positive displacement borehole pumps (PD8), below the discharge head. The former borehole pump rods shall be guided by flanged bearings attached to the lower portion of the tower structure, including a quick-release coupling for attachment of the pump to an electrical or diesel driven power source. Stabilisers shall also be installed every 12 m on the borehole rising mains.

Column piping and ancillary pipe work shall be to PD8 and PD10, respectively.

The concrete foundations for the tower shall be constructed to PD6.10, while the concrete work related to the installation of the discharge head shall be similar to that specified under PD8.

PD7 DIESEL DRIVEN ENGINES

PD7.1 Quality Control

All diesel engines shall be manufactured in accordance with BS 5514, ISO 3046 and DIN 6271.

PD7.2 Handling and Transport

The Contractor and/or his accredited agent/distributor is fully responsible for the compliance of the Items with the specification up to the relevant point of delivery to site.

PD7.3 Standard Compliance

The tenderer must indicate to which specification his engine and accessories comply with.

PD7.4 Technical Data

An installation and maintenance manual with a complete part list shall be provided with each engine purchased.

The service to be rendered is the supply, delivery in working condition, install and commission of 4 stroke, diesel engines. They shall be direct injection, naturally aspirated and of modular construction, with common spares within each diesel engine family range as more fully specified hereunder.

All engines ordered shall have undergone a 45 minutes Dynometer test up to 100% full load and pre-delivery service in the factory and certified proof thereof shall be submitted for each engine on delivery.

PD7.5 Faulty Components

In the event of a product problem being experienced, a new component shall be delivered immediately. Credit shall then be given to the Employer on return of the faulty component, if found that the Item is in fact a warranty claim. A full report shall be submitted indicating the cause of failure, and shall be directed to the Employer.

PD7.6 Identification Details - Diesel Engines

(a) All engines and attached components shall be painted with heat resistant bright yellow paint for identification purposes, ex engine block, head, flywheel, metal covers etc.

(b) The engine serial number shall also be punched or engraved on the flywheel and engine block. The minimum size of the script shall be 5 mm.

PD7.7 Technical Specification

(a) Sliding base and frame assembly

- Sliding base and frame complete with M12 securing bolts, and M20 anchor bolts.

(b) Exhaust system

The exhaust system shall comprise the following:

- 0,5 m flexible pipe with flange adapter at both ends;
- 1,5 m exhaust pipe with flange adapter at one end;
- Pepper-pot silencer, to be mounted on the exhaust pipe end complete with clamps;

(c) Fuel tank and stand assembly

Weatherproof 90 l steel diesel tank on stand, mounted inside the pumphouse to the steel structure.

(d) Centrifugal clutch

Engine shall be fitted with a centrifugal clutch. Detail drawings of clutch to be submitted. The clutch shall be able to transfer the maximum rated torque at 1 300 rpm. The engaged speed must be stamped on the clutch body.

(e) Gauges

A suitable vibration hour meter and oil pressure gauge shall be fitted on a permanent engine mounting (twin gauge panel with anti-vibration mountings).

(f) Suitable V-belts with totally enclosed belt guards shall be supplied with each complete unit.

(g) Diesel driven engines shall be air-cooled type.

(h) Complete Machine tool kit to be supplied with each engine for servicing purposes;

(i) Metal identification plate with the following information embossed on it: Make & Model No. Serial No. Rotation Speed (rpm) & Continuous Rating (kW).

PD8 BOREHOLE PUMPS

Pumps shall be of the type specified and be self-priming, positive displacement rotary type, vertical spindle borehole pump, suitable for pumping potable water to a concrete reservoir or elevated tanks. Solar powered positive displacement pumps are also to be considered for installation.

i) Column piping shall be standard galvanised medium class water piping. Column stabilisers shall be fitted to at least every fourth column pipe to secure a neat fit against the borehole perimeter. During assembly of pipe columns, the pipe area 300 mm above and below each socket shall be covered with a protective coating of bitumen base paint, following securing of the socketed joint.

ii) The inlet of the pump unit shall be fitted with a suitable strainer.

iii) The discharge head shall incorporate the pulley housing and shall be mechanically safeguarded against incorrect direction of rotation. The discharge head shall be provided with a cast iron or fabricated steel bed plate fixed to a concrete foundation block of adequate size by means of suitable anchor bolts.

Pump and electrical/diesel driven shall be accurately aligned on an integral steel frame according to installation instructions of the pump manufacturer and shall allow adjustment in any direction on the horizontal plane for both engine and pump. Length of V-belts shall be as recommended by the pump manufacturer. A detachable steel plate guard, painted red, shall cover the entire V-belt drive. Provision to be made for adjustment of the guard to suit occasional V-belt tension adjustments.

After installation of all mechanical and electrical equipment, the supplier must check the alignment of the pumps as well as starting and commissioning of the pump installations. When satisfied, the supplier shall issue a certificate stating that the installation complied with the manufacturer’s specifications.

Centrifugal clutches will be provided where pumps are driven by diesel engines and where instructed by the Engineer. Alternatively drive shafts of the engine and pump shall be connected by a flexible coupling as recommended by the manufacturers of the diesel unit.

vi) A metal identification plate shall be attached to the discharge head with the following information embossed there-on : Make and model no. (pump and discharge head),

Serial no. (pump and discharge head, driven rotational speed (rpm), delivery (l/s) and head (kPa).

PD8.1 Positive displacement borehole pump elements

(a) Bell-mouth pump bodies are not acceptable.
(b) Elements must be fitted with at least one (1) spider bearing.

PD8.2 Complete columns

(a) Columns with a diameter less than 65 mm shall be manufactured from medium galvanised tubing according to SANS 62 specification.

(b) Columns with a diameter of 65mm or more shall be manufactured from heavy wall tubing with a 4,85 mm minimum wall thickness according to SANS 62 specification.

(c) Bell-mouth columns are not acceptable.

(d) Columns must include sockets, shafts and bobbin bearings.

(e) A sufficient quantity of lubricant, as prescribed by the manufacturer, shall be included. (minimum 500 ml).

(f) All threads shall be parallel truncated.

(g) Sockets shall be precision machined from seamless heavy wall tubes.

(h) Standard galvanised sockets for sizes above 25 mm diameter are not acceptable.

(i) Sockets: Outer diameter and length of sockets

Size	Outer diameter	Length
40 mm	54	76
50 mm	70	76
65 mm	89	90
80 mm	100	100
100 mm	126	100

(j) All pipes shall be tested in accordance with the applicable SANS specification by the pipe manufacturer.

(k) The Manufacturer's name/logo and inspection number shall be stamped on the pipes and sockets.

(l) A socket shall be fitted on the one end of the pipe after pipe sealant has been applied. The open thread at the other end shall be protected by means of a thick wall plastic cap. The manufacturer's stamp must be visible.

PD8.3 Drive heads

(a) Light duty drive heads for motor/engine size up to 5,5 kW absorbed power. Heavy duty drive heads for motor/engine size over 5,5 kW. Refer to manufacturer installation instructions. All drive heads shall be supplied complete with discharge base, bearing assembly, pulley, adapter column, top rod, gland packing, gland follower, flanges if required and all fasteners.

PD8.4 MATERIALS

The following items shall be manufactured from the material as indicated against the relevant item.

Strainer	Galvanised mild steel
Stator	Nitrile rubber
Rotor	Alloy steel (EN8 HCP)
Flexible shaft	Stainless steel (EN57)
Spider bearing	Lumenite or Nitrile rubber
Borehole pump drive shafts	Carbon steel (070M20) (EN 3B)

PD9 SUBMERSIBLE PUMPS

PD9.1 Submersible pumps shall be properly insulated and provided with an adequate lightning protection system. Tenderers are required to state which lightning protection system would be provided.

PD9.2 Submersible positive displacement pumps shall have a single rotating rotor in a resilient rubber stator. The rotor shall be hard chrome plated with a stainless steel pump casing.

PD9.3 Submersible centrifugal pumps shall be suitable for either 220 volt or three phase 380 volts.

PD9.4 Metal identification plates shall be fixed to the outside of the electrical control box. The following information shall be embossed on it : Pump make and model no, Serial no, Rotation speed (rpm), delivery (l/s), head (kPa).

PD10 ANCILLARY PIPEWORK

See Specification Drawings 2020-08/W/D/023 and 2020-08/W/D/024 for the ancillary pipework to be supplied and installed on the delivery side of each borehole pump. All Sedibeng Water standards must be taken into consideration.

PD11 EQUIPMENT

All equipment should be installed according to the prescribed specifications. Sizes of bases and plinths should be as the DWAF or Sedibeng standard specifications. Civil work should be constructed as per the applicable specifications.

The holding down bolts of diesel engines shall have a longer thread than required for proper installation, and shall be supplied with two nuts each. One nut shall be used to anchor the engine to the frame, while the second shall be screwed-on and spot-welded to the upper end of the threaded bar.

PD12 ELECTRIC MOTORS

PD12.1 Electric motors shall comply with SANS 0157, Part 1, for quality, and SANS 948, Part 1 (1978) for performance. Insulation of motors shall be class "F" to BS2757.

PD12.2 Motors up to 3 kW shall be fan cooled single phase, 220 Volt, 2-pole, 50 Hz, TEFC induction motor suitable for D.O.L. starting.

PD12.3 Motors between 3 kW and 5 kW shall be fan cooled, aluminium framed, foot mounted, 380 Volt, 3-phase, 50 Hz, TEFC type, squirrel cage induction motors suitable for D.O.L. starting and be suitable for Star Delta starting when the rating exceeds 5 kW.

PD12.4 Pulleys supplied with motors shall be between 102 mm and 259 mm, be 2-grooved B-sectional taper-lock pulleys and be supplied complete with suitable fan belts. The rate tendered for the motors shall be deemed to include for the pulley and fan belts.

PD12.5 Metal identification plates shall be attached to the motors, with the following information em-bossed there-on : Make and model number, serial no, insulation class, frame type, rotation speed (rpm), power output (kW) and current at duty point (A).

PD12.6 Electrical motors shall comply with the minimum standards of Sedibeng Water of which a copy is included into this document (PW).

PE ELECTRICAL AND ELECTRONIC INSTALLATION PE1 SCOPE

This specification includes the detail on the project to insure the manufacturing, delivery, transport, handling, protection, storage, installation, successful complete the Electrical and Electronic Installation

The general specifications of the works covered by this section shall be defined in the Particular Specifications, Schedule of Quantities and relevant Drawings.

The project specifications shall have preference over the Particular Specification and shall be considered as alterations to the general specifications.

PE2 DETAILS OF CONTRACT

This section includes the design, manufacture, supply, delivery, offloading, storing if necessary, erection, painting, commissioning, testing and maintenance during the Maintenance Period, and final handing-over of all necessary electrical equipment for the electrical works for the water supply in various villages under the Dr Ruth Segomotsi Mompati District Municipality Rural Water Supply Scheme

The electrical contractor shall be a sub-contractor to the principle mechanical contractor.

The work to be undertaken is generally in or near existing townships and inhabited areas. Access to the site is deemed adequate.

PE3 ELECTRICAL PROJECT SPECIFICATIONS

All materials and equipment supplied under this Contract must be new and of the best quality available. All materials must comply with the requirements of the latest editions of the relevant SABS and NRS Specifications.

In addition, all materials and equipment shall bare the SABS mark of approval. Where no mark is available, RCC (Regulatory Conformance Certificates) shall be provided to the Employer's Agent, indication the materials & equipment's compliance to relevant local statutory and/or international standards. The SABS 1200 specifications form part of the electrical works.

PE3.1 General

The project specification must be read together with the standard specification, bill of quantities, and the drawings (if applicable).

The work covers the complete supply, delivery, installation, testing, commissioning, and free maintenance during the guarantee period of the installation as detailed in the specifications, bill of quantities and accompanying drawings.

The Contractor shall provide all materials, equipment, labour, and services necessary for the complete and efficient operation of the electrical installations in accordance with the intent of the specification.

The work shall be carried out strictly in accordance with:

- The Occupational Health and Safety Act and Regulations (Act no. 85 of 1993 as amended).
- The SANS code of Practice for Wiring of Premises, SANS 10142-1: 2008 as amended.
- The project -, particular - and standard electrical specifications.
- Any municipal by-laws and regulations.
- The local authority requirements.

PE3.2 Standards, Inspections and Tests

All material/equipment shall bare the SABS mark of approval. Where it is not practical and/or furnished on the material/equipment, full RCC's (Regulatory Conformance Certificates) will be provided to the engineer. The contractor will note, on the Certificate of Compliance (CoC), the RCC's and exclude them accordingly from his responsibility. The aforementioned shall apply to any other material/equipment and COC's, which must be provided under this contract, but will not be directly supplied, installed etc. by the appointed subcontractor e.g. Lighting Protection System material/equipment and COC's.

As stated previously and further on in this document, all equipment must comply with all relevant standards, specifications and requirements indicated respectively. In addition, there may be materials/equipment not specified in the project specification etc., which may have to be used in order to achieve the required outcome e.g. masts, flood lights etc. Alternatively, there may be certain equipment mentioned in the specification which will not be project specific and may be ignored unless otherwise specified.

Where materials are not specified accordingly, it will evidently be the responsibility of the contractor to furnish the employer's Agent with the manufacturer's details, designs, recommendations, instructions etc. of the specific product, for relevant approvals prior to order or installation etc. The aforementioned will be in conjunction with all other relevant clauses pertaining to information provision to the employer's Agent for approval.

The manufacturer's details, designs, recommendations, instruction etc. shall complement all statutory regulations & standards. Where the manufacturer's details, designs, recommendations, instruction etc. are in conflict with the project specifications and requirements, the employer's Agent shall inform the contractor accordingly as to which requirements to use in order to accomplish project requirements.

Where it is indicated in the Bill of Quantities, or any other part in this document, the information required for approval by the Employer's Agent, it shall be seen to form part of the specifications and requirements.

The Contractor shall inform the Employer's Agent of any equipment which is ready for despatch, in which case the Employer's Agent will arrange for an inspection at the factory of the manufacturer if it is deemed necessary. Such notification of the Employer's Agent must be 10 days prior to despatch.

Three copies of all equipment test reports, whether these tests have been carried out in the presence of the Employer's Agent or not, shall immediately after they become available, be submitted to the Engineer.

PE4 DETAILS OF ELECTRICAL WORKS

The electrical subcontractor will be responsible for the supply, delivery, installation, testing, commissioning, and handing over in proper working condition of the complete new electrical and electronic installation, as specified in detail in this document.

Items covered under the electrical specification include as applicable, but is not restricted to the following:

a) Liaison and supply authority supply connection application, arrangements, etc.

b) The manufacture, supply, testing, and inspection at the manufacturer's premises, installation, connection, testing and commissioning of Motor Control Centres, distribution boards and switchgear.

c) Supply, installation, and connection of all control instrumentation such as level, flow, thermal and pressure transmitters.

d) Supply, installation, and connection of all cable trays, wire ways, conduit, draw and outlet boxes, and sleeves

e) Supply, installation, and connection of all cables, control circuit, wiring and conductors.

f) Supply, installation, and connection of all circuit equipment for small power and lighting installation, i.e. socket outlets, light switches, isolators, etc.

g) Supply, installation, and connection of all luminaires.

h) Connection of electrical power to all mechanical equipment and systems, i.e. Pump, values, pressure and level transmitters to complete the plant, etc.

i) Supply, installation, connection, and testing of an earthing system.
j) Excavations for all cable trenches, compaction, backfill, and making good of existing surfaces.
k) Testing, commissioning, and handing over of the complete electrical installation, in accordance with the requirements of the Electrical Contracting Board of South Africa and the issue of a Certificate of Compliance (COC) for each and every installation.
l) Removal of redundant electrical equipment where necessary.

The successful tenderer shall allow the representative of the Employer's Agent access to the manufacturer's works at all reasonable times to inspect the progress of the work and the witness all tests.

PE5 SUPPLY AUTHORITY SUPPLY CONNECTION

The contractor shall submit the supply connection application to the supply authority and liaison with them to complete the connection point.

Each installation will require its own connections point as determine by the size of the pumps. Existing supply points might have to be upgraded.

The contractor shall install a supply a new cable from the supply point to the pump station, if existing cable exist the contractor shall test the cable to insure workability.

PE6 LOW VOLTAGE DISTRIBUTION BOARDS

Distribution Boards shall be installed in the positions indicated on the drawings and shall comply with SANS 1765. Electrical Contractors are advised to order their purposed made distribution boards from a reputable manufacturer, as inferior boards will definitely not be accepted. It shall further be noted that late approval of drawings and distribution boards due to non- compliance with the specification will not relieve the Electrical Contractor from his obligations to complete the installation according to programme. No claims for delays or extension of time in this regard, will be entertained.

Some installations shall be provided with a Local DB- section in the MCC panel.

All DB-Boards shall comply with PMC particular specification, schedule of quantities and drawings.

PE7 CONDUIT AND WIRE WAYS

All conduits and accessories shall bear the SABS mark of approval.

Cables shall be installed on a galvanized welded wire ray, from the MCC to the pump and controls, 300mm AFFL along the wall of the pump station.

The following conduits shall be used:

- Galvanised BOSAL conduit for any surface mounted installation and shall be mounted by means of raised saddles, for outdoor use.

- PVC conduit will only be permitted indoors in roof and ceiling spaces and chased into slabs or chased in walls.

Conduits installed in ceiling or roof spaces shall, where practical, be run parallel and at right angles to roof members and clear spans of metal and plastic conduit shall not exceed 1 500 mm and 900 mm respectively. Conduit installations for confined spaces of less than 900 mm clearance, or where the space after completion of the work will be inaccessible, shall be such that wiring can be carried out from outside such space as would be the case for a conduit installation cast into concrete.

No draw boxes or inspection tees or bends shall be installed in confined roof spaces and where draw boxes are unavoidable; these shall be installed flush with ceiling.

PE7.1 Chasing and Built In

It is the responsibility of the electrical contractor to ensure that conduits, wall boxes, distribution boards, etc. are correctly positioned and built or chased in as the work progresses.

Conduits shall generally be installed at such a depth that the outside surface of the conduit is at least 12mm below the finished plaster surface. Chasing in face brick will not be allowed.

Conduits shall be cast into concrete slabs wherever possible and no conduits will be installed in floor screeds unless approved by the Engineer. Where conduits are cast into beams these shall be located close to the neutral axis of the beam.

PE7.2 Conduit in Concrete

Conduit shall be installed as close as possible to the neutral axes of concrete beams or slabs. Conduit and outlet boxes shall be securely fixed to shuttering to obviate displacement during the pouring of concrete.

Conduit shall drop to the lower face of concrete and terminate at outlet boxes only at points where such boxes are to be installed. On existing concrete structures, conduit shall be run only in approved positions and depth of chasing of such structures, where unavoidable, shall be carried out after approval has been obtained from the building contractor.

The electrical contractor will be required to liaise closely with the building contractor as regards to the incorporation of conduit runs with structural steel in reinforced concrete slabs. Where required, outlet boxes shall be of the deep type to allow structural steel to pass below conduits at outlet boxes. No elbows or bends of radius less than 120mm shall be installed in concrete slabs.

The electrical contractor shall be present during the casting process, so as to ensure that no damage or displacement occurs to conduit.

Immediately after each section of shuttering has been stripped, the electrical contractor shall by means of steel tape establish whether all conduit boxes are accessible and all conduit runs intact and clear. Any shortcoming detected at this juncture must be immediately rectified in approved manner. No beams or pillars shall be cut to install any conduits.

PE7.3 Conduit Surface mounted

Where surface work is permitted, conduit runs shall be perfectly straight and plumb or level. Galvanised conduits shall be fixed at intervals not exceeding 1 500mm and 900mm respectively. Conduit saddles shall be fixed to roof timber by means of suitable wood screws. Nails will not be permitted.

After completion of surface work, no exposed thread shall show, except where running joints occur. The latter shall only be resorted to where absolutely unavoidable, and must be fitted with a sliced coupling as a locknut.

Saddles for all conduits installed on surface shall be fixed by means of expandable tapered plastic wall plugs and corrosion proofed steel round-headed screws. Wood plugs and plugs in mortar joints between bricks are not acceptable. Where surface conduits are installed in conspicuous areas and on steelwork, spacer bar saddles shall be used.

Fixing onto steelwork shall be by means of drilling, tapping and screwing or where more practical, by means of stainless steel strapping or conduit clamps. Explosive driven devices which will facilitate easy removal of the saddles may be used provided that the type of fixing device has been approved by the Engineer.

PE7.4 Bends and Draw/Wall boxes

Normal bends or elbows will not be allowed except where specially approved. All sets shall have a

radius of at least five times the outside diameter of the conduit and conduit showing signs of flattening or cracking shall be rejected.

Draw boxes shall be installed in approved positions so that not more than two bends occur between the one ends of the run and draw box or between boxes. Draw boxes shall be arranged so as to be accessible after the completion of the building and must be provided with cover plates which shall finish neatly and flush with the final surface.

Draw boxes shall, where possible, be located in inconspicuous places allowing for a common cover. Rectangular boxes shall be square with respect to walls.

Flush-mounting wall boxes for socket outlets, switches, isolators, etc. shall be of heavy gauge (minimum 1mm thickness) pressed steel galvanised type, complying with the relevant requirements of SABS 1085. Substantial lugs, drilled and tapped for fixing screws, shall be provided.

Each wall box shall be provided with Knockout conduit entry holes, on all sides and at the back.

Cover plates shall comply with the relevant requirements of SABS 1084 and shall have a thickness and finish as specified in the Detailed Specification. Fixing screws shall be rust proofed by plating to suit the cover plate finish. An assortment of fixing screws will not be acceptable.

The nominal dimensions of flush-mounting wall boxes shall be as follows:

- Single switch units - 50 x 100 x 50mm
- Switched socket outlets (single/double) - 100 x 100 x 50mm
- Draw boxes in ceiling space - 300 x 300 x 150mm
- Round Draw boxes light points

Under no circumstances shall flush-mounting boxes be used in a surface installation. The electrical contractor shall supervise the building-in of wall boxes to ensure correct positioning.

Where a number of flush-mounting wall boxes are to be installed at the same height adjacent to each other or back to back, the electrical contractor shall fit two couplings secured by means of male bushes between each pair of adjacent boxes to ensure that the boxes are uniformly spaced and located at the same level.

Lighting and plug circuit wiring shall always run in separate conduits but may, with the approval of the Employer’s Agent, be run in a common wire ways. More than one circuit may be run in the conduit provided that the number of conductors drawn into the conduit does not exceed the wiring capacity of the conduit as specified in the Code of Practice.

The electrical contractor shall install hot-dip galvanised draw wire of at least 1.6mm diameter in all unwired conduits.

Mixed loading of circuits shall be in accordance with the requirements of the Code of Practice.

Likewise, each power point shall be wired through a conduit dedicated to that power point only, except where otherwise specified.

PE7.5 Expansion joints

The expansion joints shall be made in a draw box with an over one side terminated and other conduits inserted 30 mm into the draw box to allow for movement. All slab and wall expansion joints shall be crossed at 900with the joint.

Earth continuity shall be maintained where slip joint are installed.

PE7.6 Conduit Accessories

All conduits shall have a minimum diameter of 20mm and unless otherwise specified or approved as such by the Employer's Agent, all conduit fittings shall be of the same material as that of the conduit used.

Metal conduit shall comply with SABS 162 and shall bear the SABS mark. Except where otherwise stated, all conduits shall be black enamelled. Galvanised conduit shall however be used in all damp locations, and where conduit is exposed to the weather.

All coast metal conduit accessories shall be of the malleable iron inspection type.

Metal conduit shall be screwed and socket or system of plain-end conduit and fittings complying with SABS 1007 may be used. All accessories used on plain-end conduit shall be assembled by means of the special fittings and tools produced for this purpose by the manufacturer.

Draw boxes of rigidly moulded plastic may not be employed. All draw boxes shall be the galvanised pre-punished type.

Plastic conduit shall be assembled by means of the solvent adhesive supplied by the manufacturer to all PVC accessories, his instructions being closely followed.

PE7.7 Wiring Channels

Wiring channels shall be installed in the positions as indicted on the drawings.

All wiring channels to be installed shall be of the O-line or Cabstrut type and fixed in the positions indicated on the drawings, complete with couplings bends end caps and cover lids. The wiring channel shall be pop riveted at each joint or bend by means of at least four suitably sized pop rivets.

The Contractor shall ensure that there are no sharp edges on the inside of the channel that may damage wiring.

Wiring channels shall be installed horizontally and vertically as determined by the route and the Electrical Contractor shall take all measures to ensure a neat installation.

Channel shall not be more than 45% full. Under no circumstances may power and control circuit conductors be installed in the same wiring channel.

All the accessories shall be factory-made pre-manufactured from the same type and make such as; end covers, 900 bends, T-pieces, hangers, brackets, etc., and shall be made to fit neatly and accurately to the Employer's Agent's approval. No onside 450 cutting of corners or bends shall be accepted.

The following wire channels will be standard:

- P9000 for feeder wire channel circuits.
- P8300 for Lighting and Aircons circuits, with 5Amp socket outlets
- P8000 for other circuits.

PE7.8 General Position of Switches and Sockets

Switch sockets shall be mounted with the centre line 1200mm above finished floor level, unless otherwise specified or indicated on the drawings.
Switches for lights are to be mounted with the centre line 1200mm above the floor, except where otherwise specified or indicated on the drawings.
Unless otherwise approved, the switches controlling lights and installed adjacent to doors are to be placed at the lock side of the door at a distance of 200mm from the door jamb to the centre line of the box, in each case. If the lock side of the door is not shown on the drawing, it must be ascertained before the switch is positioned.

The position of the lighting and socket points and their controlling switches are indicated on the drawings.

PE7.9 Low Voltage Cables

All multi core cables shall comply with the PCA Particular specification.

PE8 BUILDING WIRING

The wiring of any circuit shall only be carried out after the whole of that particular circuit's conduit installation has been installed and fixed in position. No wires shall be drawn through before the conduit has been thoroughly cleaned of all debris and moisture.

It should also be possible for wires to be drawn or threaded through the completed conduit installation without any undue strain. The terminal ends of the wires shall be of sufficient length to facilitate the connecting of apparatus, fittings, appliances, etc.

Lighting circuits shall be wired with 1.5mm2 and plug circuits with 2.5mm2 conductors, except where otherwise specified.

Not more than four conductor ends plus two earth wires shall appear at any ceiling outlet box except where specifically approved.

All circuit wiring is to be carried out on the loop-in system and no joints in the conduit or boxes will be allowed. Where joints are unavoidable, due to alterations or extensions, these shall only be located at draw boxes and shall only be of the insulated crimping ferrule type. Not more than four 2,5mm2 or three 4mm2 wires together with earth wires where applicable will be allowed in 20mm conduit, except where otherwise specified.

All conductors shall be in colours selected to facilitate identification of the circuit and switch wiring, black being reserved for neutral conductors, and green only for insulated earth conductors. Three phase circuits shall be colour coded to identify phases, blue, red and white.

PE8.1 Termination of Wiring

The end strands of all wires, whether single or looped, which are to be connected to the connection terminals of switches, plugs, holders, ceiling roses or fittings are to be securely connected to the terminals. All terminal screws shall be properly tightened and care shall be exercised not to cause undue damage to the conductor strands. The cutting away of wire strands will NOT be allowed.

Crimping lugs must be used on cable ends for connections to busbars or circuit breakers, except where box terminals are employed.

PE8.2 Inspection of Wiring

To ensure that wiring may be easily withdrawn from any circuit run, the Employer's Agent may, at his own discretion, direct that wires must be withdrawn; the electrical contractor shall withdraw the wires concerned.

If the wires are withdrawn easily and without showing damage, the costs of the withdrawal and replacement will be borne by the employer; if, however, it is found that it is not possible to withdraw wires without damage, the cost of the withdrawal test, and the cost of rectifying the work shall be borne by the electrical contractor.

PE8.3 Innovative wiring systems and Deviations from the Specification

This specification covers wiring systems of the conventional type in which continuous metal or rigid plastic conduit of circular cross section is used.

No deviation or alteration from the requirements of the specification, schedules or drawings shall be made without first obtaining the written approval of the Engineer.

Should the specification permit or specify the use of innovative wiring systems such as surface mounted wire trucking with removable covers, prewired multicore conduit, (twin and earth or Norse cable) or any other authorised innovative wiring system, such an installation shall comply with SABS 1500 SF - 1983, as amended.

PE8.4 Balancing of Loads

The connection and termination of equipment shall be according to the schematic diagram, but the electrical contractor will be required to balance the load as equally as possible across multiphase supplies.

PE9 LIGTHING INSTALLATION

PE10 POWER INSTALLATION

PE10.1 Switched Socket Outlets

i) Normal power outlets

The switched socket outlets shall be of the standard round, 3-pin, shuttered type, rated at 16A/250V and shall comply with SABS 169: 1980 and shall bear the SABS mark.

The plastic insulation around each pin-socket shall be annular and be raised to protrude through the cover plate which shall be punched with three separate holes for the pin- socket.

Alternatively a single opening may be punched in the cover plate on condition that at least 5mm clearance is provided between the cover plate and the edge of the live and neutral pin sockets. The terminal screws of the live and neutral sockets shall be recessed so that inadvertent contact with the earth conductor will be impossible when the wired socket is pushed back into the wall box during installation.

The socket unit shall be controlled by a 16A/250V single-pole switch operated by a white piano-type lever matching the lighting switches specified. Double switch socket outlets shall each have its own individual switch.

ii) Three phase outlets

The three phase outlet socket shall be of the industrial type 5pin wall mounted, different type and size will be as specified, with lid on the female socket, socket to be mounted 1400mm above finishing floor level.

iii) UPS power outlets

UPS power outlet shall be the same standard as the switch dedicated socket outlets, but with a flat pin earth for a dedicated circuit with separated earth and with red colour moulding. Contractor shall allow to supply and connection of the correctly specified type of 3-pin plug (red) to the Employers equipment.

PE10.2 Extract fans

Small, single-phase extract fans installed in window panes shall be connected to 5A, 3-pin, socket outlets which shall be installed in the ceiling above the fan or in the wall adjacent to the fan.

Where specified or indicated on the layout drawing, the switched socket outlet(s) feeding the fan(s) shall be connected to the lighting circuit so that the fans are switched on and off by means of the lighting switch for the room concerned.

PE11 LIGHTNING PROTECTION

The complete lightning installation shall comply with SABS Code of Practice 03 and 03A.

All electrical, telephone, data, signal, communication, antenna and other conductors entering a lightning protected building or structure shall be protected against potential surges and a safe current discharge shall be provided for each conductor in the event of a direct or induced lightning strike.

PE11.1 Three Story buildings and Less

The height and roof type and structure of the building determines the type of lightning installation requirements i.e. steel roof, tiled roof, concrete roof or thatched roofs.

The schedule of quantities made provision for lightning down runners and connections to steel roof, cutters and steel ring beam, it tiled roof it would have conductor running along the roof nocks, with forked on the roof nock corners, and down runners.

i) Materials

The installation may be carried out in copper or suitable corrosion resistant aluminium alloy. The use of copper shall be avoided at ground level to avoid the possibility of theft.

Aluminium shall not be installed in direct contact with soil or any concrete or plaster surface. Connections between aluminium and copper shall only be by means of cadmium plated or tinned connectors. Jointing of conductors shall be with suitable crimped ferrules.

Connections between copper and galvanised steel shall only be by means of tinned connectors above ground. Steel components shall be hot dipped galvanised to SABS 763. Steel reinforcing of concrete may be used as down conductors only when specific approval has been obtained from the Civil Engineer.

ii) Fixings

Fixing support holders or brackets material shall be of the same material as the conductors. Conductors shall be fixed at intervals not exceeding 1.5m. The fixing shall be as such to allow for the thermal expansion and contraction of the conductors. Fixing materials shall be durable to resist deterioration because of environmental conditions.

iii) Testing Points

Testing points shall consists of a two stud moulder test block with bridge connector plate, for testing, the block terminations shall take a conductor up to a 70mm2 BCEW.

The test point shall be mounted at the connection point between every down conductor and earth electrode cable, mounted 400mm above finished ground level.

A test certificate shall be submitted with the following test results:

- Earth resistance of every earth electrode, to be below <50Ω
- Continuity of down conductor system by measuring from one down conductor to the other down conductors with all down conductors disconnected.
- Certificate of Compliances as specified by SANS.

PE12 MOTOR CONTROL CENTRE

The MCC shall comply with PMC Particular specification, schedule of quantities and drawing.

The MCC for the new Pump station shall comprise of a surface mounted panel with doors, powered coated “Electric orange”, complete with all equipment specified.

Supply and installation of motor control centres as specified, with the following:

- A suitably rated isolating isolator (pad lockable in off position)
- A set of "STOP/START/RESET" push buttons for local manual control.
- Emergency stop mounted on the outside of panel or close to the motor with movable parts.
- Adjustable thermal overload trip relays in each phase.
- Protection against under/over voltage and single phasing, independent of the settings of the overload trip relay.
- Flow switch with timer delay and control relay, on the delivery side of the pumps
- An ammeter in one of the phases for all motors rated above 1kW. Associated current transformers for non-direct reading ammeters.
- An running hour meter
- An voltmeter with selector switch, to measure between phases
- An selector switch to facilitate the selection of either manual control or automatic control where applicable
- A set of 5 LED type indicator lights as follows

- Yellow - 'Supply on'
- Green - 'Motor Running'
- Amber - 'Motor Tripped'
- Blue – 'Motor start delay'
- Red - "Emergency stop engaged"

- Surge arrestors for each phase and neutral
- A power factor correction capacitor unit for motors of 5 kW and more
- A thermistor relay for motors of 15kW or more
- A Start delay timer for motors of 1.5kW and higher

i) Type One: Control by means of 24hr. timer

- A mains operated 24hr anti-cycle timing device to operate starts/stop as per schedule

ii) Type Two : Control by means of pressure

- A mains operated 24hr anti-cycle timing device to limit starts per hour; Different types of starters are provided for and have to be priced accordingly:

a) A direct on line air break contactor type starter (230/400V motors to 9kW)

Each of these units shall comprise amongst other the following components:

- A Mains 1 or 3 phase Contactor correctly rated;
- A Mains operated timing device to limit the starts per hour; and
- All necessary relays.

b) Star/Delta Starters (400V motors above 9kWatt)

These starters shall be of the automatic star/delta type and each starter shall be contained in its own separate compartment on the relevant motor control board.

Each of these units shall comprise amongst others provided for direct-on-line starters the following components as:

- A Mains 3 phase Contactor correctly rated;
- A Star Contactor correctly rated;
- A Delta Contactor correctly rated;
- A Star to Delta timer of the clockwork or electromagnetic type;
- A Mains operated timing device to limit the starts per hour;
- A Three phase Power Factor Correction Capacitor unit for motors of 5kW or more; and
- All necessary relays.

c) Variable Speed Drives (where specified)

These variable speed drives shall each be contained in its own separate panel, manufactured and equipped to the satisfaction of the variable speed drive manufacturer to suit their own requirements with regard to ventilation of the variable speed drive. Small drives below 1kW can be combined into one panel but sufficient ventilation by means of extractor fans must always be allowed for.

The variable speed drive panel shall be equipped with ventilation fans and air filters. The ventilation fan shall be interlocked with the relevant motor and shall only be in operation when the motor is running. Failure of the ventilation fan shall stop the motor and a visible indication of the cause of the failure shall be provided on the panel.

The frequency converter shall make use of flux vector control without encoder or tacho generator feedback and shall incorporate direct torque control technology so that the overall effectiveness of the drive shall only be limited by the performance of the motor.

Semi-conductor switching shall be determined by the values of flux and torque and shall not have a predetermined pattern as in conventional pulse width modulation flux vector drives.

Each of these drives shall comprise amongst others the following components:

- A main isolator/circuit breaker that shall be interlocked with the door of the panel to prevent opening of the door with the switch closed and to prevent closing of the switch with the door open;
- Three ultra-rapid fuses rigidly connected to the load side of the above mentioned mains isolator and the rating of which shall comply with the manufacturers specifications for the drive;
- A direct torque control frequency converter;
- A door mounted control panel complete with cable connections (also for small drives);
- A set of START and STOP push buttons for manual control of small drives;
- One dial type potentiometer for manual speed control;
- A manual/off/auto selector switch for manual control of small drives;

- Thermistor relay for motors of 15kW or more;
- A external EMC line filter;
- All equipment necessary for remote emergency stop device;
- All bus system interface equipment necessary for remote speed control via a monitoring and control SCADA system as well as PLC control;
- All equipment necessary for remote motor status and speed monitoring; and
- LED type red “Emergency stop engaged” indicator light.

A 3CR12 steel gland plate must be provided at least 250mm above floor level for cable connections.

The control panel shall be the user interface for monitoring, adjusting parameters and controlling the drive operation. It shall be possible to:

- Enter start-up data into the drive;
- Control the drive with start, stop and reference signals;
- Display actual values of motor performance; and
- Display information on at least the five most recent faults.

The drive shall satisfy the following technical requirements:

- The static speed control error shall not exceed ± 0,5% of motor nominal speed;
- Fundamental power factor shall be at least 0,97 at nominal load;
- Efficiency shall be at least 98% at nominal power level;
- The drive shall operate satisfactorily under all ambient temperature conditions between -5□C and + 40□C at an altitude of 1260m above sea level and humidity up to saturation point;
- The drive shall provide output protection for motor overload, over current, short circuit at start, earth fault, missing motor phase and over frequency;
- The drive shall satisfy the following minimum harmonic voltage limits: Total harmonic distortion of 6%, odd harmonic distortion of 4% and even harmonic distortion of 2%. The Contractor shall measure these harmonic distortion parameters after commissioning of the system and if the equipment fails to comply with this requirement, the Contractor will have to rectify the same to the satisfaction of the Engineer;
- The drive shall be equipped with an AC choke for harmonic current reduction and shall be placed on the AC side of the rectifier bridge in order to protect the rectifier semiconductors against power line transients;
- Torque step rise time shall typically be less than 5ms; and
- Stringent precautions must be taken in the design of the protection equipment to assure adequate lightning and surge protection.

d) Electronic Soft Starters (where specified)

The soft starter shall be installed in the relevant motor starter panel but sufficient ventilation by means of extractor fans must always be allowed for and shall be interlocked with the relevant motor and shall only be in operation when the motor is running. A bypass contactor for motor running conditions is a requirement and shall either form part of the soft starter or shall be a separate unit.

The soft starter shall have soft start and stop programmable capabilities with torque and current control. The normal motor protection facilities such as over/under- current, start limit, long start time, electronic overload, phase loss and phase sequence and load loss shall be available.

At least a 2 line 16 character LCD display unit with control function keys shall form part of the soft starter and shall preferably be separate motor starter front panel mountable. The LCD unit shall display all statistical data and trip conditions and shall allow functional key changes to programmable parameters.

The full motor protection capabilities shall be maintained when motor is operating in bypass contactor mode.

The soft Starter shall satisfy the following technical and diagnostics requirements:

- Overload;
- Ground fault;
- Line fault;
- Power loss;
- Voltage imbalance / Under / Over;
- Phase rotation;
- Over temperature;
- Excessive starts per hour; and
- RS 485, MODBUS, PROFIBUS communication shall be possible.

The soft Starter shall satisfy the following metering requirements:

- Three-phase currents;
- Three-phase voltages;
- Power in kW;
- Power usage in kW/hr.;
- Motor thermal;
- Power factor of the running motor;
- Capacity usage; and
- Elapsed time of motor operation.

e) Mains surge arrestors

The surge arrestors shall be Type 2 and voltage compatible to the relevant installation and shall be able to withstand a lightning impulse current wave form 8/20µs at a maximum discharge current of 40kA.

f) Earthing

The contractor shall supply and install all bonding of steel works and MCC earth comprising of a 1.5m earth road connected by a 16mm2 BCEW to the MCC earth strut. An earth résistance test certificate shall be provided to insure the earth is below 10ohms.

The MCC shall be in accordance with the drawings, specifications and Sedibeng standards.

PE13 MOTOR control PHILOSOPHY

PE13.1General

The new installation shall intergrade with the existing installation providing more supply to existing water systems, at different villages. The control of the new system shall be via 24hr rotation timer to pre-set time schedules, or per pressure control valve is required.

PE13.2 Control Philosophy

- Type One: Control by means of 24hr. timer

An 24hr anti-cycle timing device, shall control the operational time of the pump, to the prescribed schedule and held of the bore hole.

- Type Two : Control by means of pressure

Pressure switches shall be installed at each pump. These pressure switches will be installed in conjunction with the necessary relay units and adjustable timers to prevent unnecessary stop/start operations.

The operating will rely on the closing off of a reliable level control valve which will prevent any return flow back into the supply main. The closing action of this valve would result in a positive increase in a pump discharge pressure, which will initiate the stopping cycle of the borehole pump’s electrical motor.

PH TANKS AND TANKSTANDS

PH1 APPLICABLE STANDARDS

The latest issues of the following standards form part of this specification:

- SANS 136: ISO metric precision hexagon-head bolts and screws and hexagon nuts (coarse thread medium fit series);
- SANS 0162: The structural use of steel;
- BS 4360: Weldable structural steel;
- SANS 62: Steel pipes and pipe fittings up to 150mm nominal bore suitable for screwing to ISO R7 pipe threads;
- SANS 135: ISO metric black bolts, screws and nuts;
- SANS 455: Covered electrodes for the manual are welding of mild steel and medium high tensile steel;
- SANS 763: Hot-dipped (galvanised) zinc coatings (other than on continuously zinc- coated sheet and wire);
- SANS 1123: Steel pipe flanges;
- SANS 0104: Hand and guard rails (Safety aspects);
- Safety Legislation No. 13A(6)(a) and 13A(6)(b)(i).

PH2 SCOPE

This specification covers the requirements for tanks (with or without covers) intended for the storage of liquids and constructed of bolted square pressed steel plate sections and of depth not exceeding 4880mm.

PH3 REQUIREMENTS

PH3.1 Materials

PH3.1.1Covers: Sheeting used for covers shall be of steel having a nominal thickness of at least 2,5mm or of ISCOR Z600 closed profile pre-galvanised steel sheet of thickness of at least 0,8mm (subject to normal milling tolerances).

PH3.1.2Electrodes: The electrodes shall be of a quality at least equal to that of electrodes complying with SANS 455, and the deposited metal shall have a tensile strength and an elongation of at least equal to the appropriate minimum specified for the parent plate.

PH3.1.3Plates, stags, cleats and pads: Plates, stags, cleats and pads shall be of mild steel, complying with the relevant requirements of BS4360.

PH3.1.4Jointing Compound: The jointing compound shall be non-toxic , shall not leach out, shall be insoluble in the liquid to be stored (and in the case of tanks for potable water, shall not impart any off-flavour or off odour to the water), and shall provide an effective seal between the plate flanges under conditions of temperature specified. (The contractor should obtain from

the Supplier a statement of the optimum period that should be allowed for the jointing compound to mature before the tank is put into commission).

PH3.2 Size

The nominal size of a tank, based on dimensions each of which is a multiple of 1220mm, 1200mm or 1000mm, as relevant and subject to a maximum depth of 4880mm.

PH3.3 Components

PH3.3.1 Plates

(a) Size

The nominal overall size of plates (after flanging) shall be 1220mm x 1220mm, 1200mm x 1200mm, or 1000mm x 1000mm, appropriate to the size of the tank specified.

(b) Thickness

In the case of tanks of stored liquids of nominal density not exceeding 1000kg/m2, the nominal thickness of the plates shall conform to the appropriate value(s) given in Table 1.

Table 1: Plate Thickness

Depth of Tank (mm)	Plates	Plate Thickness (mm) min
1000 – 1220	Bottom; sides; ends	3
2000 – 2440	Bottom; sides; ends	3

3000 – 3660	Bottom; first tiers of sides and ends	4,5
	Second and top tiers of sides and ends	3,0
4000 - 4880	Bottom, first tier of sides and ends	6,0
	Second tier of sides and ends	4,5
	Third end top tiers of sides and ends	3,0

Strengthening

The plates shall be strengthened by suitable embossment (i.e. a pattern pressed into the plates) or by the welding of suitable ribs to the plates.

Flanges

The plates shall have flanges of width of at least 44mm and of the following form and arrangement:

- A combined double flange at angles of 45 degrees and 90 degrees to the plane of the plate, pressed on each side of the plate.

- A single flange at an angle of 90 degrees to the plane of the plate, pressed on two, three or four sides (depending on the position of the plate in the tank) and with flanged corners welded.

The flanges shall have bold holes of diameter such as to provide a bolt clearance of 1,5mm evenly spaced at a pitch of 75 plus minus 1,5mm.

PH3.3.2 Connections

Connections shall be one of the following types:

- Flanged bolted type connections complying with the relevant requirements of SANS 1123 for flanges for nominal pressures of 600 kPa;

- Screwed type connections complying with the relevant requirements of SANS62.

PH3.3.3 Covers

When so specified, tanks shall be supplied complete with covers. Each cover shall be so fitted as to prevent the ingress of water and any foreign matter into the tank.

Each cover shall have a clear opening of diameter or smallest dimension, as relevant of at least 450mm, and shall be so constructed that it can be fitted with a lock.

Unless otherwise specified, each tank that is provided with a cover shall be equipped with a vent fitted with a cowl. The vent shall be so screened as to prevent the entry of rodents, other small animals and mosquitoes.

PH3.3.4 Access ladders and safety platforms

Access ladders and safety platforms shall be provided as follows and the design and construction of the rails shall be such as to comply with the relevant requirements for safety in SANS 0104.

External ladders and platforms; Each tank shall be supplied with an external access ladder and safety platform. It shall comply with the relevant clauses of the Occupational Health and Safety Act and possess a safety cage from 2,5m above ground level and landing stages at 9m intervals.

Internal Access Ladders: Each tank of depth exceeding 1220mm shall be provided with an internal access ladder. In the case of a tank that is not provided with a cover, the ladder shall be located as specified and in the case of a tank that is supplied with a cover, the holder shall be located below the manhole.

PH3.4 Construction

PH3.4.1 Design Strength: The design strength of the tank and of all members (stags, cleats, bolts, cover-frame members, etc.) shall comply with the relevant requirements of SANS 0162 and shall include allowances as relevant for the following:

- Exposure of the tank to corrosive conditions
- Eccentric loading
- Fatigue stresses caused by turbulence of the stored liquid.

PH3.4.2 Flanging: Tanks shall be constructed of externally flanged plates, unless otherwise agreed upon.

PH3.4.3 Attachment of connections: Connections shall be supplied in the positions specified and shall be welded to the tank. Flanged bolted connections shall be as follows:

- Where the size of the connection and the specified location are such that the connection can be welded to a plate that is free from embossment, single-stooled flanges shall be provided for connections that are to be made in one side of the plate only and double-stooled flanges for connections that are to be made on both sides of the plate, as specified.

PH3.4.4 Staying: When necessary, the sides and ends of the tank shall be supported by stays. Each end of each stay shall be bolted to a cleat. Cleats shall be bolted or welded to the plates.

The connections of stays shall be arranged in one or more of the following ways, as necessary:

- Sides to bottom
- Ends to bottom
- Sides to sides
- Sides to ends

PH3.4.5 Welding: All welds shall be acceptable fusion welds. The weld metal, the heat-affected zone and the surrounding parent shall be free of cracks. Weld faces shall be free of porosity, cavities and trapped slag, shall show now pronounced humps or craters and shall merge smoothly into the adjacent surfaces of the parent plate without overlap or excessive undercut. The throat thickness of fillet welds shall be at least 4,5mm. In the case of corner welds, the leg length shall be equal to the plate thickness.

PH3.5 Workmanship

The workmanship of all components shall be such that they are free from defects that are detrimental to the ease of assembly or the performance of the tank in service, or both.

PH3.6 Finish

Unless a different type of protective coating is specified, all components shall be protected from corrosion by hot-dip galvanising that complies with the relevant requirements of SANS 763.

PH4 FOUNDATIONS AND STANDS

PH4.1 Design, Drawings and Quantities

The Contractors must submit the design and workshop drawings for the steel tank and stand to the Employer's Agent for approval prior to commencement of the work.

The foundations for the tank and stand will be designed by the Employer's Agent, while the design for the stand shall be designed by the supplier and checked by the Engineer.

The cost for the design of the steel tank and stand must be included in the tender sum and rates.

PH4.2 Lighting Protection

The stand shall be earthed using a suitable approved copper connector between the bottom of the tank leg an on earth spike.

PH5 DISINFECTION OF THE TANK

On completion of construction, but before commencement of testing, the reservoir shall be disinfected as follows:

a) The reservoir shall be flushed with clean water until all sediment and other foreign matters have been removed.

b) Potable water treated with sodium hypochlorite or calcium hypochlorite or chlorine gas shall be introduced into the reservoir. On completion of filling with chlorinated water, the chlorine concentration in water sampled at any point shall not be less than 3 mg/l free available chlorine.

After 24 hours retention of chlorinated water in the reservoir, samples drawn at any point shall contain not less than 0,5 mg/l free residual chlorine. Where necessary, additional chlorine shall be injected to maintain chlorine residuals.

PH6 TESTING OF TANK

The complete tank shall be watertight and the work will not be certified until the tank has been proven by testing to be watertight.

Upon completion of the erection and when so agreed by the Employer's Agent, the tank shall be filled by gradual admission of water until level reaches the overflow level. The tank shall be allowed to remain filled for 24 hours upon which a visible inspection will be done on the tank.

If at any time during the test, visible leaks appear, the test will be discontinued and remedial work done. Upon completion of the remedial work, the 24 hours test will restart. The tank will be deemed watertight if no leaks are present at the end of test and so noted by the Engineer.

PH7 MEASUREMENT AND PAYMENT

PH7.1 Galvanised Stand

The Contractor shall tender a sum under schedule 6 in the schedule of rates to allow for the complete stand and all charges and profit.

PH7.2 Galvanised Pressed Steel Tank

The Contractor shall tender a sum under Schedule 6 in the Schedule of Rates for the tank to allow for all charges and profit.

PXB ELECTRICAL MATERIAL AND EQUIPMENT

PXB1 GENERAL REQUIREMENTS FOR THE SUPPLY AND INSTALLATION OF ELECTRICAL

MATERIALS AND EQUIPMENT

PXB 1.1 Standards

All material and equipment supplied and/or installed under this Contract shall be new and of good quality and shall comply with the requirements laid down in the latest editions of the relevant SABS, BS or IEC Specifications and their amendments (if any) and the requirements of this specification. In the event of items bearing the SABS mark being available in respect of the materials and equipment required, only items bearing this mark will be acceptable.

The workmanship and finish of work shall be of a high standard throughout and to the satisfaction of the Engineer.

Similar equipment supplied under this contract must be identical in all respects and it shall be possible to interchange any of the same equipment under this contract.

All auxiliary equipment must also be identical, including items such as contactors, fuses, motors, fans, method of wiring, numbering of wires, relays, indications lamps, instruments and other parts.

PXB 1.2 Compliance with Laws and Regulations

The work shall be carried out strictly in accordance with and all material and equipment supplied shall comply with the following laws and regulations where applicable:

(a) The latest edition of the "Code of Practice for the Wiring of Premises", SANS 10142, as amended;
(b) the machinery and Occupational Safety Act (Act No 6 of 1983) as amended;
(c) the "Electrical Supply By-laws and Regulations" of the Supply Authority;
(d) the local Fire-Office Regulations;
(e) the Post Office Regulations:
(f) "The Code of Practice for the Installations and Maintenance of Electrical Equipment used in Explosive Atmospheres" (SABS 086).

The Contractor shall be responsible for serving all notices and paying all fees due in terms of the above laws and regulations.

PXB 1.3 Radio and TV Interferences

All equipment installed under this Contract shall comply with the Government Notice No. R.2246 and any other applicable rules and regulations in respect of radio and TV interferences. Any equipment found producing interference subsequent to commissioning, shall be suppressed or replaced to the satisfaction of the Employer’s Agent without any additional cost.

PXB 1.4 Site Conditions

See paragraph PS 2.1
The electricity supply system will be a 400/230V, 50 Hz, three phase, four wire system with solidly earthed neutral and all material and equipment supplied and installed under this contract shall be rated, designed and manufactured for satisfactory operation on this system.

It must be noted that severe voltage surges and/or spikes may be experienced on the electricity supply system due to lightning or switching operations and where necessary the Contractor shall provide the necessary protective devices against such surges and spikes for the equipment supplied and installed by him with special reference to electronic devices. The following arresters shall be provided:

Lightning Arresters Transducers/Transmitters:

Where transmitters require a separate power supply in-line suppression shall be provided. Signal cables shall be protected as specified in the following paragraph.

Signal Cables for Transducers/Transmitters:

All signal lines entering or leaving the transmitter station cabinet shall be protected from induced or direct surges.

The coaxial lines to the ultrasonic transducers need only be protected by small gas arresters. These inputs require protection from high voltage level surges only as they normally carry pulse signals of peak voltage greater than 200V. In this case, low capacitance gas arresters are recommended, having a 5 kA capability (8/20 µs waveshape), a DC breakdown voltage of 450V or higher, and an impulse breakdown voltage of less than 1 000V at 1 kV/µs rate of voltage rise. The arrester shall be equivalent to the SIEMENS type or equivalent approved by Engineer.

12V or 24V Pulse, and 20 mA Loop Circuits:

12V or 24V pulse and 20 mA loop lines shall have a graded type of protection against both common mode (both lines with respect to earth) and differential mode (between lines) surges.

All lines associated with a specific transmitter unit shall have their protective modules housed in a single box with a common earth connection from this box to the earth busbar. A device equivalent to the Semicron type 840001 shall be supplied and installed or equivalent approved by Engineer.

LV Switchgear:

Lightning arresters shall be provided for each phase in all boards, connected to each phase of the incoming cables.

Lightning arresters shall be solidly earthed directly onto the main earth bar. All connections to and from lightning arresters shall be as short and straight as possible.

Surge arresters shall be the Dehnventil type or equivalent approved by the Engineer.

PXB 1.5 Fixing and Support Materials

All fixing and support materials for outdoor use in connection with the installation of electrical material and equipment such as cable sleeve pipes, conduit, saddles, clamps, brackets, bolts, nuts, washers and screws shall be grade 304 stainless steel.

PXB 2 ELECTRIC CABLES, CABLE TERMINATING GLANDS AND EARTHWIRES

Low voltage cables shall be for service in a 400/230 V 3 phase 50 Hz system and shall be PVC insulated, PVC sheathed, steel wire armoured, PVC covered, 600/1000 volt grade, complying with the requirements of SABS 1507. The cores shall be stranded copper.

Cables and earth conductors for a specific application shall be selected strictly in accordance with the requirements laid down in SANS 10142 in respect of current rating and voltage drop. Where practicable the earth continuity conductors shall form an integral part of the cable.

Each cable connection shall be terminated at each end by means of a suitably sized adjustable chromium plated, brass terminating gland complete with armour clamp and neoprene shroud. Cable terminating glands for outdoor use shall be provided with waterproofing inner seals as well as waterproofing seals on nipples. Cable armouring shall be earthed at each end but may not be used as earth continuity conductor.

Each current and earth conductor shall be terminated at each end by means of a suitably sized bolted lug crimped onto the conductor. The lugs shall be bolted onto the relevant bus bars, earth bars or earthing terminals.

Cables and earth conductors shall be installed along the routes indicated on the drawings.

Control wiring/cables shall be of a minimum thickness of 1,5 mm square. The cores shall consist of at least three strands of copper conductors unless otherwise specified. The core of each pair of conductors of multicore cables shall be twisted. Screened cables shall be provided for all signal cables e.g. cables for flow meters.

No joint will be allowed in any run of cable or earth conductor.

The Contractor shall be responsible for the excavation, bedding back-filling, consolidating and making good of all cable trenches along the routes indicated on the drawings, with the exception of those sections of the cable routes where it is specifically indicated on the accompanying drawings that open cable ducts will be provided by others. Ducts inside new buildings will be provided by others.

The cable trenches for the electrical cables under the electrical contract will be provided by that responsible contractor.

NOTE: Tenderers shall acquaint themselves fully with the nature and formation of the ground in which the cables are to be laid, before submitting a tender. No subsequent claim for extras due to lack of knowledge in this respect will be entertained by the Client.

Cable trenches for LV power, street and area lighting cables shall be deep enough to facilitate the laying of these cables at a depth of 750 mm below final ground level. The floors of all cable trenches shall be smooth and free from boulders and sharp rock projections.

Each cable shall be laid in a bedding of river sand of sifted soil 75 mm over and 75 mm below the cable - clayish soil will not be accepted as bedding.

No cable trench shall be back-filled before the cable(s) in the trench has been inspected and approved by the Engineer.

Backfilling of cable trenches shall be done in stages not exceeding 150 mm with thorough consolidations at each stage to prevent subsequent subsidence.

Marking Tape

Yellow PVC marking tape, 150 mm wide, with the wording "Buried Electrical Cable - Caution" in both English and Afrikaans, printed in red or Black, shall be laid approximately 300 mm below ground level above the cables.

Cable Markers

(a) Cable markers shall consist of 150 mm x 100 mm x 500 mm high concrete blocks with 50mm high letters cast in the concrete and marked "HV or LV Cable". The concrete block must not protrude more than 150 mm above the finished pavement level.

(b) Cable markers are to be installed at each end, each cable through joint position at each change of cable direction and at 100 metre intervals along the high voltage cable route.

Cables to be installed on walls and structures shall be properly supported and firmly fixed at suitable regular intervals to prevent it from sagging under its own weight or snaking.

All exposed cable runs shall be installed neatly horizontally and vertically and all exposed vertical cable runs between ground level and 2 m above ground level shall be installed in cable sleeve pipes or conduits. These pipes or conduits shall extend to at least 300 mm below ground level. Intervals between fixing points for sleeves and conduits shall not exceed 1 m.

Only plugging materials of an approved type may be used for fixing to brick walls and concrete - wood will not be acceptable. Plugging in joints of brick walls will not be acceptable.

PXB 3 CABLE LADDERS

Cable ladders and cable trays shall be of the heavy-duty type, equal and similar to 0- Line. Cable ladders shall be hot dipped galvanized or as specified on the drawings the, height of the sides shall be 76 mm with the width to suit the number and size of cables to be installed. The cable ladders shall be secured on suitable lengths of Unistrut channel, which shall be suspended from the roof slab by means of suitable lengths 8 mm dia threaded hot, dipped galvanized steel rods.

The threaded rods shall be secured to the roof slab with suitable sized hot dipped galvanized steel rawl bolts and shall be secured to the channel sections by means of two hot dipped galvanized nuts and washers.

Cable ladders and trays against walls shall be secured to channel sections by means of two hot dipped galvanized nuts and washers, which in turn are fixed against the wall by means of suitable sized hot dipped galvanized steel rawl bolts

Where cable ladders must be installed over clear floor areas it shall be supported on galvanised stands which are provided with a foot plate of ample size which can be bolted to the floor by means of suitable sized hot dipped galvanized steel rawl bolts. The cable ladders shall be secured to the stands by means of two hot dipped galvanized nuts and washers.

Cable straps suitable for the specific cable shall be employed to secure the cable to the tray.

PXB 4 ELECTRICAL DISTRIBUTION AND MOTOR CONTROL BOARDS

PXB 4.1 Type and Construction

All electrical distribution boards and motor control boards shall be of the outdoor, weatherproof, surface mounting type with IP 65 insect proofed enclosure and consisting of a hinged door(s), a removable front panel and chassis all constructed of a least 2 mm thick 3CR12 steel plate, powder-coated in electrical orange paint. Sufficient provision shall be made for heat dissipation and ventilation of the board.

These boards shall comply with the requirements of SABS 1180 : Part I where applicable.

Doors shall be rigid and shall be secured in position by means of robust grade 304 stainless steel hinges. No single door shall be wider than 600 mm.

The doors shall each be provided with at least two "square key" panel locks - one at the top and one at the bottom of the lock side of the door.

The chassis shall be rigid and facilities shall be provided on the chassis for mounting all the relevant equipment. No equipment shall be mounted on the rear panels of boards.

The panel shall be rigid and readily removable without necessitating the disturbance of any of the equipment on the board. Panels shall be mounted in such a way that all equipment are flush behind the panel with only operating handles, instrument faces and indicator lights and push buttons projecting through neat machine punched slots and holes in the panel. All panels shall be provided with chromium plated brass handles to facilitate removal and shall be secured in position by means of knurled captive thumb screws.

Each board shall be provided with a suitably rated main isolator mechanically interlocked with the removable front panel in such a way that it will be impossible to remove the front panel without switching off the main isolator.

It shall be possible to adjust adjustable control equipment e.g. time switches without having to remove the front panel.

All screws, studs, bolts, nuts and washers used for these boards shall be rustproofed. The use of self-tapping screws will not be permissible.

- A suitable galvanised gland plate of 3 mm thickness shall be provided for termination of cables.
- Front connected boards shall make due allowance for access to the terminations without any physical difficulties.

PXB 4.2 Busbars for Switchboards and Motor Control Boards

The board shall be provided with one set of four solid, copper busbars in the top section and extending over the entire length of the board. Provision shall be made at the end of each busbar for future extensions.

Busbars shall comply with the requirements of SABS 784, BSS 1433 and the relevant clauses of BSS 159.

Busbars shall be mounted on substantial insulators at suitable intervals to prevent undue damage resulting under short circuit conditions. Substantial porcelain, epoxy or other approved busbars insulators shall be used. The busbars shall be arranged horizontally with the longer sides of the cross-sections in the vertical plane and one above the other, in the horizontal plane.

Busbars shall be clearly and indelibly marked Red, Yellow and Blue for the three phases and Black for Neutral.

Connections to busbars shall be effected by means of Cable lugs and suitably sized cadmium-plated, high tensile steel bolts and nuts with cadmium-plated cup washers or lock washers.

A solid copper earthbar shall be provided along the bottom back side of the entire length of the board.

The earthbar shall be drilled and provided with the required number of 6 mm dia. and 10 mm dia. cadmium-plated, high tensile steel bolts and nuts, complete with cadmium-plated washers and cup washers or lock washers, for making the earth connections. The earthing positions shall be evenly spaced along the entire length of each busbar.

Neutral bars associated with a set of moulded case circuit breakers shall be provided.

PXB 4.3 Internal Wiring for Switchboards and Motor Control Boards

The internal wiring of the boards shall consist of coloured PVC insulated conductors of adequate copper cross-section but minimum of 1,5 mm square, which shall be neatly installed horizontally and vertically and grouped and laced where possible by means of cable ties. PVC trunking with slotted sides shall be used for wiring. (String will not be acceptable). Numbered ferrules of an approved type, shall be provided on each end of each wire, to facilitate the tracing of circuits in accordance with the manufacturers wiring diagram. Wiring shall be fitted with lugs before terminating onto equipment on terminals. Wiring for external circuits shall be terminated on suitably sized DIN rail mounted "Klippon RSF I" or equal terminal blocks at the bottom.

PXB 4.4 Labelling of Switchboards and Motor Control Boards

A screwed on engraved label of the black on white "trafolite" type shall be provided below each item of equipment on the front panel of each board as well as on the chassis in close proximity to the relevant equipment to identify such equipment in both official languages in 6 mm high lettering.

Each board shall further be provided with a screwed on reverse engraved yellow perspex nameplate with black 20 mm high lettering to identify the board in both official languages on the outside of the door at the top thereof.

All safety warning notices shall be in both the official languages and the lettering shall be red on a white background.

PXB 4.5 Equipment for Distribution Boards and Motor Control Boards

Each distribution board or motor control board shall be provided with all the necessary equipment to ensure proper functioning of the plant controlled by it. A main isolator as specified above and a busbar connected voltmeter with 7 position selector switch to measure busbar voltage on all three phases and switch the voltmeter of in the remaining position.

The equipment shall comply with the specifications below where applicable.

PXB 4.5.1 A direct-on-line air break contactor type starter shall be provided for each motor. This starter shall be complete with the following:

(a) A suitably rated isolating isolator (pad lockable in off position).

(b) Adjustable thermal overload trip relays in each phase. The overload relay shall have suitable inverse time current characteristics to match the motor thermal damage curve. Hand reset contacts shall be provided.

(c) Protection against under voltage and single phasing - the operation of which shall be independent of the settings of the overload trip relay.

(d) HRC back-up protection fuses.

(e) An ammeter in one of the phases for all motors rated above 1 kW as well as a running hour meter. Associated current transformers for non direct reading ammeters.

(f) A selector switch to facilitate the selection of either local manual control or remote automatic control where applicable.

(g) A set of normally open and a set of normally closed potential free auxiliary contacts on the starter contactor wired for remote indication of "Running", "Available" and "Tripped" conditions.

(h) A set of "STOP" and "START" push buttons for local manual control.

(i) A set of "GREEN", "AMBER" AND "RED" indicator lights for local indication of motor "Available", "Tripped" and "Running" conditions respectively.

PXB 4.5.2 Distribution- and Control Board Components

(a) Isolators

All isolators shall be of the "Load-breaking" and "fault making" type and shall comply with the requirements of BS 5419-1977 and SABS 152 where applicable. The fault level of the isolators shall be equivalent to or higher than the fault level at the associated busbar or incoming cable.

(b) Fuse switch units

All fuse switch units shall be of the "load-breaking" and "fault making" type complying with BS 3185 where applicable and fitted with HRC cartridge fused links to BSS 88.

- Fuse switch units shall be of the double air-break, quick make type and shall have a spring mechanism smoothly driven by springs on both sides of the mechanisms.

- The fixed contacts shall be shrouded.

- The hand operated lever shall be mechanically interlocked with the door and shall be padlockable in the off position.

(c) Moulded case circuit breaker

All moulded case circuit breakers shall comply with the requirements of SABS specification No. 156-1977 and shall be equal and similar to Heinemann manufacture with a rupturing capacity of at least 5 kA or for the fault level for the distribution board.

These circuit breakers shall be fitted with copper terminal collector bars where more than one cable tail has to be terminated on the same terminal.

(d) Airbreak contactors

All contactors shall be of the totally enclosed three pole, double air break per pole, automatic magnetic type complying with the requirements of SABS 1092 and/or IEC 158-1 for Class AC 3 contactors of Intermittent Duty Class 0,3. the contactors shall be rated for at least 130% of the associated load current.

All contactors shall be provided with arc extinguisher and readily replaceable silver or silver-alloy contacts rated for at 2-million "on" and "off" switching operations at rated current.

Each contactor shall be capable of carrying and making and breaking at a recovery voltage of not less than 90% of the system voltage.

Each contactor shall be provided with a closing coil suitable for continuous operation and at least 15 closing operations per hour.

At least two normally open and two normally close auxiliary contacts shall be fitted.

The contactor may not hum or chatter in service and the contacts may not bounce on closing.

All contactors shall preferably be equal and similar to Telemecanique manufacture.

(e) Current transformers

All current transformers shall be of the air insulated type complying in all respects with the requirements laid down in BS 3938 : 1973 and/or IEC 185.

The Contractor shall carefully select the ratio, burden and accuracy class to suit its specific application in accordance with the recommendations and requirements of BS 3938 and/or IEC 185.

The following classes of current transformers shall be used:

Description		Class
1.	General Protection (over-current/thermal overload)	10P15
2.	Differential Protection	X
3.	kVA, kW, kWh meters and ammeters	0,5

(f) Indicating instruments

All indicating instruments shall comply with the requirements laid down in BS 89: Part I: 1970 for instruments of a 2,5 Accuracy Class. All indicating instruments shall have 96 mm square dials.

The maximum demand ammeters shall be of the 6 amp combined maximum demand registering and instantaneous indicating type having MISC movement and thermal demand indication with an integrating time lag of 15 minutes. The ammeter scales shall be direct reading with a full scale deflection corresponding to 120% of the rated primary current of the relevant current transformer. Each ammeter shall be clearly and indelibly marked to indicate the colour of the phase to which it is connected.

The ammeters for motor starters shall be instantaneous indicating meters with MISC movement and direct reading scales. The meters shall be able to withstand over- currents resulting under starting conditions and the full load current of the relevant motor shall be clearly marked in red on the face of the meter.

Voltmeters shall be of the direct reading moving iron suppressed zero type.

The running hour meters shall have cyclometer dials indicating up to 5 digits and two decimals.

(g) Selector switch

A rotary type instrument selector switch shall be mounted in such a way that only the selector knob and indicator plate are on the panel, and the switch itself is behind the panel.

The selector knob shall consist of substantial material, and shall have an arrow engraved on it, indicating the switch position.

The switch shall have a positively driven switching mechanism.

The indicator plate shall have the positions for the three phases and "OFF" engraved on it in 5 mm high lettering.

(h) Indicator lights

All indicator lights shall be equal and similar to Cuttler Hammer Igranic Cat. No. T401 list No. 051/91053 with neon lamps and glass lenses of the specified colours.

Multiple LED type indicators will also be considered if brightness can be proved in daylight.

(i) Auxiliary relays shall be adequately rated for their respective duties and shall be silent in operation. All switching relays shall be fitted with robust silver or silver-alloy self-cleaning contacts which shall not bounce or chatter on closing and which shall be designed and manufactured to limit arcing, welding and pitting to an absolute minimum.

(j) Earth leakage relays for low voltage distribution boards shall comply with the requirements of SABS 767 and shall have a sensitivity of 30 mA.

PXB 4.5.3 Information to be submitted with tenders in respect of distribution boards and motor control boards

The following information shall be submitted with each tender in respect of all boards offered:

(a) Full technical details and descriptive literature regarding all equipment and instruments offered; and

(b) Three paper prints of an outline drawing of each board indicating the main overall dimensions and general layout of the boards.

PXB 4.5.4 Information to be submitted by the successful tenderer in respect of all boards

The successful tenderer shall submit three paper prints of each of the following drawings, in respect of each of the boards to the employer’s Agent for approval prior to manufacture:

(i) Outline and general arrangement drawings, showing main overall dimensions and construction details:
(ii) A wiring diagram; and|
(iii) A schematic line diagram.

Plastic transparent prints of the following drawings shall be supplied by the successful tenderer in respect of each of the final layouts of the boards:

(a) Outline and general arrangement drawings of each board;
(b) A wiring diagram of each board;
(c) A schematic line diagram of each board;
(d) A paper print of the schematic line diagram for that specific distribution board, shall be framed and installed behind perspex on the inside of the door of each of the switch boards; and
(e) A paper print of the schematic line diagrams for each LV starter panel shall be installed behind perspex on the inside of the door of each starter panel.

PXB 4.5.5 Testing for distribution/motor control boards at the manufacturer's works

Each distribution/motor control board shall be subjected to the following tests in the manufacturer's works after manufacture:

(a) A thorough inspection shall be carried out to ensure compliance with the specification and approved drawings and wiring diagrams and to ascertain that all connections are properly made.

(b) A high voltage test on all primary connections to check the insulation between phases mutually and between each phase and earth.

(c) The polarities and ratios of all potential and current transformers shall be checked.

(d) Primary and secondary injection tests shall be carried out on all switching, protection, metering interlocking and indication circuits.

The manufacturer shall submit three copies of test certificates giving details of conditions and results of tests carried out to the Engineer.

PXB 4.5.6 Testing and commissioning of distribution/motor control boards after installation on site

After installation on site but prior to commissioning the following inspections and tests shall be performed on each distribution/motor control board:

(a) Check all components to ensure that they are free from dust and protective packing material;
(b) Check the operation of all components liable to damage in transit such as meters and protection relays;
(c) The insulation of all primary circuits between phases mutually and between each phase and earth shall be measured;
(d) All fuse links shall be checked for electrical continuity; and
(e) All control supplies shall be checked.

All adjustable protection devices shall then be set and the boards commissioned all in consultation with and to the instruction of the Engineer.

PXB 5 EXTERNAL CONTROL AND SENSING UNITS ASSOCIATED WITH ELECTRICAL DISTRIBUTION BOARDS AND CONTROL BOARDS

PXB 5.1 Material and Equipment

PXB 5.1.1 Emergency Stop Push Button Stations (Only where motor starters are provided under this contract)

Each of these units shall consist of a totally enclosed outdoor weatherproof type heavy duty "push and turn to lock" stop push button station with a cable gland entry at the bottom to accommodate a 3 core, 1,5 mm.sq. LV PVC SWA cable. The unit shall have an IP 55 insect proofed enclosure.

This push button station shall be mounted on an approved rigid 1 meter high grade 304 stainless steel pedestal designed to be bolted to a concrete slab or against the structure at a height of 1,0 m above ground level where practicable.

PXB 5.1.2 Level Switches

All level switches shall be equal and similar to the Flygt ENH 10 and shall be supplied complete with integral cable connections of sufficient length to eliminate joints in water or moist surroundings.

PXB 5.1.3 Level Sensors

Level sensors shall be of the ultrasonic type with a minimum environmental rating of IP 65. They shall be capable of operating without degradation of performance in direct sunlight and highly corrosive conditions (organic acids from sewerage work).

PXB 5.1.4 Flow and Pressure Switches

(a) Flow Switches

Flow switches shall be of the paddle type equal and similar the McDonnel flow switch with adjustable paddles to suit the relevant pipe diameters.

(b) Pressure Switches

Details of tendered equipment must be submitted with the tender.

PXB 5.2 Installation and Commissioning

PXB 5.2.1 Emergency Stop Push Button Stations (Only where motor starters are provided under this contract)

An emergency stop push button station as specified shall be installed at the coupling between each motor and its associated driven equipment and shall be connected to the relevant starter panel via 1,5 mm.sq. x 3 core PVC SWA PVC cable to stop the motor.

Where a mounting pedestal is used the pedestal shall be securely bolted to the concrete slab by means of foundation bolts grouted into the concrete and care shall be taken to ensure that it is installed plumb.

PXB 5.2.2 Float Switches

Each float switch shall be suspended from a grade 304 stainless steel hook bolt in such a position that it will be readily accessible for adjustment and cleaning purpose, that it will be able to float freely without the possibility of obstruction of any sort and that it will not be influenced by turbulence in the liquid.

At least 2 m slack shall be provided in the cable connection to each float to facilitate future lowering thereof. This slack shall be neatly coiled and bound at the point of suspension.

PXB 5.2.3 Level Sensors

The transmitter section of each of these units shall be installed in the associated distribution or control board.

The positions in which these sensors are to be installed shall be determined in consultation with the employer’s Agent on site and shall be such as to ensure accessibility for maintenance and adjustment and to avoid the effects of turbulence in the liquid.

PXB 5.2.4 Flow and Pressure Switches

Shall be installed as and where required and shall be connected to the relevant starter panels by means of the necessary multicore PVC SWA PVC cables for the operational functions required.

PXB 5.2.5 Electric Actuators for Continuous Valve and Sluice Gate Control

Electric actuators for valve and sluice gate control shall be equal or similar to the Rotork Syncropak complete with "Millipot" stabilised current position transmitter providing a 4-20 mA signal for remote position indication and "Folomatic Control Unit" suitable for remote control by means of a 4-20 mA signal.

NB: Gears of synthetic materials will not be acceptable in these units.

PXB 5.2.6 Electric Actuators for Open/Closed and Three-way Plug Valve Control

Such actuators shall be equal or similar to Rotork Syncropak units which shall provide for remote control by internally sourced 24V DC signals and for remote monitoring by means of voltage free contracts.

PART C5: ANNEXURES

TABLE OF CONTENTS

C5.1 Annexure A: Health and Safety Specifications

C5.2 Annexure B: EPWP Specifications

C5.4 Annexure C: Locality Plan

C5.5 Annexure D: Tender Drawings

ANNEXURE A: HEALTH AND SAFETY SPEICIFICATIONS

HEALTH AND SAFETY SPECIFICATION

1. BACKGROUND

In terms of the Construction Regulation 4 (1) (a) of the Occupational Health and Safety Act, No. 85 of 1993, the Employer is required to compile a Health & Safety Specification for the intended project and provide such specification to any prospective tenderer.

The Employer's further duties are as 4(1) to 4(6) in The Construction Regulations, July 2003.

2. SCOPE

This specification covers the health and safety requirements to be met by the Contractor to ensure a continued safe and healthy environment for all workers, employees and subcontractors under his control and for all other persons entering the site of works.

This specification shall be read with the Occupational Health and Safety Act (Act No 85 and amendment Act No 181) 1993, and the corresponding Construction Regulations 2003, and all other safety codes and specifications referred to in the said Construction Regulations.

In terms of the OHSA Agreement in Section C1.5 of the Contract document, the status of the Contractor as mandatory to the Employer (client) is that of an employer in his own right, responsible to comply with all provisions of OHSA 1993 and the Construction Regulations 2003.

This safety specification and the Contractor's own Safety Plan as well as the Construction Regulations 2003, shall be displayed on site or made available for inspection by all workers, employees, inspectors and any other persons entering the site of works.

The following are possible risks associated with this project:

- Potentially dangerous existing services, i.e. gas lines, water and sewerage mains, electrical high voltage cables, on the bridge, buried and overhead
- Deep excavations in soils requiring shoring or reducing of slopes
- Blasting of hard rock or demolition of concrete
- Potentially harmful gasses when tying into the existing sewer mains
- Movement of construction vehicles on site, taking into consideration steep slopes, other traffic and existing services
- Exposure to possible injuries due to mishandling or failure of power and hand tools
- Falling debris, tools and materials from bridge
- Non-conformance to specifications with regards to fasteners and materials
- Risks related to general safety and security on site

Additional risks may arise from specific methods of construction selected by the Contractor, which are not necessary covered in the above.

3. OH&S MANAGEMENT

3.1 Structure and Organization of OH&S Responsibilities

3.1.1. Overall Supervision and Responsibility for OH&S

- The Employer is to ensure that the Principal Contractor, appointed in terms of Construction Regulation 4(1)(c), implements and maintains the agreed and approved OH&S Plan.
- The Chief Executive Officer of the Principal Contractor in terms of Section 16 (1) of the Act is to ensure that the Employer (as defined in the Act) complies with the Act. **Annexure 2 -** "Legal Compliance Audit" may be used for this purpose.
- Any OH&S Act (85 /1993), Section 16 (2) appointee/s as detailed in his/her respective appointment forms.
- The Construction Supervisor and Assistant Construction Supervisor/s appointed in terms of Construction Regulation 6.

3.1.2. Further (Specific) Supervision Responsibilities for OH&S

Appointments required by the Act and Regulations:

- OH&S Representatives (Sections 17/18 of the Act)
- OH&S Committees (Sections 19/20 of the Act)
- Risk Assessor (Construction Regulation. 7(1))
- Accident/Incident Investigations coordinator (General Administrative Regulation 9 (2))
- Form/Support work Supervisor (Construction Regulation 10(a))
- Batch Plant Supervisor (Construction Regulation 18(1))
- Stacking & Storage Supervisor (Construction Regulation 26(a))
- Fire Equipment Inspector (Construction Regulation 27(h))
- Electrical Installations, Machinery & Appliances Inspector (Construction Regulation 22)
- Excavations Supervisor (Construction Regulation 11(1))
- Demolition Supervisor (Construction Regulation 12(1))
- OH&S Officer (where necessary) (Construction Regulation 6(6))
- Person Responsible for Machinery (General Machinery Regulation 2)
- Emergency, Security and Fire coordinator (Construction Regulation 27(h) & Environmental Regulation 9)
- Fire Equipment Inspector (Construction Regulation 27(h) Environmental Regulation 9)
- First Aider (General Safety Regulation 3(2))
- Hazardous Chemical Substances Supervisor (HCS Regulations)

- Ladders Inspector (General Safety Regulation 13A)
- Lifting Equipment Inspector (Construction Regulation 20)
- Operators & Drivers of Construction Plant & Vehicles (Construction Regulation 21 (i))
- Structures Supervisor (Construction Regulation 9)
- Users Operators of Construction Equipment (Construction Regulation 21(i))
- Welding Supervisor (General Safety Regulation 9)

3.2. Communication and Liaison

- OH&S liaison between the Employer, the Principal Contractor, the other Contractors, the Consulting Engineer and other concerned parties will be through the OH&S Committee as in **3.10.**
- In addition to the above, communication may be directly to the Employer or his appointed Agent, verbally or in writing, as and when the need arises.
- Consultation with the workforce on OH&S matters will be through their Supervisors, OH&S Representatives, the OH&S Committee and their elected Trade Union Representatives, if any.
- The Principal Contractor will be responsible for the dissemination of all relevant OH&S information to the other Contractors e.g. design changes agreed with the Employer and the Consulting Engineer, instructions by the Employer and/or his/her agent, exchange of information between Contractors, the reporting of hazardous/dangerous conditions/ situations etc.

3.3. OH&S File

The Principal Contractor must, in terms of Construction Regulation 5 (7), keep a health and safety file on site at all times that must include all documentation required in terms of the Act and Regulations and must also include a list of all Contractors on site that are accountable to the Principal Contractor and the agreements between the parties and details of work being done. The following documents must be kept in the OH&S file:

- Notification of Construction Work (Construction Regulation 3.)
- Copy of OH&S Act (updated) (General Administrative Regulation 4.)
- Proof of Registration and good standing with a COID Insurer (Construction Regulation 4 (g))
- Copy of health and safety plan (construction regulation 5 (1)
- OH&S Programme agreed with Employer including the underpinning Risk Assessment and Method Statements (Construction regulation 5 (1))

Designs/drawings (Construction Regulation 5 (8))

- A list of Contractors (Subcontractors) including copies of the agreements between the parties and the type of work being done by each contractor (Construction Regulation 9)
- Appointment / Designation forms as per 3.1.1. and 3.1.2. above.

- Registers as follows:

  * Accident/Incident Register (Annexure 1 of the General Administrative Regulations)
  * OH&S Representatives Inspection Register
  * Form/Support work Inspection
  * Excavations Inspection
  * Lifting Equipment
  * Demolition Inspections
  * Designer's Inspection of Structures Record
  * Batch Plant Inspections
  * Arc & Gas Welding & Flame Cutting Equipment Inspections
  * Construction Vehicles & Mobile Plant Inspections
  * Electrical Installation and Machinery Inspections
  * Fire Equipment Inspection & Maintenance
  * First Aid
  * Hazardous Chemical Substances
  * Lifting Tackle and Equipment Inspections
  * Inspection of Cranes
  * Inspection of Ladders
  * Inspection of Vessels under Pressure
  * Machinery Inspections
  * Drivers/Operators of Mobile Plant/Construction Vehicles Daily Inspections

The Principal Contractor will be required to submit the abovementioned registers monthly to the chairperson of the OH&S Committee for endorsement.

The Health & Safety File must be handed over to the Employer on completion of the contract. It must contain all the documentation handed to the Principal Contractor by any subcontractors together with a record of all drawings, designs, materials used and other similar information concerning the completed project.

3.4. OH&S Goals and Objectives and Arrangements for Monitoring and Review of OH&S Performance

The Principal Contractor is required to maintain a Compensation Incidence Frequency Rate **(CIFR)** of at least 8 (Refer **Annexure 3** - "Measuring Injury Experience") and to report on this to the Employer on a monthly basis.

3.5. Identification of Hazards and Development of Risk Assessments, Standard Working Procedures (SWP) and Method Statements

The Principal Contractor is required to develop Risk Assessments, Standard Working Procedures (SWP) and Method Statements for each activity executed in the contract or project (Refer to **Section 4**. below "Project/Site Specific Requirements")

3.6. Arrangements for Monitoring and Review

3.6.1. Monthly Audit by Employer

The Employer will be conducting a Monthly Audit to comply with Construction Regulation 4 (1) (d) to ensure that the Principal Contractor has implemented and is maintaining the agreed and approved OH&S Plan.

3.6.2. Other Audits and Inspections by Employer

The Employer reserves the right to conduct other ad hoc audits and inspections as deemed necessary.

A representative of the Principal Contractor must accompany the Employer on all Audits and Inspections and may conduct his/her own audit/inspection at the same time. Each party will, however, take responsibility for the results of his/her own audit/inspection results.

3.6.3 Reports

The Principal Contractor is required to provide the Employer with a monthly report. "SHE Risk Management Report"

The Principal Contractor must report all incidents where an employee is injured on duty to the extent that he/she:

- dies
- becomes unconscious
- loses a limb or part of a limb
- is injured or becomes ill to such a degree that he/she is likely either to die, or to suffer a permanent physical defect, or likely to be unable for a period of at least 14 days either to work or continue with the activity for which he/she was usually employed

OR where:

- a major incident occurred
- the health or safety of any person was endangered
- where a dangerous substance was spilled
- the uncontrolled release of any substance under pressure took place
- machinery or any part of machinery fractured or failed resulting in flying, falling or uncontrolled moving objects
- machinery ran out of control

to the Provincial Director of the Department of Labour within seven days. (Section 24 of the General Administrative Regulation 8.). The Principal Contractor is required to provide the Employer with copies of all statutory reports required in terms of the Act.

The Principal Contractor is required to provide the Employer with copies of all internal and external accident/incident investigation reports including the reports contemplated in 3.9. below.

3.6.4 Review

The Principal Contractor is to review the Hazard Identification, Risk Assessments and SWP's at each two weekly site inspection/meeting as the construction work develops and progresses and each time that changes are made to the designs, plans and construction methods and processes.

The Principal Contractor must provide the Employer, other Contractors and all other concerned parties with copies of any changes, alterations or amendments.

3.7 Site Rules and Other Restrictions

3.7.1 Site OH&S Rules

The Principal Contractor must develop a set of site-specific OH&S rules that will be applied to regulate the OH&S aspects of the construction.

3.7.2. Security and Emergency Arrangements

The Principal Contractor must establish site access rules and implement and maintain these throughout the construction period.

Access control must include the rule that non-employees will not be allowed on site unaccompanied.

The Principal Contractor must develop a set of security rules and procedures and maintain these throughout the construction period.

The Principal Contractor must appoint a competent Emergency Controller who must develop emergency contingency plans for any emergency that may arise on site as indicated by the risk assessments. These must include a monthly practice/testing programme for the plans e.g. January: trench collapse, February: flooding etc. and practiced/tested with all persons on site at the time, participating.

3.8 Training

The contents and syllabi of all training required by the Act and Regulations must be included in the Principal Contractor's OH&S Plan.

3.8.1 General Induction Training

All employees of the Principal and other Contractors to be in possession of proof of General Induction Training

3.8.2 Site Specific Induction Training

All employees of the Principal and other Contractors to be in possession of Site Specific OH&S Induction Training.

3.8.3 Other Training

All operators, drivers and users of construction vehicles, mobile plant and other equipment to be in possession of valid proof of training.

All employees in jobs requiring training in terms of the Act and Regulations to be in possession of valid proof of training.

OH&S Training Requirements: (as required by the Construction Regulations and as indicated by the OH&S Specification and the Risk Assessment/s):

* General Induction (Section 8 of the Act)
* Site/Job Specific Induction (also visitors) (Sections 8 & 9 of the Act)
* Site/Project Manager
* Construction Supervisor
* OH&S Representatives (Section 18 (3) of the Act)
* Training of the Appointees indicated in 3.1.1. & 3.1.2. above
* Operation of Cranes (Driven Machinery Regulations 18 (11))
* Operators and Drivers of Construction Vehicles & Mobile Plant (Construction Regulation 21)
* Basic Fire Prevention & Protection (Environmental Regulations 9 and Construction regulation 27)
* Basic First Aid (General Safety Regulations 3)
* Storekeeping Methods & Safe Stacking (Construction Regulation 26)
* Emergency, Security and Fire Co-coordinator

3.9. Accident and Incident Investigation

The Principal Contractor is responsible for the investigation of all accidents/incidents where employees and non-employees were injured to the extent that he/she had to be referred for medical treatment by a doctor, hospital or clinic. (General Administrative Regulation 9).

The results of the investigation to be entered into the Accident/Incident Register. (General Administrative Regulation 9)

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

The Principal Contractor is responsible for the investigation of all road traffic accidents and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.

3.10 OH&S Representatives and Committees

3.10.1. Designation of OH&S Representatives

Where the Principal Contractor employs more than 20 persons (including the employees of other contractors (sub-contractors) he has to appoint one OH&S Representative for every 50 employees or part thereof. General Administrative Regulation 6 requires that the appointment or election and subsequent designation of the OH&S Representative is executed in consultation with Employee Representatives or Employees. (Section 17 of the Act and General Administrative Regulation 6. & 7.)

OH&S Representatives have to be designated in writing and the designation must include the area of responsibility of the person and term of the designation.

3.10.2. Duties and Functions of the OH&S Representatives

The Principal Contractor must ensure that the designated OH&S Representatives conduct a minimum monthly inspection of their respective areas of responsibility using a checklist and report thereon to the Principal Contractor.

OH&S representatives must be included in accident/incident investigations.

OH&S representatives must attend all OH&S committee meetings.

3.10.3. Appointment of OH&S Committee

The Principal Contractor must establish an OH&S Committee consisting of all the designated OH&S Representatives together with a number of management representatives (this number is not to exceed the number of OH&S representatives on the committee) and a representative of the Employer who shall act as the chairperson without a vote. The members of the OH&S committee must be appointed in writing.

The OH&S Committee must meet minimum monthly and consider, at least, the following Agenda:

- Opening and welcome
- Present/Apologies/Absent
- Minutes of previous meeting
- Matters arising from the previous minutes
- OH&S Representatives Reports
- Incident Reports & Investigations
- Incident /Injury statistics
- Other matters
- Endorsement of Registers and the statutory documents by a representative of the Principal Contractor
- Close/Next Meeting

4. PROJECT / SITE SPECIFIC REQUIREMENTS

The following is a list of specific activities and considerations that have been identified for the project and the construction site and for which Risk Assessments, Standard Working Procedures (SWP), management and control measures and Method Statements (where necessary) have to be developed by the Principal Contractor:

- Borehole drilling, development and testing
- Borehole pumps and solar PV systems
- Pump houses and security fencing
- DN75 rising and distribution pipelines
- Trenching, bedding, pipe installation, pressure testing and backfilling
- Elevated 10 kℓ storage tanks and work at height
- Communal standpipes
- Connections to existing water infrastructure
- Lifting operations and mobile plant
- Electrical and solar installations
- Public and community safety
- Environmental protection and rehabilitation
- Local site conditions such as snakes, bees, heat, lightning, etc.
- OH&S risks identified through inspections, audits and incident investigations

Annexure 1: Construction Occupational Health – Safety – Environment Audit System

Annexure 2: Guidelines for the development of a Health and Safety Plan.

Annexure 3: Guide to Risk Assessment

ANNEXURE 1

CONSTRUCTION OCCUPATIONAL HEALTH - SAFETY - ENVIRONMENT

AUDIT SYSTEM

(Based on the New Construction Regulations)

**** Denotes items applicable to both Construction sites and Contractors Plant/Storage***

1. ADMINISTRATIVE & LEGAL REQUIREMENTS

Section/Regulation	Subject	Requirements	Yes/No
Construction. Regulation 3	Notice of carrying out Construction work	Department of Labour notified Copy of Notice available on Site	
General Admin. Regulation 3	*Copy of OH&S Act (Act 85 of 1993)	Updated copy of Act & Regulations on site Readily available for perusal by employees	
COID Act Section 80	*Registration with Compensation. Insurer	Written proof of registration / Letter of good standing available on Site	
Construction. Regulation 4 & 5(1)	OH&S Specification & Plan	OH&S Specification received from Employer OH&S plan developed Updated regularly	
Section 8(2)(d) and Construction. Regulatio 6	*Hazard Identification & Risk Assessment	Hazard Identification carried out/Recorded Risk Assessment and Plan drawn up/Updated Risk Assessment Plan available on Site Employees/Subcontractors informed/trained	
Section 16(2)	*Assigned duties (Managers)	Responsibility of complying with the OH&S Act assigned to other person/s by CEO.	
Construction. Regulation 5(2)	Designation of Person Responsible on Site	Competent person appointed in writing as Construction Supervisor	
Construction. Regulation 5(5)(a)	Designation of Subordinate Person	Competent person appointed in writing as Sub-ordinate Construction Supervisor	
Section 17 & 18	*Designation of Occupational Health & Safety Representatives	More than 20 employees - one OH&S Representative, one additional OH&S Rep. for each 50 employees or part thereof. Designation in writing, period and area of responsibility specified. Meaningful OH&S Rep. reports. Reports actioned by Management.	
Section 19 & 20	*Occupational Health & Safety Committee/s	OH&S Committee/s established. Members appointed in writing. Meetings held monthly. Minutes kept. Actioned by Management.	
Section 37	*Agreement with Mandatory (Sub-Contractors)	Written agreement with Subcontractors. List of Subcontractors displayed. Proof of Registration with Compensation Insurer/Letter of Good Standing Construction Work Supervisor designated Written arrangements concerning OH&S Reps & OH&S Committee Written arrangements regarding First Aid	
Construction. Regulation 7	Fall Prevention & Protection	Competent person appointed to draw up and supervise the Fall Protection Plan Proof of appointees competence available on Site Risk Assessment carried out for work at heights Fall Protection Plan drawn up/updated Available on Site	
Construction. Regulation 8	Roof work	Competent person appointed to plan & supervise Roof work. Proof of appointees competence available on Site	

Section/Regulation	Subject	Requirements	Yes/No
		Risk Assessment carried out Roof work Plan drawn up/updated Roof work inspect before each shift. Inspection register kept Employees medically examined for physical & psychological fitness. Written proof available	
Construction. Regulation 9	Structures	Information re. the structure being erected received from the Designer including: - geo-science technical report where relevant - the design loading of the structure - the methods & sequence of construction - anticipated dangers/hazards/special Measures to construct safely Risk Assessment carried out Method statement drawn up All above available on Site Structures inspected before each shift. Inspections register kept	
Construction. Regulation 10	Formwork & Support work	Competent person appointed in writing to supervise erection, maintenance, use and dismantling of Support & Formwork Design drawings available on site Risk Assessment carried out Support & Formwork inspected: - before use/inspection - before pouring of concrete - weekly whilst in place - before stripping/dismantling. Inspection register kept	
Construction. Regulation 11	Scaffolding	Competent persons appointed in writing to: - erect scaffolding (Scaffold Erector/s) - act as Scaffold Team Leaders - inspect Scaffolding weekly and after inclement weather (Scaffold Inspector/s) Written Proof of Competence of above appointees available on Site Copy of SABS 085 available on Site Risk Assessment carried out Inspected weekly/after bad weather. Inspection register/s kept	
Construction. Regulation 12	Suspended Scaffolding	Competent persons appointed in writing to: - erect Susp.Scaffolding (Scaffold Erector/s) - act as Susp.Scaffold Team Leaders - inspect Susp.Scaffolding weekly and after inclement weather (Scaffold Inspector/s) Risk Assessment conducted Certificate of Authorization issued by a registered professional engineer available on Site/copy forwarded to the Department of Labour The following inspections of the whole installation carried out by a competent person - after erection and before use - daily prior to use. Inspection register kept The following tests to be conducted by a competent person: - load test of whole installation and working parts every 12 months - hoisting ropes/hooks/load attaching devices quarterly. Tests log book kept Employees working on Susp.Scaffold medically examined for physical & psychological fitness. Written proof available	
Construction. Regulation 13	Excavations	Competent person/s appointed in writing to supervise and inspect excavation work	

Section/Regulation	Subject	Requirements	Yes/No
		Written Proof of Competence of above appointee/s available on Site Risk Assessment carried out Inspected: - before every shift - after any blasting - after an unexpected fall of ground - after any substantial damage to the shoring - after rain. Inspections register kept Method statement developed where explosives will be/ are used	
Constructions . Regulation 14	Demolition Work	Competent person/s appointed in writing to supervise and control Demolition work Written Proof of Competence of above appointee/s available on Site Risk Assessment carried out Engineering survey and Method Statement available on Site Inspections to prevent premature collapse carried out by competent person before each shift. Inspection register kept	
Construction. Regulation 16	Materials Hoist	Competent person appointed in writing to inspect the Material Hoist Written Proof of Competence of above appointee available on Site. Materials Hoist to be inspected weekly by a competent person. Inspections register kept.	
Construction. Regulation 17	Caissons & Coffer dams	Competent person appointed in writing to supervise, control & inspect the construction, installation/dismantling of caissons/coffer dams Written Proof of Competence of above appointee available on Site Risk Assessment carried out To be inspected daily by a competent person. Inspections register kept	
Construction. Regulation 18	Explosive Powered Tools	Competent person appointed to control the issue of the Explosive Powered Tools & cartridges and the service, maintenance and cleaning. Register kept of above Empty cartridge cases/nails/fixing bolts returns recorded Cleaned daily after use	
Construction. Regulation 19	Batch Plants	Competent person appointed to control the operation of the Batch Plant and the service, maintenance and cleaning. Register kept of above Risk Assessment carried out Batch Plant to be inspected weekly by a competent person. Inspections register kept	
Construction. Regulation 20/ Mine Health & Safety Act (29 of 1996)	Tunneling	Complying with Mines Health & Safety Act (29 of 1996) Risk Assessment carried out	
Construction. Regulation 21/ Driven Machinery Regulations 18 & 19	Cranes & Lifting Machines Equipment	Competent person appointed in writing to inspect Cranes, Lifting Machines & Equipment Written Proof of Competence of above appointee available on Site. Cranes & Lifting tackle identified/numbered Register kept for Lifting Tackle Log Book kept for each individual Crane Inspection: - All cranes - **daily by operator** - Tower Crane/s– **after erection/6monthly** - Other cranes– **annually by comp. person** - Lifting tackle(slings/ropes/chain slings etc.) - **3 monthly** Risk Assessment carried out	

Section/Regulation	Subject	Requirements	Yes/No
Construction. Regulation 22/Electrical Machinery Regulations 9 & 10/Electrical Installation Regulations	*Inspection & Maintenance of Electrical Installation & Equipment (including portable electrical tools)	Competent person appointed in writing to inspect/test the installation and equipment. Written Proof of Competence of above appointee available on Site. Inspections: - Electrical Installation & equipment inspected after installation, after alterations and quarterly. Inspection Registers kept Portable electric tools and -lights and extension leads identified/numbered. Monthly visual inspection by User/Issuer/ Storeman. Register kept.	
Construction. Regulation 2 Diving Regulations	Water Environments	Competent person appointed in writing to supervise diving operations and ensure maintenance, statutory inspection and testing by an Approved Inspection Authority of equipment used Written Proof of Competence of above appointee available on Site Proof of registration of all divers present on site available Risk Assessment carried out Diving Manual produced. Available on Site Record of Voice Communications kept Diving Operations record kept Each Diver keeps a personal logbook. Entries countersigned by the Diving Supervisor Decompression tables available on Site Records of any Decompression illness kept Certificate of Manufacture of any Compression Chamber or Diving Bell in use available on Site	
Construction. Regulation 30/ General Safety Regulation 8(1)(a)	*Designation of Stacking & Storage Supervisor.	Competent Person/s with specific knowledge and experience designated to supervise all Stacking & Storage Written Proof of Competence of above appointee available on Site	
Construction. Regulation 31/ Environmental Regulation 9	*Designation of a Person to Co-ordinate Emergency Planning And Fire Protection	Person/s with specific knowledge and experience designated to co-ordinate emergency contingency planning and execution and fire prevention measures Emergency Evacuation Plan developed: - Drilled/Practiced - Plan & Records of Drills/Practices available on Site Fire Risk Assessment carried out All Fire Extinguishing Equipment identified and on register. Inspected weekly. Inspection Register kept Serviced annually	
Construction. Regulation 32/ General Safety Regulation 3	*First Aid	Every workplace provided with sufficient number of First Aid boxes. (Required where 5 persons or more are employed) First Aid freely available Equipment as per the list in the OH&S Act. One qualified First Aider appointed for every 50 employees. (Required where more than 10 persons are employed) List of First Aiders and Certificates Name of person/s in charge of First Aid box/es displayed. Location of F/Aid box/es clearly indicated. Signs instructing employees to report all Injuries/illness including first aid injuries	
Construction. Regulation 33/ General Safety Regulation 2	Personal Safety Equipment (PSE)	PSE Risk Assessment carried out Items of PSE prescribed/use enforced Records of Issue kept Undertaking by Employee to use/wear PSE	

Section/Regulation	Subject	Requirements	Yes/No
Construction. Regulation 34/ General Safety Regulation 9	*Inspection & Use of Welding/Flame Cutting Equipment	Competent Person/s with specific knowledge and experience designated to Inspect Electric Arc, Gas Welding and Flame Cutting Equipment Written Proof of Competence of above appointee available on Site Equipment identified/numbered and entered into a register Equipment inspected monthly. Inspection Register kept	
Construction. Regulation 35/ Hazardous Chemical Substances **(HCS)**	*Control of Storage & Usage of HCS	Competent Person/s with specific knowledge and experience designated to Control the Storage & Usage of **HCS** Written Proof of Competence of above appointee available on Site Risk Assessment carried out Register of HCS kept/used on Site	
Construction. Regulation 36/Vessels under Pressure Regulations	Vessels under Pressure (VUP)	Competent Person/s with specific knowledge and experience designated to supervise the use, storage, maintenance, statutory inspections & testing of VUP's Written Proof of Competence of above appointee available on Site Risk Assessment carried out Certificates of Manufacture available on Site Register of VUP's on Site Inspections & Testing by Approved Inspection Authority (AIA): - after installation/re-erection or repairs - every 36 months. - Register/Log kept of inspections, tests. Modifications & repair	
Construction. Regulation 37	Construction Vehicles & Earth Moving Equipment	Operators/Drivers appointed to: - Carry out a daily inspection prior to use - Drive the vehicle/plant that he/she is competent to operate/drive Written Proof of Competence of above appointee available on Site Record of Daily inspections kept	
Construction. Regulation 38/ General Safety Regulation 13D	*Inspection of Ladders	Competent person appointed in writing to inspect Ladders Ladders inspected at arrival on site and monthly there after. Inspections register kept	
Construction. Regulation 39/ General Safety regulation 13B	Ramps	Competent person appointed in writing to Supervise the erection & inspection of Ramps. Inspection register kept.	

ANNEXURE 2

GUIDELINES FOR THE DEVELOPMENT OF A HEALTH & SAFETY PLAN

1. Project Background

In terms of the Construction Regulations [Regulation 4 (1) (a)] of the Occupational Health and Safety Act, No 85 of 1993, the Employer is required to compile an Occupational Health and Safety specification for each of its projects and the Principle Contractor, appointed by the Employer in terms of Regulation 4 (1) (c), is required to prepare an Occupational Health and Safety Plan. This plan has to be prepared in terms of Regulation 5 (1) as well as the Employer's Occupational Health & Safety Specification. In terms of Regulation 4 (2), the Employer and the Principle Contractor are required to agree on the Occupational Health and Safety Plan before any work may commence.

2. Framework for an Occupational Health and Safety Plan

2.1 Introduction

The Principal Contractor has to demonstrate to the Employer that he has a suitable and sufficiently documented Occupational Health and Safety Plan as well as the necessary competencies, experience and resources to perform the construction work safely. The Principle Contractor could be required to submit the following documentation for perusal and verification by the Employer:

- *Management Structure*
- *Quality Plan*
- *Human Resources Plan*
- *Registered Workplace Skills Plan*
- *"Letter of good standing" from the Compensation Commissioner or licensed compensation insurer.*
- *Proof of induction and other training of employees*
- *Example copy minutes of previous Occupational Health and Safety Committee meetings and copies of Incident Investigation Reports*

2.2 Contents of an Occupational Health and Safety Plan

2.2.1 Occupational Health and Safety Management Programme

- Management of Occupational Health and Safety risks
- Occupational Health and Safety structures and appointments
- Programme of Occupational Health and Safety inspections
- Occupational Health and Safety Representatives
- Occupational Health and Safety committee

2.2.2 Communication and Management of the Work

- Management structure and responsibilities

- Occupational Health and Safety goals for the project and arrangements for monitoring and review of Occupational Health and Safety performance.
- Arrangements for:
  - Regular liaison between parties on site
  - Consultation with the workforce
  - The exchange of design information between the Employer, engineer, supervisors and contractors on site
  - Handling design changes during the project
  - Selection and control of contractors
  - The exchange of Occupational Health and Safety information between all contractors
  - Security
  - Site induction and onsite training
  - Facilities and first-aid
  - The reporting and investigation of accidents and incidents
  - The production and approval of risk assessments and method statements
  - Site OH&S rules
  - Fire and emergency procedures
  - Reporting to the Employer i.e. results of Occupational Health and Safety inspections, incident
  - and incident investigations and committee meetings
  - Reporting of incidents to the Department of Labour and Compensation insurer where appropriate

2.2.3 Arrangements for controlling significant site risks

The following are some examples of the arrangements for controlling the most significant site risks:

- **Safety risks**
  - Services, including temporary electrical installations
  - Preventing employees from falling into excavations, from trucks etc.
  - Work with, on or near fragile materials
  - Control of lifting operations
  - The maintenance of plant and equipment
  - Poor ground conditions

- Traffic routes and segregation of vehicles and pedestrians
- Storage of hazardous materials
- Dealing with existing unstable structures/land
- Accommodating adjacent land use
- Other significant safety risks as and when identified

- Health risks
  - Storage and use of hazardous chemical substances
  - Dealing with contaminated land or material
  - Manual handling
  - Reducing noise and vibration
  - Provision of adequate lighting
  - Ventilation considerations
  - Extreme heat and cold temperature considerations
  - Dealing with HIV/Aids, Covid 19 and other illnesses
  - Provision of and maintaining ablution and eating facilities
  - Other significant health risks as and when identified

2.2.4 Preparation of an Occupational Health and Safety Operational Reference File/Manual

The following are some of the requirements to be addressed:

- Layout, format and content requirements
- Arrangement for the collection and gathering of information
- Storage and archiving of all the information
- Copy to the Employer at completion of project
- ***Suggested Contents of an OH&S File/Manual***
  - OH&S Policy
  - Notice of new project
  - Site start-up
  - Security measures
  - Written designations & appointments
  - Arrangements with contractors/mandataries

- OH&S rules and procedures
- Induction
- OH&S training
- OH&S promotion
- OH&S representatives

- OH&S committees
- Workplace facilities e.g. ablutions, sheltered eating areas etc.
- Protective equipment
- Workplace inspections and audits
- Investigation & reporting of incidents/accidents
- Mechanical safeguarding
- Electrical safeguarding
- Safeguarding against hazardous substances
- Lifting machinery & equipment
- Construction vehicles & mobile plant
- Welding, heating & flame cutting
  - Excavations
  - Protection of the environment affected by construction activities
  - Keeping of records in terms of the OH&S Act (85 of 1993)

ANNEXURE 3

GUIDE TO RISK ASSESSMENT

1. HOW TO DO IT ?

2. Steps to Effective Risk Assessment

Step 1 : Identifying the hazards
Step 2 : Aim to identify major hazards, don't waste time on the minor & detail
Step 3 : Involve as many people as possible in the process especially those at risk
Step 4 : Gather all the information and analyse it
Step 5 : Look at what actually occurs including non-routine operations
Step 6 : Use a systematic approach to ensure all hazards are adequately addressed
Step 7 : Assess the risks arising taking into account the effectiveness of controls
Step 8 : Ensure the process is practical and realistic
Step 9 : Always record the assessment in writing including assumptions and why

3. HOW SERIOUS IS IT?

PROBABILITY

A Common
B Has Happened
C Could Happen
D Not Likely
E Practically impossible

CONSEQUENCES

1 Fatality or permanent disability
2 Major injury
3 Average Lost Time Injury
4 Minor Injury
5 Medical Treatment or less

PROBABILITY

SEQUENCES	A	B	C	D	E
1	1	2	3	4	5
2	2	3	4	5	6
3	3	4	5	6	7
4	4	5	6	7	8
5	5	6	7	8	9

Risk Rating:			• ***ACTION***
	1 – 3 =	Serious	Immediate (within 1 week)
	4 - 5 =	High	Within 1 month
	6 – 7 =	Moderate	> 4 weeks
	8 – 9 =	Acceptable	No action

LIST OF RISK ASSESSMENTS AVAILABLE (as at 2003.07.07)

Access Towers
Acid Washing
Aggregate/Sand Delivery
Angle Grinder
Arc Welding
Armco Barriers - installation
Assem. of elements by boilermaker
BackFilling
Bag Filling
BandSaw
Banksman
Batch Plant
Bench Grinder
Bin Scraper
Block Feeder
Block Machine
BoomScraper
Bricks – Laying of
Brickwork
Bulk Earthworks
Cement Spray Truck
Clearing & Grubbing of Area/Site
Compr. Gas Cylinders-handling
Compressors – Air
Concrete placing of (1)
Concrete placing of (2)
Confined Spaces Working in
Conveyors
Cutting of Earthworks
David Arm
Deck Panels – placing
Depalletor Operator
Diss. Asembly Rejects
Distribution Boards – Electrical
Drivers – of Vehicles
Dry Tile Deracking
Dumpers - Concrete
Electrical Installation – Maintenance of
Elevated Positions
Erecting – Instal/ Shutters
Excavations (1)
Excavations (2)
Explosive Powered Tools
Finger Car
Fire Fighting Prevention
Fire Prevention & Protection
Formwork
Friction Saw
Front End Loader
Fuel Supply
Gas Cylinders – Handling of
Gas Welding-cutting oper.
Gas Welding-cutting operations
Guillotine
Hand & Spray Painting
Hand ToolsJacking – with Hydraulic Pump
Hanging scaffolding
Hauling
High cut operations
Jacking Hydraulic Pump (1)
Jacking Hydraulic Pump (2)
Kerb Laying

Landscaping
Lathe
Layering of (Road work) Materials
Layering Process
Laying Kerbs
Lying of stormwater drains
Levelling -of materials
Lifting Concr. Beams on to trailers
Loading supervisor
Loading/Unloading - of Trucks
Loffels – placing/laying
Machine operator
Making of steel items
Material delivery
Materials Handling
Mixer operator
Mobile Cranes
Pedestal Drill
Pedestal Grinder
Placing Concrete
Plastering
Portable Electric Drill
Portable Electric Tools
Portable Ladders
Post Tensioning
Radial Arm Drill
Refuelling Vehicles/Plant
Reinforcing Steel – placement (1)
Reinforcing Steel – placement (2)
Road Traffic Signs – placement of
Roadworks - Deviations
Roof Truss erection
SandBlasting
Scaffolding
Shuttering – Erection
Shuttering – Stripping
Site Establishment (1)
Site Establishment (2)
SkillSaw
Spray Painting
Stormwater pieps - laying
Structural Steel – Erection
Structural Steel – Laydown
Surveying
Suspended Scaffolds
Termite Proofing
Tile Machine
Tile stacking
Timber Feeder
Tower Cranes
Traffic Accommodation
Traffic Control/Regulation
Trench Excavation
Use of angle grinder
Use of Port. Elec. Tools.
Wet tile racking
Work confined spaces
Work in Elevated Positions
Working Platforms
Workshops

RISK ASSESSMENT: SITE ESTABLISHMENT

TYPE OF WORK PERFORMED: • _____ **DATE COMPLETED:** _____

•

ASSESSMENT PERFORMED BY: •

Step No.	Activity Rules	What can cause injury/damage ?	Result of cause (injury/damage)	Preventative Measures (tools, PPE, equipment)	Controls (test, check list)	Weights		
1.	Access to be a main consideration when positioning offices, stores and parking areas on site during planning stage. Possible one way traffic to be introduced	Restricted access to parking and delivery areas to storage areas.	Damage to transport and plant	Proper layout of site by Construction Manager and Site Agent taking into consideration all transport plant and material movements and storage on site.	Site Agent to check layout Drg. To compare with OHS Act requirements and whether they are to Concor's standards.			
2.	Oxygen and acetylene store to be a minimum distance of five metres away from other buildings. It needs to be well ventilated and have a roof to keep direct exposure to the sun.	Fire explosion leaking gas may spread if to close to other buildings.	Damage to property and plant. Health of employees.	See item 1.	See item 1.			
3.	Diesel tanks to be a distance of 10 metres away from any building and parking areas. A slab with a bund wall capable of carrying 110% of the tank capacities must be constructed for the tanks to stand in.	Fire may spread to adjacent buildings and plant if is too close.	Burns on all parts of body. Damage to plant and property.	See item 1. Persons in charge of tanks should be inducted regarding all the hazards involved and how to control them	See item 1. Supervisor to monitor on an ongoing basis if rules are complied with			

Step No.	Activity Rules	What can cause injury/damage?	Result of cause (injury/damage)	Preventative Measures (tools, PPE, equipment)	Site manager to check that board has been erected.	Weights		
	Lay down areas to be sufficient in size. timber poles to be available to stack materials on.	With inadequate space various materials will be stacked on top of each other causing unstable stacks.	Injury to persons loading unloading materials.		Site agent to discuss with Foreman regarding his requirement at planning stage.			
	Toilets are to be well ventilated	No ventilation in toilets may cause germs to propagate.	Possible health problems due to germs.	Extraction fans to be fitted if required.	Supervisor to check if he is satisfied with ventilation.			

Step No.	Activity Rules	What can cause injury/damage?	Result of cause (injury/damage)	Preventative Measures (tools, PPE, equipment)	Controls (test, check list) During erection & ongoing	Weights		
4.	All cables from distribution board to offices, store and for security to be under-ground. The distribution board is to stand on a firm level base and should be locked at all times.	Damaged cables loose wires exposed.				Safety	Health	R/R
5.	Security fencing minimum height of 1.8 meter around site area together with two double gates.	Theft of property. Access to unauthorized persons.	Loss of property. Injury to persons.	Security guards to be appointed to keep watch.	Supervisor to put system of control in place			
6. 6.1 6.2 6.3 6.4 6.5	Services to be available during site establishment. Fire fighting equipment. First aid boxes. First aider. Drinking water. Toilets.	Not having the essential services at hand.	Health of employees. Loss of property through fire.	6.1 to 6.5 are to be included on first order placed for contract. Dry chemical powder ABCDE fire extinguishers to be ordered 4 off for start.	Site Agent to see that these requirements are on site from start of site establishment.			
7.	Water tank tower to consist of very well cross braced pipe structure standing on concrete base.	Badly constructed water tower under designed structurally could cause tower to collapse.	Injury to persons. Damage to property.	Supervisor to erect as per design office specifications.	.			

8.

9. , Allow sufficient space for laydown area during planning stage of site layout. Access to be considered important.

10.

RISK ASSESSMENT: EXCAVATIONS (PLANT & MANUAL)

TYPE OF WORK PERFORMED: _____

DATE COMPLETED: _____

ASSESSMENT PERFORMED BY: _____

Step No	Activity Rules	What can cause injury/damage	Result of cause (injury/damage)	Preventative measures (tools, PPE, equipment)	Controls (test, checks)	Weights		
	When using a machine to excavate, observe the following:					Safety	Health	Finan.
1	Operator must ensure there are no employees working in this area.	Employees not visible to operate or moving machine.	An injury to all parts of the body and as well as more serious fatal injuries.	Operator must work under close supervision. He must inspect the work area prior to commencing work.	Supervisor to ensure employees are informed and operator works under his supervision.			
2	Machine not to operate while employees are working in same excavations.	Danger of injury of employee by machine.	Bruises, scratches, fractures and fatal.	Supervisor must instruct operator when to commence work.	Supervisor to control and enforce procedure.			
3	All excavated materials must be discharged not closer that 2m from the edge of the excavation. When excavating manually, observe the following. See original	Materials can fall onto employees and the excavation may need extra work.	Injuries to employees and the excavation may need extra work.	Supervisor must instruct operator where to place discharged soil and gravel.	Supervisor to control.			
4	Using a pick and a shovel.	Unsafe use of a pick or a shovel.	Injury to employees.	Induct employees on safe working procedures.	Supervisor and charge hand to control.			
5	Check sides of excavations.	Unstable / loose material causes unsafe condition.	Injury to employees and damage to excavations.	Supervisor to inspect sides on a regular basis.	Supervisor / charge hand to control.			
6	Excavated material to be placed away from side of excavation.	Materials can fall onto employees when working inside the excavation.	Bruises, scratches, fractures and fatal.	Employees to be instructed not to place loose soil on edge of the excavation.	Supervisor to control.			
7	All excavations deeper than 1,5 m must have an access ladder available for employees to get into and out of the excavation safely.	Employees not able to enter or exit the excavation safely.	In case of an emergency too many employees may be buried as a result of inadequate access. Employees may also strain muscles to get into or out of an excavation without safe and convenient access.	Providing a ladder makes access into and out of the excavation area easy and safe.	Supervisors to ensure employees are given safe and convenient access to excavations.			

8	Sides of excavation to be shored (if necessary) and barricaded immediately.	Sides may collapse. Employees may NOT BE AWARE OF THE EXCAVATION AND FALL INTO IT.	Damage to the excavation. Injury to employees,	Put adequate shoring and strong physical barricades in place immediately.	Supervisor and chargehand to control.			
9	Excavations must be backfilled as soon as possible after excavation.	Excavations could collapse. Employees could trip and fall in. Vehicles and machinery could damage excavations.	Damage to excavations. Injury to employees. Damage to plant and machinery.	Keep area barricaded with a strong physical barricade and backfill as soon as possible.	Supervisor and chargehand to control.			

ANNEXURE B: EPWP SPECIFICATIONS

PA: EPWP LABOUR INTENSIVE SPECIFICATION

PA1. LABOUR INTENSIVE COMPETENCIES OF SUPERVISORY AND MANAGEMENT STAFF

Contractors having a CIDB contractor grading designation of **6CEPE/7CE** and higher shall only engage supervisory and management staff in labour intensive works who have either completed, or for the period 1 April 2004 to 30 June 2006, are registered for training towards the skills programme outlinedin Table 1.

The managing principal of the contractor, namely, a sole proprietor, the senior partner, the managing director or managing member of a close corporation, as relevant, having a contractor grading designation of 1CE, 2CE, 3CE and 4CE shall have personally completed, or for the period 1 April 2004 to 30 June 2006 be registered on a skills programme for the NQF level 2. All other site supervisory staff in the employ of such contractors must have completed, or for the period 1 April 2004 to 30 June 2006 be registered on a skills programme for, the NQF level 2 unit standards or NQF level 4 unit standards.

Table 1: Skills programme for supervisory and management staff

Personnel	NQF level	Unit standard titles	Skills programme description
Team leader / supervisor	2	Apply Labour Intensive Construction Systems and Techniques to Work Activities	This unit standard must be completed, **and**
		Use Labour Intensive Construction Methods to Construct and Maintain Roads and Stormwater Drainage	any one of these 3 unit standards
		Use Labour Intensive Construction Methods to Construct and Maintain Water and Sanitation Services	
		Use Labour Intensive Construction Methods to Construct, Repair and Maintain Structures	
Foreman/ supervisor	4	Implement labour Intensive Construction Systems and Techniques	This unit standard must be completed, **and**
		Use Labour Intensive Construction Methods to Construct and Maintain Roads and Stormwater Drainage	any one of these 3 unit standards
		Use Labour Intensive Construction Methods to Construct and Maintain Water and Sanitation Services	
		Use Labour Intensive Construction Methods to Construct, Repair and Maintain Structures	
Site Agent / Manager (i.e. the contractor's most senior representative that is resident on the site)	5	Manage Labour Intensive Construction Processes	Skills Programme against this single unit standard

PA2. EMPLOYMENT OF UNSKILLED AND SEMI-SKILLED WORKERS IN LABOUR-INTENSIVE WORKS

PA2.1 Requirements for the sourcing and engagement of labour

PA2.1.1 Unskilled and semi-skilled labour required for the execution of all labour intensive works shall be engaged strictly in accordance with prevailing legislation and SANS 1914-5, Participation of Targeted Labour.

PA2.1.2 The rate of pay set for the EPWP is R 200 per task or per day.

PA2.1.3 Tasks established by the contractor must be such that:

a) the average worker completes 5 tasks per week in 40 hours or less; and

b) the weakest worker completes 5 tasks per week in 55 hours or less.

PA2.1.4 The contractor must revise the time taken to complete a task whenever it is established that the time taken to complete a weekly task is not within the requirements of (3).

PA2.1.5 The Contractor shall, through all available community structures, inform the local community of the labour intensive works and the employment opportunities presented thereby. Preference mustbe given to people with previous practical experience in construction and / or who come from households:

a) where the head of the household has less than a primary school education;
b) that have less than one full time person earning an income;
c) where subsistence agriculture is the source of income.
d) those who are not in receipt of any social security pension income

PA2.1.6 The Contractor shall endeavour to ensure that the expenditure on the employment of temporary workers is in the following proportions:

a) 60 % women;

b) 20% youth who are between the ages of 18 and 25; and

c) 2% on persons with disabilities.

PA2.2 Specific provisions pertaining to SANS 1914-5

PA2.2.1 Definitions

Targeted labour: Unemployed persons who are employed as local labour on the project.

PA2.2.2 Contract participation goals

a) There is no specified contract participation goal for the contract. The contract participation goal shall be measured in the performance of the contract to enable the employment provided to targeted labour to be quantified.

b) The wages and allowances used to calculate the contract participation goal shall, with respect to both time-rated and task rated workers, comprise all wages paid and any training allowance paid in respect of agreed training programmes.

PA2.2.3 Terms and conditions for the engagement of targeted labour

Further to the provisions of clause 3.3.2 of SANS 1914-5, written contracts shall be entered into with targeted labour.

PA2.2.4 Variations to SANS 1914-5

a) The definition for net amount shall be amended as follows:

b) Financial value of the contract upon completion, exclusive of any value added tax or sales tax which the law requires the employer to pay the contractor.

c) The schedule referred to in 5.2 shall in addition reflect the status of targeted labour as women, youth and persons with disabilities and the number of days of formal training provided to targeted labour.

PA2.2.5 Training of targeted labour

a) The contractor shall provide all the necessary on-the-job training to targeted labour to enable such labour to master the basic work techniques required to undertake the work in accordance with the requirements of the contract in a manner that does not compromise worker health and safety.

b) The contractor shall do nothing to dissuade targeted labour from participating in training programmes.

c) An allowance equal to 100% of the task rate or daily rate shall be paid by the contractor to workers who attend formal training.

d) Proof of compliance with the requirements of (a) must be provided by the Contractor to the Employer prior to submission of the final payment certificate.

ANNEXURE C: LOCALITY PLAN

Wolmaransstad / Kgakala / Lebaleng Boreholes

Wolmaransstad Ext. 17-19 Start point: 27°13'21.07"S 25°56'55.79"E



Kgakala Start point: 27°13'5.21"S 26°16'7.20"E



Lebaleng Start point: 27°19'40.14"S 25°58'18.07"E



ANNEXURE E: TENDER DRAWINGS

1. NW404/20/8,7,15/35/1 LOCALITY PLAN
2. NW404/20/8,7,15/35/2 WOLMARANSSTAD EXT. 17 BOREHOLES SCOPE OF WORK
3. NW404/20/8,7,15/35/3 LEBALENG BOREHOLES SCOPE OF WORK
4. NW404/20/8,7,15/35/4 KGAKALA BOREHOLES
5. NW404/20/8,7,15/35/5 THRUST BLOCK DETAILS & GRAPHS
6. NW404/20/8,7,15/35/6 TYPICAL WATERMARKER PIPE & CABLE CROSSINGS
7. NW404/20/8,7,15/35/7 TYPICAL ELEVATED TANK & COMMUNAL TAP DETAILS
8. NW404/20/8,7,15/35/8 CONCRETE PUMP HOUSE LAYOUT PLAN & FENCE DETAILS
9. NW404/20/8,7,15/35/9 PROJECT NAME BOARD