



SEKHUKHUNE
District Municipality

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CONTRACT NUMBER: SK8/3/1-09/2023/24

TENDER DOCUMENT

(PROVISION OF CONTRACTUAL SERVICES)

FOR

INTERNAL WATER RETICULATION MOUTSE EAST AND WEST –

PHASE 1- CONTRACT A - NTWANE

CIDB GRADING: 7 CE

CLOSING DATE: 17 JULY 2023

Client: SEKHUKHUNE DISTRICT MUNICIPALITY 3 West Street GROBLERSDAL 0470 Tel: 013 262 7300 e-mail: sekinfo@sekhukhune.co.za Enquires: Mr. Voster Masemola (Supply Chain Management)	Prepared By: RENDEALS FOUR CONSULTING Plot 46 Tweefontein POLOKWANE 0700 Tel: 015 297 1300 e-mail: info@rendeals4.co.za Enquires: Mr. Rofhiwa Khorommbi
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NAME OF TENDERER	:	
CSD REGISTRATION NUMBER	:	
CIDB REGISTRATION NUMBER	:	
TENDERED AMOUNT	:	
 Municipal Infrastructure Grant		

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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PART C6 - DRAWINGS

Contractual Services- Internal Water Reticulation- Phase 1- Contract A - NTWANE

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PART 1: THE TENDER

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PART T1 TENDERING PROCEDURES

TENDER NO: SK8/3/1-09/2023/24

CIDB Category 7CE or Higher

FOR

PROVISION OF CONTRACTUAL SERVICES FOR INTERNAL WATER RETICULATION – PHASE 1 –
CONTRACT A NTWANE

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T1.1 Tender Notice and Invitation to Tender

SUPPLY CHAIN MANAGEMENT

INVITATION TO BID

MBD1

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE SEKHUKHUNE DISTRICT MUNICIPALITY					
BID NUMBER:	SK8/3/1-09/2023/24	CLOSING DATE:	17/07/2023	CLOSING TIME:	11h00
DESCRIPTION	PROVISION OF CONTRACTUAL SERVICES FOR INTERNAL WATER RETICULATION – PHASE 1 – CONTRACT A NTWANE				
BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT					
Groblersdal Fire Station, R33 Groblersdal 0470					
BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO			TECHNICAL ENQUIRIES MAY BE DIRECTED TO:		
CONTACT PERSON	Mr. Voster Masemola		CONTACT PERSON	Mr. Floyed Mashele	
TELEPHONE NUMBER	013 262 7300		TELEPHONE NUMBER	013 262 7535	
FACSIMILE NUMBER			FACSIMILE NUMBER		
E-MAIL ADDRESS	masemolav@sekhukhune.gov.za		E-MAIL ADDRESS	mashelef@sekhukhune.gov.za	
SUPPLIER INFORMATION					
NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
SUPPLIER COMPLIANCE STATUS	TAX COMPLIANCE SYSTEM PIN:		OR	CENTRAL SUPPLIER DATABASE No:	
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE	TICK APPLICABLE BOX] ☐ Yes ☐ No		B-BBEE STATUS LEVEL SWORN AFFIDAVIT		[TICK APPLICABLE BOX] ☐ Yes ☐ No
[A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE/ SWORN AFFIDAVIT (FOR EMES & QSEs) MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE]					
1. ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	☐ Yes ☐ No [IF YES ENCLOSE PROOF]		2. ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES /WORKS OFFERED?		☐ Yes ☐ No [IF YES, ANSWER THE QUESTIONNAIRE BELOW]

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS

- IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)? ☐ YES ☐ NO
- DOES THE ENTITY HAVE A BRANCH IN THE RSA? ☐ YES ☐ NO
- DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA? ☐ YES ☐ NO
- DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA? ☐ YES ☐ NO
- IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION? ☐ YES ☐ NO

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

PART B TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION:

- 1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
- 1.2. **ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED-(NOT TO BE RE-TYPED) OR IN THE MANNER PRESCRIBED IN THE BID DOCUMENT.**
- 1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT, 2000 AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017, THE GENERAL CONDITIONS OF CONTRACT Third Edition 2015 (GCC 2015) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.
- 1.4. **THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (MBD7).**

2. TAX COMPLIANCE REQUIREMENTS

- 2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.
- 2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VERIFY THE TAXPAYER'S PROFILE AND TAX STATUS.
- 2.3 APPLICATION FOR TAX COMPLIANCE STATUS (TCS) PIN MAY BE MADE VIA E-FILING THROUGH THE SARS WEBSITE WWW.SARS.GOV.ZA.
- 2.4 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.
- 2.5 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED; EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.
- 2.6 WHERE NO TCS PIN IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.
- 2.7 NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE, COMPANIES WITH DIRECTORS WHO ARE PERSONS IN THE SERVICE OF THE STATE, OR CLOSE CORPORATIONS WITH MEMBERS PERSONS IN THE SERVICE OF THE STATE."

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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NB: FAILURE TO PROVIDE / OR COMPLY WITH ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.

SIGNATURE OF BIDDER:

.....

CAPACITY UNDER WHICH THIS BID IS SIGNED:

.....

(Proof of authority must be submitted e.g. company resolution)

DATE:

.....

Bid documents are obtainable from the Supply Chain Management Office, Bareki Mall at a non-refundable tender deposit of R1,000.00 or bidders could also download the document for free on National Treasury e-tender. A compulsory briefing session will be held at AB Sikhosana Fire Station in Groblersdal on the 20th of June 2023 at 11h00 am. Bids must be completed in accordance with the conditions attached to the Bid documents and must be sealed and endorsed: Contract (Specify Bid Number: SK8/3/1-09/2023/24). Bids will be submitted to supply chain offices.

Address

Location of tender box:AB Sikhosana Fire Station

Physical address: R33Groblersdal

The Council reserves the right to accept or reject any Bid or part thereof:

Acting Municipal Manager: Mrs. NM Rampedi
LIMPOPO PROVINCE
Corner van Riebeeck and Chris Wiid street
Groblersdal
0470

Supply Chain Manager
Mr. V Masemola

Chief Financial Officer
Mr. H Nkadimeng

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T1.2 Tender Data

Tender No: SK8/3/1-09/2023/24

Tender Data

The conditions of tender are the Standard Conditions of Tender as contained in SANS 10845-3: 2015 Edition 1 which are reproduced without amendment or alteration for the convenience of tenderers after this Tender Data.

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.

The Additional Conditions of Tender are:

Clause number	Tender Data
F.1.1	The employer is the Sekhukhune District Municipality in LIMPOPO PROVINCE.
F.1.2	The tender documents issued by the employer comprise: T1.1 Tender notice and invitation to tender T1.2 Tender data T2.1 List of returnable documents T2.2 Returnable schedules Part 1: Agreements and contract data C1.1 Form of offer and acceptance C1.2 Contract data C1.3 Form of Guarantee C1.4 Safety Agreement Part 2: Pricing data C2.1 Pricing instructions C2.2 Activity schedules / Bills of Quantities Part 3: Scope of work C3 Scope of work Part 4: Site information C4 Site information
	The Employer's Agent is:
	Each communication between the employer and a Bidder 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 Bidder. The name and contact details of the employer's agent are stated in the tender data
F.1.5.1	Sekhukhune District Municipality may, prior to the award of the tender, cancel a tender if- a) due to changed circumstances, there is no longer a need for the services, works or goods requested; or b) funds are no longer available to cover the total envisaged expenditure; or c) no acceptable tenders are received. d) Such decision to cancel this tender will be published in the CIDB website and in the government Tender Bulletin for the media in which the original tender invitation was advertised.
F.2.1	Only those Bidders 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.2.1	Only those Bidders 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 an 7 CE 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;

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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	2. The lead partner has a contractor grading designation in the 7 CE 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 7 CE or Higher class of construction work.
F.2.1	The following Bidders 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 an 7 CE or Higher class of construction work Joint ventures are eligible to submit tenders provided that: - every member of the joint venture is registered with the CIDB; - The lead partner has a contractor grading designation in the 7 CE or Higher class of construction work; and - 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 an 7 CE or Higher class of construction work. Or - The lead partner has a contractor grading designation in the 7 CE or Higher class of construction work; and - the two combined contractors 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 an 7 CE or Higher class of construction work.
F.2.1	Only those Bidders who are registered with the CIDB, or are capable of being so prior to the evaluation of submissions, in an 2 CE/GB or Higher Class of construction work and are registered with the CIDB as having a track record, are eligible to submit tenders.
F2.2.1	The employer will not compensate the Bidder for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer complies with requirements.
F.2.7	A COMPULSORY CLARIFICATION MEETING will take place at AB Sikhosana Fire Station Physical address: R33 Grobersdal for clarification by responsible officials assigned to the contract on 20 June 2023 at 11:00
F.2.7	The arrangements for a compulsory clarification meeting are as stated in the Tender Notice and Invitation to Tender. Bidders must sign the attendance register in the name of the tendering entity. Addenda will be issued to and tenders will be received only from those tendering entities appearing on the attendance list.
F.2.8	Request clarification of the tender documents, if necessary, by notifying the Employer's Agent at least five working days before the closing time stated in the tender data.
F.2.11	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 Bidder. All signatories to the tender offer shall initial all such alterations.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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F.2.12	*No alternative tender offers will be considered If Bidder wishes to submit an alternative tender offer, the only criteria permitted for such alternative tender offer is that it demonstrably satisfies the Employer's standards and requirements, the details of which may be obtained from the Employer's 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 Bidder, 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 offer to cover the Employer's costs of confirming the acceptability of the detailed design before it is constructed.
F.2.13.3	Parts of each tender offer communicated on paper shall be submitted as original and no copies will be necessary.
F.2.13.5	The employer's address for delivery of tender offers and identification details to be shown on each tender offer package are: Location of tender box: AB Sikhosana Fire Station Physical address: R33 Groblersdal Identification details: <i>Contract number, title of tender and the closing date and time of the tender</i> Postal address: Sekhukhune District Municipality, Riebeeck and Chris Wiid Street Groblersdal 0470
F.2.13.6	A two-envelope procedure will not be followed.
F.2.14	Accept that tender offers, which do not provide all the data or information requested completely and, in the form, required, may be regarded by the employer as non-responsive.
F.2.15	The closing time for submission of tender offers is as stated in the Tender Notice and Invitation to Tender.
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 <u>90 days</u>
F.2.18	The Bidder 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 Bidder is required to submit with his tender a Certificate of Contractor Registration issued by the Construction Industry Development Board and a valid Tax Clearance Certificate/ CSD PIN issued by the South African Revenue Services. Where a Bidder satisfies CIDB contractor grading designation requirements through joint venture formation, such Bidders must submit the Certificates of Contractor Registration in respect of each partner.
F.3.4	Tenders will be opened immediately after the closing time of tenders at Sekhukhune District Municipality
F.3.11	The procedure for the evaluation of responsive tenders is Method 1.

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	The financial offer will be scored using Formula 2 (option 1) where the value of W_1 is: 1) 90 where the financial value inclusive of VAT of all responsive tenders received have a value in excess of R 50 000 000; or 2) 80 where the financial value inclusive of VAT of one or more responsive tender offers equals or is less than R 50 000 000. Up to 100 minus W_1 tender evaluation points will be awarded to Bidders who complete the referencing schedule and who are found to be eligible for the preference claimed.
F.3.11	Evaluation of Tenders The Bidders notice is drawn to the fact that the evaluation, adjudication and awarding of this tender will be in terms of the Supply Chain Management Policy of the SDM. Clause 36.5 of the Supply Management Policy which entails balance between financial offer and functionality. The following steps will be followed in evaluation; 1. Determination of whether or not tender offers are complete. 2. Determination of whether or not tender offers are responsive. 3. Determination of the reasonableness of tender offers. 4. Confirmation of the eligibility of preferential points claimed by bidders. 5. Determination of expertise and experience of bidders. 6. Awarding of points for functionality. 7. Ranking of bidders according to the total points 8. Performance of risk analysis by checking the capacity of the bidders

5.11.9	EVALUATION OF TENDER OFFERS (Project specific, will be updated after approval from department) <u>Prequalification / Quality Criteria</u> Tenderers will be assessed based on the prequalification criteria as set out in the table below. Tenderers scoring less than 70% will be considered non-responsive based on items 1 to 5 below: 1. Company Experience 2. Bank Rating 3. Experience Project Personnel 4. Key Personnel 5. Plant and Equipment Tenderers shall fill in the relevant information on the Prequalification / Quality Criteria Schedules in Part T2 and this information shall be used to award points for functionality on the following basis per category:
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No.	Functionality Criteria – Tender Rating Matrix	A	B	C
		Tenderer rating (Score 1-5)	Weighting	Tenders Score (%) = (AxB)/5
1	Company work experience as per Form D1	5 or more water reticulation projects greater than R3m construction value successfully completed in last 10 years. (As proof, attach completion certificates together with appointment letter OR practical completion certificates with appointment letter for projects that reached practical completion within 12 months prior to the advertisement of this tender).	5	30
	4 water reticulation projects greater than R3m construction value successfully completed in last 10 years. (As proof, attach completion certificates together with appointment letter OR practical completion certificates with appointment letter for projects that reached practical completion within 12 months prior to the advertisement of this tender).	4		
	3 water reticulation projects greater than R3m construction value successfully completed in last 10 years. (As proof, attach completion certificates together with appointment letter OR practical completion certificates with appointment letter for projects that reached practical completion within 12 months prior to the advertisement of this tender).	3		
	2 water reticulation projects greater than R3m construction value successfully completed in last 10 years. (As proof, attach completion certificates together with appointment letter OR practical completion certificates with appointment letter for projects that reached practical completion within 12 months prior to the advertisement of this tender).	2		
	1 water reticulation project greater than R3m construction value successfully completed in last 10 years. (As proof, attach completion certificates together with appointment letter OR practical completion certificates with appointment letter for projects that reached practical completion within 12 months prior to the advertisement of this tender).	1		

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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No.	Quality Criteria – Tender Rating Matrix		A	B	C
			Tenderer rating (Score 1-5)	Weighting	Tenders Score (%) = (A x B)/5
2	Form A8 (Attach Bank Rating Certificate as proof)	The bank certificate with the original bank stamp and signature. A – rating	5	20	
		The bank certificate with the original bank stamp and signature. B – rating	4		
		The bank certificate with the original bank stamp and signature. C – rating	3		
		The bank certificate with the original bank stamp and signature. D – rating	2		
		The bank certificate with the original bank stamp and signature. E and F rating	1		

Item 3. Personnel Considered as key for the Project are as follows (Table D3):

No.	Quality Criteria – Tender Rating Matrix	A	B	C
		Tenderer rating Score	Score	Points obtained
Contract Manager	BSc/B-Tech/National Diploma in civil engineering (Professionally registered with (SACPCMP or ECSA)	12	30	
Site Agent	BSc/B-Tech/National Diploma in civil engineering	8		
Foreman	Diploma or relevant qualification and experience in civil engineering works	6		
Safety Officer	Relevant safety qualification as prescribed by the construction regulation Professionally registered Health and safety officer (Pr. CHSO)	4		
		SUB TOTAL:		

Evaluation Criteria	Number of comparable projects involved in with water reticulation projects with relevant criteria	Points Obtainable
Contracts Manager	0	0
	1 - 2	4
	3 - 4	8
	5 upwards	12
Site Agent	0	0
	1 - 2	2
	3 - 4	4
	5 upwards	8
Foreman	0	0
	1 - 2	2
	3 - 4	4
	5 upwards	6
Safety Officer	0	0
	1 - 2	1
	3 - 4	2
	5 upwards	4

Please note that the personnel required on this tender shall remain valid for the duration of the project, approval from the department should be sourced for any change in personnel with similar or higher requirements. The personnel required as above should be available for construction and filled out on form D3: Schedule of contractor's key personnel.

Contractual Services- Internal Water Reticulation- Phase 1- Contract A - NTWANE

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Item 4. Plant and Equipment

No.	Quality Criteria – Tender Rating Matrix	A	B	C
		Tenderer rating (Score 1-5)	Weighting	Tenders Score (%) = Sub-total A x B

4*	TARGETED GOALS (All plant to be owned. Attach proof)	TENDERED GOAL	POINTS Claimed by tenderer			
	2 x TLB	4			1	
	2 x Pedestrian roller	4				
	2 x Excavator	8				
	2 x 6 Ton Truck	4				
	SUB TOTAL:	20 Max				

Note: 50% of points will be allocated for hired plant.

(Letter of Intent must not be older than 3 months from the date of tender closing)

NOTE: Failure to submit information as requested will result in non-allocation of points.

TOTAL SCORE (%)	
NB: The winning bidder to ensure that this information remain valid for the duration of the contract.	

Clause Number	Tender Data
5.13	In addition to the requirements of the Condition of Tender, offers will only be accepted if: - The tenderer has in his or her possession an original valid Tax Clearance Certificate issued by the South African Revenue Services or has made arrangements to meet outstanding tax obligations; - The tenderer is registered with the Construction Industry Development Board with an appropriate contractor grading designation; - The tenderer or any of its directors is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector; - The tenderer has not abused the Employer's supply chain management system; - The tenderer has not failed to perform on any previous contract and has not been given a written notice to this effect; - The tenderer is registered on the National Treasury Central Supplier Database; - To attend a compulsory briefing session and site inspection. Signing the briefing and site inspection attendance register is mandatory;

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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Clause Number	Tender Data
	- The tenderer has completed the Compulsory Enterprise Questionnaire and there are no conflicts of interest which may impact on the tenderer's ability to perform the contract in the best interests of the Employer or potentially compromise the tender process; - Tenderers must submit proof of subcontracting arrangement between the main tenderer and subcontractors.
5.17	The number of paper copies of the signed contract to be provided by the Employer is 1.
5.19	All requests shall be in writing.
ADDITIONAL CONDITIONS OF TENDER CLAUSES:	
3.7	Jurisdiction Unless stated otherwise in the tender data, each tenderer and the Employer undertake to accept the jurisdiction of the law courts of the Republic of South Africa.
5.20	TENDERER'S DIRECT PARTICIPATION OF TARGETED LABOUR JOB CREATION In line with the National Government Policies and Strategies, the Department promotes the use of labour where feasible and hence specifies a minimum Job Creation content to ensure tenderers align with the development goals. Minimum Job Creation Content for this contract is set at 2.5 Full Time Equivalent (FTE) Jobs per R'm Contract Price. Where 1 FTE Job = 230 labour days of employment. Contract Price is the tender sum amount including VAT, Contract Price Adjustment (CPA) and Contingencies. During Construction failure to meet the job creation content will result in the following penalty per shortfall in FTE Jobs Created. Penalty per FTE job shortfall = 230 (days) x 160 (rand per labour day) x 5%
5.21	Subcontracting as a condition of tender for procurement above R30 million The minimum required for subcontracting is 30% for targeted local enterprises, as condition of tender; the tenderer must subcontract a minimum of 30% of the value of contract to: - an EME or QSE - an EME or QSE which is at least 51% owned by black people; - an EME or QSE which is at least 51% owned by black people who are youth; - an EME or QSE which is at least 51% owned by black people who are women; - an EME or QSE which is at least 51% owned by black people with disabilities; - an EME or QSE which is 51% owned by black people living in rural or underdeveloped areas or townships; - a cooperative which is at least 51% owned by black people; - an EME or QSE which is at least 51% owned by black people who are military veterans; - more than one of the categories referred to in paragraphs (a) to (h). Tender /Contractors must submit proof of their Sub- Contracting arrangement between the main tender and the Sub-Contractors.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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Clause Number	Tender Data
	Where no tenderer meets Sub-Contracting Criteria, institutions must cancel the tender and investigate reasons for tenderers failing to meet compulsory Sub-Contracting. Tenderers that do not meets Sub-Contracting requirements are considered as being not acceptable tenders and must be disqualified and may not be considered for further evaluation or award. A person awarded a contract may only enter into Sub-Contracting agreement with the approval to the organ of state.
5.22	Local Content Only bids that achieve the minimum stipulated threshold for local production and content must be evaluated further in accordance with the 80/20 or 90/10 preference point systems prescribed In preferential regulations 6 & 7

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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Standard Conditions of Tender as contained in SANS 10845-3: 2015 Edition 1

Contractual Services- Internal Water Reticulation- Phase 1- Contract A - NTWANE

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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Standard Conditions of Tender

1 Scope

This part of ISO 10845 sets out standard conditions of tender which:

- a) bind the employer and tenderer to behave in a particular manner,
- b) establish what a tenderer is required to do in order to submit a compliant tender,
- c) make known the evaluation criteria to tenderers, and
- d) establish the manner in which the employer conducts the process of offer and acceptance and provide the necessary feedback to tenderers on the outcomes of the process.

This part of ISO 10845 is intended for use in procurements relating to goods, services and construction works and disposals other than by auction.

NOTE 1 Annex A contains commentary on the clauses in this part of ISO 10845. Annex B provides guidance on how to develop the tender data for a procurement document using this part of ISO 10845.

NOTE 2 ISO 10845-2 establishes the manner in which procurement documents should be formatted and compiled. The standard conditions contained in this part of ISO 10845 may by reference be incorporated in procurement documents formatted and compiled in accordance with the provisions of ISO 10845-2.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1 Bill of quantities

document that lists the items of work and the quantities and rates associated with each item to allow contractors to be paid, at regular intervals, an amount equal to the agreed rate for the work multiplied by the quantity of work completed

[ISO 10845-1:2010, definition 3.3]

2.2 Bond

sum of money or securities submitted to the employer or placed in the hands of a third party to guarantee completion of the work and recovery of the sums which the contractor would be recognized as owing under the terms of the contract

NOTE Adapted from ISO 6707-2:1993, definition 3.5.4.

2.3 Comparative offer

tenderer's financial offer after all tendered parameters that can affect the value of the financial offer have been taken into consideration to enable comparisons to be made on a comparable basis

2.4 Conflict of interest

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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any situation in which someone in a position of trust has competing professional or personal interests which make it difficult for him to fulfill his duties impartially, an individual or organization is in a position to exploit a professional or official capacity in some way for his personal or for corporate benefit, or incompatibility or contradictory interests exist between an employee and the organization which employs that employee

[ISO 10845-1:2010, definition 3.8]

2.5 Contract data

document that identifies the applicable conditions of a contract and states the associated contract-specific data

[ISO 10845-1:2010, definition 3.10]

2.6 Corrupt practice

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

NOTE Adapted from ISO 10845-1:2010, definition 3.13.

2.7 Employer

person or organization intending to or entering into a contract with the contractor for the provision of goods, services, or engineering and construction works

[ISO 10845-1:2010, definition 3.17]

2.8 Form of offer and acceptance

document that formalizes the legal process of offer and acceptance

[ISO 10845-2:2011, definition 2.15]

2.9 Form of securities

document that provides for the securities required by the employer

[ISO 10845-2:2011, definition 2.16]

2.10 Fraudulent practice

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

NOTE Adapted from ISO 10845-1:2010, definition 3.20.

2.11 Joint venture

grouping of two or more contractors acting as one legal entity, where each is liable for the actions of the other

[ISO 6707-2:1993, definition 3.4.22]

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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2.12 Organization

company, firm, enterprise, association or other legal entity, whether incorporated or not, or a public body

[ISO 10845-1:2010, definition 3.23]

2.13 Quality

totality of features and characteristics of a product or service that bears on the ability of the product or service to satisfy stated or implied needs

[ISO 10845-1:2010, definition 3.35]

2.14 Returnable document

document that a tenderer is required to complete and submit to the employer as part of his tender submission

[ISO 10845-2:2011, definition 2.22]

2.15 Scope of work

document that specifies and describes the goods, services, or engineering and construction works which are to be provided, and any other requirements and constraints relating to the manner in which the contract work is to be performed

[ISO 10845-1:2010, definition 3.37]

2.16 Tender data

document that establishes the tenderer's obligations in submitting a tender and the employer's undertakings in administering the tender process and evaluating tender offers

[ISO 10845-1:2010, definition 3.45]

2.17 Tender offer

written offer for the provision of goods, or to carry out a service or engineering and construction works under given conditions, usually at a stated price, and which is capable of acceptance and conversion into a binding contract

[ISO 10845-1:2010, definition 3.46]

2.18 Tenderer

person or organization that submits a tender offer

[ISO 10845-1:2010, definition 3.47]

3 General requirements

3.1 Actions

The employer and each tenderer submitting a tender offer shall comply with the standard conditions of tender. In their dealings with each other, they shall discharge their duties and obligations, as set

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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out in Clauses 4 and 5, in a timely manner and with integrity, behave equitably, honestly and transparently, comply with all legal obligations and not engage in anti-competitive practices.

The employer and the tenderer, and all the 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.

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.

NOTE 1 A conflict of interest can arise due to a conflict of roles which can provide an incentive for improper acts in some circumstances or positions. A conflict of interest can create an appearance of impropriety that can undermine confidence in the ability of that person to act properly in said circumstance or position, even if no improper acts result.

NOTE 2 Conflicts of interest with respect to 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 can in any way affect any decisions taken.

3.2 Tender documents

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

3.3 Interpretation

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 standard conditions of tender in this part of ISO 10845.

The standard conditions of tender contained in this part of ISO 10845, the tender data and tender schedules which are only required for tender evaluation purposes, shall not form part of any contract arising from the invitation to tender.

3.4 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 read, copied and recorded, and in the language stated in the tender data. 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.

3.5 Employer's right to accept or reject any tender offer

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 shall give written reasons for such action upon written request to do so.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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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.

3.6 Procurement procedures

3.6.1 General

Unless otherwise stated in the tender data, a contract shall, subject to 5.13, be concluded with the tenderer who, in terms of 5.11, 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.

3.6.2 Competitive negotiation procedure

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 5.4, the employer shall only announce the names of the tenderers who make a submission. The requirements of 5.8, relating to the material deviations or qualifications which affect the competitive position of tenderers, shall not apply.

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 4.17, 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.

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.

The contract shall be awarded in accordance with the provisions of 5.11 and 5.13 after tenderers have been requested to submit their best and final offer.

3.6.3 Proposal procedure using the two-stage tendering system

3.6.3.1 Option 1

In the first stage, tenderers shall 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.

In the second stage, the employer shall negotiate a contract with the tenderer scoring the highest number of evaluation points and award the contract in terms of the standard conditions of tender.

3.6.3.2 Option 2

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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In the first stage, tenderers shall submit only technical proposals. In the second stage, the employer shall invite all responsive tenderers to submit tender offers, following the issuing of procurement documents.

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 the standard conditions of tender in this part of ISO 10845.

4 Tenderer's obligations

The tenderer shall comply with the following obligations.

4.1 Eligibility

4.1.1 Submit a tender offer

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

4.1.2 Notify the employer

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 before the closing time for tenders.

4.2 Cost of tendering

Accept that, unless otherwise stated in the tender data, the employer does 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.

4.3 Checking documents

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

4.4 Confidentiality and copyright of documents

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

4.5 Reference documents

Obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, conditions of contract and other publications, which are incorporated into the tender documents by reference.

4.6 Acknowledging 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.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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4.7 Clarification meeting

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

4.8 Seeking clarification

Unless otherwise notified in the tender data, request clarification of the tender documents, if necessary, by notifying the employer at least five working days before the closing time stated in the tender data.

4.9 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.

4.10 Pricing the tender offer

Include in the rates, prices, and the tendered total of the prices (if any), all duties, taxes which the law requires to be paid [except value added tax (VAT)], and other levies payable by the successful tenderer, that are applicable 14 days before the closing time stated in the tender data.

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

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.

State the rates and prices in monetary value of the contract unless otherwise instructed in the tender data.

NOTE The contract data can provide for part payment in other currencies.

4.11 Alterations to documents

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

Do not make erasures using masking fluid.

4.12 Alternative tender offers

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.

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.

4.13 Tender submissions

4.13.1 General submission requirements

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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Submit one tender offer only, either as a single entity or as a member in a joint venture, to provide the whole of the works, services or supply identified in the draft contract, unless otherwise stated in the tender data.

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.

Submit:

- a) the parts of the tender offer communicated on paper as an original plus the number of copies stated in the tender data, with a translation of any documentation in a language other than the language of communication established in 3.4, and
- b) the parts communicated electronically in the same format as they were issued by the employer.

4.13.2 Signatures

Sign the original and all copies of the tender offer where required in terms of the tender data.

State in the case of a joint venture which of the signatories is the lead partner whom the employer shall hold liable for the purpose of the tender offer.

NOTE The employer holds all authorized signatories liable on behalf of the tenderer.

4.13.3 Tender securities

Submit, as required as part of the tender submission, a tender security from a bank or insurer that is in a strong enough commercial position to carry such security in the name of the tenderer, or in the names of each of the members of a joint venture, in the amount, for the period and in the form specified in the tender data.

4.13.4 Inclusion of certificates

Include in the tender submission, or provide the employer with, any certificates as stated in the tender data.

4.13.5 Sealing of documents

Seal the original and each copy of the tender offer as separate packages, marking the packages as "ORIGINAL" and "COPY". Unless otherwise specified in the tender data, seal the "ORIGINAL" and "COPY" packages in a single package and state on the outside of such package the employer's address and identification details specified in the tender data, as well as the tenderer's name and contact address.

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 "NON-FINANCIAL PROPOSAL". State on the outside of each envelope the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address. 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 specified in the tender data.

4.13.6 Employer's acceptance of tender submissions

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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Accept that the employer does not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.

Accept that the employer shall not accept tender offers submitted by telegraph, telex, facsimile or e-mail, unless otherwise stated in the tender data.

4.14 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.

4.15 Closing time

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. Proof of posting shall not be accepted as proof of delivery. Accept that, if the employer extends the closing time stated in the tender data for any reason, the requirements of the standard conditions of tender in this part of ISO 10845 apply equally to the extended deadline.

4.16 Tender offer validity

4.16.1 Period of validity

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.

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. Extend the period of the tender security, if any, to cover any agreed extension requested by the employer.

4.16.2 Withdrawal of tenders

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.

Where a tender submission is to be substituted, submit a substitute tender in accordance with the requirements of 4.13 with the packages clearly marked as "SUBSTITUTE".

4.17 Clarification of tender offer after submission

Provide clarification of a tender offer during the evaluation of tender offers, in response to a request from the employer to do so.

NOTE Such clarifications can 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.

4.18 Other material

Provide, on request by the employer, any other material that has a bearing on the tender offer, the tenderer's commercial position (including notarized joint venture agreements), preferencing arrangements, or samples of materials considered necessary by the employer for the purpose of a

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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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.

Dispose of samples of materials provided for the employer's evaluation.

4.19 Inspections, tests and analysis

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

4.20 Submitting 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.

4.21 Checking final draft

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

4.22 Returning other tender documents

If so, instructed by the employer, return all retained tender documents within 28 days of the expiry of the validity period stated in the tender data.

5 Employer's undertakings

The employer shall carry out the following undertakings.

5.1 Responding to requests from the tenderer

Unless otherwise notified 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 obtained procurement documents.

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 pre-qualify a tenderer to submit a tender offer in terms of a previous procurement process.

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 comply with any of the collective or individual qualifying requirements,
- b) the new partners to a joint venture were not pre-qualified 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 pre-qualification process.

5.2 Issuing addenda

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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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, unless otherwise notified in the tender data, three working days before the tender closing time stated in the tender data.

If, as a result of the issuing of addenda, it is necessary to extend the closing time stated in the tender data, grant such extension and notify all respondents accordingly.

5.3 Returning 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.

5.4 Opening of tender submissions

Unless the two-envelope system is to be followed, open valid tender submissions in the presence of tenderers 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 are not opened.

Announce at the meeting held immediately after the receipt 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 the tenderer's prices, preferences claimed and time for completion, for the main tender offer only.

Make available, upon request, to all interested persons the record of tender parameters that are announced in respect of each tender received.

5.5 Two-envelope system

Where stated in the tender data that a two-envelope system has been followed, open only the non-financial 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.

Evaluate the non-financial 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 are to be opened.

Open only the financial proposals of tenderers who, in the quality evaluation score, have more than the minimum number of points for quality stated in the tender data, and announce the score obtained for the non-financial proposals and the total price and any preferences claimed. Return unopened financial proposals to tenderers whose non-financial proposals failed to achieve the minimum number of points for quality.

5.6 Non-disclosure

Do not disclose to tenderers, or to any 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.

5.7 Grounds for rejection and disqualification

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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Determine whether there has been any effort by a tenderer to influence the processing of tender offers and instantly disqualify a tenderer (and said tenderer's offer) if it is established that the tenderer engaged in corrupt or fraudulent practices.

5.8 Test for responsiveness

Determine, after opening and before detailed evaluation, whether each tender offer that was properly received:

- a) complies with the requirements of the standard conditions of tender in this part of ISO 10845,
- b) has been properly and fully completed and signed, and
- c) is responsive to the other requirements of the tender document. A responsive tender is one that conforms to all the terms, conditions, and scope of work 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.

5.9 Arithmetical errors, omission and discrepancies

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.

Check the highest ranked tender or tenderer with the highest number of tender evaluation points after the evaluation of tender offers in accordance with 5.11 for:

- a) the gross misplacement of the decimal point in any unit rate,
- b) omissions made in completing the pricing schedule or bill of quantities, or
- c) arithmetical errors in
 - 1) line item totals resulting from the product of a unit rate and a quantity in bill of quantities or schedules of prices, or
 - 2) the summation of the prices.

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.

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

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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- a) If a bill 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 shall be asked to revise selected item prices (and their rates if bill of quantities apply) to achieve the tendered total of the prices.

Consider the rejection of a tender offer if the tenderer does not correct or accept the correction of errors in the required manner.

5.10 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.

5.11 Evaluation of tender offers

5.11.1 General

Appoint an evaluation panel to evaluate submissions. Ensure that not less than three persons evaluate quality in terms of 5.11.9.

Reduce each responsive tender offer to a comparative offer and evaluate submissions using the tender evaluation methods and associated evaluation criteria and weightings that are specified in the tender data.

5.11.2 Method 1: Financial offer

In the case of a financial offer:

- a) rank tender offers from the most favourable to the least favourable comparative offer, and
- b) recommend the highest ranked tenderer for the award of the contract, unless there are compelling and justifiable reasons not to do so.

Re-rank all tenderers should there be compelling and justifiable reasons not to recommend the tenderer with the highest ranked tender, and recommend the highest ranked tenderer, unless there are compelling and justifiable reasons not to do so, in which case the process set out in this subclause shall be repeated.

5.11.3 Method 2: 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 quality offered in accordance with the provisions of 5.11.7 and 5.11.9, 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:

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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$$T_{EV} = N_{FO} + N_Q$$

where:

N_{FO} is the number of tender evaluation points awarded for the financial offer made in accordance with 5.11.7;

N_Q is the number of tender evaluation points awarded for quality offered in accordance with 5.11.9,

- c) rank tender offers from the highest number of tender evaluation points to the lowest, and
- 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.

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, in which case the process set out in this subclause shall be repeated.

5.11.4 Method 3: 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 the preferences claimed, if any, in accordance with the provisions of 5.11.7 and 5.11.8,
- 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 5.11.7;

N_P is the number of tender evaluation points awarded for preferences claimed in accordance with 5.11.8,

- c) rank tender offers from the highest number of tender evaluation points to the lowest, and
- 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.

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, in which case the process set out in this subclause shall be repeated.

5.11.5 Method 4: Financial offer, quality and preferences

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

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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- a) score each tender in respect of the financial offer made, the preference claimed, if any, and the quality offered in accordance with the provisions of 5.11.7 to 5.11.9, rejecting all tender offers that fail to score the minimum number of points for quality stated in the tender data, if any,
- b) calculate the total number of tender evaluation points (T_{EV}) in accordance with the following formula, unless otherwise stated in the tender data:

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

where:

N_{FO} is the number of tender evaluation points awarded for the financial offer made in accordance with 5.11.7;

N_P is the number of tender evaluation points awarded for preferences claimed in accordance with 5.11.8,

N_Q is the number of tender evaluation points awarded for quality offered in accordance with 5.11.9,

- c) rank tender offers from the highest number of tender evaluation points to the lowest, and
- 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.

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, in which case the process set out in this subclause shall be repeated.

5.11.6 Decimal places

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

5.11.7 Scoring financial offers

Score the financial 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 relevant formula described in Table 1, as stated in the tender data.

Table 1: Formulae for calculating the value of A^a

Formula number	Basis for comparison	Formula
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SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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1	Highest price or discount	P/P_m
2	Lowest price or percentage commission or fee	P_m/P
P_m is the comparative offer of the most favourable comparative offer. P is the comparative offer of the tender offer under consideration.		

5.11.8 Scoring preferences

Confirm that tenderers are eligible for the preferences claimed in accordance with the provisions of the tender data and reject all claims for preferences where tenderers are not eligible for such preferences.

Calculate the total number of tender evaluation points for preferences (NP) claimed in accordance with the provisions of the tender data.

5.11.9 Scoring quality

Score each of the criteria and subcriteria for quality in accordance with the provisions of the tender data.

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

$$N_Q = W_2 \times S_0 / M_S$$

where:

W_2 is the maximum possible number of tender evaluation points awarded for the quality as stated in the tender data;

S_0 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.

5.12 Insurance provided by the employer

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

5.13 Acceptance of a tender offer

Accept a tender offer should it be considered not to present any unacceptable commercial risk, only if the tenderer:

- is not under restrictions, or has principals who are under restrictions, preventing participation in the employer's procurement,
- can, as necessary and in relation to the proposed contract, demonstrate the possession of the professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and reputation, expertise and personnel, to perform the contract,
- has the legal capacity to enter into the contract,

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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- d) is not insolvent, in receivership, bankrupt or being liquidated, does not have affairs administered by a court or a judicial officer, does not have suspended business activities, or is subject to legal proceedings with respect to 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.

5.14 Preparing contract documents

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

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

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

5.15 Completing adjudicator's contract

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

5.16 Notice to successful and unsuccessful tenderers

Notify the successful tenderer of the employer's acceptance of the 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.

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.

5.17 Providing 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.

5.18 Returning of tender securities

Return tender securities to the successful tenderer and unsuccessful tenderers before the expiry period stated in the tender data or in the tender security.

5.19 Providing written reasons for actions taken

Provide, upon request, written reasons to tenderers for any action that is taken in applying any of this part of ISO 10845, but withhold information which is not in the public interest to be divulged, which is considered to prejudice the legitimate commercial interests of tenderers and respondents or which might prejudice fair competition between tenderers.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:

PART T2 RETURNABLE SCHEDULES

TENDER NO: SK8/3/1-09/2023/24

CIDB Category 7CE or Higher

FOR

PROJECT NAME: PROVISION FOR CONTRACTUAL SERVICES FOR THE INTERNAL
RETICULATION PHASE 1 – CONTRACT A - NTWANE

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SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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SEKHUKHUNE DISTRICT MUNICIPALITY

T2.1 LIST OF RETURNABLE DOCUMENTS

The tenderer must complete the following returnable schedules:

Notes to tenderer:

1. Returnable schedules have been separated into the following categories:
 - Forms, certificates and schedules for completion by the tenderer for use in the quantitative and qualitative evaluation of the tender (Forms A-F)
 - A list of other returnable documents for completion by the tenderer and which will subsequently be incorporated into the contract (Section C1: Agreement and Contract data)
2. Failure to fully complete all the relevant returnable documents may render such a tender offer unresponsive.
3. Tenderers shall note that their signature appended to each returnable form represents a declaration that they vouch for the accuracy and correctness of the information provided.
4. Notwithstanding any check or audit conducted by or on behalf of the Employer, the information provided in the returnable documents is accepted in good faith and as justification for entering into a contract with a tenderer. If subsequently any information is found to be incorrect such discovery shall be taken as wilful misrepresentation by that tenderer to induce the contract. In such event the Employer has the discretionary right under sub-clause 9.2 of the general conditions of to terminate the contract.
5. Should a tenderer wish to offer a different period of completion than that required by the Employer, it shall be submitted as an alternative tender.
6. If more than one alternative tender is submitted, each one shall be numbered and submitted on a separate copy of form C1.1 Form of Offer, completed and signed, and accompanied by the prescribed priced Pricing Schedule and supporting documents.
7. A retention money guarantee will be considered for acceptance in lieu of cash deductions provided that the tenderer submits his proposal as an alternative tender indicating the discount he proposes to give.
8. These forms must be completed in black ink and any alterations made prior to tender closure countersigned by an authorised signatory.

TENDERERS ARE INSTRUCTED TO COMPLETE ALL THE SCHEDULES ATTACHED HEREIN. FAILURE TO COMPLETE ANY OF THE SCHEDULES MAY RESULT IN AUTOMATIC DISQUALIFICATION OF THE TENDER AS THE TENDER WILL BE CONSIDERED NOT RESPONSIVE. IF THE SCHEDULE IS NOT APPLICABLE TENDERERS ARE INSTRUCTED TO INDICATE NOT APPLICABLE AND SIGN THE SCHEDULE

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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TENDER COMPLIANCE

The tenderer must complete the returnable documents as listed

Generic	Tick if completed
Authority of Signatory (<i>Compulsory</i>)	
Certificate of Authority for Joint Venture (<i>Compulsory where applicable</i>)	
Certified copy of identity documents for directors (<i>Compulsory</i>)	
Compulsory Enterprise Questionnaire (<i>Compulsory</i>)	
Copy of Company Registration Documents or CK1 for Close Corporations (<i>Compulsory</i>)	
Form of offer to be properly signed (<i>Compulsory</i>)	
Declaration of Interest (MBD4) (<i>Compulsory</i>)	
Declaration of Bidder's Past Supply Chain Management Practices (MDB8) (<i>Compulsory</i>)	
Certificate of Independent Bid Determination (MDB9) (<i>Compulsory</i>)	
Certified B-BEE Status Level Certificate SANAS approved or Sworn affidavit for BBBEE Exempted Micro Enterprises as per bidder's correct turnover category (<i>Required for evaluation</i>)	
MBD5 (Required for evaluation), if tender exceed R10 million. Audited financial statements (<i>Compulsory</i>); if the bidder is required by law to prepare annual financial statements for auditing, their audited annual statements: for the past three year; or; since their establishment if established during the past three years; A certificate signed by the bidder certifying that the bidder has no undisputed commitments for municipal services towards a Municipality or other service provider in respect of which payment is overdue for more than 30 days in accordance with regulation 21 (ii) (<i>Compulsory</i>) The Municipal rates for the bidder and its directors in respect of which payment is not overdue for more than 30 days or proof of lease agreement including rates for the landlord. In case where the Company or Director is registered in a rural area where the rates are not paid, please attach proof from Local Authority and Affidavit under oath indicating that there are no municipal rates payable. (<i>Compulsory</i>)	
Valid Tax Clearance Certificate Issued by the South African Revenue Service or PIN issued by SARS (<i>Compulsory</i>)	
CSD Registration/CSD Summary Report (<i>Compulsory</i>)	
Proof of insurance with a registered financial service provider	

Note:

The meaning of the cursive type of each Form is as follows:

- **Compulsory:** Documentation or Information that must be submitted with the tender.
(Failing to submit any of the document may result in the tender being deemed non-responsive)
- **Required for evaluation:** Additional documentation that is required

Note to tenderer: This form has been created as aid to ensure a tenderer's compliance with the completion of the returnable forms and schedules and subsequent placement in the correct envelope.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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FORM NO	FORM DESCRIPTION	TICK IF COMPLETED
A1	ATTENDANCE REGISTER	
A5	TENDERER'S BANK DETAILS AND CREDIT RATING FROM BANK	
A6	CERTIFICATE OF TENDERER'S LITIGATION HISTORY	
A7	SCHEDULE OF CURRENT COMMITMENTS	
A8	CERTIFICATE OF COMPLIANCE WITH OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 AND CONSTRUCTION REGULATIONS, 2014	
A9	CERTIFICATE OF REGISTRATION WITH CIDB	
B1	CONTRACTORS ESTABLISHMENT ON SITE	
MBD 6.1	PREFERENCING SCHEDULE: BROAD-BASED BLACK ECONOMIC EMPOWERMENT STATUS	
C2	PREFERENTIAL PROCUREMENT: SUBCONTRACTING	
D1	SCHEDULE OF WORK EXPERIENCE	
D2	SCHEDULE OF CONSTRUCTION EQUIPMENT	
D3	SCHEDULE OF CONTRACTORS KEY PROJECT MANAGEMENT	
D4	SCHEDULE OF SPECIALIST SUBCONTRACTORS	
D5	INDICATIVE CONSTRUCTION PROGRAMME	
D6	SCHEDULE OF ESTIMATED MONTHLY EXPENDITURE	
D7	SWORN AFFIDAVIT	
E1	QUALITY ASSURANCE	
MBD 7.2	CONTRACT FORM – RENDERING OF SERVICES	

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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T2.2 RETURNABLE SCHEDULES

FORM A1: ATTENDANCE REGISTER FOR CLARIFICATION MEETING

Notes to Tenderer:

1. Tenderers must attend the clarification meeting. And they must ensure that suitably qualified or experienced personnel attend the meeting.
2. Tenderers must ensure that those who attend the meeting on their behalf complete the official attendance register. Attendees must fill in the tenderers' names and contact details and they must sign the register. If they do not, the offers of the tenderers they represent at the meeting will be considered non-responsive.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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FORM A2: CERTIFICATE OF AUTHORITY FOR SIGNATORY

Notes to tenderer:

1. The signatory for the tenderer shall confirm his/her authority thereto by attaching on the tendering company's letterhead a duly signed and dated copy of the relevant resolution of the board of directors/partners.
2. In the event that the tenderer is a joint venture, a certificate is required from each member of the joint venture clearly setting out:
 - authority for signatory,
 - undertaking to formally enter into a joint venture contract should an award be made to the joint venture,
 - name of designated lead member of the intended joint venture, as required by tender condition 4.13.2
3. The resolution below is given as an example of an acceptable format for authorisation, but submission of this page with the example completed shall not be accepted as authorisation of the tenderer's signatory.

By resolution of the board of directors passed at a meeting held on

Mr/Ms
whose signature appears below, has been duly authorised to sign all documents in connection with the tender for

PROJECT NAME:

and any contract which may arise therefrom on behalf of (*enter name of tenderer in block capitals*)

.....

SIGNED ON BEHALF OF THE COMPANY:

IN HIS/HER CAPACITY AS:

DATE:

SIGNATURE OF SIGNATORY:

WITNESS:
SIGNATURE SIGNATURE

.....
NAME (PRINT) NAME (PRINT)

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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FORM A3: COMPULSORY DECLARATION

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

Section 1: Enterprise details

Name of enterprise	
Contact person	
Email	
Telephone	
Cell	
Fax	
Physical address	
Postal address	

Section 2: Particulars of companies and close corporations

Company/Close Corporation registration number	
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Section 3: SARS information

Tax reference number	
VAT registration number	(state <i>Not Registered</i> if not registered for VAT)

Section 4: CIDB registration number

CIDB Registration number (<i>if applicable</i>)	
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Section 5: Particulars of principals

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

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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Full name of principal	Identity number	Personal tax reference number

Attach separate page if necessary.

Section 6: Record in the service of the state

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

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

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

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

Insert separate page if necessary.

Section 7: Record of family member in the service of the state

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

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

- | | |
|---|--|
| ☐ a member of any municipal council | ☐ an employee of any department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act of 1999 (Act No. 1 of 1999) |
| ☐ a member of any provincial legislature | |
| ☐ a member of the National Assembly or the | |

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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National Council of Provinces

1999)

- ☐ a member of the board of directors of any municipal entity
- ☐ a member of an accounting authority of any national or provincial public entity
- ☐ an official of any municipality or municipal entity
- ☐ an employee of Parliament or a provincial legislature

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

Insert separate page if necessary.

Section 8: Record of termination of previous contracts with an organ of state

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

- ☐ Yes ☐ No

If yes, provide particulars.

(insert separate page if necessary).

Section 9: Declaration

The undersigned, who warrants that he/she is duly authorised to do so on behalf of the tendering entity, confirms that the contents of this Declaration are within my personal knowledge, save where stated otherwise in an attachment hereto, and to the best of my belief is both true and correct, and that:

- i) neither the name of the tendering entity, nor any of its principals, appears on:
 - a) the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004 (Act No. 12 of 2004); or
 - b) National Treasury's Database of Restricted Suppliers (see www.treasury.gov.za);
- ii) the tendering entity or any of its principals has not been convicted of fraud or corruption by a court of law (including a court outside of the Republic of South Africa) within the last five years;
- iii) any principal who is presently employed by the state has the necessary permission to undertake remunerative work outside such employment (attach permission to this declaration);
- iv) the tendering entity is not associated, linked or involved with any other tendering entities submitting tender offers;
- v) the tendering entity has not engaged in any prohibited restrictive horizontal practices, including consultation, communication, agreement, or arrangement with any competing or potential tendering entity regarding prices, geographical areas in which goods and services will be rendered, approaches to determining prices or pricing parameters, intentions to submit a tender or not, the content of the submission (specification, timing, conditions of contract, etc.) or intention to not win a tender;
- vi) the tendering entity has no other relationship with any of the tenderers or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest;
- vii) neither the tenderer nor any of its principals owes municipal rates and taxes or municipal service charges to any municipality or a municipal entity, and are not in arrears for more than three months;

Contractual Services- Internal Water Reticulation- Phase 1- Contract A - NTWANE

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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viii) SARS may, on an on-going basis during the term of the contract, disclose the tenderer's tax compliance status to the Employer and, when called upon to do so, obtain the written consent of any subcontractors who are subcontracted to execute a portion of the contract that is entered into in excess of the threshold prescribed by National Treasury, for SARS to do likewise.

Signed: _____

Date: _____

Name: _____

Position: _____

Enterprise name: _____

NOTE 1: The Standard Conditions of Tender contained in SANS 10845-3 prohibits anticompetitive practices (clause 3.1) and requires that tenderers avoid conflicts of interest, only submit a tender offer if the tenderer or any of his principals is not under any restriction to do business with the Employer (4.1.1) and submit only one tender either as a single tendering entity or as a member in a joint venture (clause 4.13.1). Clause 5.7 also empowers the Employer to disqualify any tenderer who engages in fraudulent and corrupt practice. Clause 3.1 also requires tenderers to comply with all legal obligations.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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FORM A4: TAX COMPLIANCE

MBD 2

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

1. In order to meet this requirement bidders are required to complete in full the attached form TCC 001 "Application for a Tax Clearance Certificate" and submit it to any SARS branch office nationally. The Tax Clearance Certificate Requirements are also applicable to foreign bidders / individuals who wish to submit bids.
2. SARS will then furnish the bidder with a Tax Clearance Certificate that will be valid for a period of 1 (one) year from the date of approval.
3. The original Tax Clearance Certificate must be submitted together with the bid. Failure to submit the original and valid Tax Clearance Certificate will result in the invalidation of the bid. Certified copies of the Tax Clearance Certificate will not be acceptable.
4. In bids where Consortia / Joint Ventures / Sub-contractors are involved, each party must submit a separate Tax Clearance Certificate.
5. Copies of the TCC 001 "Application for a Tax Clearance Certificate" form are available from any SARS branch office nationally or on the website www.sars.gov.za.
6. Applications for the Tax Clearance Certificates may also be made via eFiling. In order to use this provision, taxpayers will need to register with SARS as eFilers through the website www.sars.gov.za.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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FORM A5: TENDERER'S BANK DETAILS AND CREDIT RATING FROM BANK

Notes to tenderer:

1. The tenderer shall attach to this form a letter from the bank at which he declares he conducts his account. The contents of the bank's letter must state the credit rating that it, in addition to the information required below, accords to the tenderer for the business envisaged by this tender. Failure to provide the required letter with the tender submission may render the tenderer's offer unresponsive in terms of tender condition 5.8.
2. The tenderer's banking details as they appear below shall be completed.
3. In the event that the tenderer is a joint venture enterprise, details of all the members of the joint venture shall be similarly provided and attached to this form.
4. The information as supplied will be used to calculate the tenderer's functionality score as per clause 5.11.9 of the tender data.

The tenderer shall provide the following:

- i) Name of Account Holder:.....
- ii) Account Number:
- iii) Bank name:.....
- iv) Branch Number:.....
- v) Bank and branch contact details
-

SIGNED ON BEHALF OF THE TENDERER:

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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FORM A6: CERTIFICATE OF TENDERER'S LITIGATION HISTORY

Note to tenderer:

The tenderer shall list below details of any litigation with which the tenderer (including its directors, shareholders or other senior members in previous companies) has been involved with any organ of state or state department within the last ten years. The details must include the year, the litigating parties, the subject matter of the dispute, the value of any award or estimated award if the litigation is current and in whose favour the award, if any, was made.

Failure to provide or disclose the following information will render the tenderer's offer non-responsive in terms of tender condition 5.8. Please visit www.saflii.org.za to evaluate your status.

Client	Other litigating party	Dispute	Award value	Date resolved

SIGNED ON BEHALF OF THE TENDERER:

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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FORM A7: SCHEDULE OF CURRENT COMMITMENTS

Notes to tenderer:

1. The tenderer shall list below all contracts currently under construction or awarded and about to commence and tenders for which offers have been submitted but awards not yet made.
2. In the event of a joint venture enterprise, details of all the members of the joint venture shall similarly be attached to this form.
3. The lists must be restricted to not more than 20 contracts and 20 tenders. If a tenderer's actual commitments or potential commitments are greater than 20 each, those listed should be in descending order of expected final contract value or sum tendered.

TABLE 1 CONTRACTS AWARDED				
Client	Project	Expected total value of contract (incl. VAT)	Duration (Months)	Expected completion date

SIGNED ON BEHALF OF THE TENDERER:

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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**FORM A8: CERTIFICATE OF COMPLIANCE WITH OCCUPATIONAL HEALTH
AND
SAFETY ACT, 1993 AND CONSTRUCTION REGULATIONS, 2014**

Note to tenderer:

Discovery that the tenderer has failed to make proper disclosure may result in the Employer terminating a contract that flows from this tender on the ground that it has been rendered invalid by the tenderer's misrepresentation.

The tenderer shall attach to this Form evidence that he is registered and in good standing with a compensation insurer who is approved by Department of Labour in terms of section 80 of the Compensation for Injury and Disease Act (COIDA / COID Act (Act 130 of 1993).

The tenderer is required to disclose, by also attaching documentary evidence to this form, all inspections, investigations and their outcomes conducted by the Department of Labour into the conduct of the tenderer at any time during the 36 months preceding the date of this tender.

SIGNED ON BEHALF OF THE TENDERER:

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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FORM A9: CERTIFICATE OF REGISTRATION WITH CIDB

The tenderer shall provide a printed copy of the Active Contractor's Listing off the CIDB website. (www.cidb.org.za). In the case of a Joint Venture, a printed copy of the Active Contractor's Listing must be provided for each member of the Joint Venture.

Name of Contractor:

Contractor Grading Designation:

CIDB Contractor Registration Number:

SIGNED ON BEHALF OF THE TENDERER:

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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FORM A10: REGISTRATION ON NATIONAL TREASURY CENTRAL SUPPLIERS DATABASE.

The tenderer shall provide a printed copy of the Active Supplier Listing on the National Treasury Central Supplier Database. (www.treasury.gov.za). In the case of a joint venture (JV), the tenderer shall provide printed copies of the Active Supplier Listing on the National Treasury Central Supplier Database for each member of the JV. In the case of a Joint Venture, a printed copy of the Active Supplier Listing must be provided for each member of the Joint Venture.

Name of Contractor:

Central Supplier Database Supplier Number:

Supplier Commodity:

Delivery Location:

SIGNED ON BEHALF OF THE TENDERER:

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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FORM A11: ORIGINAL CERTIFIED COPIES OF DIRECTORS / MEMBERS / TRUSTEES IDENTITY DOCUMENTS

The tenderer shall attach to this page **original certified** copies of the directors / members trustee's identity documents of the tendering entity.

In the case of joint ventures, the required documents shall be submitted for each member of the joint venture.

Failure to submit the required documentation in the prescribed format will render the tenderer's offer non-responsive in terms of tender condition 5.8.

SIGNED ON BEHALF OF THE TENDERER:

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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FORM A12: COPIES OF COMPANY REGISTRATION DOCUMENTS

The tenderer shall attach to this page copies of the registration documents of the tendering entity.

Any of the following documents for the tendering entity is sufficient:

- CK1: Founding Statement for a Close Corporation.
- CK2: Amended founding statement for a Close Corporation.
- CM1: Certificate of Incorporation for a company.
- CM2: Memorandum of Association for a company.
- CM9: Certificate of Change of name for a company.

Trust Deed and Letter of Authority to Act as Trustees certified by the High Court.

In the case of joint ventures, the required documents shall be submitted for each member of the joint venture.

Note:

The tenderer is to ensure that the documentation submitted meets the following criteria:

- The name of the active directors/members appears on the documents.
- The ID documents correspond with the names of active directors/members.

If the above criteria are not met the tenderers offer will be rendered non-responsive in terms of tender condition 5.8.

SIGNED ON BEHALF OF THE TENDERER:

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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FORM B1: CONTRACTOR’S ESTABLISHMENT ON SITE

The combined, extended total tendered for Item A1 to A2 - (The Contractor’s general obligations):

- a) Schedules for Fixed Charges Items
- b) Schedules for Time Related Items
- c) Time-related obligations

shall not exceed a maximum of 15% of the tender sum (Excluding Contingencies, Escalation and VAT).

If the 15% maximum allowance are exceeded the tenderer’s offer will be rendered non-responsive in terms of tender condition 5.8.

SIGNED ON BEHALF OF TENDERER:

<i>Contractual Services- Internal Water Reticulation- Phase 1- Contract A - NTWANE</i>					
SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:

FORM C1: PREFERENCING POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATION 2022

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

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

1. GENERAL CONDITIONS

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

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

1.2 **To be completed by the organ of state**

(delete whichever is not applicable for this tender).

- a) The applicable preference point system for this tender is the 90/10 preference point system.
- b) The applicable preference point system for this tender is the 80/20 preference point system.
- c) Either the 90/10 or 80/20 preference point system will be applicable in this tender. The lowest/ highest acceptable tender will be used to determine the accurate system once tenders are received.

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

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

1.4 **To be completed by the organ of state:**

The maximum points for this tender are allocated as follows:

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

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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- 1.5 Failure on the part of a tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.
- 1.6 The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

2. DEFINITIONS

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

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. POINTS AWARDED FOR PRICE

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

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

80/20 or 90/10

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

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmin = Price of lowest acceptable tender

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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3.2. FORMULAE FOR DISPOSAL OR LEASING OF STATE ASSETS AND INCOME GENERATING PROCUREMENT

3.2.1. POINTS AWARDED FOR PRICE

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

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

Where

Ps = Points scored for price of tender under consideration
Pt = Price of tender under consideration
Pmax = Price of highest acceptable tender

4. POINTS AWARDED FOR SPECIFIC GOALS

- 4.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:
- 4.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—
- (a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or
 - (b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,
- then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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Table 1: Specific goals for the tender and points claimed are indicated per the table below.

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

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

The specific goals allocated points in terms of this tender	Number of points allocated (90/10 system) (To be completed by the organ of state)	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points claimed (90/10 system) (To be completed by the tenderer)	Number of points claimed (80/20 system) (To be completed by the tenderer)

DECLARATION WITH REGARD TO COMPANY/FIRM

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

4.4. Company registration number:

4.5. TYPE OF COMPANY/ FIRM

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

[TICK APPLICABLE BOX]

4.6. I, the undersigned, who is duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the specific goals as advised in the tender,

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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qualifies the company/ firm for the preference(s) shown and I acknowledge that:

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

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

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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EVALUATION CRITERIA

- A preferential Point system shall apply whereby the points will be allocated in accordance with the Preferential Procurement Regulations of 2022, where 80 points will be allocated in respect of price and 20 points in respect of preference points claimed for attainment of other specific goals summarized as follows: **(80/20 criteria)**.

HDI SPECIFIC GOALS	POINTS
HDI (blacks, Indians and Coloureds)	12
Woman-Ownership of than 50%	2
Disability ownership of more than 50% (Physically Impaired)	2
Youth	2
Locality	2
Total	20

- A preferential Point system shall apply whereby the points will be allocated in accordance with the Preferential Procurement Regulations of 2022, where 90 points will be allocated in respect of price and 10 points in respect of preference points claimed for attainment of other specific goals summarized as follows: **(90/10 criteria)**.

HDI SPECIFIC GOALS	POINTS
HDI (Black, Indians and Coloureds)	6
Woman-Ownership of more than 50%	1
Disability ownership of more than 50%	1
Youth	1
Locality (within SDM jurisdiction)	1
Total	10

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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FORM C2: PREFERENTIAL PROCUREMENT: SUBCONTRACTING

1. "The regulation states that if feasible to contract above R 30 million, an organ of state must apply subcontracting to advance designated groups".
2. Definitions
 - 1.1 "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. An EME is an enterprise including a sole propriety with an annual total revenue of R10 million or less.
 - 1.2 "QSE" means qualifying small business enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act. A QSE is an enterprise with an annual total revenue of between R10 million and R50 million
3. Tenders must be advertised with a condition that tenderers who fail to comply with this requirement would be disqualified. Sub-contracting conditions:
 - i. In the case of construction and built environment sectors, nothing prevents bidders/ contractors/ suppliers to select sub-contractors from the CIDB database who are registered on the CSD for the purposes of compliance with the minimum 30% compulsory sub-contracting provisions.
 - ii. Tenderers or contractors must submit proof of subcontracting arrangement between the main tenderer and the subcontractor. Proof of subcontracting arrangement may include a subcontracting agreement between main tenderer and the subcontractor.
 - iii. The responsibility for inclusion of compulsory subcontracting clause in the tender rests with the institution.
 - iv. The responsibility to sub-contract with competent and capable sub-contractor's rests with the main contractor/ supplier.
 - v. The contract will be concluded between the main contractor and the Department, therefore, the main contractor and not the sub-contractor would be held liable for performance in terms of its contractual obligations.
 - vi. Main contractors/ suppliers are discouraged from subcontracting with their subsidiary companies as this may be interpreted as subcontracting with themselves and / or using their subsidiaries for fronting. Where primary contractor subcontracts with a subsidiary this must be declared in tender documents.
 - vii. Tenders that do not meet subcontracting requirements are considered as being not acceptable tenders and must be disqualified and may not be considered for further evaluation or award.
 - viii. The report containing the list of potential subcontractors may be drawn by accessing the following link: www.csd.gov.za
 - ix. Where no tenderer meets sub-contracting criteria, institutions must cancel the tender and investigate reasons for tenderers failing to meet compulsory sub-contracting.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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4. The contractor upon award will submit to the employer's agent, sub-contracting strategy demonstrating how he intends attaining the 30% as prescribed

Schedule item no	Name of EME/QSE	Item description as per BoQ	Value (Rands)
Total			
Tender Sum			
% of Tender Sum			

SIGNED ON BEHALF OF THE TENDERER:.....

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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FORM D1: SCHEDULE OF WORK EXPERIENCE

Note to tenderer:

The tenderer shall enter in the spaces provided below a complete list of the last ten civil-engineering contracts awarded to him. The tenderer shall attach to this form completion certificates OR practical completion certificates for those projects that have reached practical completion within 18 months prior to the advertisement of this tender. This information is deemed to be material to the award of the contract.

EMPLOYER (NAME, TEL NO & FAX NO)	CONSULTING ENGINEER (NAME, TEL NO & FAX NO)	NATURE OF WORK	VALUE OF WORK	YEAR COMPLETED

SIGNED ON BEHALF OF THE TENDERER:

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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FORM D2: SCHEDULE OF CONSTRUCTION EQUIPMENT

Note to tenderer: State with relevant symbol in the availability column.

The tenderer shall state below what construction equipment will be immediately available for this contract, what construction equipment will become available by virtue of outstanding orders, and what further construction equipment will be acquired or hired for the work should he be awarded the contract.

- a) CONSTRUCTION EQUIPMENT IMMEDIATELY AVAILABLE (I)
- b) CONSTRUCTION EQUIPMENT ON ORDER (O)
(State details of arrangements made, with delivery dates)
- c) CONSTRUCTION EQUIPMENT THAT WILL BE ACQUIRED OR HIRED (H)
(State details of delivery arrangements)

DESCRIPTION, SIZE, CAPACITY	NUMBER	AVAILABILITY

SIGNED ON BEHALF OF TENDERER:

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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FORM D3: SCHEDULE OF CONTRACTOR'S KEY PROJECT PERSONNEL

The tenderer shall state below what project personnel will be available for this contract and what additional personnel will be employed for the work should he be awarded the contract.

More than a single individual maybe proposed for a position, based on the size of the project and the required personnel.

No one person may play a role in more than one position in the contract.

Any additional supporting documentation to substantiate the proposed personnel should be attached to this page.

REFER TO SECTION 5.11.9 (PRE-QUALIFICATION CRITERIA) OF THE TENDER DATA FOR THE MINIMUM REQUIRED CONTRACTOR'S PERSONNEL

POSITION	NAME	QUALIFICATIONS (State the Institution, Qualification Obtained and Year Obtained)	NO. YEARS OF RELEVANT EXPERIENCE (Indicate the number of years of road building experience and key expertise)
CONTRACT MANAGER			
SITE AGENT			
SENIOR FOREMAN			
JUNIOR FOREMEN			
SAFETY OFFICER			
OTHER (Specify)			
OTHER (Specify)			
OTHER (Specify)			
OTHER (Specify)			

Please note that the personnel required on this tender shall remain valid for the duration of the project, approval from the department should be sourced for any change in personnel with similar or higher requirements. The requirements should be as stipulated on quality criteria, clause 5.11.9 of tender data.

Contractors shall employ in labour-intensive works only those supervisory and management staff that have completed the required Skills Programme in terms of **Appendix G** of the "Guidelines for the implementation of labour intensive infrastructure projects under the Expanded Public Works Programme (EPWP) Third Edition 2015":

SIGNED ON BEHALF OF TENDERER:

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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FORM D4: SCHEDULE OF SPECIALIST SUBCONTRACTORS

Note to tenderer:

1. The tenderer shall list below the specialist items of work on this contract. Alternatives may be mentioned.
2. The tenderer shall state whether he intends to carry out any specialised work himself.

Acceptance of this tender shall not be construed as approval of all or any of the listed specialist subcontractors. Should any or all of the specialist subcontractors not be approved subsequent to the acceptance of the tender, it shall in no way invalidate this tender, and the tendered unit rates for the various items of work shall remain final and binding, even in the event of a subcontractor not listed below being approved by the Employer's Agent.

SPECIALISED ITEM	NAME OF SPECIALIST SUBCONTRACTOR

SIGNED ON BEHALF OF TENDERER:

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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FORM D5: INDICATIVE CONSTRUCTION PROGRAMME

Note to tenderer:
If a tenderer wishes to submit an alternative tender then this form, appropriately completed, shall be attached to the Pricing Schedule for the alternative proposal.

The tenderer shall attach a preliminary programme, reflecting the proposed sequence and tempo of execution of the various activities comprising the work for this contract. The programme shall be in accordance with the information provided in form D2: Schedule of construction equipment, form D6: Schedule of estimated monthly expenditure, and with all other aspects of the tender.

SIGNED ON BEHALF OF TENDERER:

<i>Contractual Services- Internal Water Reticulation- Phase 1- Contract A - NTWANE</i>					
SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:

FORM D6: SCHEDULE OF ESTIMATED MONTHLY EXPENDITURE

Note to tenderer:

If a tenderer wishes to submit an alternative tender then this form, appropriately completed, shall be attached to the Pricing Schedule for the alternative proposal.

The tenderer shall state his estimated value of the work to be completed every month, based on his preliminary programme and his tendered unit rates, in the tables below.

MONTH	VALUE	MONTH	VALUE
1	R	TOTAL b/f	R
2	R	11	R
3	R	12	R
4	R	13	R
5	R	14	R
6	R	15	R
7	R	16	R
8	R	17	R
9	R	18	R
10	R	19(FINAL, stipulate as per your contract duration)*	R
TOTAL c/f	R		
		TOTAL: R	

* Final payment at end of Defects Liability Period is for balance of retention and any other payments due.

SIGNED ON BEHALF OF TENDERER:

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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FORM D7: SWORN AFFIDAVIT

The tenderer shall attach to this Form a sworn affidavit by the Commissioner of Oath in which he declares that the information provided in Forms D1, D2 and D3 is true.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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FORM E1: QUALITY ASSURANCE

The tenderer shall attach to this Form sufficient details from his Quality Assurance Plan to indicate the processes and policies to be adopted to ensure that the required specifications of the works are achieved during construction.

The Quality Assurance Plan to be submitted to the Employer's Agent after award shall include that of any subcontractors (if applicable).

The minimum details to be given with this tender shall include (where applicable):

1. TESTING (WHICH TESTS, POINT/S OF TESTING, FREQUENCY)
2. MANUFACTURE, TRANSPORT, CONSTRUCTION
3. PERSONNEL EMPLOYED ON ALL ACTIVITIES AND QUALITY CONTROL
4. ANY OTHER MATTERS WHICH RELATE TO THE QUALITY ASSURANCE PLAN WHICH THE TENDERER CONSIDERS MAY BE OF ASSISTANCE IN TENDER ADJUDICATION

SIGNED ON BEHALF OF TENDERER:

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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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.

***YES/NO**

.....

- 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?

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

- 2.2 If yes, provide particulars.

.....

* Delete if not applicable

***YES / NO**

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
------	------------	------------	-----------	------------	------------

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

1.1 If yes, furnish particulars

.....
.....

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

4.1 If yes, furnish particulars

.....
.....

CERTIFICATION

I, THE UNDERSIGNED (NAME)

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

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

.....

Signature

.....

Date

.....

.....

Position

Name of Bidder

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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FORM F1: 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 **Sekhukhune District Municipality** in accordance with the requirements and task directives / proposals specifications stipulated in Bid Number **SK8/3/1-09/2023/24** 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:
 - (i) 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 2017;
 - Declaration of interest;
 - Declaration of bidder's past SCM practices;
 - Certificate of Independent Bid Determination;
 - Special Conditions of Contract;
 - (ii) General Conditions of Contract
 - (iii) Bill of Quantities
 - (iv) Project Specifications
 - (v) Particular Specifications
 - (vi) Drawings
 - (vii) Occupational Health and Safety (OHS) Specifications and Annexures
 - (viii) Geotechnical report
 - (ix) Environmental Management Programme (EMPr) and the full Environmental Authorisation (EA) document (Ref. No. NWP/EIA/45/2018) (signed on 14/01/2019) or latest approved document
 - (x) 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:

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 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.

DESCRIPTION OF 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 authorized to sign this contract.

SIGNED ATON.....

NAME (PRINT)

SIGNATURE

OFFICIAL STAMP

--

WITNESSES

1

2

DATE:

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
------	------------	------------	-----------	------------	------------

FORM F2: DECLARATION OF BIDDERS PAST SUPPLY CHAIN MANAGEMENT PRACTICES

- 1 This Standard Bidding Document must form part of all bids invited.
- 2 It serves as a declaration to be used by institutions 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 disregarded if that bidder, or any of its directors have-
 - a. abused the institution's supply chain management system;
 - b. committed fraud or any other improper conduct in relation to such system; or
 - c. failed to perform on any previous contract.
- 4 In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.

Item	Question	Yes	No
4.1	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 <i>audi alteram partem</i> 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:		

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
------	------------	------------	-----------	------------	------------

Item	Question	Yes	No
4.3	Was the bidder or any of its directors convicted by a court of law (including a court outside of the Republic of South Africa) for fraud or corruption during the past five years?	Yes ☐	No ☐
4.3.1	If so, furnish particulars:		
4.4	Was any contract between the bidder and any organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes ☐	No ☐
4.4.1	If so, furnish particulars:		

CERTIFICATION

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

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

Signature **Date**

Position **Name of Bidder**

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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FORM F3: CERTIFICATE OF INDEPENDENT BID DETERMINATION

- 1 This Standard Bidding Document (SBD) must form part of all bids¹ invited.
- 2 Section 4(1)(b)(iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging).² Collusive bidding is a *pe se* prohibition meaning that it cannot be justified under any grounds.
- 3 Treasury Regulation 16A9 prescribes that accounting officers and accounting authorities must take all reasonable steps to prevent abuse of the supply chain management system and authorizes accounting officers and accounting authorities to:
 - a. disregard the bid of any bidder if that bidder, or any of its directors have abused the institution's supply chain management system and or committed fraud or any other improper conduct in relation to such system.
 - b. cancel a contract awarded to a supplier of goods and services if the supplier committed any corrupt or fraudulent act during the bidding process or the execution of that contract.
- 4 This SBD 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 (SBD 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.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
-------------	-------------------	-------------------	------------------	-------------------	-------------------

FORM F4: 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:

Sekhukhune District Municipality

(Name of Institution)

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

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

1. I have read, and I understand the contents of this Certificate;
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign the bid, on behalf of the bidder;
5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:
 - (a) has been requested to submit a bid in response to this bid invitation;
 - (b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
 - (c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder
6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium^a 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.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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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.
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

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.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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FORM F5: CERTIFICATE OF TENDER COMPLIANCE

1.SUB-CONTRACTING

1.1 Will any portion of the contract be sub-contracted? (Tick applicable box)

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

1.1.1 If yes, indicate:

i) What percentage of the contract will be contracted.....%

ii) The name of the sub-contractor

iii) Whether the sub-contractor is an EME or QSE

(Tick applicable box)

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

iv) Specify, by ticking the appropriate box, if subcontracting with an enterprise in terms of Preferential Procurement Regulations, 2022:

2. DECLARATION WITH REGARD TO COMPANY/FIRM

2.1 Name company/firm:.....

2.2 VAT registration number:.....

2.3 Company registration number.....

8.4 TYPE OF COMPANY / FIRM

☐ Partnership/ Joint Venture / Consortium

☐ One person business/sole propriety

☐ Close corporation

☐ Company

☐ (Pty) Limited

[Tick applicable box]

1.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

.....

.....

.....

.....

1.6 COMPANY CLASSIFICATION

☐ Manufacturer

☐ Supplier

☐ Professional service provider

☐ Other services provider e.g. transporter, etc

[Tick applicable box]

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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1.7 MUNICIAPL INFORMATION

Municipality where the business is situated:.....

Registered Account Number:.....

Stand Number:.....

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

1.9 I/we, the undersigned, who is/are duly authorized to do so on behalf of the company/firm, certify that the points claimed, based on the specific goal we acknowledge that:

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown inn paragraphs 1.4 and 1.6, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;
- iv) If the specific goal has been claimed or obtained on a fraudulent basis or any of the conditions of contract have not fulfilled, the purchaser may, in addition to any other remedy it may have-
 - a) Disqualify the person from the bidding process;
 - b) Recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
 - c) Cancel the contract and claim any damages which it has suffered as a result of having to makes less favorable arrangements due to such cancellation;
 - d) Recommend that the bidder or contractor, its shareholders and directors, or only the shreholders and directors who acted on a fraudulent basis, be restricted by the National Treasury from obtaining business from any organ of state for a period of not exceeding 10 years, after the audi alteram partem (hear the other side) rule has been applied; and
 - e) Forward the matter for criminal prosecution.

WITNESSES

1.....

2.....

SIGNATURE OF BIDDER

DATE:.....

ADDRESS:.....

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
------	------------	------------	-----------	------------	------------

PART 2: THE CONTRACT

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SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
------	------------	------------	-----------	------------	------------

PART C1 AGREEMENT AND CONTRACT DATA

TENDER No: SK8/3/1-09/2023/24

CIDB Category 7 CE or higher

FOR

PROJECT NAME: PROVISION OF CONTRACTUAL SERVICES INTERNAL RETICULATION MOUTSE
EAST AND WEST – PHASE 1 - NTWANE

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Contractual Services- Internal Water Reticulation- Phase 1- Contract A - NTWANE

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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C1.1 Form of Offer and Acceptance

This document formalises the legal process of offer and acceptance. It contains:

- a) the offer to provide the engineering and construction works for a price, or in accordance with the terms of the financial proposal made;
- b) confirmation from the Employer that he accepts the tender offer following his tender evaluation, and that a contract therefore exists; and
- c) a schedule of deviations, which records any, agreed changes to the documentation that may occur during the process of offer and acceptance.

Offer

The Employer, identified in the Acceptance signature block, has solicited offers to enter into a contract for the procurement of: Contract No: SK8/3/1-09/2023/24 – PROVISION OF CONTRACTUAL SERVICES FOR THE INTERNAL WATER RETICULATION MOUTSE EAST AND WEST - PHASE 1 – CONTRACT A - NTWANE.

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

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

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

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

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

Signature(s)

Name(s)

Capacity

for the
tenderer

(Name and address of organization)

Name & signature of
witness

..... Date

CIDB Registration Number

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
------	------------	------------	-----------	------------	------------

Acceptance

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

The terms of the contract, are contained in:

- Part C.1 Agreements and Contract Data, (which includes this agreement)
- Part C.2 Pricing data
- Part C.3 Scope of work.
- Part C.4 Site information
- Part C.5 Annexures

and drawings and documents or parts thereof, which may be incorporated by reference into Parts 1 to 5 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, which must be duly signed by the authorised representative(s) of both parties.

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

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

Signature(s)

Name(s)

Capacity

for the Employer

(Name and address of organization)

Name & signature of witness

..... Date

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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Schedule of Deviations

Notes:

1. The extent of deviations from the tender documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender.
2. A Tenderer's covering letter shall not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as foresaid become the subject of agreements reached during the process of offer and acceptance, the outcome of such agreement shall be recorded here.
3. Any other matter arising from the process of offer and acceptance either as a confirmation, clarification or change to the tender documents and which it is agreed by the Parties becomes an obligation of the contract shall also be recorded here.
4. Any change or addition to the tender documents arising from the above agreements and recorded here, shall also be incorporated into the final draft of the Contract.

1 **Subject** _____

Details _____

2 **Subject** _____

Details _____

3 **Subject** _____

Details _____

4 **Subject** _____

Details _____

5 **Subject** _____

Details _____

6 **Subject** _____

Details _____

7 **Subject** _____

Details _____

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

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

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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FOR THE TENDERER:

Signature(s)

Name(s)

Capacity

.....
[Name and address of organisation]

Name and
signature of
witness Date

FOR THE EMPLOYER:

Signature(s)

Name(s)

Capacity

.....
[Name and address of organisation]

Name and
signature of
witness Date

Contractual Services- Internal Water Reticulation- Phase 1- Contract A - NTWANE					
SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:

CONFIRMATION OF RECEIPT

The Tenderer (now Contractor), identified in the Offer part of this Agreement, hereby confirms receipt from the Employer, identified in the Acceptance part of this Agreement, of one fully completed original copy of this Agreement, including the Schedule of Deviations (if any) today:

The..... *[day]*

of *[month]*

20*[year]*

at *[place]*

For the Contractor:
Signature

.....
Name

.....
Capacity

Signature and name of witness:
Signature

.....
Name

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
------	------------	------------	-----------	------------	------------

C1.1.2 Form Agreement in terms of the Mine Health and Safety Act, (Act No. 29 of 1996) as amended by the Mine Health and Safety Amendment Act (Act No. 72 of 1997) and the Mineral Resources and Petroleum Development Act (Act No. 28 of 2002)

THIS AGREEMENT made at on this the day of in the year between the **SEKHUKHUNE DISTRICT MUNICIPALITY** (hereinafter) called "the Employer" of the one part, herein represented by in his capacity as and delegate of the Employer in terms of the Employer's standard powers of delegation pursuant to the provisions of Act No. 7 of 1998 and in his capacity as the Contractor and being duly authorised by virtue of a resolution appended hereto as **ANNEXURE A**.

WHEREAS the Employer is desirous that certain works be constructed, as stated above and has accepted a tender by the Contractor for the construction, completion and maintenance of such works and whereas the Employer and the Contractor have agreed to certain arrangements and procedures to be followed in order to ensure compliance by the Contractor with the provisions of the Mine Health and Safety Act (Act No.29 of 1996); as amended by the Mine Health and Safety Amendment Act (Act No. 27 of 1997), the Mineral Resources and Petroleum Development Act (Act No. 28 of 2002) and all the applicable Regulations of the said Acts.

NOW THEREFORE THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. The Contractor declares himself conversant with all the requirements, regulations and standards of the said Acts and Amendments of the Acts, as well as with the procedures and safety rules of the Employer as pertaining to the Contractor and all his Sub-contractors.
2. The Contractor accepts responsibility for compliance with all the requirements, regulations and standards of the Acts and Amendments of the Acts, as well as with the procedures and safety rules of the Employer as pertaining to the Contractor and all his Sub-contractors.
3. The Contractor, as the appointed Mine Manager of the Employer (Owner of the mine / borrow pit / quarry), shall undertake all the duties and accept all the responsibilities of the owner in compliance with the said Acts, Amendments and its Regulations.
4. The Contractor, as the appointed Mine Manager of the Owner, shall in turn appoint a Sub-Ordinate Mine Manager, a Responsible Mine Surveyor/Competent Person and a Competent Person in Charge of Machinery who shall undertake the duties as delegated to them in terms of their appointments.
5. The Contractor shall himself obtain the necessary authorisation for mining, quarrying, blasting and crushing for all the borrow pit sites.
6. The Contractor shall assume responsibility for the Environmental Management Programme (EMP) in respect of all the borrow pit sites and quarries (mines) and shall ensure that the sites are rehabilitated at the conclusion of the contract.
7. The Contractor shall comply with all the provisions and requirements as set out in the EMP and in the said Acts, Amendments and its Regulations.
8. This Agreements shall hold good from the date of signature until the date on which a Closure Certificate is issued by the Mining Authority (Department of Minerals and Energy).

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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In witness thereof, the parties have set their signature hereon in the presence of the subscribing witnesses:

SIGNED ON BEHALF OF THE EMPLOYER

AS WITNESS:

SIGNATURE:

NAME(PRINT):

SIGNED ON BEHALF OF THE CONTRACTOR

AS WITNESS:

SIGNATURE:

NAME(PRINT):

<i>Contractual Services- Internal Water Reticulation- Phase 1- Contract A - NTWANE</i>					
SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:

C1.1.3 Appointment in Terms of Section 3(1) of the Mine Health and Safety Act (Act No. 29 of 1996) as amended by the Mine Health and Safety Amendment Act (Act No. 72 of 1997)

I, in my capacity as....., having been appointed, in terms of **Section 4(1)** of the Act (as amended), by the of the **SEKHUKHUNE DISTRICT MUNICIPALITY**, who is the owner of the Mine(s) to be worked under the requirements of the abovementioned Acts, hereby, in terms of **Section 3(1)** of the Act (as amended), appoint ... in his capacity as of the Contractor, of address: and contact number: to perform all the functions entrusted to the Employer by **Sections 2 and 3** of the Act (as amended) for all the borrow pits on Contract No: ☹ project number and project description)

SIGNED:

DATE:

WITNESS: 1..... 2.

NAME(Print): 1..... 2.

I, , having been appointed in terms of Section 3(1) of the Act (as amended) to perform all functions entrusted to the Employer by Sections 2 and 3 of the Act (as amended) hereby accept the above appointment.

SIGNED:

DATE:

WITNESS: 1..... 2.

NAME(Print): 1..... 2.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
-------------	-------------------	-------------------	------------------	-------------------	-------------------

C1.1.4 Agreement in Terms of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)

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

WHEREAS the Employer is desirous that certain works be constructed, (insert project description) viz and has accepted a tender by the Principal Contractor for the construction, completion and maintenance of such works and whereas the Employer and the Principal Contractor have agreed to certain arrangements and procedures to be followed in order to ensure compliance by the Principal Contractor with the provisions of the Occupational Health and Safety Act 1993 (Act 85 of 1993 and the Construction Regulation, February 2014);

NOW THEREFORE THIS AGREEMENT WITNESSETH AS FOLLOWS:

1. The Principal Contractor shall execute the work in accordance with the contract documents pertaining to this contract.
2. This Agreement shall hold good from its commencement date, which shall be the date of a written notice from the Employer or Employer's Agent requiring him to commence the execution of the Works, to either:
 - a) the date of the final certificate issued in terms of the relevant clauses of the General Conditions of Contract (hereinafter referred to as "the GCC"), as contained in the contract documents pertaining to this contract, or
 - b) the date of termination of the contract.
3. The Principal Contractor declares himself to be conversant with the following: -
 - a) All the requirements, regulations and standards of the Occupational Health and Safety Act (Act 85 of 1993), hereinafter referred to as "The Act", together with its amendments and with special reference to the following Sections of The Act.
 - i) Section 8: General duties of employers to their employees.
 - ii) Section 9: General duties of employers and self-employed persons to persons other than employees.
 - iii) Section 37: Acts or omissions by employees or mandatories and
 - iv) Sub-section 37(2) relating to the purpose and meaning of this Agreement.
 - v) Construction Regulations 2014, and other safety regulations, as applicable.
 - b) The procedures and safety rules of the Employer as pertaining to the Principal Contractor and to all his sub-contractors.
4. The Principal Contractor is responsible for the compliance with the Act by all his sub-contractors, whether or not selected and/or approved by the Employer.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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5. The Principal Contractor warrants that all his and his sub-contractors' employees are covered in terms of the Compensation for Occupational Injuries and Diseases Act 1993 which cover shall remain in force whilst any such employees are present on site. A letter of good standing from the Compensation Commissioner to this effect must be produced to the Employer upon signature of the agreement.
6. The Principal Contractor undertakes to ensure that he and/or his sub-contractors and/or their respective employees will at all times comply with the following conditions:
 - a) The Principal Contractor shall assume the responsibility in terms of Section 16.1 of the Occupational Health and Safety Act. The Principal Contractor shall not delegate any duty in terms of Section 16.2 of this Act without the prior written approval of the Employer. If the Principal Contractor obtains such approval and delegates any duty in terms of section 16.2 a copy of such written delegation shall immediately be forwarded to the Employer.
 - b) All incidents referred to in the Occupational Health and Safety Act shall be reported by the Principal Contractor to the Department of Labour as well as to the Employer. The Employer will further be provided with copies of all written documentation relating to any incident.
 - c) The Employer hereby obtains an interest in the issue of any formal enquiry conducted in terms of section 32 of the Occupational Health and Safety Act into any incident involving the Principal Contractor and/or his employees and/or his sub-contractors.

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

SIGNED FOR AND ON BEHALF OF THE EMPLOYER:

WITNESS:

1. 2.
NAME (Print) NAME (Print)

SIGNED FOR AND ON BEHALF OF THE PRINCIPAL CONTRACTOR:

WITNESS:

1. 2.
NAME (Print) NAME (Print)

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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C1.2 Contract Data

This document identifies which standard conditions of contract are applicable, and together with contract specific data, establishes the risks, liabilities and obligations of the contracting parties and the procedures for the administration of the contract

CONTRACT DATA FOR INTERNAL WATER RETICULATION FOT MOUTSE EAST AND WEST – PHASE 1 CONTRACT A - NTWANE

PART 1: DATA PROVIDED BY THE EMPLOYER

CONDITIONS OF CONTRACT

The *General Conditions of Contract for Construction Works*, Third Edition, 2nd print 2015, published by the South African Institution of Civil Engineering, is applicable to this Contract and is obtainable from www.saice.org.za.

Copies of these Conditions of Contract may be obtained from the South African Institution of Civil Engineering, Tel 011 805 5947.

CONTRACT SPECIFIC DATA

The following contract specific data are applicable to this Contract:

Clause

- 1.1 Definitions
- 1.1.1.4 “Practical Completion” add the following:- shall mean the state of readiness of the entire works as indicated in the “Scope of Works”.
- 1.1.1.5 *Delete the clause and replace with the following.*
- “Commencement Date” means the date that the Agreement, made in terms of the Form of Offer and Acceptance, comes into effect,
- The contract shall come into effect when the Employer issues a letter to the Contractor stating that his tender has been accepted / the contract has been awarded to the Contractor, or upon receipt of the signed contract document by the Contractor from the Employer.
- “Commencement Date” add the following:- the “Commencement Date” shall be 21 calendar days after the date reflected on the “Letter of Acceptance” indicating the acceptance of the tender by the Client.
- 1.1.1.13 The Defects Liability Period is 365 days.
- 1.1.1.14 The time for achieving Practical Completion is 324 days, comprising of the Construction Period, approximately 3 weeks builders break and public holidays and 21 days Mobilisation Period. *(on the schedule, you only allow for 43 weeks, we do not pay for mobilisation period)*
- 1.1.1.15 The name of the Employer is Sekhukhune District Municipality
- 1.1.1.16 The Engineer is Rendeals Four Consulting, also referred to in the contract as “Rendeals”, “Rendeals Four”, “R4C” and “Rendeals 4”
- 1.1.1.26 The Pricing Strategy is a re-measurement Contract

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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1.1.1.35 **'Mobilisation Period'** means the period as stated in the Contract Data, or the period between the Commencement Date and the date that the Contractor starts with the construction of the Works (Commencement of the Works Clause 5.3.3), whichever is the shortest.

Mobilisation Period: - 21 days

1.1.1.36 **'Construction Period'** means the number of days as specified in the Contract Data, within which the Contractor has to complete the construction of the Works as detailed in Part C3."

Construction Period: 324 days.

1.2.1.2 The Employer's address for receipt of communications is:

Physical address:	Postal address:
18 Chris Wiid Street	Private Bag X 8611
Grobersdal	Grobersdal
0470	0470
Telephone: + 27 (13) 262 7300	
Website: www.sekhukhunedistrict.gov.za	

1.1.1.16 The name of the Employer's Agent is (consultants name) represented by an employee duly authorised thereto in writing.

1.2.1.2 The Employer's Agent 's address for receipt of communications is:

Physical address:	Postal address:
Plot 46, Tweefontein	Postnet Suite 73
Polokwane	Polokwane North
0700	0750

Rendeals Four Consulting
Telephone: 015 297 1300
Email: info@rendeals4.co.za.

1.1.1.26 The Pricing Strategy is: Re-measurement Contract.

3.2.3 The Employer's Agent shall obtain the specific approval of the Employer before carrying out any of his functions or duties according to the following Clauses of the General Conditions of Contract:

- Clause 5.12: Extension of Time for Practical Completion
- Clause 6.3: Variations
- Clause 6.6.3: Expenditure of Contingency Allowance
- Clause 10.1.5: The Employer's Agent shall rule on any claim lodged by the Contractor, but the final approval shall be upon written approval from the Employer in accordance with the standard documentation of processing claims.

5.1.1 and 5.8.1 The non-working days are Sundays.

The special non-working days are:

- 1 Public holidays
- 2 The year end break commencing and ending on dates as specified by SAFCEC.

5.3.1 The documentation required before commencement with Works execution are:

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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Health and Safety Plan (Refer to Clause 4.3)
 Initial programme (Refer to Clause 5.6)
 Security (Refer to Clause 6.2)
 Insurance (Refer to Clause 8.6)
 Quality Assurance as per form E1

5.3.2 The time to submit the documentation required before commencement with Works execution is fourteen (14) days.

5.3.3 Time to instruct commencement of the Works

Replace the entire amended Clause 5.3.3 with:

"If the Employer's Agent's instruction to commence carrying out the Works, or to resubmit documentation, is not received by the Contractor within 7 days from the actual date of submission of the documentation referred to in Clause 5.3.1, commencement of the Works shall be taken."

5.3.3.1 In respect of works not requiring a construction work permit to be on the expiry of such 7 days.

5.3.3.2 In respect of works requiring a construction work permit to be on the expiry of the 63 days (2 months) Mobilisation Period, unless otherwise instructed."

5.4.2 The access and possession of Site shall not be exclusive to the Contractor but as set out in the Scope of Works.

5.4.3 Add the following paragraph after the first paragraph:

"If the Employer is prevented from giving possession of the site to the Contractor due to any epidemic or pandemic incident or regulation which will result in the Mobilisation period exceeding the period stated in Clause 1.1.1.35 then the Mobilisation period will be extended by such a period until which the Employer can give the Contractor access to the site."

5.13.1 The penalty for failing to complete the Works or any portion thereof within the abovementioned time limit, plus approved extensions of time or condonation thereof is 1/30 of a 0.273% of the contract sum (excluding VAT) per calendar day.

5.14.1 Practical Completion

Replace the last sentence of the second paragraph:

"Should the Employer's Agent ... on expiry of 14 days."

with the following:

"Should the Employer's Agent not issue such a list within 14 days, Practical Completion shall be deemed to have been achieved on the said fourteenth day."

5.14.2 Issue of Certificate of Practical Completion

Replace "the Employer's Agent" in the second and third lines with the following:

", the Contractor shall notify the Employer's Agent, who shall inspect the Works and the Employer's Agent"

5.14.4 Certificate of Completion

Replace "the Employer's Agent" in the third line of the first paragraph with:

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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", the Contractor shall notify the Employer's Agent, who shall inspect the works and the Employer's Agent"

5.16.3 The latent defect period is ten (10) years for civil engineering works.

6.8.2 Contract Price Adjustment: Is applicable

The value of the certificates issued shall be adjusted in accordance with the Contract Price Adjustment Schedule included in the General Conditions of Contract.

The value of "x" is 0.15.

The values of the coefficients are: (project specific)

- a = 0.15 Labour
- b = 0.20 Construction equipment
- c = 0.55 Material
- d = 0.10 Fuel

- (a) 'L' is the 'Labour Index' and shall be the price index for 'Consumer Price Index' for the Limpopo Province (Groblersdal) as published in the Statistical News Release, P0141, Table A "Consumer Price Index: Main indices"" of Statistics South Africa.
- (b) 'P' is the 'Construction Equipment' and shall be the Producer Price Index applicable to Plant and Equipment (Total) as published in the Statistical Release P0151.1, Table 4 of Statistics South Africa.
- (c) 'M' is the 'Materials Index' and shall be the Producer Price Index applicable to Civil Engineering Material (Total) as published in the Statistical Release P0151.1, Table 6 of Statistics South Africa.
- (d) 'F' is the 'Fuel Index' and shall be the Producer Price Index for Final manufactured goods - Coal and Petroleum Products - Diesel as published in the Statistical News Release P0142.1, Table 1 of Statistics South Africa."

The base month is June 2023. (a month before the closing of advert)

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

6.10.1.5 The percentage advance on materials not yet built into the Permanent Works is 80%.

The percentage advance on Plant not yet supplied to Site is 80%.

6.10.3 Percentage retention is 10%.

The limit of retention money is 10% of the Contract Sum.

6.10.4 Delivery, dissatisfaction with and payment of payment certificate

Replace "28 days "in the seventh line with "30 days".

6.10.5 Payment of retention money

Add after the first sentence:

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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"Half of the retention money shall only be released once the Contractor has rehabilitated all the borrow pits utilised for the project, and the Department of Mineral Resources has issued a letter in which they indicate that they are satisfied with the rehabilitation of the borrow pits."

6.11 Variations exceeding 15 per cent

Replace "15 per cent" in the heading, the marginal heading and in the third line after 6.11.1.3 with "20 per cent".

8.6.1.1.2 The value of Plant and materials supplied by the Employer to be included in the insurance sum is Nil.

8.6.1.1.3 The amount to cover professional fees for repairing damage and loss to be included in the insurance sum is Nil.

8.6.1.3 The limit of indemnity for liability insurance is R20 000 000 for any single claim, the number of claims to be unlimited during construction and Defects Liability Period.

10.1.5 Employer's Agent's ruling on Contractor's Claim

Add the following to Clause 10.1.5 before the last sentence:

"If the Employer's Agent does not respond in accordance with the foregoing procedure and timetable, either Party may assume that the claim has been rejected by the Employer's Agent and submit the dispute by issuing a Dispute Notice in terms of Clause 10.3.1."

10.3.1 Dispute Notice

Replace Clause 10.3.1.1 with the following:

10.3.1.1 The dispute arises from any ruling."

10.5.3 The number of Adjudication Board Members to be appointed is three (3).

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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PART 2: DATA PROVIDED BY THE CONTRACTOR

Clause

1.1.1.9 The Contractor is

1.2.1.2 The Contractor's address for receipt of communications is:

Physical address:

Postal address:

.....

.....

.....

.....

.....

.....

.....

.....

Telephone:

Fax:

E-mail:

Clause

6.2.1 The security to be provided by the Contractor shall be:

Performance guarantee of 10% of the Contract Sum plus retention of 10% of the value of the Works.

6.5.1.2.3 The percentage allowance to cover overhead charges is%.

6.8.3 The variation in cost of special materials is: as per Form B2

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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C1.3 Form of Guarantee

PRO FORMA

PERFORMANCE GUARANTEE

For use with the General Conditions of Contract for Construction Works, Third Edition, 2nd print, 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 Accepted and such amendments or additions to the Contract as may be agreed in writing between the parties.

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

Amount in words :

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

Amount in words :

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

CONTRACT DETAILS

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

PERFORMANCE GUARANTEE

1. The Guarantor's liability shall be limited to the amount of the Guaranteed Sum
2. The Guarantor's period of liability shall be from and including the date of issue of this performance Guarantee and up to and including the Expiry Date or the date of issue by the 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. 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. The Guarantor hereby acknowledges that:

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

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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13. This Performance Guarantee, with the required demand notices in terms of 4 or 5, shall be regarded as a liquid document for the purposes of obtaining a court order.
14. Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's court.

Signed at.....

Date

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

Capacity

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

Capacity

Witness signatory (1).....

Witness signatory (2).....

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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C1.4 CIDB Adjudicator's Appointment

This document provides the basis by which the parties to contract may appoint an adjudicator

CIDB Adjudicator's Appointment

(For use with the GCC 2015 contract)

This agreement is made on the Day ofBetween:

..... (Name of company / organisation)

Of

..... (Address) and

..... (Name of company / organisation)

Of

..... (Address)

(The Parties) and(Name of adjudicator)

Of

..... (address)

(the Adjudicator).

Disputes or differences may arise/have arisen* between the Parties under a Contract dated

and known as.....

and these disputes or differences shall be/have been* referred to adjudication in accordance with the CIDB Adjudication Procedure, (hereinafter called "the Procedure") and the Adjudicator may be or has been requested to act.

*Delete as necessary

IT IS NOW AGREED as follows:

The rights and obligations of the Adjudicator and the Parties shall be as set out in the Procedure.

The Adjudicator hereby accepts the appointment and agrees to conduct the adjudication in accordance with the Procedure.

The Parties bind themselves jointly and severally to pay the Adjudicator's fees and expenses in accordance with the Procedure as set out in the Contract Data.

The Parties and the Adjudicator shall at all times maintain the confidentiality of the adjudication and shall endeavour to ensure that anyone acting on their behalf or through them will do likewise, save with the consent of the other Parties which consent shall not be unreasonably refused.

The Adjudicator shall inform the Parties if he intends to destroy the documents, which have been sent to him in relation to the adjudication, and he shall retain documents for a further period at the request of either Party.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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SIGNED by: SIGNED by: SIGNED by:

Name: Name: Name:.....

who warrants that he / she is duly authorised to sign for and on behalf of the first Party in the presence of
who warrants that he / she is duly authorised to sign for and behalf of the second Party in the presence of
the Adjudicator in the presence of

Witness: Witness: Witness:

Name: Name: Name:.....

Address: Address: Address:

.....

.....

.....

Date: Date: Date:.....

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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PART C2 PRICING DATA

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C2.1 Pricing Instructions

PREAMBLE TO THE SCHEDULE OF QUANTITIES

1. **For the purposes of this schedule of quantities, the following words shall have the meanings hereby assigned to them:-**

Unit	:	The unit of measurement for each item of work as defined in the specifications.
Quantity	:	The number of units of work for each item.
Rate	:	The payment per unit of measurement at which the tenderer tenders to do the work.
Amount	:	The product of the quantity and the rate tendered for an item.
Sum	:	An amount tendered for an item, the extent of which is described in the schedule of quantities, the specifications or elsewhere but the quantity of work of which it not measured in any units.

2. This schedule of quantities forms an integral part of the contract documents.
3. **The quantities set out in the schedule of quantities are approximate quantities only. The quantities of work finally accepted and certified for payment, and not the quantities given in the schedule of quantities, shall be used for determining payments to the Contractor.**

The validity of the contract shall in no way be affected by differences between the quantities in the schedule of quantities and the quantities finally certified for payment. Work shall be valued at the rates or sums tendered, subject only to the provisions of the general conditions of contract, paragraphs 11 and 12 of this preamble, and the standard specifications.

4. Rates and sums shall be comprehensive in accordance with the standard specifications. Full compensation for completing and maintaining, during the maintenance period, all the work shown on the drawings and specified in the specifications, and for all the risks, obligations and responsibilities specified in the general conditions of contract, special conditions of contract and specifications shall be considered as provided for collectively in the terms of payment given in the schedule of quantities, except in so far as the quantities given in the schedule of quantities are only approximate.
5. The tenderer shall fill in a rate or sum for each item where provision has been made for it, even where no quantities are given. Items against which no rate or sum has been entered in the tender will not be paid for when the work is executed, as it is assumed that the Contractor does not wish to receive payment for any such work.

The tenderer shall fill in a rate against all items where the words "rate only" appear in the amount column. The provisions of the standard specifications shall apply in rate-only items. Tenderers shall also note the provisions of paragraph 12 of this preamble.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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Should the tenderer group a number of items together and tender one sum for such group of items, this single sum shall apply to that group of items and not to each individual item, or, should he indicate against any item that full compensation for such item has been included in another item, the rate for the item included in another item shall be deemed to be nil.

The tendered sums and rates shall be valid irrespective of any change in the quantities during the execution of the contract.

6. Notwithstanding any custom to the contrary, the work as executed will be measured for payment in accordance with the methods described in the contract documents under the various items of payment. Attention is directed to the provisions of the standard specifications regarding the measurement of quantities for payment. Except where specified otherwise the nett measurements or mass of the finished work in place shall be taken for payment, but any quantity of work in excess of that prescribed shall be excluded.
7. The amount of work or the quantities of materials stated in the schedule of quantities shall not be considered as restricting or extending the amount of work to be done or the quantity of materials to be supplied by the Contractor.
8. The stating of quantities of materials or the amount of work in the schedule of quantities shall not be regarded as authorisation for the Contractor to order material or to execute work. The Contractor shall obtain the Engineer's detailed instructions in regard to all work before ordering any materials for or executing the work, or before making arrangements in this regard.
9. The short descriptions of the items of payment given in the schedule of quantities are only for the purpose of identifying the items and of providing specific details. More details regarding the extent of the work entailed under each item appear inter alia, on the drawings, and in the specifications, the general conditions of contract and the special conditions of contract.
10. The provisions of the general conditions of contract shall apply to provisional sums and prime cost sums.
11. Subject to the conditions stated in paragraph 12 below, the rates and sums filled in by the tenderer in the schedule of quantities shall be final and binding and may not be adjusted should there be any mistakes in the extensions thereof. Should there be any discrepancies between the correctly extended and totalled schedule of quantities and the tender sum, the Employer shall have the right to make such adjustments to the tender sum as he may deem necessary in order to reconcile the total of the schedule of quantities with the tender sum. In their own interest, tenderers should make doubly sure of the correctness of their tendered rates, the extensions and the tender sum.
12. In order to ensure that payments certified by the Engineer are reasonably consistent with the market value of the work done, and that variations in quantities do not distort the contract valuation, the rates, prices and amounts tendered in the schedule of quantities are required to be in balance.

A tender will be considered out of balance if :-

- (i) the combined, extended total tendered for the item :-

Preliminary and General

(a) Fixed – charged items

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Contractual Services- Internal Water Reticulation- Phase 1- Contract A - NTWANE

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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(b) Time-related items

Not to exceed a maximum of 12% of the tender sum.

Or

- (ii) The rates, prices or amounts tendered for any other items differ by more than 20 (twenty) percent from either the next highest or next lowest rates, prices or amounts tendered.

Any such unbalanced tender may be rejected if, after fourteen (14) days of having been given written notice by the Employer to adjust those rates or lump sums which are unreasonable or out of balance, the tenderer fails to make the necessary satisfactory adjustments. These adjustments in rectification will be such that increases are balanced by decreases, leaving the tender sum unchanged.

13. The units of measurement indicated in the schedule of quantities are metric units.

The following abbreviations are used in the schedule of quantities :-

mm	=	millimetre
m	=	metre
km	=	kilometre
km-pass	=	kilometre-pass
m ²	=	square metre
m ² -pass	=	square metre-pass
ha	=	hectare
m ³	=	cubic metre
m ³ .km	=	cubic metre-kilometre
l	=	litre
kl	=	kilolitre
kg	=	kilogram
t	=	ton (1 000 kg)
No.	=	number
%	=	percent
PC sum	=	prime cost sum (An allowance calculated by the Engineer for works to which the Contractor is asked their mark up for overheads and profit)
Prov sum	=	provisional sum (Included in the Contract Sum to cover works or material, or both, the extent of which cannot be specifically detailed when entering the Contract).
kPa	=	kilopascal
t-km	=	ton-kilometre

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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h = hour
dia = diameter

14. All rates and sums of money quoted in the schedule of quantities shall be in rands and whole cents. Fractions of a cent shall be discounted.
15. Unless a separate rate for the supply and installation of any item is specifically called for, the supply and installation cost of any item shall be fully included in the unit rate.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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DAY WORK LIST

GENERAL

Contractors must complete this list, which will be used to assess the value of work that the Engineer instructs in writing to be done on a day work basis, all in agreement with clause 6.5 of the General Conditions of Contract, 2015 and coupled Special Conditions of Contract. All the rates are fixed and shall be binding till the issuing of the final certificate, except for statutory increases that are announced from time to time. These unit rates shall be an all inclusive rate.

LABOUR COSTS

Rates for labour as listed below shall include all the allowances as specified in the General Conditions of Contract, 2015 and Special Conditions of Contract. The extra allowance, applicable on Labour costs listed below, is given in the tender appendix and must not be taken into account in this list.

Overtime costs incurred by this contract shall be paid in the same proportion as the amounts actually paid to the employees.

DESCRIPTION	UNIT	RATE
Unskilled labour	Hour	R
Semi-skilled labour	Hour	R
Skilled labour	Hour	R
Foreman / Section leader	Hour	R
Surveyor	Hour	R
Surveyor's assistant	Hour	R

EQUIPMENT COSTS

Full comprehensive hourly rates, which also include the cost of operators, must be listed below. Rates must also include all the costs of consumable items, maintenance, depreciation, tools, and all other coincidences that shall be necessary to operate the equipment for the purpose it is designed for. The rates must also include all the overhead costs, profits, site supervision, insurance, holidays with payment, travelling costs (or travelling allowances) and residence allowances of operators and any other allowances that are applicable on equipment. The Tenderer must list under each heading the make and specification of the equipment available.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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DESCRIPTION	UNIT	RATE
1. Hydraulic, crawler mounted excavators (Caterpillar 235 type or similar) with 1 cubic meter bucket.	Hour	R
2. Front-end Loader (Caterpillar 939 type or similar)	Hour	R
3. Hydraulic tractor mounted backhoe (JCB 3C or similar)	Hour	R
4. Tipper Trucks 6 m ³ 10 m ³	Hour Hour	R R
5. Water truck 5 000 litres 10 000 litres	Hour Hour	R R
6. Concrete mixer 75 Litre concrete mixer	Hour	R
11. Vibratory poker	Hour	R
12. Compressor Mobile compressor, 4,7 cubic meters per minute, including hoses.	Hour	R

13. Accessories for compressor Rock drill and rods Jackhammer and steels	Hour Hour	R R
14. Water pumps including hoses and suction connector 75mm 100mm 150mm	Hour Hour Hour	R R R
15. Compactors Vibratory plate 400mm sq. Vibratory drum roller 650mm wide Rammers	Hour Hour Hour	R R R
16. LDV, capacity 1.5 ton	Hour	R
17. Standing Time Water Construction Team (Rate to allow for all labour, machinery and other works associated with the construction process as listed under item 17 as may be determined as set out in clause 5.10 of GCC (2015))	Day	R
18. Other equipment 	Hour	R

C2.2 Bill of Quantities

Records the Contractor's prices for providing works which are described elsewhere in a specification within the Scope of Work section of the contract.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
A1	SABS 1200 A 8.3	SECTION A : PRELIMINARY AND GENERAL				
		SCHEDULED FIXED-CHARGE ITEMS				
A1.1	8.3.1 PSA 8.3.1	Contractual Requirements	Sum	1		
	PSA 8.3.2	Establishment of Facilities on the Site				
A1.2	8.3.2.1	Facilities for Engineer				
A1.2.1		(a) Furnished office (1 No) (See PSAB 3.2)	Sum	1		
A1.2.2		(c) Nameboards (2 No.) (3.6 x 2.5m see PSAB 3.1)	Sum	1		
A1.2.3		(d) Supply of computer and ancillary equipment	Sum	1		
A1.2.4		(e) Car Ports (2 No)	Sum	1		
A1.3	8.3.2.2	b) Facilities for Contractor				
		Offices and storage sheds, workshops and laboratories; Living accommodation, Ablution and latrine facilities, Tools and equipment, Water supplies, electric power and communications, dealing with water and access	Sum	1		
A1.3.1						
A1.4	8.3.3	Other Fixed-charge Obligations	Sum	1		
A1.5		Security of Contractor's Plant and Personnel	Sum	1		
A1.6		Compliance with OHS Specification and regulations	Sum	1		
A1.7	8.3.4	Removal of Site Establishment	Sum	1		
A2	8.4	SCHEDULED TIME-RELATED ITEMS				
A2.1	8.4.1	Contractual Requirements	Month	12		
	8.4.2	Operation and Maintenance of Facilities on site for the duration of construction, unless otherwise stated				
A2.2	8.4.2.1	Facilities for Engineer				
A2.2.1		(a) Furnished office (1 No)	Month	12		
A2.2.2		(c) Nameboards (2 No.)	Month	12		
A2.2.3		(d) Maintenance of computer and ancillary equipment	Month	12		
A2.2.4		(e) Car Ports (2 No)	Month	12		
A2.3	8.4.2.2	b) Facilities for Contractor				
A2.3.1		Offices and storage sheds, workshops and laboratories; Living accommodation; Ablution and latrine facilities; Tools and equipment; Water supplies; electric power and communications; dealing with water and access	Month	12		
A2.4	8.4.3	Supervision for the duration of Construction	Month	12		
A2.5	8.4.4	Company and Head Office overheads for duration of construction	Month	12		

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
TOTAL CARRIED FORWARD						

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
TOTAL BROUGHT FORWARD						
A2.6.	8.4.5	Other Time-related Obligations (8.4.1 to 8.4.4)				
A2.6.1		Security of Contractor's Plant and Personnel	Month	12		
A2.6.2		Watering of the Works	Month	12		
A2.6.3		Liaison with residents for access on properties	Month	12		
A3	8.5	SUMS STATED PROVISIONALLY BY THE ENGINEER				
A3.1		Providing accommodation of Engineer's staff	Prov. Sum	1		R180,000.00
A3.2		Percentage (%) mark-up on items A3.2 above profit	%	10%		
A.3.3	PSA 8.5.1	Provisional sum for special testing of material by an approved independent laboratory	Prov Sum	1		R15,000.00
A.3.4		Liaison with service providers and wayleave approvals	Prov Sum	1		R8,000.00
A3.5		Percentage (%) mark-up on items A3.4 to 3.5 above profit	%	10%		
	8.6	PRIME COST ITEMS				
A4		Supply or hire of specialist equipment for the detection of services	PC Sum	1		R30,000.00
A5	PSA 8.7	DAYWORKS	PC Sum	1		R120,000.00
A6.1	PSA 8.8.1	Accommodation of traffic	Sum	1		
A6.2	PSA 8.8.2	Hand excavate in all materials for the detection of existing services				
		Over Up to				
A6.2.1		0,0 m 1,0 m	m ³	100		
A6.2.2		1,0 m 2,0 m	m ³	150		
A6.2.3		2,0 m 3,0 m	m ³	10		
A6.3	PSA 8.8.7	Setting out of the works	Sum	1		
A6.4	PSA 8.8.8	Compliance with OHS Act and regulations including the construction regulations,2003	Sum	1		
A6.5	PSA 8.8.9	Compliance with Environmental Management Plan	Sum	1		
	SANS 1200AB	ENGINEERS OFFICE				
A7	PSAB 8.2	Survey assistance and equipment	Sum	1		
A8	PSAB 8.3	Provision Sum for the costs cellular phone, mobile connection and data	Prov. Sum	1		R60,000.00
A9	PSAB 8.4	Handling costs and profit in respect of item A8	%	10%		

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
TOTAL CARRIED FORWARD						

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
TOTAL BROUGHT FORWARD						
A10	PD 12.01	Remuneration of the Project Liaison Officer and the members of the Project Liaison Committee				
A10.1		a) Project liaison officer(s) - stipend of R5000/month	PC Sum	1		R120,000.00
A10.2		b) Project liaison committee - stipend of R250 per seating	PC Sum	1		R60,000.00
		Contractor's handling costs, profit and all charges in respect of A10.1 to A10.2	%	10%		
	PC	PROVISION OF STRUCTURED TRAINING				
A11	PC 06.03	Training				
A11.1		a) Engineering (technical) skills	Prov Sum	1		R240,000.00
A11.2		b) Generic skills	Prov Sum	1		R90,000.00
A11.3		c) Training venue	Prov Sum	1		R15,000.00
A11.4		Contractor's handling costs, profit and all charges in respect of A11.1 to A11.3	%	10%		
	PE	HIV/AIDS AWARENESS				
A12	PE 10.01	HIV/AIDS awareness obligations	Sum	1		
A13	PG	ENVIRONMENTAL MANAGEMENT PLAN				
A14	PG 11.04	Contractor's time related obligations in respect of Environmental management plan and specifications	Month	12		
A15		Institutional Social Development	PC Sum	1		R360,000.00
A16		Occupational Health and Safety	PC Sum	1		R240,000.00

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
TOTAL CARRIED FORWARD TO SUMMARY						

ITEM	LI	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
B.1		SANS 1200C	SECTION B: SITE CLEARANCE				
B.1.1		8.2.1	Clear and grub:				
	LI		a) areas as instructed by the Engineer	m ²	50		
	LI		b) strips, 1,5 m wide along centreline of pipe route to a maximum width of 1,0 m on each side of the pipeline centerline where clearing and grubbing exist	m	127635		
B.1.2		8.2.2	Remove and grub large trees and tree stumps of girth:				
	LI		a) over 1.0 m up to and including 2.0 m	No	3		
	LI		b) over 2.0 m up to and including 3.0 m	No	5		
	LI		c) over 3.0 m in steps of 1.0 m	No	1		
B.1.3		8.2.5	Take down existing fences and reinstate to original condition on completion of the scheduled work	m	2500		
B.1.5		8.2.8	Demolish and remove structures/buildings and dismantle steel work as ordered and directed by Engineer on site				
	LI		a) Building in masonry or brick work complete	Prov. Sum	1		R210,000.00
			b) Percentage (%) mark-up on item B.1.5 a) above profit	%	10%		
B.1.6		8.2.9	Transport materials and debris to unspecified site and dump	m ³ .km	800		
B.1.7		8.2.10	Remove topsoil to nominal depth of 150 mm, stockpile, maintain free from contamination of other excavate material from trench excavation to a maximum of 1500 mm as ordered by the Engineer	m ³	850		
B.1.8	LI		Dealing with fences	m	480		
B.1.8.1			Supply and erect temporary gates 3,0 m x 1,2 m high	No	45		
B.1.8.2			Supply and erect permanent gates 4,2 m x 1.2 m high	No	30		
B.1.8.3		8.2.13	Temporary dismantling and reinstatement of road reserve fencing	m	1500		

ITEM	II	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
TOTAL CARRIED FORWARD TO SUMMARY							

ITEM	LI	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
			SECTION C: EXCAVATION AND BEDDING				
		SANS 1200 DB	EARTHWORKS: PIPE TRENCHES				
C.1.2		8.3.2	EXCAVATION				
C.1.2.1		PSDB 8.3.2(a)	Excavate in all materials for trenches, backfill, compact and dispose of surplus material (including intermediate excavation) Pipes nominal diameter over 50 mm up to 315 mm at depths as follows: Over Up to				
C.1.2.2			0,0 m 1,0 m	m	51400		
C.1.2.3			1,0 m 1,5 m	m	21950		
C.1.2.4			1,5 m 2,0 m	m	300		
C.1.3		8.3.2(b)	Extra over Item 2.2.1.1 to 2.2.1.4 incl. for excavation (provisional) in:				
C.1.3.1			a) Hard rock material	m ³	8110		
C.1.4		8.3.3	EXCAVATION ANCILLARIES				
C.1.4.1		8.3.3.1	Make up deficiency in backfill material (Provisional)				
C.1.4.2			a) From other necessary excavations on site	m ³	7500		
C.1.4.3			b) By importation from designated borrow pits	m ³	250		
			c) By importation from commercial or off-site sources selected by the contractor	m ³	250		
C.1.4.4		8.3.3.2	Opening up and closing down of designated borrow pit (Provisional)	No	1		
C.1.4.5		8.3.3.3	Compaction in road reserves	m ³	600		
C.1.4.6		8.3.3.4	Overhaul:				
C.1.4.7			a) Limited overhaul (provisional)	m ³	1500		
C.1.4.8			b) Long overhaul (provisional)	m ³ .km	7500		
C.1.5		8.3.6	FINISHING				
C.1.5.1		8.3.6.1	Reinstate road surface complete with coarse:				
C.1.5.1.1			a) Selected layer (150 mm thick) material G7 quality compacted to 93% mod. AASHTO density	m ³	12		
C.1.5.1.2			b) sub-base layer (150 mm thick) material G6 quality compacted to 95% mod. AASHTO density stabilized with 3% cement	m ³	12		
TOTAL CARRIED FORWARD							

ITEM	LI	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
TOTAL CARRIED FORWARD							

ITEM	LI	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
TOTAL BROUGHT FORWARD							
C.2	LI	SABS 1200 LB	BEDDING PIPES				
C.2.1		8.2.1	Provision of bedding from trench excavation (Without screening)				
			a) Selected granular material	m ³	5830		
			b) Selected fill material	m ³	18500		
C.2.1.1		8.2.2	Supply only of bedding by importation				
		8.2.2.1	With screening				
			a) Selected granular material	m ³	505		
			b) Selected fill material	m ³	1565		
C.2.1.1.2		8.2.2.2	Import from borrow pit (Only with written consent of Engineer)				
			a) Selected granular material	m ³	510		
			b) Selected fill material	m ³	1565		
C.3		SABS 1200 DB	EXISTING SERVICES				
C.3.1		8.3.5(a)	Services that intersect a trench, for an individual service or services bundled together				
C.3.1.1			Electric cables	No	200		
C.3.1.2			Water mains and drain/stormwater pipes up to 600 mm diameter	No	10		
C.3.1.3			Overhead power lines	No	2		
C.3.1.4			Optic fibre Telkom lines	No	2		
C.3.2		8.3.5(b)	Services that adjoin a trench				
C.3.2.1			Overhead power lines	km	2		
C.3.2.2			Overhead telephone lines	km	2		
C.3.2.3			Optic fibre Telkom lines	km	2		
C.4		8.3.3	Excavation Ancillaries				
C.4.1		8.3.3.1	Make up deficiency in backfill material				
C.4.1.1.			from other necessary excavations on site (Provisional)	m ³	350		
C.4.2			Overhaul				
C.4.2.1			Limited overhaul up to 1 km	m ³	500		
C.4.2.2			Long overhaul exceeding 1 km	m ³ km	2500		

ITEM	LI	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
TOTAL CARRIED FORWARD							

ITEM	LI	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
TOTAL BROUGHT FORWARD							
C.5		8.3.6	Finishing				
C.5.1		8.3.6.1	Reinstate road surfaces				
C.5.1.1			Gravel surfaces (100 mm deep)	m ²	30		
C.5.1.2			Gravel shoulders (100 mm deep)	m ²	10		
C.5.1.3			Selected layer (150 mm thick) material G7 quality compacted to 93% mod. AASHTO density	m ³	12		
C.5.1.4			Sub-base layer (150 mm thick) material G6 quality compacted to 95% mod. AASHTO density stabilized with 3% cement.	m ³	12		
C.5.1.5			Base layer (150 mm thick) material G3 quality compacted to 98% mod. AASHTO density.	m ³	12		
C.5.1.6			Prime MC 30 applied at 0.9 l/m ²	l	15		
C.5.1.7			Asphalt 30mm thick continuously graded	m ²	30		
C.5.1.8			Extra over item C.5.1.4 for stabilization with 3% ordinary portland cement including mixing, placing and curing	m ³	12		
C.5.2			Reinstate pipe route to original condition including vegetation of areas where vegetation was removed as ordered and directed by the Engineer	Sum	1		
C.5.3			Construct service road, 150 mm insitu layer prepared and compacted to 93% mod. AASHTO with gravel wearing coarse 150 mm thick and compacted to grade and 95% mod. AASHTO	m ³	30		

ITEM	LI	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
TOTAL CARRIED FORWARD TO SUMMARY							

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		SECTION D: PRESSURE PIPES				
	SANS 1200L	MEDIUM- PRESSURE PIPELINES				
D.1	8.2.1	Supply, lay joint, test and disinfect the following pipes. Complete with couplings to the relevant SABS or ISO standards including short lengths				
D.1.1	LI	<u>mPVC pipes to SABS 996 or ISO 4422</u> (Class C bedding as per drawing CIV 500)				
		a) 50 mm class 9	m	800		
		b) 75 mm class 9	m	111800		
		c) 110 mm class 9	m	21075		
		d) 160 mm class 9	m	1970		
		e) 200 mm class 9	m	680		
		f) 250 mm class 9	m	85		
		g) 250 mm class 9	m	145		
D.1.2	8.2.2	FITTINGS FOR mPVC PIPES				
		Extra over item D.1 for supplying, installing, bedding and testing the following fittings and specials for mPVC pressure pipes complete. Cutting of pipes and couplings included.				
D.1.2.1.		Bends - 90°				
		a) 75 mm dia	No	209		
		b) 110 mm dia	No	37		
		c) 160 mm dia	No	2		
		d) 250 mm dia	No	2		
		e) 315 mm dia	No	1		
		Bends - 45°				
		a) 75 mm dia	No	200		
		b) 110 mm dia	No	38		
		c) 160 mm dia	No	7		
		d) 200 mm dia	No	3		
		e) 315 mm dia	No	1		
		Bends - 22.5° & 11.25°				
		a) 75 mm dia	No	885		
		d) 200 mm dia	No	9		
		e) 250 mm dia	No	2		
		f) 315 mm dia	No	1		

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
TOTAL CARRIED FORWARD						

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
TOTAL BROUGHT FORWARD						
D.1.2.2		Equal Tees				
		a) 75 x 75 mm	No	150		
		b) 90 x 90 mm	No	100		
		c) 110 x 110 mm	No	50		
		d) 160 x 160 mm	No	25		
		e) 200 x 200 mm	No	20		
		f) 250 x 250 mm	No	2		
D.1.2.3		Reducing Tee				
		a) 90 x 75 mm	No	75		
		b) 110 x 90 mm	No	75		
		c) 110 x 75 mm	No	50		
		d) 160 x 90 mm	No	50		
		e) 160 x 110 mm	No	25		
		f) 200 x 110 mm	No	25		
		g) 200 x 160 mm	No	5		
		h) 250 x 160 mm	No	3		
		i) 315 x 250 mm	No	1		
D.1.2.4		End caps				
		a) 75mm dia	No	50		
		b) 110mm dia	No	Rate Only		
		c) 160mm dia	No	Rate Only		
		d) 200mm dia	No	Rate Only		
		e) 250mm dia	No	Rate Only		
		f) 315mm dia	No	Rate Only		
D.1.3	8.2.3	Extra over item 8.2.1 for supplying, installing, bedding and testing of socket in line valve assemblies (Class 16)				
		a) 80mm Pressure Reducing Valve	No	6		
		b) 100mm Pressure Reducing Valve	No	5		
		c) 150mm Pressure Reducing Valve	No	1		
D.1.4	8.2.8	Recover old pipeline				
		a) over 1.0m up to 1.5m deep	m	Rate Only		
D.1.4	8.2.3	socket in line valve assemblies (Class 16)				
		a) 80mm Gate Valve	No	150		

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
		b) 100mm Gate Valve	No	30		
		c) 150mm Gate Valve	No	15		
TOTAL CARRIED FORWARD						

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
TOTAL BROUGHT FORWARD						
D.1.6	8.2.5	d) 200mm Gate Valve	No	3		
		e) 250mm Gate Valve	No	2		
D.1.6.1		Supply and place pipes, valves and specials for Pressure Reducing Valve chamber as specified and detailed on drawing CIV. 505 all flanged drilled to SABS 1123, Table 2500/3				
		150 mm PRV				
		a) 150 NB x 450 mm Long steel pipe 6mm wall thickness both ends flanged with puddle flanged (Item 1)	No	1		
		b) 150 NB flanged. RSV gate valve or similar (Item 2)	No	1		
		c) 150 NB Barmaid type 720 Sigma E5 or similar reducing to 50 Bar (Item 3)	No	1		
		d) 150 NB x 250 mm Long steel pipe 6mm wall thickness flanged one end and the other plain ended (Item 4)	No	1		
		e) 150 NB Viking Johnson (Item 5)	No	1		
		f) 150 NB x 450 mm steel pipe wall thickness 6mm one end flanged to other plain ended with puddle flanged (Item 6)	No	1		
D1.6.2		100 mm PRV				
		a) 100 NB x 450 mm Long steel pipe 6mm wall thickness both ends flanged with puddle flanged (Item 1)	No	1		
		b) 100 NB flanged. RSV gate valve or similar (Item 2)	No	1		
		c) 100 NB Barmaid type 720 Sigma or similar reducing to 50 Bar (Item 3)	No	1		
		d) 100 NB x 250 mm Long steel pipe 6mm wall thickness flanged one end and the other plain ended (Item 4)	No	1		
		e) 100 NB Viking Johnson (Item 5)	No	1		
		f) 100 NB x 450 mm steel pipe wall thickness 6mm one end flanged to other plain ended with puddle flanged (Item 6)	No	1		
D1.6.3		65 mm PRV				
		a) 65 NB x 450 mm Long steel pipe 6mm wall thickness both ends flanged with puddle flanged (Item 1)	No	6		
		b) 65 NB flanged. RSV gate valve or similar (Item 2)	No	6		
		c) 65 NB Barmaid type 720 Sigma or similar reducing to 50 Bar (Item 3)	No	6		
		d) 65 NB x 250 mm Long steel pipe 6mm wall thickness flanged one end and the other plain ended (Item 4)	No	6		
		e) 65 NB Viking Johnson (Item 5)	No	6		
		f) 65 NB x 450 mm steel pipe wall thickness 6mm one end flanged to other plain ended with puddle flanged (Item 6)	No	6		

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	8.2.11	Thrust blocks as per typical details drawing a) Concrete class 20/19	No	500		
TOTAL CARRIED FORWARD						

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
TOTAL BROUGHT FORWARD						
D1.7	8.2.13	Valve and Hydrant Chambers				
D.1.7.1		In line valve chamber complete as per drawing no Civ. 502	No	200		
D.1.7.3		Fire hydrant complete as per drawing No. Civ 502 with hydrant T piece, flanged valve, valve box, hydrant end piece, piping fitting and cutting on:				
		a) 160mm dia pipe	No	5		
		b) 110mm dia pipe	No	5		
		c) 75mm dia pipe	No	50		
		SUNDRIES				
		Position markers as per drawing no CIV 502 and white washed each	No	200		
		RIVER CROSSING				
	SANS 1200 L	MEDIUM- PRESSURE PIPELINES				
D.1.8		Construct river crossing as per drawing CIV 503 including excavation, backfilling, compacting, all special fittings, 0.4m ³ 25/19MPa concrete and allowance for dealing with water. Extra -over intermediate and rock measured else where.				
D.1.8.1		110mm dia class 12.5 HDPE pipe complete with butt welded flange	m	50		
D.1.8.2		45 Degree 110mm dia butt welded bend	No	40		
D.1.8.3		110mm dia butt welded flange to 12.5 HDPE pipe	No	10		
	SANS 1200 DK	GABIONS AND PITCHING				
D.1.8.3	8.2.1	Surface preparation for bedding of gabions	m ²	160		
D.1.8.4	8.2.2	a) Galvanized gabion boxes 1.0 m x 1.0 m x 0.5 m with 80 mm x 100 mm mesh and 2.2mm dia mesh wire	m ³	80		
		b) Galvanized gabion mattresses 0.3 m deep with 80 mm x 100 mm mesh, 2.2mm dia mesh wire and diaphragms at 1 m centres	m ³	50		

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
TOTAL BROUGHT TO SUMMARY						

ITEM	LI	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
			SECTION E: HOUSE CONNECTIONS				
		SANS 1200 LF	ERF CONNECTIONS				
E.1		8.2.1	Supply erf connections including saddle, all fittings and ball valve complete as per drawing CIV.504				
E.1.1			a) Erf connection Type 1	No	2800		
E.1.2		8.2.3	Extra-over item 8.2.1 for specials (if any):				
E.1.2.1			a) Surface box complete with brick work and working platform	No	2800		
E.1.2.2			b) 20mm cobra type ball valve	No	2800		
E.2		8.2.4	Supply and install water meter complete with couplings	No	2800		
E.3		8.2.5	Site testing of meters	No	2800		
E.4		8.2.6	Supply yard connection complete from water meter box including tap, Y standard concrete support straps and ancillary works as per drawing CIV. 504	No	2800		
E.5	LI	PSLF 8.2.9	Extra-over item E.1.1 to excavate in all materials for trenches, backfill, compact and dispose of surplus material (including intermediate excavation)				
			Pipes nominal diameter up 50 mm at depths as follows:				
			Over Up to				
E.5.1			0,0 m 1,0 m	m	5600		
E.5.2		PSLF 8.2.10	Extra over item E.1.1 for the supply, lay joint, test and disinfect the following pipes. Complete with couplings to the relevant SABS or ISO standards including short lengths	m	5600		
E.6			<u>HDPE pipes to SANS 4427 - PE 100</u> (Class C bedding as per drawing CIV 500)				
E.6.1			a) 25 mm PN 12.5	m	600		
E.6.2			b) 20 mm PN 12.5	m	5600		
TOTAL BROUGHT TO SUMMARY							

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	SANS 1200LG	<u>SECTION F: PIPE JACKING</u>				
		Road crossing D1399				
F.1	8.2.1	Jacking Establishment				
F.1.1		a) Fixed costs	Sum	1		
F.1.1.2		b) Time-related charges	Month	2		
F.3	8.2.2	Supply of DN 300 Class 100D Type SC reinforced concrete pipe	m	40		
F.4	8.2.3	Jacking of DN 300 Class 100D Type SC	m	40		
F.5	8.2.4	Excavation for jacking	m3	40		
F.6	8.2.5	Extra-over 8.2.1 for unforeseen rock	Sum	1		
F.7		Brick-up ends of DN 300 concrete sleeve as per drawing	No	4		
	SANS 1200 DB	EARTHWORKS (Pipe trenches)				
F.8	8.3.2	EXCAVATION				
F.8.1	8.3.2(a)	Excavate in all materials for trenches, backfill, compact and dispose of surplus material (including intermediate excavation)				
		Pipes nominal diameter over 300 mm up to 400 mm at depths as follows:				
		Over Up to				
F.8.1.1		0,0 m 1,0 m	m	5		
F.8.1.2		1,0 m 1,5 m	m	30		
F.8.1.3		1,5 m 2,0 m	m	10		
F.8.1.4		2,5 m 3,0 m	m	5		
F.9	8.3.2(b)	Extra over Item E.6.1.1 to E.6.1.4 incl. for excavation (provisional) in:				
F.9.1		3) Excavation in half widths for road crossing	m	40		
F.10	8.3.7	Accommodation of traffic at 2 crossings inclusive of signage as per drawing and flag persons	Sum	1		

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
TOTAL CARRIED FORWARD TO SUMMARY						

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
G1		SECTION G: MECHANICAL AND ELECTRICAL Mechanical and Electrical works				
G.1.1.1		Mechanical works	PC Sum	1		R2,663,860.33
G.1.1.2		Electrical Works	PC Sum	1		R1,226,313.00
G.1.1.3		Civil remedial works to pump station	PC Sum	1		R2,080,000.00
TOTAL CARRIED FORWARD TO SUMMARY						

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
H1		SECTION H: REHABILITATION OF INTERNAL BULK FEEDER LINES Rehabilitation of bulk internal feeder lines	PC Sum	1		R2,003,774.46

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
TOTAL CARRIED FORWARD TO SUMMARY						

ITEM	PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
11		SECTION I: BREAK PRESSURE TANKS				
		Construction of break pressure tank 25kl Supply, deliver, erection and corrosion protection sectional pressed steel tank with cover, access, two roof vents, catladder, 4 pipe connections, float level indicator, flow control and cut off valve, lighting protection and connection to water reticulation complete on position as indicated on the drawings of break pressure/ storage tank 3.6 x 3.6 x 2.4m as per drawing CIV 508 on 15m stand as per Particular specification PET.	PC Sum	1		R670,100.00
		Remedial works to 1.1Ml concrete reservoir	PC Sum	1		R900,000.00
TOTAL CARRIED FORWARD TO SUMMARY						

SEKHUKHUNE DISTRICT MUNICIPALITY

CONTRACT NO. SK8/3/1-09/2023/24

PROVISION OF CONTRACTUAL SERVICES FOR

INTERNAL RETICULATION MOUTSE EAST AND WEST - PHASE 1 - CONTRACT A - NTWANE

SUMMARY OF SCHEDULES

SECTION A :	PRELIMINARY AND GENERAL	R
SECTION B :	SITE CLEARANCE	R
SECTION C :	EXCAVATION AND BEDDING	R
SECTION D :	PIPEWORKS	R
SECTION E :	HOUSE CONNECTIONS	R
SECTION F :	PIPE JACKING	R
SECTION G :	MECHANICAL AND ELECTRICAL	R
SECTION H :	REHABILITATION OF INTERNAL BULK FEEDER LINES	R
SECTION I :	BREAK PRESSURE TANKS	R
SUB-TOTAL 1	(SECTIONS A TO I)	R
CONTINGENCY ALLOWANCE:		
ADD:	10% of the Sub-Total 1 for CONTINGENCIES	
SUB-TOTAL 2	The amount provided here is under the sole control of the Engineer and may be deducted in whole or in part	R
ADD:	5% of the Sub-Total 1 and 2 for CONTRACT PRICE ADJUSTMENT.	
SUB-TOTAL 3	To be used as per Clause 49 of the GENERAL CONDITIONS OF CONTRACT	R
SUB-TOTAL 4	Sum of Sub-Totals 1 to 3	R
ADD:		
SUB-TOTAL 5	15% of the above Sub-Total 4 for VALUE ADDED TAX	R
TOTAL TENDER AMOUNT	Sum Sub-Total 4 plus Sub-Total 5	R
TOTAL TO BE CARRIED FORWARD TO FORM OF OFFER		

Signature

Date.

(Signature of the person authorised to sign on behalf of the tenderer)

PART C3 SCOPE OF WORK

SECTION CONTENTS

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C3.2	Engineering	151
C3.3	Procurement.....	151
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C3.6	Health and Safety.....	272

Contractual Services- Internal Water Reticulation- Phase 1 – Contract A- NTWANE

<i>TCM:</i>	<i>Witness 1:</i>	<i>Witness 2:</i>	<i>Tenderer:</i>	<i>Witness 1:</i>	<i>Witness 2:</i>
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C3.1 Description of the Works

STATUS

The Standard Specifications that form part of this Contract have been written to cover all phases of work normally required for road contracts and may therefore cover items of work not applicable to this particular Contract.

The Project Specifications form an integral part of the Contract Documents, supplement the Standard Specifications, and take precedence in the event of discrepancies with the Standard Specifications, the Bill of Quantities or the Drawings.

C3.1.1 Employer's Objectives

The Employer's objectives are to deliver potable water infrastructure to the villages of Moutse East and West that fall within the Ephraim Mogale and Elias Motsoaledi Local Municipality. These municipalities fall under the Sekhukhune District Municipality in Limpopo Province.

Objectives during construction are to provide black empowered economic enterprise contractors with a portion of the work, work opportunities to the local communities, provide training to local and other labourers and to execute and complete the work with a high degree of safety, sensitivity to the environment and quality.

C3.1.2 Overview of the Works

The works entails the excavation, supply, bedding, laying, backfilling and testing of the water pipelines for the internal reticulation network in Ntwane.

C3.1.3 Extent of the Works

The Works to be carried out by the Contractor under this project comprises the following:

- Installation of approximately 75 to 200mm diameter water pipelines. All pipes are mPVC with pressure ratings PN9 to PN12.
- Ancillary works such as valve chambers with pipe work relevant control mechanisms, thrust blocks etc
- Valve boxes and chambers
- Fire hydrants
- Yard connections
- Construction of river, channel and road crossings
- Disinfecting of the pipe line
- Testing of the pipe line

Approximate quantities for the various construction works are included in the bill of quantities

C3.1.4 Construction Program and Method

Early completion of the works is of prime importance.

Immediately after the handing over of the site, the Engineer and the Contractor shall discuss the order of procedure and methods in which the Contractor shall carry out the works, in order to give priority to certain parts of the works and to avoid delays with the mechanical contract, and ensure that the existing works operate continuously during the construction period, after which the Contractor shall compile and submit to the Engineer, within (2) two weeks, a Gantt chart showing the construction program.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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The construction activities must be programmed to be suitable in terms of his resources to complete the contract inside the stipulated time period.

The program of works shall be compiled to allow for a lag time of the items as listed under Schedules G to I to commence 90 days after the commencement date of the Contract

Sufficient photos of the existing infrastructure must be taken by the Contractor and handed over to the Engineer before such operations commence. No payment will be made in this regard and it shall be deemed covered in the preliminary and general items.

C3.1.5 Location of the Works

This project falls within the Sekhukhune District Municipality in Limpopo Province.

C3.1.6 Temporary Works

The Contractor will be required to ensure temporary water supply to the stands adjacent to where the Contractor is to disconnect the water supply to do the pipe bursting and sleeving.

C3.1.7 Accommodation of Traffic

Vehicles will be required to be accommodated throughout the project to ensure access to all the different villages alongside the route. It is therefore envisaged that vehicles travelling on the route be accommodated by constructing temporary deviations next to the existing gravel road within the road reserve.

Actual accommodation of traffic proposals to be used on the project shall be submitted timeously for the Engineer's approval. Particular attention shall be given to accesses and intersecting roads.

C3.1.8 Existing services

The following existing services may be encountered within the road reserve:

- Telkom lines;
- Overhead power lines;
- Electrical cables;
- Water pipes from farmers crossing through culverts.

Any overhead services crossing the roads, must clear the final road level by at least 6,5m.

Telkom and Eskom overhead lines affected by the construction are to be relocated by the service owners. The positions of these services are shown on the layout drawings.

C3.1.9 Maintenance works

The Contractor shall be responsible for maintaining the entire length of road reserve, from the date of handing over of the site until the date of issue of the certificate of completion of the Works.

Once the certificate of completion of the Works has been issued the responsibility for normal maintenance of the water network (e.g. collection of litter, clearing of outlets, repair of valve chambers and boxes damaged by the public, etc) shall revert back to the Sekhukhune District Municipality. The Contractor shall, however, still be responsible for the contractual maintenance during the Defects Liability Period.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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C3.1.10 Drawings

The reduced drawings that form part of the Tender Documents are to be used for tender purposes only.

The Contractor will be supplied with one set of A1 paper prints of each of the Drawings.

Any information in the possession of the Contractor that is required by the Engineer's Representative to complete his as-built drawings must be supplied to the Engineer's Representative before a Certificate of Completion will be issued.

Only figured dimensions must be used and Drawings must not be scaled unless required by the Engineer. The Engineer will supply any figured dimensions that may have been omitted from the Drawings.

The levels given on the Structural Drawings are subject to confirmation on the Site and the Contractor shall submit all levels to the Engineer for confirmation before he commences construction of any structure. The Contractor shall also check all clearances given on the Drawings and shall inform the Engineer of discrepancies.

C3.1.11 Power Supply And Other Services

The Contractor must make his own arrangements concerning 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 of providing these services will be deemed to be included in the rates and amounts tendered for the various items of work for which these services are required.

C3.1.12 Construction In Confined Areas

It may be necessary for the Contractor to work in confined areas. Except in the case of structures, no additional payment will be made for work in "restricted areas" as described in Section 6100 of the Standard Specifications. In certain areas the width of the fill material and pavement layers may reduce to zero and the working space may be confined. The method of construction in these confined areas depends on the Contractor's Construction Plan. However, the Contractor must note that measurement and payment will be in accordance with the specified cross-sections and dimensions, irrespective of the methods used to achieve these cross-sections and dimensions, and that the rates and amounts tendered will be deemed to include full compensation for any special equipment or construction methods or for any difficulty encountered in 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 payment be considered on account of these difficulties.

C3.1.13 Contractor's Site Office And Camp Site

The location of the Contractor's site office and camp site will be subject to the approval of the Engineer.

C3.1.14 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 will be considered by the Employer.

C3.1.15 Water For Construction Purposes

The Contractor 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.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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C3.1.16 Additional Requirements for Construction Activities

- (a) The travelling public shall have the right of way on public roads, and the Contractor shall make use of approved methods to control the movement of his equipment and vehicles so as not to constitute a hazard on the road.
- (b) Failure to maintain road signs, warning flashing lights, etc, in a good condition shall constitute ample reason for the Engineer to bring the works to a stop until the road signs, etc, have been repaired to his satisfaction.
- (c) The Contractor may not commence construction activities before adequate provision has been made to accommodate traffic in accordance with the requirements of this document and the South African Road Traffic Signs Manual (SARTSM – Vol 2, Chapter 13).
- (d) The Contractor may not proceed with permanent works before the required offices and laboratories of the Engineer's site personnel have been erected by him. This includes the provision of electricity, sanitary arrangements, potable water and telephone, e-mail and fax facilities. In the event where the Contractor cannot obtain telephone lines timeously from Telkom, a wireless system shall be provided for telephone, e-mail and fax facilities.

C3.1.17 Temporary Latrines

The Contractor shall provide sufficient latrine facilities for the use of his employees. 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.

C3.1.18 Moving Existing Services

Services belonging to any public or private authority, which require moving, shall be dealt with in the manner specified in the project specification.

The drawings show the positions of services determined from observations and measurement but neither the Employer nor the Engineer accepts responsibility neither for the accuracy of the information nor for the omission of any information. The Contractor shall locate and mark the positions of hidden services in advance of construction and take all reasonable steps to protect existing works against damage, which may arise as a result of his operations on the site.

The Contractor will be held responsible for direct or consequential damage to any existing works including any claims which may arise as a result thereof and the cost of repair of any such damage shall be borne by the Contractor unless it is established by the Engineer that the Contractor exercised reasonable care and damage was unavoidable.

The owners and the Engineer shall be notified immediately of any damage done to existing works.

If so directed by the Engineer the positions of existing works shall be changed by the Contractor to meet the requirements of the proposed work. The cost of such work shall be paid for at the applicable rates set out in the Bill of Quantities or, in the absence of such rates, at rates mutually agreed between the Engineer and the Contractor.

Work required on known services has been tabulated in a services schedule. The schedule must be read in conjunction with the services plans.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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All communication by the Contractor with the relevant authorities in connection with services must be directed through the Engineer.

C3.1.19 Training

Technical skills, generic and management skills training shall be provided with the aim of providing locally employed labour with the technical skills required to undertake the work involved in the Contract, and of furthering small contractor development. Particular Project Specifications deals specifically with matters regarding training, and a payment item for that is included.

C3.1.20 Use Of Local Resources

A major objective of this Contract is the optimum practical use of local resources. One of the methods to be adopted to achieve this objective is through the implementation of labour-optimising construction methods. Labour-optimising construction is defined in Particular Specification of the Project Specifications.

C3.1.21 Labour-Optimising Construction Activities

(a) General

The portions of the Works listed in Subclause (b) below shall, unless otherwise instructed by the Engineer, be constructed under this Contract using labour-optimising construction methods.

In respect of those portions of the Works which are not listed in Subclause (b), the construction methods adopted and Plant used shall be at the discretion of the Contractor, provided always that the construction methods adopted and Plant used by the Contractor are appropriate in respect of the nature of the Works to be executed and the standards to be achieved in terms of the Contract.

(b) Operations to be executed using labour-optimising construction methods

The following portions of the Works shall be executed using labour-optimising construction methods:

- (i) Removing and grubbing large trees and tree stumps;
- (ii) Excavating for all open drains, concrete structures, and fence posts;
- (iii) Backfilling and compacting all excavations;
- (iv) Removing oversize material;
- (v) Removing existing concrete and masonry work, irrespective of class and type;
- (vi) Stone pitching and erosion protection;
- (vii) Finishing off cut and fill slopes;
- (viii) Finishing the road and road reserve.

C3.1.22 Restrictions On The Use Of Personnel In The Permanent Employ Of The Contractor

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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- (a) The Contractor shall limit the use on the Contract Works of his permanently employed personnel to that of key personnel only (as defined in Part C of the Project Specifications) and shall, subject to the further provisions of the following parts of the Project Specifications
- (i) Particular Specification -Provision of the temporary workforce;
 - (ii) Particular Specification-Provision of structured training;
- execute and complete the Works using a temporary workforce employed directly by the Contractor and/or by Subcontractors.
- (b) The Engineer may at his discretion, upon receipt of a written and fully motivated application from the Contractor and where he deems the circumstances to warrant, authorise in writing that the Contractor may use in the execution of the Works, workers not being his key personnel but who are in his permanent employ. Without limiting the generality of application of this sub clause, circumstances which may be considered by the Engineer to warrant the authorization of the use of the Contractor's permanent employees not being key personnel, include:
- (i) The unavailability of sufficient numbers of temporary workers and/or Subcontractors to execute the Works, provided always that the Contractor has proven that he has exercised his best endeavours and taken all reasonable actions to recruit sufficient numbers of temporary workers and Subcontractors and has exhausted all reasonable recruitment options
 - (ii) The unavailability within the temporary worker pool and/or subcontractor sources available to the Contractor in terms of the Contract, of sufficient of the required knowledge and skills necessary for the execution of the Works or specific portions thereof, in cases where the time for completion allowed in the Contract is insufficient to facilitate the creation of the necessary skills through the provision of training as contemplated in this Contract
 - (iii) Any other circumstances which the Engineer may deem as constituting a warrant.

C3.1.23 Community Liaison And Community Relations

In all dealings with the various communities and workers employed from within the communities, the Contractor shall take due cognisance of the character, culture and circumstances of the communities involved and shall at all times use his best endeavours to avoid the development of disputes and to foster a spirit of co-operation and harmony towards the Contract.

The Contractor shall at all times keep the Engineer fully informed on all matters affecting the Contract and the communities, and shall attend all meetings of the Project Co-ordinating Committee as may be reasonably required by the Engineer. All matters concerning the communities shall be discussed and where possible, resolved at such meetings.

Where any resolution of the Project Co-ordinating Committee shall be contrary to the terms and provisions of the Contract, the Contractor shall not give effect to them without a prior written instruction from the Engineer. Where the Contractor is of the opinion that any instruction of the Engineer issued in terms of this clause will result in him incurring additional costs which were not provided for in his tendered rates and prices, and/or that a delay in the progress of the Works will result, he will be entitled to submit a claim in terms of Clause 10.1 of the Conditions of Contract, provided always that the period of twenty-eight (28) days referred to in Clause 10.1 shall be reduced to three (3) normal working days in respect of all claims submitted in terms of this clause.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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C3.1.24 Employment of targeted labour under the Expanded Public Works Programme (EPWP)

The Contractor shall be contractually obliged to:

- (a) brief EPWP workers on the conditions of employment;
- (b) enter into a formal contract of employment with each EPWP worker, which contract will form part of the Employment Agreement;
- (c) keep personnel files for all EPWP workers and make copies available to the Employer if and when requested; and
- (d) ensure that payments to EPWP workers are made in accordance with Government Notice No. R347.

The rate of pay for persons employed under the Expanded Public Works Programme (EPWP) shall be: as per SAFSEC rate

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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C3.2 Engineering

C3.2.1 Design

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

C3.2.2 Employer's Design

The design of the Works was done on behalf of the Employer by professional Consulting Engineers.

C3.2.3 Contractor's Design

Not applicable

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

C3.2.4 Drawings

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

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

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

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

C3.2.5 Design Procedure

Not applicable.

C3.3 Procurement

C3.3.1 Preferential Procurement

C3.3.1.1 Requirements

Preferential procurement requirements apply as set out in the Preference Schedules of the Sekhukhune District Municipality and in accordance with the resource standard pertaining to targeted procurement.

C3.3.1.2 Resource standard pertaining to targeted procurement

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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The edition of the document pertaining to the Municipality Supply Chain and Procurement Management, current at the time of close of tender shall apply.

C3.3.2 Subcontracting

C3.3.2.1 Scope of mandatory subcontract works

Unless specified elsewhere, the total value of subcontract works shall not exceed 15% of the contract value

C3.3.2.2 Preferred subcontractor's/suppliers

Subject to approval by the Engineer prior to the appointment of the Contractor

C3.3.2.3 Subcontracting procedures

Subject to approval by the Engineer prior to the appointment of the Contractor

C3.3.2.4 Attendance on subcontractors

Subject to approval by the Engineer prior to the appointment of the Contractor

C3.4 Construction

Project Specifications Referring To The Standard Specifications And Additional Specifications

The Standard Specifications SANS 1200 series as approved by the South African Bureau of Standards latest editions as amended, shall apply to this Contract and amendments forming part of the Project Specifications with a prefix PS are those issued by South African Bureau of Standards and additional Specifications as listed.

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 and P for the Particular Specification.. 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 PS the relevant Standard specification 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.

C3.4.1 Work Specification

C3.4.1.1 Applicable Standardized Specification

- a) The latest edition as at date of tender of the following Standardised Specifications for Civil Engineering Construction as published by the South African Bureau of Standards shall apply.

SANS 1200

A : GENERAL
AB : ENGINEER'S OFFICE
C : SITE CLEARANCE

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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D	:	EARTHWORKS
DA	:	EARTHWORKS (Small Works)
DB	:	EARTHWORKS (Pipe trenches)
DK	:	GABIONS AND PITCHING
DM	:	EARTHWORKS (Roads and subgrades)
G	:	CONCRETE (Structural)
L	:	MEDIUM-PRESSURE PIPELINES
LB	:	BEDDING (Pipes)
LF	:	ERF CONNECTIONS
ME	:	SUBBASE

Copies of the above listed SANS specifications are not bound into this document but may be purchased by Tenderers at their own cost from :-

SA Bureau of Standards
Private Bag X191
PRETORIA
0001

For all Building Works, the latest edition (1999) of the "Model Preambles for Trades" as recommended and published by the Association of South African Quantity Surveyors shall apply. This Standardised Specification is not bound into this Document but may be purchased by Tenderers from the Master Builders Association, Natal Building Centre, 40 Essex Terrace, Westville (031 - 26670706).

In the event of any discrepancy between the "Model Preambles for Trades" and the SANS 1200 Standardised Specifications or Project Specifications, the SANS 1200 Standardised and Project Specifications shall take precedence.

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

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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C3.4.1.2 National and International Standards

All national and international standards referred to in the above listed specifications apply, including those referred to in any amendments under subclause C3.4.1.4 below.

C3.4.1.3 Variations and additions to the standardized specifications SANS 1200

Variations and additions to the standardized specifications as listed in C3.4.1.1.

PSA	:	GENERAL
PSAB	:	ENGINEER'S OFFICE
PSC	:	SITE CLEARANCE
PSD	:	EARTHWORKS
PSDB	:	EARTHWORKS (Pipe trenches)
PSDK	:	GABIONS AND PITCHING
PSDM	:	EARTHWORKS (Roads and subgrades)
PSG	:	CONCRETE (Structural)
PSL	:	MEDIUM-PRESSURE PIPELINES
PSLB	:	BEDDING (Pipes)
PSLF	:	ERF CONNECTIONS (Water)
PSME	:	SUBBASE
PSLF	:	ERF CONNECTIONS

C3.4.1.4 Particular Specifications

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

PA	:	PIPELINE VALVES
PB	:	DISINFECTION OF PIPELINES
PC	:	PROVISION OF STRUCTURED TRAINING
PD	:	PROVISION OF THE TEMPORARY WORKFORCE
PE	:	HIV/AIDS SPECIFICATION
PF	:	GENERIC LABOUR INTENSIVE SPECIFICATION
PG	:	ENVIRONMENTAL MANAGEMENT PLAN
PHDD	:	HORIZONTAL DIRECTIONAL DRILLING

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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**VARIATIONS AND ADDITIONS TO STANDARDISED SPECIFICATIONS
SANS 1200 A: GENERAL**

PSA 1 SCOPE

Replace the content of sub clause 1.1 including the note, with the following:
This specification cover requirements, principles and responsibilities of a general nature which are generally applicable to civil engineering construction and building work contract, as well the requirements for contractor's establishment on the site."

PSA 2 INTERPRETATIONS

PSA 2.3 Definitions (sub clause 2.3)

In the opening phrase between the words "Specification" AND "the following", insert the words "the definitions given in the Conditions of the Contract and".

a. General

"General conditions and Conditions of contract: The General Conditions of the contract, together with the special conditions of contract as applicable. "Specified": As specified in the standardized specifications, the Drawings or the project Specifications. Specifications shall have the corresponding meaning."

b. Measurement and Payment

Replace the definition for "Fixed charge", Time related charge" and "Value – related charge" with the following:

Fixed charge: a charge that is not subject to adjustment on account of variations in the value of the contract Price or the time allowed in the contract for the completion of the work.

Time related charge: A charge, the amount of which varies in accordance with the time for Completion of the work, adjusted in accordance with the provisions of the contract.

Value related charge: A charge the amount of which varies pro rata with the final value of the measured work executed and valued in accordance with the provisions of the contract. Hard materialcubic metre (m³)

PSA 3 MATERIALS

PSA 3.1 Quality (sub-clause 3.1)

Add the following:

"All manufactured materials supplied shall be new materials unless the contrary is specified. All materials specified in accordance with SABS Specifications shall bear the SABS mark, whether so specified or not.

The Contractor shall arrange for all necessary process control tests for soil properties, density, etc, and concrete cube tests and is responsible for the cost of all testing to ascertain that the materials do comply with the relevant minimum requirements and all such costs shall be deemed to be included in the tendered rates. The cost of acceptance control tests done by the Engineer, of which the results do not comply with the minimum requirements, shall be for the Contractor's account. The tests must be carried out by an independent laboratory approved by the Engineer.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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The Contractor shall inform the Engineer of any process control testing to be done at least 48 hours before such test are required and must allow in his programme for the time necessary for the tests and the processing of the results thereof."

Add the following sub-clauses to Clause 3:

PSA 3.3 Ordering of Materials

The quantities set out in the Schedule of Quantities have been carefully determined from calculations based on data available at the time and should therefore be considered to be only approximate quantities. The liability shall rest entirely and solely with the Contractor to determine before ordering, the required types and quantities of the various materials required for completion of the Works in accordance with the Specifications and the Drawings issued to the Contractor for construction purposes.

Any reliance placed by the Contractor on the estimated quantities stated in the Schedule of Quantities issued for tendering purposes, or measurements made by the Contractor from the drawing issued for tendering purposes, shall be entirely at the Contractor's risk, and the Employer accepts no liability whatever in respect of materials ordered by the Contractor on the basis of Tender Documents."

PSA 3.4 Materials Supplied by the Employer

Material designated in the contract documents to be supplied by the Employer shall not be obtained by the Contractor from any other source than from the Employer. Requisitions for materials to be supplied by the Employer shall be submitted timeously by the Contractor in writing and shall be signed by the Contractor or his authorised representative and countersigned by the Engineer.

The Contractor or his authorised representative shall, upon delivery of all such materials, sign a receipt only for such defects and deficiencies as may have been recorder by the Contractor, such material will, expect only for such defects and deficiencies as many have been recorded by the Contractor in writing on the said receipt, be deemed to be in a sound and satisfactory condition and will then be deemed to be his sole responsibility, as such materials has been supplied by the Contractor himself.

The onus shall be entirely on the contractor to ensure that he accepts only sound materials from the employer, and notwithstanding the supply of material on the Site of the Work which, in his option, is unsound, defective or in any way not in compliance with the specifications. The Contractor shall immediately remove such rejected from the site of the works and shall replace them at his own expense, with new and sound materials which are in accordance with the specifications to the satisfaction of the Engineer.

In the event of circumstance arising which necessitate the replacement of any materials which were supplied by the Employer, the Contractor shall, unless otherwise instructed in writing by the Engineer, obtain such replacement materials only from the employer. In such circumstances, the contractor shall be liable to and pay to the Employer, all costs incurred by the Employer in supplying such replacement materials, irrespective of whether the Contractor could have obtained the said replacement materials from another source at lesser cost than the Employer.

The aforesaid shall always apply, provided the Contractor will not be held liable for the costs of replacement by the employer of unsound materials which were not accepted by the Contractor as aforesaid.

PSA 4 PLANT

PSA 4.2 Contractor's Office, Stores and Services (sub-clause 4.2)

Add the following paragraph before the existing first paragraph:

The Contractor's building, sheds and other facilities erected or utilized on the site for the purposes of the Contract shall be fenced off and shall contain all offices, store, workshop, testing laboratories, toilet facilities, etc, as may be required by the Contractor. The facilities shall always be kept in the neat and orderly condition.

No personnel may reside on the Site. Only night watchmen may be on the Site after hours."

Delete "and first-aid services" in the second paragraph and add the following: The Contractor shall provide on the Site and close proximity to the actual locations where the work is being executed, one toilet per 10 workmen , which toilets shall be relocated from time to time as the location of the work being executed changes, so as to ensure that easy access to the toilets is maintained.

The Contractor shall, where applicable, make all necessary arrangements and pay for the removal of night soil."

Neither housing nor shelters are available for the Contractor's employees, and the Contractor shall make his own arrangement to house his employees and transport them to the site.

PSA 5 CONSTRUCTION

PSA 5.1 Survey

PSA 5.1.1 Setting Out of the Works (sub-clause 5.1.1)

Add the following

The Contractor will be required to set out the various sections of the Works in the order that he proposes to undertake the work as per his programme, at least one week prior to commencing work on these sections, to enable the Engineer to check the design proposals in the field and thereafter to make any minor changes which he may deem necessary. Any additional survey work or setting out required as a result of these changes shall be undertaken on a daywork basis."

Setting out of the works is the sole responsibility of the Contractor and shall be done from the layouts given to him. The proposed network pipes must be placed as indicated on the typical drawings away from the erf boundaries. Any discrepancy shall immediately be reported in writing to the Engineer. Any costs or subsequent costs arising from discrepancies, which had not been reported to the Engineer, shall be the sole responsibility of the Contractor.

The Engineer may alter any part of the works to suit local conditions. The Contractor must therefore contact the Engineer immediately after the preliminary setting out of any part of the works before starting with detail setting out, or construction. Only after the Engineer has approved a specific site or part of the works, may the detail setting out and construction commence.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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PSA 5.1.2 Preservation and replacement of beacons and pegs subject to Land Survey Act (sub-clause 5.1.2)

Cadastral stand pegs and any other survey or reference pegs indicated on site, and on plan, and/or recorded in writing during any stage of construction of the works remain the responsibility of the Contractor until completion of the works.

These pegs have to be verified before commencement of the works and all disturbed pegs noted in writing and submitted to the Engineer.

Should any pegs be disturbed during the contract by the Contractor, the pegs must be replaced by a registered land surveyor at the Contractor's cost.

On completion of the Contract a letter from a registered Land Surveyor, certifying that all cadastral stand pegs have been checked and found correct, must be submitted to the Engineer. A pay item has been included for this verification of stand pegs.

PSA 5.2 Watching, Barricading, Lighting And Traffic Crossings (Subsclause 5.2)

Add the following:

The road crossings of existing bitumen surfaced roads and gravel roads must be done in half widths, while the total traffic is accommodated in the other lane.

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

PSA 5.4 Protection of Overhead and Underground Services (sub-clause 5.4)

Add the following sub-clauses.

PSA 5.4.1 Location of existing services

The Contractor shall make the necessary arrangements with the statutory authority (Municipality, Eskom and Telkom) concerned for the timely relocation of all overhead and underground public services. No claim for extension of time will be considered due to any delay to earthworks operations as a result of obstructions caused by existing services.

Any existing manholes which fall within the road formation area shall be reset to the design road levels and be provided with a heavy-duty manhole cover.

Before commencing with any work in an area, the Contractor shall ascertain the presence and actual position of all services which can reasonably be expected by an experienced and competent contractor to be present on, under over or within the Site.

Without in any way limiting his liability in terms of the Conditions of Contract in relation to damage to property and interference with services, The Contractor shall, in collaboration with the Engineer, obtain the most up to date plans as are available, showing the positions of services existing in the area where the intends to work. Neither the Employer nor the Engineer offers any warranty as to the accuracy or completeness of such plans and because services can often not be reliably located from plans, the Contractor shall ascertain the actual location of services depicted on such plans by means of careful inspection of the Site.

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Thereafter the Contractor shall by the use of appropriate methodologies, carefully expose the services at such positions as are agreed to by the Engineer, for the purposes of verifying the exact location and position of the services. Where the expose of verifying the exact location and position of the services. Where the exposure of existing services involves excavation to expose underground services, the further requirements of subclauses 4.4 and 5.1.2.2 of SABS 1200 D (as amended) shall apply.

The aforesaid procedure shall also be followed in respect of services not shown on the plans, but which may reasonably be anticipated by an experienced Contractor to be present or potentially present on the site.

All services, the positions of which have been determined as aforesaid at the critical points, shall henceforth be designated as known services and their positions shall be indicated by the Contractor on a separate set of drawings, a copy of which shall be furnished to the Engineer without delay.

As soon as any service which has not been identified and located as described above is encountered on, under over or within the site, it shall henceforth be deemed to be a known service and the aforesaid provisions pertaining to locating, verifying and recording its position on the balance of the site shall apply. The Contractor shall notify the Engineer immediately when any such service is encountered or discovered on the Site.

Whilst he is in possession of the Site, the Contractor shall be liable for all loss of or damage as may occur to.

a) Known services, anywhere along the entire lengths of their routes, as may reasonably be deduced from the actual locations at which their positions were verified as aforesaid, due cognizance being taken of such deviations in line and level which may reasonably be anticipated, and

b) Any other service which ought reasonably to have been a known service in accordance with the provisions of this clause,

The Contractor shall also be liable for consequential damage in regard to (a) and (b), whether caused directly by the Contractor's operations or by the lack of proper protection.

No separate payment will be made to the Contractor in respect of his cost of providing, holding available on the Site and utilising the said detecting and testing equipment, nor for any costs incurred in preparing and submitting to the Engineer the Drawings as aforesaid. These costs shall be deemed included in the Contractor's other tendered rates and price included in the Contractor.

Payment to the Contract in respect of exposing services at the positions agree by the Engineer and as Described above will be made under the payment items (if any) as may be provided for in the respective sections of the specifications pertaining to the type of work involved.

PSA 5.4.2 Protection during Construction

The Contractor shall take all reasonable precautions and arrange its operations in such a manner as to prevent damage occurring to all known services during the period which the contractor has occupation and / or possession of the Site.

Services left exposed shall be suitably protected from damage and in such a manner as will eliminate any danger arising therefrom to the public and/ or workmen, all in accordance with the requirements of the prevailing legislation and related regulations.

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Unless otherwise instructed by the Engineer, no services shall be left exposed after its exact position has been determined and all excavations carried out for the purpose of exposing underground services shall be promptly backfilled and compacted. In roadways, the requirements of subclause 5.9 of SABS 1200 DB should be observed. In other areas compaction is to be to 90% modified AASHTO density.

PSA 5.4.3 Alterations and Repairs to Existing Services

Unless the contrary is clearly specified in the contract or ordered by the Engineer, the Contractor shall not carry out alterations to existing services. When any such alterations become necessary, the Contractor shall promptly inform the Engineer, who will either make arrangement for such work to be executed by the owner of the service, or instruct the Contractor to make such arrangements himself.

Should damage occur to any existing services the Contractor shall immediately inform the Engineer, or when this is not possible the relevant authority and obtain instructions as to who should carry out repairs. In urgent cases, the Contractor shall take appropriate steps to minimise damage to and interruption of the service. No repairs of telecommunication cables or electric power lines and cable shall be attempted by the Contractor.

PSA 5.4.4 Protection of Structures

Where work is carried out in proximity of buildings, tanks or other structures the Contractor shall take the necessary precautions required, including shoring, to ensure the safety of structures that are at risk.

PSA 5.4.5 Hand Tools

The contractor shall provide and maintain all hand tools required for the execution of the Works.

Add the following sub clauses to clause 5

PSA 5.5 Site Meetings

The Contractor or his authorised agent will be required to attend regular site meetings, which shall normally be held once a month on dates and at times determined by the Engineer, but in any case, whenever reasonably required by the Engineer. Unless otherwise indicated in the contract or instructed by the Engineer, such meetings shall be held at the Contractor's office on the site. At such monthly meetings, matters such as general progress on the work, quality of work, problems, claims, payments, and safety shall be discussed, but not matters concerning the day to day running of the contract.

PSA 5.6 Engineering Surveys and Investigations

The Engineer may order or conduct testing, surveys, investigations or any other actions for obtaining additional information about the site, or for facilitating services in connection with the execute of any work in terms of the Contract, or for investigating or facilitating the design of the works. Such testing may include but shall not be limited to:

- Testing of Boreholes
- Land Surveys
- Geotechnical Investigations
- Environmental impact assessments
- Provision of OHS specifications"

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PSA 6 TOLERANCES

PSA 6.2 Degrees of Accuracy (sub-clause 6.2)

Degree of accuracy II shall be applicable throughout the works unless as specified on the drawings which shall take precedence.

Add the following subclause to clause 6 :

PSA 6.4 Use of Tolerances

No guarantee is given that the full specified tolerance will be available independently of each other, and the contractor is cautioned that the liberal or full use of any one or more of the tolerance may deprive him of the full or any use of tolerances relating to other aspects of the work.

Except where the contrary is specified, or when clearly not applicable, all quantities for measurement and payment shall be determined from the authorised, dimensions. These are specified dimensions or those shown on the Drawings or if changed as finally prescribed by the Engineer, without any allowance for the specified tolerances. Except if otherwise specified, all measurements for determining quantities for payment will be based on the authorised' dimensions.

If the work is constructed in accordance with the authorised dimensions plus or minus the tolerance allowed, the calculation of quantities will be based on the authorised dimensions, regardless of the actual dimensions to which the work has been constructed.

When the work is not constructed in accordance with the authorised dimensions plus or minus the tolerance allowed, the Engineer may nevertheless, at his sole discretion, accept the work for payment, In such cases no payment shall be made for quantities of work or material in excess of these calculated for the authorised dimensions minus the tolerance allowed, quantities for payment shall be calculated based on the actual dimensions as constructed.

PSA 8 MEASUREMENT AND PAYMENT

PSA 8.1.2 Fixed-Charge And Value-Related Items

The tendered amounts for fixed-charge and value-related items will not be increased, if extension of time for the completion of the works is awarded.

PSA 8.2.1 Fixed-Charge And Value-Related Items

"Payment of fixed charge" will be made as follow:

- a) EIGHTY PER CENT (80%) of the sum tendered will be paid when the facilities have been provided and approved:
- b) The remaining TWENTY PER CENT (20%) will be paid when the works have been completed, the facilities have been removed and the site of the Contractor's establishment has been cleared and cleaned to the satisfaction of the Engineer.

No adjustment will be made to the sum tendered in respect of item 8.3.1 should the value of the works finally executed or the time for completion vary in any way from that specified in tender.

No value related payments shall be applicable.

PSA 8.2.2 Time-Related Items

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The tendered amount for a time-related item will be increased; if an extension of time for the completion of the works is awarded on the condition that the activity related to the item tendered for must be sustained during the extended period.

The ratio between the increased amount for a time-related item and the tendered amount must be the same as the ratio between the extension of the time period for the completion of the works and the original time period allowed for completion of the works.

If the works is completed before the end of the original time period allowed for completion of the works, the tendered amount of a time related item that is influenced by the earlier completion would be reduced similarly.

Subject to the provisions of sub clauses 8.2.3 and 8.2.4 payment under item 8.4.1 (time related item) will be made monthly in equal amount, calculated by dividing the sum tendered for the item by the tendered contract period in months, provided always that the total of the monthly amount so paid for the item is out of proportion to the value of the progress of the work as a whole.

PSA 8.2.5 Adjusted Payment for Time-related Items

The payment to the Contractor for time-related items shall be adjusted in accordance with the following formula in the event of the contract being extended by means of a variation order:

Extended contract period as

Sum of Tendered amounts for time- X authorised by variation order
related items Tendered contract period

The above-mentioned adjustment of the payment for time-related items shall be made in the Completion Payment Certificate and shall be the only payment for additional time-related costs.

PSA 8.3.2 Facilities for the Engineer

Add the following to 8.3.2.1

d) Supply of computer and ancillary equipment Unit: Sum

The Contractor shall, for the duration of the contract, provide one desktop computer complete together with the software specified hereunder, for the exclusive use of the Engineer and his staff

- 1 Computer (i5 or similar)
- 1 A3 Inkjet Printer
- 1 A4 Scanner
- Internet connectivity

All Computer hardware shall be provided complete with the requisite connecting cables and all interfacing devices and software necessary for its efficient operation as an integral system.

The following software shall be properly installed on the computer and original licence agreements and disk shall be provided to the Engineer for safekeeping:

- Microsoft Windows 11 or later compatible

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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- MS Office suite

The tendered sum for each item shall include full compensation for cost related to the above item.

All Computer equipment provide shall kept fully serviceable at all the times by the Contractor. The Contractor shall have any defective equipment repaired or replaced at his own cost within 12 hours after notification by the Engineer's staff.

The Contractor shall further provide at his own cost, all the paper and black toner cartridges and consumable reasonably required by the Engineer.

PSA 8.3 Scheduled Fixed-Charge and Value-Related Items

PS A 8.3.3 Other Fixed-Charge Obligations

This item as listed under Section 1 of the bill of quantities is as specified in the standardised specification SABS 1200 A.

PSA 8.4 Scheduled Time Related Items

PSA 8.4.5 Testing (Sub clause 8.4.5)

Add the following:

The cost of all sampling and testing executed by the Contractor or approved laboratory must be included in the amount for other time related items and no separate payment shall be made for this. This condition also relates to the placing, curing and testing of concrete cubes.

PSA 8.5 Sums Stated provisionally by the Engineer (Sub clause 8.5)

Add the following:

PSA 8.5.1 Testing

A provisional sum is allowed for testing of soils and materials by the Engineer, and the cost of transporting samples to the testing laboratory. It should be noted that this is completely unconnected with the general testing of materials in accordance with clause 7 of the standardized specifications, for which the Contractor is solely responsible, and the cost of which is included in the scheduled rates.

The cost of all sampling and testing executed by the Contractor or approved laboratory must be included in the amount for other time related items and no separate payment shall be made for this. This condition also relates to the placing, curing and testing of concrete cubes.

PSA 8.5.2 Surveys, Investigations, assessments, specifications and services:

- a) OHS SpecificationUnit: Provisional Sum

Contractor's handling costs, profit and all other charges in respect of subitems PSA 8.5.2 (a)

- b) OHS Specification Unit : Percentage (%)

Payment under subitems PSA 8.5.2(a) shall be the amounts actually paid and shall be made in accordance with the provisions of the General Conditions of the contract.

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The percentage tendered for subitem PSA 8.5.2 (b) shall be the percentages of the amount actually reimbursed to the contractor under subitem PSA 8.5.2.(a) and shall be full and final compensation in respect of the Contractor's handling costs, profit, mentoring , record keeping, reporting and all other charges in connection with providing the services

PSA 8.6 Prime Cost Items (sub clause 8.6)

Replace subclause 8.6 with the following:

PSA 8.6.1 Prime Cost Sums

- a) Description of item to which Prime Cost Sum appliesUnit : PC Sum
- b) Charge required by the Contractor on subitem aboveUnit %

Subitems(a) and (b) will be provided in the Schedule of Quantities for each different item to which a Prime Cost Sum applies.

The Contractor shall be reimbursed under subitem(s) (a) in substitution of the respective Prime Cost Sums included in the contract, the actual price(s) paid or payable by him in respect of the goods, material or services supplied, but excluding any charges of the Contractor's labour, profit, carriage, establishment or other charges related to such goods, services or materials.

The Contractor shall be paid under subitem (b), the respective percentage, as stated the Contractor in his tender, of the amount certified by the Engineer for payment under the related subitem (a). The percentages tendered by the Contractor for each respective subitem(b) included in the Schedule of Quantities shall be deemed to be in full and final compensation to the contractor in respect of any charge by the Contractor for labour , carriage profit, establishment and for any other charges related to the goods , services or materials supplied under related subitem (a).

If the Contractor shall have omitted within his tender to insert a tendered percentage under subitem(b) or tendered a zero percentage, the Contractor's tendered rate for subitem(b) shall be deemed to be zero and the Contractor shall not be entitled to any payment under subitem (b)

PSA 8.7 Dayworks (Sub clause 8.7)

Replace the last contents of subclause 8.7 with the following:

"Measurement and payment shall be in accordance with the provisions of sub clause 37(2) of the General Conditions of Contract

PSA 8.8 Temporary Works

PSA 8.8.2 Accommodation of Traffic (Sub clause 8.8.2)

Add the following:

The rate shall cover all costs pertaining to the provision, erection, moving, re-erection and maintenance of all temporary barricades, road signs, lights, flagmen, etc. as required, for the guarding and protection of the works, for the construction, gravelling and maintenance of access roads and detours to the site of the works, borrow pits or spoil sites, as well as for the later removal or the cleaning and tidying up thereof. This rate shall also cover all costs to facilitate construction activities related to working in half width where required at road crossings.

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PSA 8.8.4 Existing Services (sub-clause 8.8.4)

In the related sections of the Schedule of Quantities, rates are to be listed for the detection and exposing of existing services.

Hand excavate in all materials for the detection of existing services per specified depth category.
(Category to be stated)Unit: m3

These rates shall cover all costs including time and machinery (if necessary) involved in the detection of existing services and different depth classifications. The rate shall cover the Contractor's costs of excavating by hand in all materials to expose or locate existing services and shall include the backfilling and compaction thereof.

Add the following to sub clauses 8.8

PSA 8.8.7 Setting Out of the Works

The costs for the setting out of the works and level control shall be deemed to be covered by the rate for the particular item.

The Contractor shall set out the works in accordance with the drawings

PSA 8.8.8 Compliance with OHS Act and Regulations including the construction regulations 2003

.....Unit: Sum

The tendered sum shall include full compensation to the Contractor for compliance with all the requirements of the OHS Act and Regulations (including the Construction Regulations 2003) all times for the full duration of the Contract, as described in the Project Specifications. The successful tenderer shall provide the Engineer with the complete breakdown of this tendered sum.

This sum will be paid to the Contractor in equal monthly amount subject to proper/ substantial compliance.

PSA 8.8.9 Compliance with Environmental Management Plan

.....Unit: Sum

The tendered sum shall include full compensation to the Contractor for compliance with all the requirements of the Environmental Management Plan at all times for the full duration of the Contract, as described in the Project Specifications. The successful tenderer shall provide the Engineer with the complete breakdown of this tendered sum.

This sum will be paid to the Contractor in equal monthly amount subject to proper/ substantial compliance.

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VARIATIONS AND ADDITIONS TO STANDARDISED SPECIFICATIONS

SANS 1200 AB: ENGINEERS OFFICE

PSAB 3 MATERIALS

PSAB 3.1 Nameboards (sub-clause 3.1)

The Contractor shall supply, erect where directed, maintain and remove on completion (1 No.) project name board of substantial construction, with the project description, and names of the Employer, Engineer and Contractor printed on, in accordance with the Engineer's detail or as approved. The board shall be mounted 3m above the ground level on two steel supports or suitable gum poles firmly set in the ground.

PSAB 3.2 Office Buildings (sub-clause 3.2)

Office space for the Engineer or his representative is required. The Contractor must allow for an office for the Resident Engineer whose office must be accessible to the Engineer or his representative. The office shall have 2 windows and a minimum floor space of 12m². Furniture required is a desk of 1.2m², three chairs, a plan table of 2m² and at least one lock-up cabinet for the Engineer or his representative.

The office shall be equipped with a suitable air conditioning unit and be well insulated.

PSAB 4 PLANT

Add the following clause:

PSAB 4.2 Survey Equipment

The Contractor shall provide the following survey equipment on the Site from commencement to the completion of the Works if required:

1x automatic reading dumpy level plus tripod;

1x levelling staff (5 m long, 1 cm gradations);

1x staff angle bubble;

1x metal change-point for levelling;

1x spirit level (1 m long);

4x steel tipped ranging rods each 2.5 m long;

1x hammer (2 kg);

1x 100 m steel tape;

A supply of at least 20x, 500 mm (long) x 8 mm (diameter) steel pegs at all times

The survey equipment shall be shared by arrangement between the Contractor and the Engineer or his representative on Site. The Contractor shall keep the equipment continuously insured against any loss, damage, or breakage and he shall indemnify the Engineer and the Employer against any

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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claim in this regard. Upon completion of the Works the survey equipment as listed above shall revert to the Contractor.

PSAB 5 CONSTRUCTION

PSAB 5.5 Survey Assistants (sub-clause 5.5)

The Contractor shall at all times make available to the Engineer two suitably trained labourers for use on and about the site on survey and other work as directed by the Engineer at all reasonable times.

PSAB 8 MEASUREMENT AND PAYMENT

Add the following

PSAB 8.2 Survey Assistance and EquipmentUnit : Sum

The rate shall cover all fixed and time-related costs pertaining to the survey assistants and equipment as prescribed in PSAB 5.5.

PSAB 8.3 Provisional Sum for costs of cellular calls and other related charges.Unit: Prov. Sum

PSAB 8.4 Handling costs and profit in respect of sub-item PSAB 8.3Unit: %

Measurement and payment in respect of the provisional sum item shall be made in accordance with the provisions of the General Conditions of Contract.

The tendered percentage is a percentage of the amount actually spent under item PSAB 8.3, which shall include full compensation for the handling costs of the Contractor, and the profit in connection with the payment of the costs of calls and other charges relating to the use by the Engineer's site staff.

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VARIATIONS AND ADDITIONS TO STANDARDISED SPECIFICATIONS

SANS 1200 C: SITE CLEARANCE

PSC 3 MATERIAL

PSC 3.1 DISPOSAL OF MATERIAL

Substitute the first sentence of 3.1 with the following:

Material obtained from clearing and grubbing shall be disposed of at a suitable site approved by the Engineer. The Contractor shall obtain his own dumping site for the disposal of material and all transport costs shall be included in the rates for site clearance.

No overhaul will be paid for any spoil materials from the "clear and grubbing" operation. All costs relating to this activity shall be deemed to be included in the rates tendered for site clearance.

PSC 5 CONSTRUCTION

PSC 5.1 AREAS TO BE CLEARED AND GRUBBED

Substitute the first sentence of 5.1 with the following:

Unless otherwise indicated by the Engineer, clearing and grubbing are limited to be cleared to a distance of 1.5m on both sides of the pipeline centre line or a width as indicated on the applicable drawing along the designated route.

An area 2.0m wider on all sides of reservoirs and pump stations shall be cleared

Measurement and payment for clearing and grubbing shall only occur for areas as required in writing by the Engineer. Such works shall be undertaken in compliance with Environmental report.

Route pegs or markers shall not be destroyed or damaged during clearing operations.

The Contractor may proceed with clearing and grubbing after the handing over of the site.

PSC 5.2 Cutting of Trees

PSC 5.2.3.2 Individual trees (sub clause 5.2.3.2)

Add the following:

Trees outside the pipe route or road prism must be left standing and undamaged, except where otherwise ordered in writing by the Engineer. Those trees falling within the designated area for clear and grubbing may only be removed on instruction of the Engineer. Such works shall be undertaken in compliance with Environmental report

A penalty of R2 500,00 per tree for trees damaged and/or removed will be charged.

PSC 5.5 Reclearing of Vegetation (sub clause 5.5)

Add the following

When areas have to be recleared on the written instructions of the Engineer, such reclearing shall be carried out at the Contractor's own cost and the Contractor is therefore advised not to clear the areas too soon.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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Add the follow sub clause to clause 5

PSC 5.9 Existing Fencing

The fencing parallel to the proposed route must be maintained and repaired where it was damaged. The fencing must only be removed and re0erected at the positions indicated and approved by the Engineer. When the pipeline crosses fencing or gates, temporary wire gates must be provided that must be kept closed.

PSC 8 MEASUREMENT AND PAYMENT

PSC 8.1 Basic Principals

Add the following:

No separate item will be made for removal of topsoil along the pipe routes or road prism. The contractor is to excavate in such a manner that the top 100mm of materials is kept separate from other excavations for replacement upon completion of the backfill operations or finishing of the road prism. All costs related to the excavation of this topsoil shall be deemed to be included in the tendered rates for the related excavation works.

PSC 8.2 Scheduled Items

PSC 8.2.1 Clear and Grub

Replace the first line with the following:

The area designated by the Engineer to be cleared and grubbed will be the nearest square metre or hectare

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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VARIATIONS AND ADDITIONS TO STANDARDISED SPECIFICATIONS

SANS 1200 D: EARTHWORKS

PSD 2 DEFINITIONS

Replace the definition "Borrow" with the following:

"Borrow Material: Materials, other than materials obtained from excavations required for the works, obtained from sources such as borrow pits or the authorized widening of cuttings".

PSD 3 MATERIALS

PSD 3.1.2 Classes of Excavation (Sub clause 3.1.2)

The classification of material other than "soft excavation" shall be agreed upon before excavation may commence.

The Contractor shall immediately inform the Engineer if and when the nature of the material being excavated changes to such an extent that a new classification is warranted for further excavation. Failure on the part of the Contractor to advise the Engineer in good time shall entitle the Engineer or reclassify, at his discretion, such excavated material.

"Boulder excavation Classes A and B" shall not apply, irrespective of the construction method used. Boulder excavation will be classified on site by the Engineer, as either "Intermediate" or "Hard rock" excavation.

PSD 3.2.3 Materials Suitable for Backfill or Fill against Structures. (Sub clause 3.2.3)

Replace the contents of this sub clause with the following:

"Material used for backfill behind structures shall generally be the material excavated, subject to the following conditions:

- a) The materials shall not contain an excessive number of stones retained on the 50mm sieve
- b) The materials shall not contain large clay lumps that do not break up under the action of the compaction equipment; and
- c) The liquid limit of the material shall not exceed 40, neither shall the PI exceed 18"

PSD 3.3 Selection

PSD 3.3.1 General (sub clause 3.3.1)

Substitute the second paragraph with the following:

The Contractor shall deal selectively with material from general excavation. Any imported material in road reserves that do not comply with the minimum requirements for the respective layers, shall be removed, and replaced with suitable material, all at the Contractor's expense.

The Contractor shall deal in such a way with materials from all excavations for pipe trenches to ensure that usable material is not contaminated with unsuitable material. If usable material is contaminated, such contaminated material shall be removed and replaced with suitable material, all

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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at the Contractor's expense. No additional payment shall be made in respect of this and all relevant costs shall be deemed to be included in the tendered rates.

All unsuitable material shall be removed prior to importing fill material in such areas.

PSD 5 CONSTRUCTION

PSD 5.1 Precautions

PSD 5.1.1 Safety

PSD 5.1.1.1 Barricading and lighting (sub clause 5.1.1.1)

Replace "Machinery and Occupational Safety Act, 1983 (Act 6 of 1983)" with "Occupational Health and Safety Act, 1993 (Act 85 of 1993)"

PSD 5.1.1.2 Safeguarding of excavations (sub clause 5.1.1.2)

Replace "Machinery and Occupational Safety Act, 1983 (Act 6 of 1983)" with "Occupational Health and Safety Act, 1993 (Act 85 of 1993)"

PSD 5.1.1.3 Explosives (sub clause 5.1.1.3)

Replace the contents of this subclause with the following:

The Contractor will generally be permitted to use explosives for breaking up hard material during excavations, for demolishing existing structures and for other purposes where explosives are normally required, subject to the following conditions.

The Engineer may prohibit the use of explosives in cases where, in his option, the risk of injury to persons or damage to property or to adjoining structures is too high.

Such action by the Engineer does not entitle the Contractor to additional payment for having to resort to less economical methods of construction

a) The Engineer 's prior written approval shall be obtained for each and every blasting operation. This approval may be withheld if the Contractor does not use explosives responsibly and carefully.

b) The Contractor shall comply fully with the requirements of the Explosives Act, 1997 (Act No 83 of 1997) and all other legislation and regulations as may be applicable to blasting and use of explosives.

c) Before blasting is undertaken, the Contractor shall satisfy the Engineer that he has established whether or not the insurers concerned require pre and post blasting inspections of buildings and structures within certain radius of proposed blasting.

d) Should such inspections be required , the contractor shall together with the Engineer and the insurer, examine and measure the buildings, houses or structures in the vicinity of the proposed blasting site and establish and record together with the owner, lessee or occupier, the extent of any existing cracking or damage before blasting operations commence.

e) When there is possibility of damage to power and telephone lines or any other services or property, the Contractor shall adapt his method of blasting and the size of the charges and shall use adequate protective measures (eg cover blasting) to reduce the risk of damage.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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f) All accidents, injury to persons and animals and damage to property shall be reported to the Engineer in detail and in writing as soon as is practicable.

g) The Engineer shall be given 24 Hours notice by the Contractor before each blasting operation is carried out.

h) When the blasting to specified profiles, the Contractor shall so arrange the holes and charges that the resulting exposed surfaces are as the nature of the material permits. The Contractor shall make good at his own expense, any additional excavation necessitated by the shattering of rock in excess of any overbreak allowance specified in the Project Specifications or given on any Drawing.

Notwithstanding the Contractor's compliance with the above provisions, the Contractor shall remain liable for any injury to persons and animals and loss of or damage to property occurring as a result of blasting operations.

PSD 5.1.2 Existing services

PSD 5.1.2.2 Detection, location and exposure (sub clause 5.1.2.2)

Add the following to:

If existing services are not shown on the drawings, but the existence thereof can be reasonably expected, the Contractor shall, in conjunction with all relevant authorities, determine the exact depth and location of such services before the commencement of construction. After locating the exact position of services, whether indicated on the drawings or not, such services shall be deemed to be known services and the Contractor shall be liable for all costs and subsequent costs arising from the damage thereof as a result of the Contractor's activities. These services must also be indicated on the "As Built" drawings.

A minimum of three trial cross trenches per street block must be excavated by hand perpendicular to the pipeline route to establish the position of existing services and the final portion of the network pipeline.

All services must be located and opened for inspection by the Engineer before commencing trench excavation. Any costs or losses suffered by the Contractor as a result of not abiding by this specification will be for the Contractor's account.

PSD 5.1.3 Stormwater and Groundwater (sub clause 5.1.3)

Add the following:

The Contractor shall, where applicable and at the earliest practicable opportunity, install the permanent drainage specified or shown on the Drawings and shall at his own cost provide the temporary drainage required to protect the works.

PSD 5.1.4.1 Dust Nuisance (sub clause 5.1.4.1)

Add the following:

The Contractor is responsible for dust control and is liable for all claims that may result from dust nuisance on all parts of the site and at all times from the date of handing over of the site to the completion date of the contract. No payment regarding the above-mentioned will be made and all costs shall be deemed to be covered by the tendered rates.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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PSD 5.1.6 Road Traffic Control (sub clause 5.1.6)

Add the following:

- a) Sufficient road signs must be erected in such a way that motorists will be warned in time of works, eg. at the closing of a street sufficient signs to direct traffic must be erected at the preceding intersection.
- b) Bypasses and/or road signs shall be provided and/or erected at all locations where the free flow of traffic is obstructed and shall be approved by the Engineer before the commencement of construction. Where main roads are crossed, detours and temporary traffic signs must be provided as shown on the attached drawings.
- c) Where a trench crosses a street or any place where a trench crosses the direction of traffic flow, drums must be placed in the street and not just along the sides of the street with danger tape in between.
- d) Danger tape must be put up between drums and tied around the drums.
- e) Drums may not be filled with stones. The spacing of drums must be in such a way (maximum 5 m) that they are visible from all directions.
- f) Sufficient safety measures must be utilised for pedestrians.
- g) Vehicular and pedestrian access must be maintained to all stands, businesses, etc at all times.

The Contractor's attention is drawn to the fact that pipelines must be constructed under main roads and access roads. The Contractor must arrange his work in such an order to assure free flow of traffic. No additional payment for any discomfort, extra costs, or delaying as a result of the provision of this facility will be made except for the item as allowed under PSA 8.8.2

PSD 5.2 Methods and Procedures

PSD 5.2.2 Excavation (sub clause 5.2.2)

Add the following:

Hand Excavation

The Engineer may order that excavation be done by hand, using shovels only, in the vicinity of underground services. A special item for such hand excavation has been measured in the Bill of Quantities.

PSD 5.2.2.1 Excavation for General Earthworks and for structures (sub clause 5.2.2.1)

Add the following:

The contractor shall be required to provide working space around all structures. The excavation, backfilling and compaction of this materials shall be deemed to be included in the tendered rates for particular the structure.

PSD 5.2.2.2 Borrow Pits (sub clause 5.2.2.2)

Add the following

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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The contractor must construct and maintain at his own cost the necessary access roads and borrow pits. The position of borrow pits must be approved by the Engineer before opening up the borrow pits.

It is to be noted that no extra over payment will be affected for intermediate or hard rock excavations on materials obtained from borrow pits and commercial off-site sources. The contractor is to allow for this in his rates.

PSD 5.2.2.3 Disposal (sub clause 5.2.2.3)

Substitute the second sentence with the following:

All surplus and unsuitable material shall be dumped and neatly finished off in the area pointed out by the Engineer within the freehaul distance.

PSD 5.2.5 Transport of earthworks

PSD5.2.5.1 Freehaul (sub clause 5.2.5.1)

Add the following:

The transport of all excavated materials, irrespective of the distance and source, shall be deemed to be freehaul, the costs of which is included in the Contractor's tendered rates and prices for the excavation of the materials. No separate compensation shall apply for the transportation of excavated materials.

Free haul of material on site from borrow pit areas, as well as to dumping areas within 10km will be regarded as freehaul. This freehaul distance is applicable to the whole of the contract.

PSD 8.3 Scheduled Items

PSD 8.3.3 Restricted excavation

The excavation of valve chambers, stand posts etc. Is not measured separately and is included in the tariff of the chambers.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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VARIATIONS AND ADDITIONS TO STANDARDISED SPECIFICATIONS

SABS 1200 DB: EARTHWORKS (PIPE TRENCHES)

PSDB 3 MATERIALS

PSDB 3.1 Classes of Excavation (Sub clause 3.1)

Substitute 3.1 the following:

The Engineer shall classify excavated materials as Soft excavation. Rock will be measured individually as an extra-over items.

TABLE 1: CLASSIFICATION OF MATERIALS

CLASSIFICATION	DESCRIPTION
Soft	All materials other than rock
Rock	Material which cannot be economically fragmented and loosened for removal by hand implements and pneumatic tools, except by drilling and blasting or the use of rock breaking equipment.

In the first instance, the classification shall be based on the descriptions given in Table 1. In the event of disagreement between the Contractor and the Engineer, the Engineer shall reclassify the material in accordance with relevant specifications and without being unreasonable to the Contractor. The decision of the Engineer on the classification shall then, subject to the provisions of the Contract, be final and binding.

The Contractor shall notify the Engineer of the presence of what he considers to be rock immediately upon discovery thereof. The Engineer will inspect the material and decide whether or not it warrants the use of pneumatic tools or rock breaking equipment. In the case of isolated boulders set in a soil matrix, the Engineer may order the Contractor to either widen the excavation and roll the boulders sideways or lift the boulders out from the trenches.

In the event that the Engineer decides that the use of pneumatic tools, rock breaking equipment, or blasting is necessary, he will classify the material accordingly and arrange for the quantity thereof to be measured. The Contractor will supply the necessary pneumatic equipment and arrange for others to break up rock into manageable pieces.

PSDB 3.5 Backfill Materials

- a) Substitute "from trenches" in 3.5 (a) with "from trenches and street excavations".

Add the following to 3.5(c):

- c) Road crossings, access to services, farms and camps and any section that fall within the road prism shall be classified as areas subject to loads from road traffic and must be compacted accordingly to the top of the trench (natural ground level).

Add the following paragraph to sub clause 3.5

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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d) Cement – Stabilized Backfilling

Backfilling shall, where directed by the Engineer, be stabilized with 5% cement. The aggregate shall consist of approved soil or gravel containing stones not bigger than 38 mm and with a plasticity index not exceeding 10.

The soil or gravel shall be mixed with 5% cement and shall be compacted in layers of 100 mm thick to 90% of modified AASHTO density.

e) Solcrete Backfilling

The aggregate for solcrete shall be mixed with 5% cement and shall consist of approved soil or gravel containing stones not bigger than 38 mm and with a plasticity index not exceeding 10.

The soil or gravel shall be mixed in a concrete mixer with the cement and enough water to acquire a consistency that allows the mixture to be placed with vibrators to fill all voids between the pipe and the sides of the trench. Shuttering shall be used where necessary.

PSDB 3.6 Materials for Reinstatement of Roads and Paved Areas (Sub clause 3.6)

Add the following:

PSDB 3.6.5 Slurry

a) Aggregate for Slurry

The aggregate for slurry shall be approved crusher sand obtained from a parent rock having an ACV not exceeding 30 or a mixture of crusher sand and clean natural sand, where the mixture does not contain more than 25% of natural sand. The aggregate shall be clean, tough, durable, angular in shape, and shall conform to the following grading requirements:

Table: Aggregate Slurry

Sieve Size (mm)	Percentage by Mass Passing	
	Fine Grade	Medium Grade
6,700		100
4,750	100	82-100
2,360	90-100	56-95
1,180	65-95	37-75
0,600	42-72	22-50
0,230	23-48	15-37
0,150	10-27	7-20
0,075	4-12	4-12

b) Cement Filler for Slurry

CEM 1 (Portland cement shall be used

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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c) Bitumen Emulsions

SS 60 anionic/cationic emulsion shall be used

d) Slurry Mix

The composition of slurry shall be based on the following mass proportions:

- | | | | | |
|------|------------------------|---|--------------|----------------|
| i) | Slurry aggregate (dry) | : | 100 parts | (1m3) |
| ii) | Stable grade emulsion | : | 16 parts | (260 l) |
| iii) | Cement | : | 1,5 parts | (0,01m3) |
| iv) | Water | : | +/- 15 parts | (approx. 235l) |

The volume of water in the slurry mix, shall be such that the consistency of the slurry is between 30mm and 40mm when measured in accordance with the test method (Appendix G in TRH3-1998)

PSDB 3.7 Selection

Replace the words "If he so wishes: in the first line of the second paragraph with the words "at his own cost"

If the excavation of a pipeline damages an existing road surface, the Contractor must stockpile material from the top 200mm of such a road surface in order to reuse it as sub base for the repairing of the road crossing.

If necessary gravel material that is suitable for the reparation of road surfaces must be imported.

The Contractor must make provision in his tariffs for compaction in road reserves for the selection of excavated material as specified above.

PSDB 4 PLANT

PSDB 4.1 Excavation Equipment (Sub clause 4.1)

Add the following:

An adequate number of suitable tools, including hand stampers, wheelbarrows and hosepipes shall be provided by the Contractor. The Contractor will supply mechanical compaction equipment and when required pneumatic and rock breaking equipment.

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

PSDB 5 CONSTRUCTION

PSDB 5.1 Precautions

PSDB 5.1.2.2 Special Water Hazards (Sub clause 5.1.2.2)

Add the following:

Water in Trenches

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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Water in pipe trenches may cause movement of the pipes as a result of flotation and backfilling must therefore be executed as quickly as possible. If movement of the pipes does occur the contractor must, unless otherwise instructed by the Engineer, remove the pipes from the trench and reinstall it at his own expense.

No provision has been made in the Schedule of Quantities for separate payment for dealing with water. The unit rate for excavation shall cover the cost of dealing with water in the excavations.

PSDB 5.1.3 Accommodation of Traffic and Access to Properties (Sub clause 5.1.3)

Replace the semicolon and the word "and" at the end of sub clause 5.1.3(a) with a full stop and replace item (b) with the following:

Where necessary to achieve compliance by the Contractor with his obligations in terms of the Project Specifications to provide and maintain pedestrian and vehicular access to properties affected by the works, the Contractor shall construct and maintain to the satisfaction of the Engineer, such temporary access roads around and /or steel or timber bridges over excavations in roads, pavements, entrances or accesses to properties.

Temporary pedestrian access bridges shall be at least 1,2 m wide and temporary access bridges for vehicles shall be at least 3,6 m wide. All temporary access bridges shall be fitted with handrails as well as protective mesh fencing on both sides.

On Completion of the work, the contractor shall dismantle and remove all such temporary constructions and reinstate these areas to their former condition.

Except only where the Engineer has included in the schedule of Quantities, particular payment items specifically therefore, the contractor will not be paid directly for the construction and maintenance of temporary access roads and/ or the provision and maintenance of bridges as aforementioned, and the costs thereof shall be deemed included in the Contractor's bid rates of excavation.

PSDB 5.2 Minimum Base Widths (sub clause 5.2)

Replace paragraph (a) with the following

Where two pipes are placed in the same trench, they shall be 300 mm apart and the specified side allowance shall still be applicable except where stated to the drawings which shall take president.

Replace paragraph (b) with the following

- i. The minimum base width of external diameter for flexible piping laid at a depth not exceeding 1.5 m will be:

<u>External diameter of pipe barrel, mm</u>		<u>Trench Width (mm)</u>
<u>Over</u>	<u>Up to and including</u>	
-	50	300
50	315	600

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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- ii. The minimum base width of external diameter for flexible piping laid at a depth exceeding 1.5 m up to and including 2.5m will be:

<u>External diameter of pipe barrel, mm</u>		<u>Trench Width (mm)</u>
<u>Over</u>	<u>Up to and including</u>	
-	315	750

Add the following after paragraph (b):

Trenches for subsurface drain shall be excavated to the dimensions and gradients shown on the Drawing or directed by the Engineer.

The specification width of trenches and the width of the excavation measured for payment shall not be less than 0.3 m, but the Contractor may reduce the actual width with the Engineer's permission.

PSDB 5.4 Excavation (sub clause 5.4)

Add the following:

Excavation and backfilling of pipe trenches on sidewalks in the residential area shall be done in such a manner as to ensure the least possible disruption to the public and access to the properties. No additional payment shall be made for this and all relevant costs shall be deemed to be included in the tendered rates.

PSDB 5.5 Trench Bottom (sub clause 5.5)

Substitute "90 %" in the second paragraph of 5.5 with "93 %".

Add the following:

Where pipe trenches are excavated deeper than specified or shown on the drawings, these excavations must be backfilled with suitable approved selected material in layers of not more than 150mm uncompacted thickness and must be compacted to the thickness of the adjoining in-situ material or as prescribed by the Engineer.

PSDB 5.6 Backfilling

PSDB 5.6.1 General (sub clause 5.6.1)

Backfilling in road reserves must be compacted in 100mm layers up to natural ground level.

Where prescribed by the Engineer all surplus material must be neatly piled over the real trench width to a height not more than 150mm higher than the adjoining level.

PSDB 5.6.3 Disposal of Soft Excavation Material (sub clause 5.6.3)

Add the following:

All surplus and unsuitable material as described in DB 5.6.3 shall be disposed of at the spoil site, as described in PSD 5.2.2.3 and levelled.

The disposal of surplus excavation will not be confined to the trench servitude. The Engineer may order the Contractor to dispose of surplus material elsewhere on the site, within the haul free distance. All costs related thereto must be included in the contractor's rates as scheduled under item 8.2.2 & 8.2.3 SABS 1200 DB.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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PSDB 5.7 Compaction

PSDB 5.7.2 Areas Subject To Traffic Loads (sub clause 5.7.2)

Add the following:

All pipe trenches within road crossings, accesses to services, farms and camps that fall within the road reserve, will be regarded as areas subject to traffic loads. Backfilling of trenches that are subject to traffic loads will be executed as follows:

Main backfill up to road layers	:	90% mod AASHTO
Selected backfill material (150mm)	:	93% mod AASHTO G7 quality
Sub base (150mm) stabilized with	:	95% mod AASHTO G6 quality
3% Portland cement		
Base (150mm)	:	98% mod AASHTO G3 quality.
Asphalt Surface Treatment	:	30mm Continuously graded
Slurry Seal Surface Treatment	:	applied at a rate of 200m ² /m ³

PSDB 5.9 Reinstatement of Surface

PSDB 5.9.2 Private Property and Commonage (sub clause 5.9.2)

Add the following to DB 5.9.2:

Gardens and lawns shall be repaired to the original standard where they were crossed. Grass and plants shall be taken out of the ground, temporarily stocked, watered during construction, and replanted after backfilling.

Add the following sub clauses

PSDB 5.9.7 Preparation for Excavation on Roads with Surface Seal

Before commencement of trench excavation on surface sealed roads the excavation shall be prepared by facilitating a saw cut edge (Depth 75mm) to the width dimensions of the trench to be excavated

Add the following clauses

PSDB 5.11 Labour intensive excavations and backfilling

All excavations must be labour intensive where possible and local labour must be hired for this purpose. Provision for machine rates have been made in the list of quantities and must be priced accordingly. All backfilling regardless of whether excavation was done by hand or machine, will be done by hand. Mechanical compaction equipment must however be used to obtain the required compaction. (See Conditions of Tender in relevant paragraphs).

PSDB 5.12 Excavation Restrictions and Payment

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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A maximum length of 500m of open trench only will be allowed on the project, conditional that it is continuous. Under no circumstances will leap frogging of trenches be allowed unless written permission is granted by the engineer.

PSDB 5.13 Shoring

No item has been scheduled for shoring or other safety precautionary measures for working in trenches. This must be allowed for in the contractor's rates as scheduled under item 8.3.2 & 8.3.3 SABS 1200 DB.

PSDB 8 MEASUREMENT AND PAYMENT

PSDB 8.2 Computation of Quantities

PSDB 8.2.4 Shoring (sub clause 8.2.4)

Add the following to:

The rate for shoring shall be deemed to be measured and paid under the respective excavation rate for pipe trenches.

PSDB 8.3 Scheduled Items

PSDB 8.3.2 Excavation (sub clause 8.3.2)

PSDB 8.3.2 (a) Excavate in all materials for trenches, backfill, compact and dispose of surplus material Unit : m3

Replace "of 1,0 m" In the first sentence of 8.3.2(a) with:

As specified in the schedule of quantities.

Add the following to DB 8.3.2 (a):

The depth of excavation in street reserves shall be measured from the final finished level.

In cases where services lie parallel to steep slopes, the depth of the excavation will be measured along the centre of the trench (on the route of the service).

Trench base widths will be in accordance with PSDB 5.2

b) Extra over items (a) above for:

Add the following to 8.3.2(b)2:

The extra over rate shall include where blasting occurs for the exposing of the rock, backfilling prior to blasting and excavation of the trench again to the required depth and level.

Add the following at the end of the existing subitem 2

No payment will be made under subitems (1) and (2) in respect of any materials measured and paid for under subitems 3 below.

Add the following new subitems in 8.3.2(b)

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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3. Hand excavation where ordered by the Engineer in:

Soft Material Unit : m3

Hard Material Unit : m3

The unit of measurement shall be the cubic metre of material, measured in place according to the authorised dimensions, which was excavated by hand on the specific prior written instructions of the Engineer, provided always that the Engineer's said instruction shall have stated that measurement and payment for such hand excavation will be in accordance with this item.

The bid rate shall include full compensation for the additional cost, effort and time resulting from excavating in the respective materials using hand methods only.

The Engineer shall not be obliged to authorise payment under this item in respect of any hand excavation carried out (whether ordered in writing or otherwise), which hand excavation was in any case necessary to achieve compliance by the Contractor with his obligations under the Contract to:

- Utilise construction appropriate to the nature of the specific parts of the works and/or
- Protect existing structures and/or services and /or
- Comply with all prevailing legislation and regulations

4. Backfill stabilized with 5% cement where directed by the Engineer Unit : m3

The unit of measurement shall be the cubic metre of backfill material, measure in place after compaction according to the authorised dimensions, which was stabilized on the Engineer's instructions in accordance with subclause PSDB 3.5(c)

The bid rate shall include full compensation for supply the cement and for selecting, mixing, backfilling and compacting the stabilized material to 90% of modified AASHTO density.

5. Soilcrete backfill where directed by the EngineerUnit : m3

The unit of measurement shall be the cubic metre of soilcrete placed on the Engineer's instructions in accordance with subclause PSDB 3.5 (d), measure in place according to the authorised dimensions.

The bid rate shall include full compensation for supplying the cement and for selecting, mixing and placing the soilcrete as well as for the cost of shuttering if required.

PSDB 8.3.2 (c) Excavate Unsuitable Material From Trench Bottom Unit : m3

Delete "within free haul distance" and replace with "within 10 km from an excavation".

PSDB 8.3.3 Excavation Ancillaries

PSDB 8.3.3.3 Compaction in Road Reserves Unit : m3

Replace the following sentence: "The volume will be measured as specified in 8.2.2, 8.2.3 and 8.3.3.1 " with the following:

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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To determine the volume in the case of gravel roads, the depth will be measured from the underside of the gravel wearing course to the top of the fill blanket, and in the case of bitumen roads, from the underside of the subbase to the top of the fill blanket.

The rest of the trench shall be backfilled as specified in clauses 5.9.3, 5.9.4 and 5.9.5 as applicable, and payment will be made under item 8.3.6.1

PSDB 8.3.3.4 Overhaul

Replace the contents of this item with the following:

Measurement and payment shall be in accordance with sub clause PSD 5.2.5.

PSDB 8.3.4 Particular Items (sub clause 8.3.4)

(a) Shore trench

Unit : m

Add the following to DB 8.3.4(a):

This must be allowed for in the contractor's rates as scheduled under item 8.3.2 & 8.3.3 SABS 1200 DB.

Delete DB 8.3.4(b) and replace with the following:

(b) Control of Ground Water

Unit : m

The tendered rate for the effective control of ground water shall cover for all equipment, plant, material as well as the labour involved to use the well points, pumps and pipes, etc to control the ground water before and during excavation. The rate shall also cover the maintenance of the equipment for the total contract period. Payment for this item will only be made if the Contractor used well points and pumps to control ground water before or during excavation and measurement will be done on the length of pipe laid in trenches where ground water control had been applied.

PSDB 8.3.5 Existing Services that Intersect or Adjoin a Pipe Trench (sub clause 8.3.5)

PSDB 8.3.5(a) Services that intersect a trench

Unit : m3

Add the following to DB 8.3.5(a):

Existing services with a depth of cover exceeding 300 mm, measured from the bottom of excavation to the top of the existing service shall not be measured and paid for. There will be distinguished between existing trunk services and existing erf connections.

- i. The rate shall also allow for the following costs:
- ii. Sufficient photo's have to be taken of existing services and handed over to the Engineer before they are being crossed, if there is a possibility of a difference in opinion over the condition of those services, especially on private property.
- iii. If such a service is damaged, it has to be repaired to its original condition or if possible, to a standard agreed to in writing with the relevant owner. This agreement has to be approved by the Engineer.
- iv. If such a service is removed, it has to be replaced as per original.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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The unit of measure shall be per cubic meter per depth category

PSDB 8.3.5(b) Services that adjoin a trench

Unit : No or m

Add the following to DB 8.3.5 (b):

The unit "number" will only be used for services such as poles and trees.

The cost for shoring shall be deemed as covered by the listed items and no additional payment will be made for this.

No payment will be made for overhead services that do not directly rest on the ground except where allowance is made for this in the bill of quantities.

Existing services that rest directly on the ground e.g. poles, trees, walls, and structures are handled in the same way as underground services, but the axle of the service will be determined as follows:

The vertical axle is defined as the nearest side or corner of the existing structure to the excavation, measured at the point where the structure and natural ground level intersect.

The horizontal axle will be at the point where the structure and the natural ground level intersect. In this instance, where the excavation falls above the 45° line but within 1,0 meter horizontally from the structure, the service will also be measured as adjoining.

If the structure, according to the abovementioned, does not qualify as an adjoining service but the foundation of the structure is such that if a 45° line drawn from the nearest bottom corner thereof cuts through the excavation, the structure will be measured as an adjoining service if approved by the Engineer.

If there is more than one service adjoining the same trench and such a service is on the same side of the trench, payment will only be made for the nearest service to the trench, or if they are the same distance from the trench for the top one. The maximum number of services that will be paid for, is therefore one on each side.

There will be distinguished between existing trunk services and existing erf connection.

PSDB 8.3.6 Finishing

PSDB 8.3.6.1 Reinstate road surfaces complete with all courses

Unit : m2

Replace DB 8.3.6.1 with the following:

- a) Selected backfill material (150mm) :
93% mod AASHTO G7 quality material
- b) Sub base (150mm) stab. 3% cement :
95% mod AASHTO G6 quality material
- c) Base (150mm) :
98% mod AASHTO G3 quality material
- d) Prime :

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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MC30 applied at 0.9 l/m²

e) Asphalt :

30mm nominal thickness continuously graded asphalt (26.5mm max)

The area will be calculated from the length of finished road or paved surfaces as applicable and with the trench width taken in accordance with base widths as indicated in clause 5.2 of SABS 1200DB. Payment for finishing will be additional to that for excavation covered by 8.3.2.

The rate shall cover the cost of supplying, processing, compaction and shall include the cost of delays and the cost of any risk of having to repair damage as specified in DB 5.10. Compaction to be according to PSDB 5.7.2.

f) Slurry Surface Treatment Unit : m²

The rate shall include for slurry surface treatment shall be measured brushed by squeegee and applied at a rate of 200m²/m³

g) Removal and replace existing kerbing: Unit : m

The rate shall include for the hand excavation of the existing kerbing and the reinstatement of the kerbing afterwards including haunching with 25/19MPa concrete.

PSDB 8.3.7 Accommodation of Traffic Unit : Sum

This item shall include for the accommodation of traffic and all road signage, flagmen as prescribed in the road signage manual of SA.

This item shall further also include for providing vehicle access to adjacent properties. Allowance shall be made for the provision of ramps over the trenches if necessary, to allow for access.

A penalty of R500-00 (five hundred rand) per day per stand will be deducted from the payment certificate for every day that vehicle access is not possible to a particular stand

Add the following sub clause:

PSDB 8.3.8 Saw Cut to Existing Road Surface Unit : m

The tendered rate shall include full compensation for all arrangements with the relevant authorities, cutting a 75mm mechanical saw joint and the removing of excess material.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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VARIATIONS AND ADDITIONS TO STANDARDISED SPECIFICATIONS

SABS 1200 DK: GABIONS AND PITCHING

PSDK3 MATERIALS

PSDK 3.2.1 Size (sub-clause 3.2.1)

Type of pitching shall be grouted pitching.

The dimensions of any individual stone pitching will comply with the values given for type of pitching 'medium' in Table 2

PSDK 5 CONSTRUCTION

PSDK 5.3.3 Grouted Pitching (sub-clause 5.3.3)

Where ordered by the Engineer all areas prone to water scour shall be pitched with stone. Stone for pitching shall be of good, sound, durable rock with minimum size as specified. Before pitching is commenced, all slopes and surfaces to receive pitching shall be carefully trimmed to the correct grades. The pitching stones are to be laid with joints broken as much as possible and are to be hammered solid in position to present a regular and uniform surface. All joints are to be grouted to their full depth in 4:1 cement mortar.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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VARIATIONS AND ADDITIONS TO STANDARDISED SPECIFICATIONS

SABS 1200 DM: EARTHWORKS (ROADS, SUBGRADES)

PSDM 3 MATERIALS

PSDM 3.2 Classification for Placing Purposes

PSDM 3.2.1 General (sub-clause 3.2.1)

The Contractor shall immediately inform the Engineer if and when the nature of the material being excavated changes to the extent that a new classification is warranted. Failure on the part of the Contractor to advise the Engineer thereof in good time shall entitle the Engineer to classify, at his discretion, such excavation as may have been executed in material of a different nature.

PSDM 3.2.2 Fill (sub-clause 3.2.2)

(a) Approved material for fill under roads shall comply with the following:

- Material Type G10 according to TRH 14
- Maximum plasticity index $3 \times \text{GM} + 10$
- Minimum soaked CBR of 3

(b) no single rock particle shall have a maximum dimension of more than 150 mm except where rock fill is specified and then the relevant specification shall be applicable.

The minimum requirement for road bedding shall be the same as the minimum requirement for fill material.

PSDM 3.2.3 Selected Layers (sub-clause 3.2.3)

Approved material for selected layers shall comply with Material Type G7 according to TRH 14.

Approved material for selected layers shall comply with the following:

Material Type G7 according to TRH14

Minimum grading modulus 0.75

Maximum plasticity index 12

Minimum CBR at specified density 15

(93% Mod ASSHTO density)

PSDM 5 CONSTRUCTION

PSDM 5.1 Precautions

PSDM 5.1.1 Safety, Existing Services. Stormwater, etc. (sub-clause 5.1.1)

During construction, the road prism shall be kept well drained and protected at all times. All windrows shall be cut away after construction to prevent the concentrated flow of water on completed fill layers, but where necessary, flat berms shall be constructed to prevent undue erosion of fill slopes. All

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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permanent drains shall be constructed as soon as possible plus sufficient additional temporary drains as may be necessary to protect the road pr Ruts and potholes developing in the fills after completion shall be repaired, and dam portions of the fills shall be reshaped and recompacted at the Contractor's own expense

All cut and fill slopes shall be maintained by the Contractor until the road has been cert as being finally complete.

PSDM 5.1.2 Accommodation of Traffic (sub-clause 5.1.2)

Refer to PSDB 5.1.3.

PSDM 5.2 Methods and Procedures

PSDM 5.2.2.2 Dimensions of Cut (sub-clause 5.2.2.2)

Dimensions of cuts shall generally be in accordance with the details of the typical cross section and this shall include the stormwater side drain.

All trimming of cut slopes shall be completed before any work on the subbase is commenced inside such cuttings.

PSDM 5.2.2.3 Use of Materials (sub-clause 5.2.2.3)

The maximum compacted layer thickness, excluding rock fill, required is 200 mm, but thicknesses from as little as 75 mm will be permitted. Wherever practicable, fill shall be placed in successive layers parallel to the final surface, and the construction of wedge-shaped layers shall be restricted to the bottom layers of fill.

The top fill layer shall be considered as a road bed and compacted as prescribed for road bed preparation. All other fill layers shall be compacted to 90% mod. AASHTO density

The Contractor is responsible for all arrangements and costs for the attainment of a suitable spoil site and fulfillment of all associated prescriptions.

PSDM 5.2.3 Treatment of the road-bed

PSDM 5.2.3.2 Removal of Unsuitable Material (sub-clause 5.2.3.2)

Replace the second sentence of paragraph (a) with the following:

The excavated spaces shall then be backfilled with approved imported material compacted to the required density.

Add the following sentence to paragraph (b):

Unsuitable excavated material will be paid for as cut to spoil.

In addition unsuitable material shall be material not complying with the relative prescriptions of sub-clause 3.2 and contain excess organic material or material in excess of 2% optimum moisture content at specified mod. AASHTO density.

Material too wet shall first be dried out to the required moisture content and be corn only when so approved by the Engineer.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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PSDM 5.2.3.3 Treatment of Road-bed (sub-clause 5.2.3.3)

a) Preparation and compaction of Road-bed

Add the following paragraph:

Three-pass roller compaction

Any portion of the roadbed that is shown on the Drawings or is specified or is directed by the Engineer to be given three –pass roller compaction because of its inadequate natural density, shall be prepared by shaping where the necessary and compacting with a roller , complying with the requirements specified below.

Compaction shall comprise three complete coverages by the wheels of the specified roller over every portion of the area that is being compacted. While it is not the intention that the Contractor should apply water to the roadbed for this type of compaction, and while no rigid moisture control will be exercised during compaction, the Contractor shall nevertheless satisfy the Engineer that everything is being done to take full advantage of favourable soil moisture conditions during the rainy season, and that such compaction is as far as possible carried out when the roadbed is neither excessively dry nor excessively wet.

The Engineer has the authority to decide when conditions are favourable for compaction and where such compaction is to be carried out at any particular time, and he has the right to instruct the Contractor to water the roadbed at the Contractor's expense when , in the opinion of the Engineer , the Contractor failed neglected or refused to comply with these requirements.

The rollers to be used for roller-pass compaction shall conform to the following requirements:

Grid roller: The grid roller shall have a mass of not less than 13,5 t when ballasted, shall be loaded to this mass if required, and shall be moved at a speed of not less than 12 km/h.

Vibratory roller: The Vibratory roller shall be capable of exerting a combined static and dynamic force of not less than 120 KN/m width for every metre of loss-layer thickness at an operating frequency not exceeding 25Hz and shall move at a speed not exceeding 4km/h.

(b) In-place treatment of road-bed in intermediate or hard rock material

Add the following paragraph:

Overbreak to a level 100 mm below the specified level shall be permitted and replaced with approved fill material. Overbreak in excess of the above shall be replaced by approved fill material at the Contractor's expense.

Material used to backfill excess overbreak shall be compacted to at least 90% mod. AASHTO density or as specified for the layer.

If a portion of the proposed road bed consists of material which is in the opinion of the Engineer is suitable for use in a selected layer, the material, equal to the depth of the selected layer, shall be temporarily bladed off to a windrow and the exposed surface treated as road bed.

PSDM 5.2.4 Fill

PSDM 5.2.4.1 Preparation (sub clause 5.2.4.1)

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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(b) Benching

Add the following:

Where the natural crossfall of the roadbed exceeds 1 (vertical) in 10 (horizontal), the fills shall be bonded to the road bed by means of benches excavated in the road bed.

Measurement of and payment for constructing benches shall be treated as "cut to fill" or "cut to spoil" as the case may be.

(f) Compaction

Add the following:

(i) Road bed preparation

For materials other than sand and rock fill: 90% of mod AASHTO density

(ii) Selected layer

For materials other than sand and rock fill: 93% Mod AASHTO density

PSDM 5.2.4.2 Placing and Compaction (sub clause 5.2.4.2)

(a) Spreading

Add the following:

The maximum layer thickness after compaction shall be 200 mm except for rock fill.

PSDM 5.2.4.3 Finishing (sub clause 5.2.4.3)

(b) Cut slopes

Add the following

Care shall be taken not to undercut any slopes which would cause sections to have steeper slopes than specified. All trimming of cut slopes shall be completed before any work on the subbase is commenced with.

The Engineer shall direct where grassing is required.

(c) Fill slopes

Add the following

No individual boulders occurring in other smaller sized material shall be allowed to project beyond the surface. All excess fill shall be removed immediately. No boulder in excess of 150 mm shall be used in fill slopes. The Engineer shall direct where grassing is required.

PSDM 5.2.8 Transport

Replace the contents of this subclause with the following:

The provisions of subclause PSD 5.2.5 of SABS 1200 D, as amended, shall apply.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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PSDM 6 TOLERANCES

PSDM 6.2.1 General (sub clause 6.2.1)

Add the following:

Dimensions, Levels, etc. Degree of accuracy I will apply

PSDM 8 MEASUREMENT AND PAYMENT

PSDM 8.2 COMPUTATION OF QUANTITIES

Replace subclauses 8.2.1 to 8.2.3 (inclusive) with the following

- PSDM 8.2.1 The provisions of subclause 8.2.1 of SABS 1200 D shall apply
- PSDM 8.2.2 The provisions of subclause 8.2.2 of SABS 1200 D shall apply
- PSDM 8.2.3 The provisions of subclause 8.2.2 of SABS 1200 D shall apply
- PSDM 8.2.5 Verifying quantities

Replace the first sentence with the following:

Before any earthworks are commenced but after completion of any site preparation, the Engineer will, upon a written request from the contractor, provide cross sections for the purpose of measurement of earthworks quantities.

PSDM 8.3 SCHEDULED ITEMS

PSDM 8.3.3 Treatment of roadbed

- a) Roadbed preparation and compaction of material to

Add the following:

The unit of measurement shall be the cubic metre of material recompacted as specified and the volume shall be determined from levelled cross-sections on which are superimposed the levels to which the roadbed is to be constructed. When material is imported to make up the required volume, such material will be paid for as cut or borrow to fill as relevant.

- Add the following:
- c) Three-pass roller compaction

Grid rollerUnit : m3

Vibratory rollerUnit : m3

The units of measurement shall be the square or roadbed compacted as specified in subclause PSDM 5.2.3.3 (c) for the areas designated by the Engineer.

The bid rates shall include full compensation for shaping the area, providing the rollers and compacting the roadbed by means of three roller passes over the entire area.

<i>Contractual Services- Internal Water Reticulation- Phase 1- Contract A - NTWANE</i>					
SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:

PSDM 8.3.5 Construction of selected layer compacted to 93% or 95% mod. AASHTO density will be material obtained from the designated borrow pit. Unit: m3

The rate shall include excavation, basic selection, transportation, spreading, watering, compaction, final grading, complying with tolerances and testing.

PSDM 8.3.12 Overhaul

Replace this item with the following:

Delete this item as no overhaul will be paid on material for the purposes of this contract and all the costs for transporting material shall be included in the applicable bid rates and amounts.

Add the following item:

PSDM 8.3.17 Final finishing and cleaning up of the site of worksUnit : sum

The bid sum shall include full compensation for the clearing, disposal of material, finishing, tidying and all other work required to finish and clean up the site of the works and affected area by removing excess earth, stones, boulder, debris and other waste material, by clearing stormwater inlets and outlets and pipe barrels, by clearing the surfacing of all dirt, mud and foreign material, and by neatly finishing off all junctions, intersections and kerbing.

All material resulting from the finishing operations shall be disposed of to a spoil site finished by the Contractor.

The Bid rate shall make provision for the reinstatement of existing driveways to their original condition where these have been affected by the works, as these items will not be measured and paid for separately.

<i>Contractual Services- Internal Water Reticulation- Phase 1- Contract A - NTWANE</i>					
SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:

VARIATIONS AND ADDITIONS TO STANDARDISED SPECIFICATIONS

SABS 1200 G: CONCRETE (STRUCTURAL)

PSG3 MATERIALS

PSG 3.2 Cement

PSG 3.2.2 Alternative Types of Cement (sub clause 3.2.2)

Replace the content of this subclause with the following:

Only CEM 1 42,5 (Portland cement) or CEM II/A-V 42,5 (Portland fly ash cement) according to (SANS 50197-1), may be used. The Cement may not consist of more than 20% siliceous fly ash blended with the OPC (Ordinary Portland Cement). Should the contractor wish to use any other type of cement, he shall obtain the Engineer's prior written approval (see 8.1.3.2 and 8.1.3.3)

PSG 3.2.3 Storage of Cement (Sub clause 3.2.3)

Add the following:

Cement shall not be stored for longer than 12 weeks without the Engineer's permission."

PSG 3.4 Aggregates

PSG 3.4.3 Storage of Aggregates (sub clause 3.4.3)

Add the following :

When aggregates of different chloride content are stored on the site, their use in the various classes of concrete shall be strictly controlled.

Add the following subclauses:

PSG 3.9 Waterstops

PVC waterstops shall comply with the requirements of CKS 389.

PSG 3.10 Sealing Strips

The dimensions and manufacturer of the sealing strip for use in the reservoir are shown on the Drawings. The strip shall be permanently bonded to the prepared concrete surface in accordance with the manufacturer's instructions. The Completed joint shall be guaranteed 100% watertight and resistant to the long term affects of chemically treated water.

PSG 4 PLANT

PSG 4.1 General (Sub clause 4.1)

Add the following subclause:

The removable tie-rod ends shall facilitate removal without damage to the concrete and no permanently embedded parts of such tie-rods shall have less than 50 mm of cover to the finished concrete surface.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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The cavities left in concrete when the tie-rod end cones are removed shall be soundly caulked with the cement mortar to which an approved shrinkage-reducing agent has been added, and shall be neatly finished to a smooth surface uniform with that of the surrounding concrete.

The cost of supplying special tie-rods as well as the filling of cavities left by the tie-rod cones shall be included in the rates bid for formwork under the appropriate pay items.

On no account shall formwork be secured to reinforcing bars.

The Contractor is to submit a method statement of the Engineer for plugging /sealing holes left by formwork ties.

PSG 5 CONSTRUCTION

PSG 5.1 Reinforcement

PSG 5.1.2 Fixing (sub clause 5.1.2)

Add the following:

The Engineer will inspect the reinforcing after it has been fixed in place, the formwork has been cleaned, cover blocks have been positioned, and before concreting commences.

Welding of reinforcing steel will not be permitted.

PSG 5.1.3 Cover (Sub clause 5.1.3)

Add the following:

The distance between pipes in concrete and reinforcing steel shall nowhere be less than:

- a) 40 mm or
- b) The cover specified on the Drawings.

PSG 5.2 Formwork

PSG 5.2.1 Classification of Finishes (sub clause 5.2.1)

- c) Special

Add the following:

This finish is obtained by first giving the surface a smooth finish with the joints between formwork panels forming an approved regular pattern suitable for the appearance of the structure. All projections shall then be removed, irregularities repaired, and the surface rubbed or otherwise treated until it is smooth with an even texture, appearance and colour.

If this finish of exposed surfaces of the entire structure or any part thereof as specified below, entirely at his own cost. All repairs must be completed before the rubbing commences.

The surface shall be saturated with water for at least one hour, The initial rubbing of the face shall be carried out with a medium coarse carborundum stone together with a small amount of mortar of the same cement/sand ratio as the concrete being repaired. Rubbing shall continue until all form marks, projections and irregularities have been removed and a uniform surface has been obtained.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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The paste produced by the rubbing shall be kept in place. The final rubbing shall be carried out with a fine carborundum stone and water. This rubbing shall continue until the entire surface has a smooth, even texture and is uniform in colour. The surface shall subsequently be washed with a brush to remove surplus paste and powder.

PSG 5.2.2 Preparation for Formwork (sub clause 5.2.2)

Add the following:

Construction joints shall be positioned as shown on the Drawings

PSG 5.2.5 Removal of Formwork (sub clause 5.2.5)

Add the following subclause:

PSG 5.2.5.6 The Contractor shall make provision for continued support to beams and slabs while the formwork is being removed and/or for back propping of beams and slabs.

PSG 5.3 Holes, Chases and Fixing Blocks (sub clause 5.3)

Add the following:

Cover blocks for reinforcing and fixtures may be placed into concrete provided that neither the strength nor any other desirable characteristics (such as the appearance) of the concrete section is affected or impaired in the opinion of the Engineer.

The holes or cavities left by ferrule heads in the concrete of water-retaining structures shall be filled with an approved non-shrink grout applied strictly in accordance with the manufacturer's specifications. The Contractor is to submit a method statement in this regard.

PSG 5.4 Pipes and Conduits (sub clause 5.4)

Add the following clause:

All pipes passing through concrete floors, walls or slabs shall be cast into a concrete member simultaneously with the casting of the member. Openings for pipes shall only be left in concrete members when so directed by the Engineer or when shown on the Drawings. Pipes shall be installed in such openings according to the details shown on the Drawings.

If the Water tightness is a requirement where pipes are cast into walls, floors and slabs, the Contractor shall ensure water tightness where smooth-surfaced pipes are used by using an approved method such as tape wrapping the pipes prior to casting in. The cost of such method will be deemed to be included in the rates bid for item PSG 8.10

PSG 5.5 Concrete

PSG 5.5.1 Quantity

PSG 5.4.1.2 Consistency (sub clause 5.4.1.2)

Add the following to sub clause 5.5.1.2 (a)

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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The slump of concrete used in water retaining structures may not be less than 30mm and not more than 60mm.

PSG 5.5.1.5 Durability (sub clause 5.5.1.5)

The exposure conditions of the concrete are classified as severe.

PSG 5.5.1.7 Strength Concrete (sub clause 5.5.1.7)

Add the following:

The concrete mixes shall be designed by the Portland Cement Institute or similar approved laboratory.

The minimum cement content shall be 325 kg / m³. The maximum water: cement ratio shall be 0,55 for ordinary Portland cement (OPC), CEM 1 42,5 according to SANS 50197-1, or 0,50 for ordinary Portland cement blended with pulverized fuel ash (PFA).

The cement content shall not exceed 400 kg/m³ OPC in reinforced concrete or 450 Kg/m³ OPC blended with PFA in reinforced concrete.

Add the following to sub clause 5.5.1

5.5.1.8 Durability

Concrete shall be so proportioned to ensure that the cement/water ratio does not exceed 0.5 and to ensure workability, water-reducing admixtures of approved manufacture shall be used in preference to increasing the cement content.

PSG 5.5.3 Mixing (sub clause 5.5.3)

PSG 5.5.3.2 Ready –mixed concrete (sub clause 5.5.3.2)

Add the following:

Ready mixed concrete may be used on the site. The Contractor shall take samples for testing from every load delivered to the Site.

PSG 5.5.5 Placing (sub clause 5.5.5)

Add the following:

Concreting of the wall between horizontal construction joints shall be carried out in both directions from a point on the wall in order to close the gap with fresh concrete.

PSG 5.5.7 Construction Joints (sub clause 5.5.7)

Add the following:

Horizontal construction joints are permitted in structure wall in positions indicated on the Drawings or approved by the Engineer. Vertical construction joints in the walls are subject to the written approval of the Engineer and the cost of all such vertical or horizontal construction joint will be deemed to be included in the rates for cast- in situ concrete.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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The construction joint in water-retaining structures shall be made strictly in accordance with the details shown on the Drawings.

Should the Contractor 's method of construction necessitate the placing of the construction or other joint in a position not shown on the Drawings, such method of construction and position of the joint shall be approved by the Engineer in writing. The Cost of such joint shall be included in the bid rates and shall be approved by the Engineer in writing. The cost of such joint shall be included in the bid rates and shall include scrubbling of the concrete where steel reinforcement is continuous.

The wall shall be cast in lifts of height that permits each lift to be poured without interruption in one continuous operation during normal working hours.

Every specified permissible deviation is binding in itself. The cumulative effect of permissible deviations will not be considered. The maximum permissible vertical deviation is subject to the other permissible deviations.

PSG 6 TOLERANCES

PSG 6.2.3 Specified PD's (Sub clause 6.2.3)

Replace sub clause 6.2.3 (d)(5) with the following:

Permissible Deviation		
Degree of accuracy		
III	II	I
mm	mm	mm
5	3	2
50	30	10

PSG 7 TESTS

PSG 7.1 Facilities and Frequency of Sampling

PSG 7.1.1 Facilities (sub clause 7.1.1)

Add the following:

The Contractor shall provide sufficient storage capacity for the concrete cubes and shall arrange to have them tested by an approved laboratory.

The cost of all testing, including the cost of sampling, storage and transport of samples shall be included in the rates bid for concrete work.

PSG 7.3 Acceptance Criteria for Strength Concrete

Add the following:

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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Test result obtained from the supplier of ready –mixed concrete will not be accepted for evaluation in terms of subclause 7.3, but samples for testing shall be taken of such concrete at the point of placing.

PSG 8 MEASUREMENT AND PAYMENT

PSG 8.1 Measurement and Rates

PSG 8.1.1 Formwork (sub clause 8.1.1)

Delete “or splays over 20 mm x 20 mm” from the first line of paragraph 8.1.1.2.

Add the following paragraphs:

- 8.1.1.7 For construction joint at kickers, all additional costs for formwork to edges up to 30 mm high will be deemed to be included in the rates bid for vertical formwork to sides of walls and will not be measured separately in narrow widths.
- 8.1.1.8 No Formwork will be measured to edges of blinding layers under structures, and the cost therefore (if needed) will be deemed to be included in the rate bid for concrete in blinding layers.
- 8.1.1.9 Back shuttering or formwork to top revealed surfaces of sloping or conical formwork will only be measured to surfaces of over 40 degrees and up to 85 degrees to the horizontal.
- 8.1.1.10 Formwork to horizontal surface in pump stations, valve chambers, manholes or sumps can either be removed through the manhole cover opening or the Contractor may use permanent formwork at his own cost as no claims in this regards will be considered.

PSG 8.1.2 Reinforcement (sub clause 8.1.2)

Replace the content of this subclause with the following:

The unit measurement for steel bars shall be the tons of reinforcement in place, in accordance with the Drawings or as authorised by the Engineer.

The unit of measurement for welded steel fabric shall be the kilogram of fabric reinforcement in place, and the quantity shall be calculated from the net area covered by the mesh, excluding overlaps.

Clips, ties, separators, stools and other steel used for positioning reinforcement will not be measured, unless these are shown on the bending schedules.

The bid rate includes full compensation for supply, deliver, cutting, bending, welding, placing and fixing of the steel reinforcement, including all typing wire, stools, supports and waste.

PSG 8.1.3 Concrete (sub clause 8.1.3)

- PSG 8.1.3.1 Delete, or the plan size of excavation where additional excavation is provided of facilitate erection of forms from the second line of paragraph 8.1.3.1 (c)

PSG 8.2.5 Narrow Widths

Add the following:

Widths in excess of 300 mm shall not be regarded as narrow widths.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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PSG 8.4 Scheduled Concrete Items

PSG 8.4.3 Strength concrete (sub 8.4.3)

Add the following after the last sentence:

In the case of structural floor screeds, the unit of measurement shall be the square metre and the average thickness and proportions will be stated.

For floor screed replace "Unit : m3" with "Unit: m2 or m3"

PSG 8.5 Joints (sub clause 8.5)

Replace "unit: m" with "unit: m or m2

Add the following items:

PSG 8.9 Screeds

Floor screeds (1:3) with falls including a smooth steel-trowelled finish to top:

Description of application and thicknessunit : m2

Etc for other applications and thicknesses

The unit of measurement shall be the square metre of screeds constructed

The Bid rate shall include full compensation for constructing the screeds as specified including supplying of all materials, preparing the concrete surface to receive the screeds and for all else that may be necessary to complete the work.

PSG 8.10 Casting in Pipes with or without Puddle Flanges

Up to 300 mm nominal bore:

Description and thickness of structural elementsUnit : No.

Over 300 mm up to 600 mm nominal bore:

Description thickness of structural elementsUnit : No.

Etc for other nominal bores in increments of 300 mm

The Unit of measurement shall be the number of each size of pipe installed.

The Bid rates shall include full compensation for installing the pipe where new pipes are used (with or without a puddle flange) in the exact position as shown on the Drawings , for splitting or cutting the formwork where required, for ensuring water tightness where required and for all additional costs required to install the pipes specified or shown on the Drawings.

New pipes shall be measured under the items of the relevant section of the specifications.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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VARIATIONS AND ADDITIONS TO STANDARDISED SPECIFICATIONS

SABS 1200 L: BEDDING (PIPES)

PSL 3 MATERIALS

PSL 3.1 General

Add the following paragraphs:

Each type of pipe delivered to the site shall be of a standard length corresponding to the standard lengths offered by the pipe manufacturer in the catalogue, with a maximum permissible variation in length PF-+ 2%

A Pipe that is shorter or longer than the defined standard will be rejected by the Engineer, except when such non-standard lengths are required in terms of the Contract and have been specifically manufactured or cut as such by the pipe manufacture or supplier.

PSL 3.4 Steel Pipes, Fittings and Specials

PSL 3.4.2 Pipes of nominal bore up to 150 mm (sub clause 3.4.2)

Add the following:

The pipes shall be normalised or seamless steel pipes and shall be used with malleable cast-iron fitting complying with the requirements of SABS 509.

Where flanges are required they shall comply with SABS 1123 table 1600 unless otherwise shown on the Drawings.

PSL 3.7 Other Types of Pipes

PSL 3.7.2 Polyethylene Pipes (sub clause 3.7.2)

Replace the contents of this clause with the following:

Polyethylene pipes shall be SABS ISO 4427 PE 100 PN10 HDPE pipes with compression fittings and shall comply with SABS 533 Part II.

Add the following sub clause:

PSL 3.7.3 Ductile Iron Pipes

Ductile iron pipes shall be class K9 pipes complying with SANS 50542-2003 (Edition 2) EN 545:2002 (EDITION 2) and shall be manufactured with spigot and socket push –in joint and Tyton rubber gaskets.

PSL 3.9 Corrosion Protection

PSL 3.9.2 Steel pipes

PSL 3.9.2.1 Steel pipes of nominal bore up to 150 mm (sub clause 3.9.2.1)

Add the following:

Steel pipes shall be galvanized where shown on the Drawings.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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PSL 3.9.2.2 Steel pipes of nominal bore over 150 mm (sub clause 3.9.2.2)

Add the following:

Steel pipes shall be hot-dip galvanized where shown on the Drawings and as specified in sub-clause 3.9.2.2

Galvanized steel pipework, fittings, specials, etc. Shall comply with SABS 934 and 763 and be entirely coated with zinc after fabrication by complete immersion in a zinc bath. The finished surface shall be clean, uniform and any excess being removed. The zinc deposit shall exceed the followings:

Coastal areas: 0.735 kg/m²

Inland areas: 0.400 kg/m²

PSL 3.9.6 Corrosive Soil (sub clause 3.9.6)

Add the following:

Where shown on the Drawings, steel pipes in contact with corrosive soil shall be wrapped with Densopol 80 HT or an equivalent approved product, strictly in accordance with the manufacturer's instructions.

Add the following subclause:

PSL 3.9.7 Ductile Iron Pipes

Ductile iron pipes shall be coated internally with a 5 mm thick cement mortar lining complying with SANS 5054: 2003 (Edition 2) and or EN 545: 2003 (Edition 2) and externally with a metallic zinc spray coating plus a layer of bituminous varnish to a total minimum film thickness of 70 micro, all in accordance with SANS 5054:2003 (edition 2)

Any pipes with damage to the lining or coating shall not be repaired but shall be removed from the site and replaced with pipes having undamaged linings and coatings.

PSL 3.10 Valves (sub clause 3.10)

Replace the contents of this subclause with the following:

PSL 3.10.1 Gate Valves

Gate valve shall, unless otherwise specified, be of the standard waterworks pattern with resilient seal gates and shall comply with the requirements of SABS 664. The gate valves shall be double flanged for all pipework.

In addition to the SABS specification the following special requirements shall be met:

- a) The valve class shall be at least equal to that of the pipework in which it is to be installed. All valves shall be rated for a working pressure of at least 1,6 MPa (Class 16).
- b) The valves shall be double flanged
- c) The valves shall be supplied with a non-rising type spindle. Spindles shall be threaded such that two turns of the hand wheel shall effect a movement of 25mm on the gate valve.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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- d) The valves shall be fitted with a cast iron cap attached to the spindle by means of a "Stout brass screw" with a hexagonal head.
- e) The valves shall be Clockwise Closing.
- f) The lugs on the gate and the spindle are to conform to 3.2.3 of SABS 664 and are to be machined to a good fit and finish.
- g) The design of the valve guides shall be such that all valves supplied can be mounted in any position
- h) Valve trim shall be either Type B (gun metal trim) or Type C (stainless steel trim) as specified in SANS 664 Clause 3.5.5.
- i) Seat rings shall comply with clause 3.5.6 of SABS 664 and shall be pinned into position.
- j) The stuffing box may either be of the conventional type with gland packing with a gland secured with 2 No. bolts and nuts. The nuts shall be of the Tee pattern and the gland stuffing box shall be capable of holding four rings of a standard size of gland packing. The gland packing box shall be capable of being repacked under working pressure, preferably with the gate in the open position. The gland shall fit neatly and snugly into the stuffing box. The base of the gland stuffing box shall be chamfered to force the packing against the spindle.
- k) Alternatively the sealing of the spindle body may be by means of "O" rings which are retained in position by means of machined grooves in the valve body and which seals against the spindle.
- l) The valves shall be double flanged and drilled in accordance with SABS 1123/1977 for the required pressure rating.
- m) Each valve shall be supplied with 2 No. full face rubber gaskets and the required number of nut, bolts and washers to suite the valves. The costs of these items shall be included in the rates tendered.
- n) Valves which incorporate a thrust plate of the horseshoe type will not be considered.
- o) Every sluice valve shall be provided with substantial guides cast on each side of the gate, preferably extending to the top of the nut box and operating along corresponding guides cast in the sides of the valve body (Brass trim only). Bronze guides shall be of phosphor bronze to BS 1400 PB 2-0.
- p) The valves shall be drop tight at the specified working pressure applied to one side of the gate and the other side subject to open conditions.
- q) The gate valves shall be supplied with the gland packing installed and shall be either "Maxmech Style M57, Chesterton 1724" or similar approved.
- r) All valves shall be coated and lined by means of a powder (sintered) epoxy coating with a dry film of a least 250 micron.

PSL 3.10.2 Butterfly valves

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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Butterfly valve shall comply with the requirements of BSA 5155 and shall be of the double-flanged, lugged or water types, as specified. They shall be designed to fit between flanges drilled in accordance with SABS 1123.

Butterfly valve shall be controlled by weather-proof actuators fitted with hand wheels. Electrical actuators shall be provided if so specified on the drawings. Safety devices such as shear pins shall be built into the actuators to prevent damage to the valve should excessive force be applied to the hand wheel in the fully open or closed positions. If so specified, valves with a 10 mm diameter and smaller shall be controlled by direct-mounted ratchet handles.

Closure of valve shall be by clockwise movement of the hand wheel or ratchet handle and the fully open and fully closed positions shall be positively stopped.

Valve discs shall be of single casting, with a streamlined shape, and shall have smooth surfaces. Where resilient seats are specified, these shall be moulded to the shape of the valve body but shall be bonded to the body, so that they can be easily replaced.

Butterfly valves of class 16 and higher or with a 350 mm diameter and larger shall be fitted with self-lubricating, two-way, adjustable thrust bearings to permit precise disc to seat positioning at all times.

Valve shafts shall preferably be continuous, but if stub shafts are provided, they shall each extend into the disc hub for a distance of at least 1,5 times the shaft diameter.

Butterfly valves shall be installed with valve shafts in vertical position and hand wheels in a horizontal position.

PSL 3.10.3 Air Valves

Air valves shall have a single or double openings as specified and shall be manufactured, when applicable, to the same standards of quality and finish as laid down in SABS 664 for Gate Valves.

Air valve shall be "Vent-o-Mat-RBX" or similar (Flanged type)

PSL 3.10.4 Non-Return Valves for Pumping Mains

Non return valves shall be the Fig WDV 25 or similar approved and the following requirements shall be met:

- a) Quiet operation
- b) Water hammer to be minimized
- c) Adapt to fluctuations in flow rate
- d) Drop tight sealing
- e) Reliable

PSL 5 CONSTRUCTION

PSL 5.1 Laying

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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Add the following:

Where connecting to the existing pipeline the position of the existing pipeline must be established by the excavation of test holes (Hand excavation) before any trench excavation to the planned connection point is undertaken. The Contractor will not be compensated for excavation and any other works that is executed and proves to be unnecessary because this specification was not followed.

PSL 5.4 Concrete Encasing (sub clause 5.4)

Replace the first sentence with the following:

Concrete encasing with concrete with a strength of 20/19 MPa must be provided at positions as indicated by the Engineer. Provision must be made to keep the pipe in position during the concrete encasing. The length of concrete encasing will be determined by means of an instruction from the Engineer.

Add the following:

Soilcrete Encasing

A mixture of Portland cement and gravel of sub base quality (G6) that is mixed in a ratio as prescribed must be provided at positions and lengths as instructed by the Engineer.

PSL 5.6 Valve and Hydrant Chambers

PSL 5.6.1 General (sub clause 5.6.1)

Replace the words "Drawing L-1 " in the second line with "The Drawings"

PSL 5.6.2 Construction of Chambers (sub clause 5.6.2)

Replace the words "drawing L-1, L-2 and L-3" in the fourth line with "The Drawings"

Add the following subclauses:

PSL 5.11 Pipeline Route Markers

Route markers for the pipeline shall be erected at all changes in direction and 500 m intervals on straight sections and shall be manufactured according to details shown on the Drawings.

PSL 7 TESTING

PSL 7.3 Standard Hydraulic Pipe Test

PSL 7.3.1 Test Pressure and Time of Test

PSL 7.3.1.2 Replace 1,25 in the first line with 1,5. The maximum working pressure for different pipes in indicated by the class of the pipe.

PSL 8 MEASUREMENT AND PAYMENT

PSL 8.2 Scheduled Items

PSL 8.2.1 Supply, lay and bed pipes complete with couplings (sub clause 8.2.1)

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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The bid rates shall also include full compensation for the cost of all labour, material, plant, chemicals and overheads for complete sterilization of the entire pipeline and disposal of the sterilizing solution as approved by the Engineer.

Add the following:

“Payment” will be made as follow:

- a) EIGHTY PER CENT (80%) of the sum tendered will be paid when the excavations has been completed to line and level and approved by the Engineer.
- b) The remaining TWENTY PER CENT (20%) will be paid when the pipeline has passed the pressure testing, sterilized and the remaining backfilled has been completed to the approval of the Engineer.

PSL 8.2.11 Anchor blocks / Trust blocks and Pedestals (sub clause 8.2.11)

Insert “concrete” before “and” in the last line of the last paragraph

Add the following:

The tendered rates shall also include the wrapping of uPVC pipes and fittings with Densopol 80 or a similar approved material where the pipes and fittings come into contact with concrete.

“Add the following items”

PSL 8.2.16 Connection to existing main supply pipe..... Unit : No

The bid rate shall include full compensation for the cost of excavation, connection to existing main supply pipe, removal of surplus and waste material, all labour and equipment necessary to make the connection, removing the blank flange and all liaison with the local authorities.

PSL 8.2.17 Closing of water supply by relevant authority..... Unit : Sum

The bid sum shall include full compensation for all costs involved to arrange with the relevant authority to close the water supply.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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VARIATIONS AND ADDITIONS TO STANDARDISED SPECIFICATIONS

SABS 1200 LB: BEDDING (PIPES)

PSLB 1 SCOPE

Add the following:

This specification also covers the bedding required for sleeve pipes.

PSLB 3 MATERIALS

PSLB 3.1 Selected Granular Material (sub clause 3.1)

Substitute the clause with the following:

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

Selected granular material shall have a PI not exceeding 6 and shall be free from sharp-edged particles exceeding 19 mm

Only if approved by the Engineer may sand from the trench excavations be used as selected material.

PSLB 3.2 Selected Fill Material (sub clause 3.2)

Substitute with the following:

Selected fill material shall be material that has a PI of less than 12 and does not contain vegetation or stones exceeding 20mm. Selected fill material may occur in-situ, be imported or selected from trench excavation.

PSLB 3.3 Bedding (sub clause 3.3)

Add the following:

All pipes shall be classified as flexible pipes and shall have a bedding of selected granular material and selected fill material.

uPVC and HDPE pipes are deemed to be flexible pipes for the purposes of this subclause.

Pipes shall be laid on Class B bedding (Rigid Pipes).

PSLB 3.4 Selection

PSLB 3.4.1 Suitable Material from Trench Excavation Available (sub clause 3.4.1)

Replace the first sentence with the following:

Notwithstanding the requirements DB 3.7 and LB 3.4.1 relating selected excavation methods, the Contractor must follow selected excavation methods and provide or use plant that will prevent material that is suitable and necessary for bedding being contaminated.

Provision in the rates shall be made for sifted sand for all the bedding, irrespective whether imported or in situ. Bedding shall include both the blanket and cradle layers. Under no circumstances will the contractor deviate from this specification unless written permission has been granted by the engineer. Items 8.3.2.1 of the SABS 1200 LB schedule must be allowed for under either item 8.3.2 (a) SABS 1200 LB or item 8.2.1 SABS 1200 LB scheduled in the bill of quantities.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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Replace the words “(but is not requires)” in the fifth line with the words” (at his own cost)”

PSLB 5 B CONSTRUCTION

PSLB 5.1 General

PSLB 5.1.4 Compacting (sub clause 5.1.4)

Substitute "90 % of modified AASHTO" in with "93 % of modified AASHTO
If sand is used the compaction grade must be 100% modified AASHTO.

PSLB 5.2.2.3(d) Borrow (sub clause 5.2.2.3(d))

If insufficient cut material is available to complete the earthworks in any particular section of the work, the Contractor shall locate other economic sources of borrow material, within the freehaul distance.

PSLB 5.2.5.1 Freehaul (sub clause 5.2.5.1)

All haul of material on site from borrow pit areas, as well as to dumping areas within 10 km will be regarded as freehaul. This freehaul distance is applicable to the whole of the contract.

PSLB 5.10 Borrow pits and, Commercial Off-site Sources (sub clause 5.10)

It is to be noted that no extra over payment will be effected for intermediate or hard rock excavations under these items. The contractor is to allow for this in his rates.

PSLB 8 MEASUREMENT AND PAYMENT

PSLB 8.1 Principles

PSLB 8.1.1 Supply of Bedding Materials Measured Separately (sub clause 8.1.1)

Add the following:

Payment for bedding material and selected fill material is only made if the selected trench excavation material cannot be used in the same position as bedding material but has to be obtained from another part of the site of works or designated borrow pits, or from commercial sources.

PSLB 8.1.5 Disposal of Displaced Material (sub clause 8.1.5)

Add the following:

Surplus displaced material shall be dumped and levelled at the spoil site.

PSLB 8.2 Scheduled Items

PSLB 8.2.2 Supply only of Bedding by Importation

PSLB 8.2.2.4 From stockpile (provisional)

- a) Selected granular material Unit : m³
- b) Selected fill material Unit : m³

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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The rate shall cover the cost of obtaining, handling and transport regardless the distance, of the required bedding material from the stockpile, the delivery thereof at positions that are spaced along the trench in such a way as suits the working method of the Contractor, as well as the removal of material displaced by this importation within a free haul distance of 0,5 km.

PSLB 8.2.5 Overhaul Of Material For Bedding Cradle And Selected

Fill Blanket Unit : m³.km

Substitute LB 8.2.5 with the following:

- a) Limited overhaul (0,5 km to 1,0 km) Unit : m³
- b) Long overhaul Unit : m³.km

Except that the volume is calculated according to LB 8.1.3, the requirements of D 8.3.6 or DA 8.3.3, as applicable, shall apply for overhaul.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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VARIATIONS AND ADDITIONS TO STANDARDISED SPECIFICATIONS

SABS 1200 LF: ERF CONNECTIONS (Water)

PSLF 8 MEASUREMENT AND PAYMENT

Add the following:

PSLF 8.2.9 Extra-Over item 8.2.1 for additional excavation in all materials for trenches, compact and dispose of surplus material.

This item shall cover all costs for the additional excavation required in addition to the length as indicated on drawing CIV 505.

The rate shall cover the costs of complying with the requirements of clause 5.1 of SANS 1200 DB, excavation, compact and dispose of surplus material as specified in SANS 1200DB as specified in 5.6.3 and 5.6.4. No haulage shall be applicable to this item.

The length will be measured for payment on the assumption that normal trench excavation has been carried out. The material will be classified as soft excavation in terms clause 3.1 of SANS 1200 DB. The rate shall include for selected fill material as defined in clause 3.2 of SANS 1200 LB and compaction to 90% mod AASHTO density with a minimum cover of 75mm below the pipe invert and compacted in layers not exceeding 200mm.

PSLF 8.3.10 Extra over item 8.2.1 for the supply, lay joint, test and disinfect the following pipes. Couplings included in item 8.3.1.

Pipelines will be measured by the additional lengths as laid. 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 pipe complete and the costs of handling, inspection, transportation, bedding, laying, jointing, cutting, testing and disinfecting of the pipes.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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VARIATIONS AND ADDITIONS TO STANDARDISED SPECIFICATIONS

SABS 1200 ME: SUBBASE

PSME 3 MATERIALS

PSME 3.2.2 Gravel Shoulder and Gravel Wearing Course Material (sub clause 3.2.2)

Gravel wearing course material shall comply with the following:

- a) the material shall be cationic
- b) the grading modulus (GM) shall be between 1,2 to 2,5
- c) the plasticity index (PI) shall be between 7 to 15
- d) the natural CBR at 93% mod. AASHTO density shall be greater than 10
- e) the maximum size of aggregate used shall be 40mm
- f) the maximum swell at 100% mod. AASHTO density shall be 1,5

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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PARTICULAR SPECIFICATIONS

The following Particular Specifications for the works not covered by the SANS 1200 Standardized Specifications are also included hereunder and shall form part of the contract:

PA	:	Pipeline Valves
PB	:	Disinfection of Pipeline
PET	:	Steel Tanks
PC	:	Provision of Structured Training
PD	:	Provision of Temporary Workforce
PE	:	HIV/AIDS Specification
PF	:	Generic Labour – Intensive Specification
PG	:	Environmental Management Plan

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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PARTICULAR SPECIFICATION: PA PIPELINE VALVES

PA 1 SCOPE

This specification covers the material and constructional requirements for wedge gate, resilient seal, reflux, butterfly and air valves.

PA 2 DEFINITIONS

Single small orifice air valve - A valve capable of releasing small accumulations of air at all pressures throughout the working pressure range of the pipeline.

Single large orifice air valve - A valve capable of admitting or expelling large quantities of air during emptying and filling of the pipeline.

Double orifice air valve - A valve capable of satisfactorily carrying out the functions of both a single small orifice air valve and a single large orifice air valve.

PA 3 REQUIREMENTS

PA 3.1 General

The types, sizes, end connections, pressure ranges and other details of the valves required are detailed on the specification data sheets. Offer data sheets are included to permit tenderers to offer variations to the specification to suit their standard products.

PA 3.2 Materials, Workmanship and Construction

PA 3.2.1 Wedge Gate Valves

Wedge Gate valve must comply with SABS 664 or SABS 191 as applicable for waterworks pattern valves. They shall have non-rising spindles unless specified or scheduled to the contrary.

Valves must also be provided with the following

- a) Handwheels, unless specified or scheduled to the contrary
- b) Fully enclosed gearing, where necessary to limit the maximum torque to be applied at the handwheel spindle or cap top to 120 Nm under an unbalanced pressure equal to the maximum working pressure for the classes scheduled
- c) The facility to permit repacking of the gland whilst the valve is under working pressure
- d) Stainless steel jacking/limiting screws for valves with a nominal bore greater than 600 mm and with metal gates.
- e) Seats must be glued and pinned into place for all valves up to and including Class 25 valves, except for Class 25 valves where the gate test pressure is to be 2x working pressure. In the latter case deposit welded and machined seats must be provided.

PA 3.2.2 Resilient Seal Valves (RSV's)

In addition to the requirements of 3.2.1 above, RSV's shall be provided with the following:

- a) Grade 304 stainless or EN57 steel spindles as scheduled.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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- b) At least two nitrile rubber “O” sealing rings in a corrosion resistant housing, plus one nitrile rubber wiper ring to prevent the ingress of dirt.

PA 3.2.3 Reflux Valves

Single-door reflux valves must be cast iron, spheroidal graphite (SG) iron or cast steel, and comply with SABS 144 or SABS 192 as applicable. Unless otherwise scheduled, gunmetal trim shall be provided for cast iron valves and stainless-steel trim for cast steel valves.

Valves with a nominal bore greater than 600 mm must be of the double door or multi-door type and may be fitted with an integral bypass. In other respects, they must be in accordance with the specifications for the single door type.

A suitable arrow indicating the flow direction through the valve shall be cast onto the body of the valve.

PA 3.2.4 Butterfly Valves

The valves must comply with BS 5155 for tight shut off service for the types, classes and sizes listed in the ‘Specification Data Sheets’ or Schedule of Quantities/Prices.

The basic materials for butterfly valves should be as follows:

		Class PN 10	Classes PN 16 + PN 25	Class PN 40
Body, disc handwheel	DN 350 to 600	Cast iron or S G Iron	S G Iron	Cast steel
	DN over 600 mm	S G Iron	Cast steel	
Seating ring: a) Separate b) Integral		Gun metal or stainless steel Hard chrome coated	Stainless steel Nylon coated	
Bearings				
Seal clamp rings		Bronze or stainless steel	Stainless steel	Stainless steel

The bottom of the disc must move in the flow direction when opening from the closed position, except where specified to the contrary. The valve shall be droptight under the maximum pressure rating condition.

The face to face dimensions shall be as set out in Table 6 of BS 5155 in the column headed “double flanged short” for double flanged valves and in the column headed “wafer long” for wafer valves.

A suitable arrow indicating the preferred flow direction through the valve, where such preference is applicable, shall be cast onto the body of the valve.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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Unless otherwise scheduled a side mounted manual actuator shall be provided. The actuator shall be a separate unit bolted to the main valve body on the side designated in the data sheets when facing the normal direction of flow. Water must not leak past the main shaft and enter the actuator. An indicator which shows the extent of opening the valve disc must be fitted.

The designated power source for the operation of a power operated actuator is given in the data sheets. This source may be of an electric, hydraulic or pneumatic nature, as specified. The actuator shall comply generally with AWWA C504, and shall be capable of withstanding opening and closing torques at least 30% in excess of those necessary under the maximum working condition using the designated power source.

All actuators, whether power operated or not, shall be supplied complete with horizontal handwheel at a height that provides for reasonable operation in each situation shown on the drawings. The handwheel shall comply with the relevant requirements of SABS 664. The handwheel must be mounted on a vertical shaft and must require not more than 120 Nm of input torque to operate against a maximum unbalanced head equal to the pressure rating of the valve.

All power operated actuators are to be fitted with 'Open' and 'Closed' limit switches and a 4 - 20 mA position transmitter.

PA 3.2.5 Air Valves

The materials and workmanship employed in the manufacture of air valves shall be at least equal to the standard required by SABS 664 for waterworks pattern valves.

Large orifice and double orifice air valves shall be provided with an automatic anti-shock device to prevent the creation of shock pressures at the orifice due to slamming, caused by the arrival of liquid after venting of air from a filling pipeline. The maximum pressure induced after sudden closure shall be less than twice the rated working pressure of the valve. The same valve shall also be capable of allowing air into the pipeline in large quantities during pipe draining operations.

Small orifice air valves shall be capable of discharging accumulated air under the normal working pressures in the pipeline.

No valve shall weep or leak at any operating pressure between twice the specified working pressure down to 50 kPa, or lower if so specified.

The valves shall be constructed from corrosion resistant materials and be easily dismantled for cleaning and maintenance purposes.

PA 3.3 Marking

In addition to the requirement of SABS 144 or SABS regarding marking, all valves must be provided with an identification plate on which the following information shall be indelibly cast or embossed;

- a) The item or tag number;
- b) The size or nominal bore of the valve;
- c) The class or working pressure of the valve.

PA 3.4 End Connections

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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End connections shall be flanged or screwed as scheduled.

a) Flanges - Where flanged connections are specified the dimensions and drilling of the flanges must comply with SABS 1123 except where otherwise scheduled. The front faces or flanges must be flat and normal to the bore of the valve. The back of the flanges, bonnets etc must be flat and normal to the bore or be spot-faced over an area large enough to freely accommodate the washer and the nut.

Drilled holes for the passage of bolts must be provided where wafer type butterfly valves are scheduled.

Flange gaskets must be CPAF with a minimum thickness of 3mm. Bolts must comply with SABS 135 or SABS 136. Washers must conform to SABS 1149. All ferrous nuts, bolts and washers must be galvanized to SABS 763.

b) Screwed ends - Where screwed ends are specified the valve shall be threaded to BSP.

PA 3.5 Drawings

The supplier shall provide two paper prints of fully dimensioned drawings for each type of valve and actuator when requested by the Engineer.

PA 3.6 Mounting Feet

Valves with a nominal bore of 450 mm or greater must be provided with mounting feet where called for on the specification data sheets.

PA 3.7 Lifting Eyes

A lifting eye at the top of the valve body shall be provided, where the combined mass of the valve bypasses and actuator exceeds 75 kg.

PA 3.8 Protection Prior to Installation

Valves shall be temporarily covered and protected against UV radiation at all times prior to installation.

PA 4 TESTING

PA 4.1 Test Certificates

A test certificate shall be provided with each valve wherein it is certified that the valve has been inspected and tested and that it complies with the specification. An independent inspector may be appointed by the Employer to witness the testing; in such case the inspector must also sign the test certificate. The charges made by the independent inspector will be paid by the Contractor.

At least three working days written notice must be given of the proposed date and time of the test. In the event that the valve(s) to be tested not being ready the Employer reserves the right to deduct any fruitless inspection costs from moneys due to the Contractor.

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PA 4.2 Test Requirements

Hydraulic tests shall be carried out at the factory on each valve as follows:

PA 4.2.1 Gate Valves

In accordance with SABS 664 or SABS 191 (as applicable).

In addition to the test requirements in the applicable SABS specification all valves with a nominal bore greater than 450 mm shall be subjected to an open end gate strength test of 1,5 times the working pressure. Drop tightness in respect of this gate strength test is not required.

PA 4.2.2 Reflux Valves

In accordance with the requirements of SABS 144 or SABS 192 (as applicable) to the following pressures:

- a) Body with clack open - 2,0 times class max working pressure
- b) Door strength - 2,0 times class max working pressure
- c) Seating with doors closed - 1,1 times class max working pressure, under which pressure the seat must be drop tight

The door strength must be capable of withstanding the test pressure applied to the body without damage or distortion.

PA 4.2.3 Butterfly Valves

Each valve is to be tested at the factory in accordance with the requirements of BS 5155.

PA 4.2.4 Air Valves

Each Valve is to be tested at the factory as follows:

- a) Body Test - The valve shall be filled with water and a pressure equivalent to twice the maximum working pressure shall be applied for 5 minutes. There shall be no loss of water from the valve during the test.
- b) Low Head Leak Test - Lower the pressure to 50 kPa and maintain the pressure for 5 minutes. There shall be no loss of water from the valve during the test. Steadily lower the pressure further to ascertain at what pressure seepage begins and record that pressure.
- c) Drop Test - One valve taken at random from each batch of ten small orifice and double orifice air valves (or less) shall be subjected to a "drop test". The valve shall be filled with water and pressurized to above the working pressure and isolated from the test rig by closure of an isolating valve. A chamber in the test rig immediately prior to the isolating valve must be filled with compressed air at a pressure equal to that being maintained in the air release valve. The isolating valve is then opened so as to allow the air to rise in the air release valve without the pressure dropping lower than 2 - 3 bar (29 - 44 psi) above rated working pressure of the air release valve. The "DROP TEST" is then carried out by slowly bleeding off the pressure through a suitable cock until rated working pressure is reached and the float drops away from the orifice to allow discharge. Failure of the air release valve to function in the manner described will be reason for rejection.

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PA 5 CORROSION PROTECTION

The cleaning and corrosion protection of valves must be carried out at the factory prior to dispatch to the Site. Non-ferrous metal or stainless-steel surfaces must not be painted. The protection to be applied must comply with one internal and one external systems from the following alternatives:

System 1 (Epoxy resin paint) - All cast iron surfaces of every valve, other than RSV's, must be prepared for painting to a thoroughly clean condition free of all grease and deleterious matter. Ferrous surfaces must be prepared in accordance with the Swedish Standard SIS 05 5900 to an Sa 3 finish. Surfaces must then be coated with a non-toxic epoxy resin paint to give a total minimum dry film thickness of 250 micron to be pinhole free over the entire painted surface.

System 2 (Epoxy powder coating) - Electrostatically applied epoxy powder coating (ESPC), of the fully disassembled valves shall be carried out in accordance with SABS 1217 as may be modified by this Specification. All RSV's are to be treated with this system.

All surfaces of the fully dis-assembled valve shall be blast cleaned to Sa 3 of Swedish Standard SIS 05 5900, having an angular profile of 40 micron to 60 micron.

The coating medium shall be an exterior grade, tinted, non-toxic and non-tainting, suitable for use with potable water and applied strictly in accordance with the manufacturer's instructions in a single application to a minimum film thickness of 300 micron. The coated surface shall be subjected to a standard MEK 50 double rub test. Particular attention shall be given to the thickness and integrity of the coating in the areas where the gate of the RSV is to operate. Low voltage, wet sponge EID detection of pinholes is to be conducted on all surfaces of the valve. A visual inspection, to be carried out by an experienced observer, shall reveal the finished coating to be smooth and glossy, free from excessive runs, sags, "orange peel" finish, occlusions and other visible defects. The coating shall be subjected to a "hot water soak" adhesive test at the inspector's discretion, and no more than 15 mm disbondment from the point of the "V" (cut at a 30° angle) shall be permitted after immersing in water at 78° C for 48 hours, and testing adhesion after cooling to 25° C. Repairs shall be carried out using an approved repair system. ("Hi-Cote" or similar approved.)

System 3 (external only) - Apply multi coats of an approved epoxy coal tar paint to give a minimum total dry film thickness of 240 micron. The paint shall be applied in accordance with the paint supplier's recommendation.

System 4 (external only) - Apply one coat of zinc chromate primer followed by one coat of undercoat tinted where necessary, and a final coat of best quality gloss enamel. The total dry film thickness of the system must be not less than 200 micron.

After erection on site all valves must be cleaned and the paintwork refurbished where necessary to restore the condition to that pertaining at the time of leaving the factory.

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PARTICULAR SPECIFICATION: PB – DISINFECTION OF PIPELINE

PB 1 INTRODUCTION

The price for testing and disinfecting pipelines and fittings is included in the scheduled items for supply and installation.

On completion of construction, after pressure testing and prior to commissioning the pipeline is to be disinfected by the contractor in accordance with this specification.

PB 1.1 Scope of the Code of Practice

This Code of Practice relates to the disinfection of parts used for the disinfection of complete installations.

It includes the requirements for bacteriological sampling and dosage of disinfectants, dose rates of disinfectants, disposal of chlorinated water and quality standards for bacteriological samples.

PB 1.2 Definitions

Within this document the term HYPOCHLORITE SOLUTION means a commercial solution of sodium hypochlorite containing 10% to 15% of available chlorine. Also, 10% HYPOCHLORITE SOLUTION means hypochlorite solution diluted one part in ten which thus has approximately 1% of available chlorine.

Within this document AVAILABLE CHLORINE and all chlorine concentrations means FREE CHLORINE available to the water environment for its disinfection.

'Water Supply Personnel' means any employee or contract or casual labour whose work includes, even temporarily, the performance of work concerned with partially or fully treated water and sources of underground water and who must possess a current certificate of medical suitability signed on behalf of the Authority.

PB 1.3 Hygiene

Only 'Water Supply Personnel' may undertake the procedures laid out in this Code of Practice.

PB 1.4 Safety

This Code of Practice does not cover the safety aspects of the construction or maintenance of installations or apparatus or of disinfection procedures.

Remember always that chlorinating agents are strongly corrosive so protect EYES AND HANDS especially.

PB 2 GENERAL REQUIREMENTS FOR DISINFECTION OF POTABLE WATER APPARATUS

PB 2.1 Components and Equipment

Clean all pipework components, equipment and tools used for repair and remove all grease or scale from components and equipment before use or assembly.

Where full chlorination and bacteriological testing is impractical, then disinfect all materials, components and equipment which could transmit contamination. Use a solution containing 1% of available chlorine (e.g. 10% chlorox or other commercial hypochlorite solution or 2% solution of

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bleaching powder. Contact time must exceed 20 minutes. Rinse or flush the equipment with mains water to prevent excessive corrosion.

PB 2.2 Completed Installations

Ensure that all water used for disinfection purposes has a free chlorine residual of at least 20 mg/l. Refer to section PB 4 and Tables 1 and 2 for volumes or dose rates.

During chlorination the pipeline shall be kept full of water.

Whenever possible keep the installation at normal operating pressure or greater during the contact period.

PB 2.3 Portable Test Equipment

Portable test equipment which may be used in contact with potable water must be kept clean. Any equipment which is in uncertain condition or which is contaminated must be cleaned and disinfected before use.

PB 3 MAINS

PB 3.1 New Mains

PB 3.1.1 Introduction

Do not connect any new main into supply until the water from designated sampling points, having stood in the main for at least 20 hours, has met the criteria specified herein.

New mains are laid with the intention of ensuring as far as possible, the exclusion of debris and contamination, but presume at the disinfection stage that debris and contamination does exist, and that this debris is resistant to disinfection, e.g. compacted soil or detritus in joints.

The disinfection procedures, which should follow pressure testing, include:

- (a) Swabbing and flushing of the main
- (b) Soaking of the main for a minimum period of 20 hours, using a minimum concentration of 20 mg/l of available chlorine in mains water.
- (c) Removal of excess chlorine by flushing the main

PB 3.1.2 Pressure Testing

Only use potable quality mains water for pressure testing new mains. Pressure testing normally follows the construction of each section of the pipeline but precedes final connection to supply. Do not rely on a single sluice valve to isolate the new main from the supply network, while the main is under pressure until disinfection and approval are complete.

PB 3.1.3 Swabbing and flushing

Swab all new mains after pressure testing and prior to disinfection.

After insertion of a soft foam swab, which has been soaked in 10% hypochlorite solution, recharge the pipeline at a rate less than 50 mm per second (3 m per minute) to ensure that the swab is not moved.

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Open the inlet valve fully and drive the swab along the pipeline, at a velocity less than 0,5 m per second (30 m per minute), by controlling the valve at the discharge end.

When the swab reaches the discharge end of the pipeline, flush the main for at least 5 minutes to remove all excess chlorine and discoloured or dirty water. Where possible open inlet and outlet valves as fully as possible.

If the swab removes excessive amounts of debris then re-swab the main.

PB 3.1.4 Chlorination

Chlorinate all new mains to a minimum of 20 mg/l available chlorine and leave to soak for a minimum of 20 hours, prior to flushing with mains water to a chlorine residual equal to that of the background level in the incoming mains water.

Tables in PB 4 show the required minimum dose rates and volumes.

To chlorinate sections of distribution main, less than about 50 m long not exceeding 150 mm in diameter, use a soft swab which has been soaked in 10% hypochlorite solution and proceed as follows:-

- Pour 1 litre of hypochlorite solution for each 1 m³ of pipeline, into the end of the pipe upstream of the final connection.
- Insert the swab into the end of the upstream pipe to retain the hypochlorite solution.
- Make the final connection.
- Drive the swab past the final connection and along the pipeline, but do not allow the swab to travel at a speed greater than 0,3 metres per second (20 m per minute).
- Remove the swab and flush the main for 25 minutes.
- Close up the main prior to soaking and sampling in accordance with section PB 3.1.6.

The volume of hypochlorite needed for 50 m of pipeline is:-

50 mm - 100 m³, 75 mm - 200 m³, 100 mm - 500 m³,

150 mm - 900 m³, 200 mm -1600 m³, 250 mm - 2500 m³.

Take all necessary care with the disposal of chlorinated water; follow the procedure laid out in PB 5.

PB 3.1.5 Sampling for Bacteriological Analysis

Once all pressure testing, swabbing and chlorination is complete, fill the main with clean mains water free from excessive chlorine.

Flush all hydrants, washouts and other outlets until the water is clean and free from excessive chlorine. Shut the valves and leave the main to soak for a minimum period of 20 hours.

First check with the approved laboratory to determine a suitable time for collection of samples and delivery of them to the laboratory for analysis.

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Then pressurise the main and take samples for bacteriological analysis in accordance with the procedure given in section PB 3.1.6. Take these samples from sampling points agreed with the Resident Engineer.

Deliver all samples to the laboratory as soon as possible. Analysis must start within six hours but store the samples in a refrigerator if the delay between taking the sample and the start of analysis is likely to exceed four hours.

Then isolate and leave the main until the results of analysis are available. In the event that the samples fail, flush the main and re-sample after a further soak period of at least 20 hours.

Repeat the above process until disinfection criteria have been satisfied.

The costs of all necessary testing are to be borne by the Contractor.

PB 3.1.6 Sampling Points

Sample points should consist of a ferrule connection, with a short length of polythene piping terminating in a ½" BSP gate valve or manual air valve. Protect this sampling outlet by suitable boxing. Attach a sampling standpipe to the gate valve, disinfect the apparatus with hypochlorite solution and then flame the bib tap outlet on the standpipe. Flush out all traces of hypochlorite, check that the residual chlorine level is not greater than the normal level in the incoming mains water.

At scour points and air valves, flush out all trace of hypochlorite, check that the residual chlorine level is not greater than the normal level in the incoming mains water, then take samples.

PB 3.1.7 Temporary Cross Connections and Final Connections

Where a temporary cross connection supplies mains water to the new main, before making the final connection complete the disinfection procedure of the new main as set out above.

When the new main has been proved bacteriologically satisfactory the cross connection may be removed and isolated after suitable disinfection.

PB 4 DOSAGE OF CHLORINATING AGENTS

PB 4.1 Sodium Hypochlorite Solution

Bulk supplies of sodium hypochlorite solution (Chloros for instance), are supplied at 10 to 15% available chlorine. This fraction declines progressively as the hypochlorite decays to chloride, chlorate and oxygen. Assume in practice that there is only 10% available chlorine.

Assuming 10% available chlorine, and using mains water having a zero chlorine demand, then the following values give estimates of the dilutions required.

- 10% hypochlorite solution (1 part hypochlorite solution in 10 parts solution) contains 10,000 mg available chlorine per litre of 10 kg available chlorine per cubic metre.
- 20 mg available chlorine per litre is equivalent to 200 ml of hypochlorite solution per cubic metre of water.
- 0,5 mg available chlorine per litre is equivalent to 5 ml of hypochlorite solution per cubic metre of water.

PB 4.2 Chlorine Gas

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Chlorine gas, dosed into water by weight, is likely to be about 98% available chlorine. Therefore a direct measurement gives a reasonable estimate.

- Disinfection of replacement parts with chlorine gas is not a practicable possibility.
- 20 mg Chlorine gas (by weight) per litre for disinfection of complete installation is equivalent to 20 grams per cubic metre.
- 0,5 mg Chlorine gas (by weight) per litre of water is equivalent to 0,5 grams per cubic metre.

PB 4.3 Bleaching powder, granules and tablets

Bleaching powders, granules or tablets based on Calcium hypochlorite contains 50% to 70% of available chlorine by weight. These materials must be stored under dry conditions. During storage some available chlorine is lost. Follow the manufacturers instructions particularly concerning the shelf life of the material and dose rate of the tablets.

For calculation purposes presume a maximum value of 50% available chlorine i.e. 1 gm of powder, granules etc in 1 litre of water provides 500 mg per litre available chlorine.

PB 4.4 Dose rates

Tables 1 and 2 provide estimates of the minimum dose rates of sodium hypochlorite solution, chlorine gas or bleaching powder, tablets or granules to achieve available chlorine levels of 20 mg per litre when dilute with mains water which has a zero chlorine demand.

Table 1 - dosage for 1,000 m of pipeline to give 20 mg available chlorine per litre

Pipe Diameter	Volume of 1000 m of pipeline	Weight of bleaching powder granules or tablets to give 20 mg/l	Weight of chlorine to give 20 mg/l	Volume of hypochlorite solution to give 20 mg/l
mm	m ³	gm	gm	litres
50	1,9	80	40	0,4
75	4,4	180	90	0,8
100	7,9	320	160	1,5
150	17,7	700	350	3,5
200	31,4	1,260	630	6,2
250	49,1	2,000	980	9,7
300	70,7	2,800	1400	14,0
350	96,2	3,800	1900	19,0
400	125,6	5,000	2500	24,6
500	196,3	7,800	3900	38,4
600	282,6	11,200	5600	55,4

Table 2 - dose rates for 20 mg available chlorine per litre

Flow rate in pipeline*	Hypochlorite solution injection rate 20mg/l	Chlorine injection rate for 20 mg/l
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litres/sec	m ³ /hr	litres/hr	ml/sec	gm/hour
1	3,6	0,7	0,2	72
2	7,2	1,4	0,4	144
3	10,8	2,2	0,6	216
4	14,4	2,9	0,8	288
5	18,0	3,6	1,0	360
6	21,6	4,3	1,2	430
7	25,2	5,0	1,4	500
8	28,8	5,8	1,6	576
9	32,4	6,5	1,8	650

* For flows greater than 9 litres/sec the dose rates can be calculated by multiplying by an appropriate factor of 10 e.g.

186 litres/sec = 100 + n 80 + 6 litres/sec

hypochlorite solution = 70 + 58 + 4.3 = 132,3 litres/hr

PB 5 DISPOSAL OF CHLORINATED WATER

PB 5.1 Introduction

When the pipeline has passed all disinfection criteria it must be drained without causing hazard.

PB 5.2 Methods of Disposal

PB 5.2.1 Overland

Explore the possibility of soaking away disinfection water on adjacent land in rural situation.

PB 5.2.2 Foul sewers

Where disinfection water is discharged into a combined or foul sewer, no de-chlorination is normally necessary but in the former case take care that the rate of discharge of disinfection or flushing water avoids operation of storm sewage overflows and/or the creation of a hazardous atmosphere within the sewer.

PB 5.2.3 Watercourses

In rural areas where disinfection water is discharged to watercourses, either directly or through surface water drains, do not permit a free chlorine concentration in the receiving stream in excess of 0,1 mg/l about 50 metres downstream of the point of discharge. If the discharge is into a ditch, which is not a spawning ground or a nursery or a fishing stream, take advantage of that ditch to mop up chlorine provided that in a significant stream the earlier mentioned limit is not exceeded. In these circumstances use flush water to dilute the chlorinated water whenever possible. Avoid discharge of disinfection water to the head of a watercourse because this area is probably a spawning ground.

PB 5.2.4 Disposal of large volumes

When disposing of large volumes of disinfection water from very long lengths of new main, or in any cases of doubt, consult through the Resident Engineer, the laboratory staff of the Employer.

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PB 5.3 De-chlorination

There is no objection to the use of thiosulphate or sulphur dioxide as de-chlorination agents. In some cases, at least partial de-chlorination may be achieved by discharge over land. In all cases consult the Resident Engineer.

PB 6 QUALITY STANDARDS AND REPORTING PROCEDURES

PB 6.1 New Mains

PB 6.1.1 Bacteriological Standards

No coliform organisms shall be detected in 100 ml of the sample.

The increase in the yeast agar plate count when compared with that of the incoming water shall generally be less than 50 and never more than 150 colonies per ml when incubated at 37°C for 24 hours.

PB 6.1.2 Procedure for Unsatisfactory Samples

Whenever even one E.Coli, or 5 or more coliforms per 100 ml are detected, re-chlorinate the main or serve reservoir. When E.Coli are not detected but the total coliform count is less than 5 per 100 ml flush and re-sample the main.

PB 6.1.3 Physical Standard

If the sample is unusually coloured, turbid or frothy flush the main until acceptable. If this condition is severe, re-sample the main but do not put into service until the samples have passed the required standards.

PB 6.2 Reporting Procedure

Records of disinfection are to be handed to the Resident Engineer.

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PARTICULAR SPECIFICATION: PET ELEVATED TANKS

PET 1 Scope

This specification covers the supply of all materials and erection of pressed sectional steel elevated water tanks and associated work and accessories.

PET 2 Materials

PET 2.1 Tank

PET 2.1.1 Base and Side Panels

All base and side panels shall be 1 220 x 1 220 mm size mild steel plates, cold pressed in one piece with flanged edges and embossed with an appropriate emblem. The material thickness of the panels shall be 5 mm.

PET 2.1.2 Cover

The cover sections shall be 3 mm thick mild steel plates cold pressed in one piece with flanged edges. The cover sections shall not be shorter than the outside edges of the top side panel flanges.

PET 2.1.3 Access Manhole

An access manhole shall be provided in the cover directly above the inlet pipe. The manhole shall be manufactured from 3 mm thick steel plate with flanged edges to the following requirements :

- Clear opening size : 450 x 600 mm.
- Hinges : 4,5 mm thick steel plate with 12 mm bolts as hinges.
- Security : Locking hasp from 4,5 mm plate, with 12 mm hole for padlock.
- Opening : Handle from 4,5 mm thick steel plate.

PET 2.1.4 Roof Vents

Roof vents shall be provided in the cover as specified by supplier – to be approved by Engineer.

PET 2.1.5 Stays

Where necessary for structural stability, stays fabricated from mild steel angle sections bolted to cleats or to the panel flanges must be provided in accordance with the manufacturers specifications.

PET 2.1.6 Gaskets

Sealing strips shall be odourless, tasteless and non-toxic and shall be pre-punched to suit the hole centres in the plate flanges.

PET 2.1.7 Bolts, Nuts and Washers

a) External jointing

Bolts nuts and washers for external use shall be mild steel grade 4.6, hot-dipped galvanised or high tensile bolts.

b) Internal jointing

Bolts, nuts and washers for internal use shall be grade 304 stainless steel.

Washers shall be fitted behind the heads of all bolts as well as under nuts.

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PET 2.1.8 Pipe Openings

Each tank shall be provided with four flanged penetrations for the inlet, outlet, overflow and scour pipes in accordance with the diameters, positioning and details provided on the drawings and confirmed with on site.

Flanges must be drilled to SABS 1123 Table 1000/3 and must be provided as follows :

- a) Inlet pipe : Double flanged connection – 200mm below roof
- b) Outlet pipe : Double flanged connection with strainer - 200mm above and 200mm below floor
- c) Overflow pipe : Single flanged connection – 100mm below roof
- d) Scour pipe : Single flanged connection – 200mm below floor

PET 2.1.9 Corrosion Protection

The tank panels, pipe connection pieces and roof vent shall be hot dip galvanized to SABS 763 after manufacture.

PET 2.2 Catladder

A steel catladder providing safe access from ground level to the top of the tank (cover) must be provided. The ladder shall have a clear width of 350 mm and shall be provided with safety hoops at 500 mm centres supported by 3 No 25 x 5 mm stays over the full length. The safety cage shall extend for a distance of 1,5 m above the cover level of the tank. The catladder shall be hot-dipped galvanised in accordance with SABS 763.

PET 2.3 Float Level Indicator

The tank shall be provided with a float level indicator with gauge plate to be approved by Engineer. The gauge plate shall be 200 mm wide and manufactured from 16 gauge mild steel plate. The background shall be white baked enamel with the graduations in black baked enamel in accordance with the details on drawing 11453/09. Bolt holes shall be provided prior to enamelling.

PET 2.4 Lightning Protection

Lightning protection will consist of 75 mm wide x 6 mm thick stranded copper conducting tape fixed to the tank supports on the one side and on the other side to a 20 mm diameter x 1 200 mm long copper earth spike driven into the ground next to the concrete.

PET 2.5 Concrete Foundations

Concrete foundations shall be from class 25/19 MPa concrete. 220 brick walls constructed from face brick 0,9 m high and spaced at 1,2 m shall be utilised to lift the steel tank from the natural ground level.

PET 3 Construction

PET 3.1 Tank

Tank panels will be assembled on site and hoisted into position on the tank stand platform. The necessary care and precaution shall be taken to ensure that the tank or components thereof are properly secured to the tank stand to avoid damages due to wind or other causes when the tank is empty during construction or thereafter.

PET 3.2 Catladder, Level Indicator, Pipework, Lightning Protection and Other Accessories

After erection of the tank in position on the tank foundation, all accessories such as the catladder, float level indicator, pipework and lightning protection will be installed.

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PET 3.3 Tolerances

The complete installation shall be true to line and level with permissible deviations as follows :

- a) Vertical deviation of tank floor from true level : ± 5 mm
when taken over a straight line along the length,
width and diagonal of the tank floor.
- b) Horizontal deviation of tank stand supports when : ± 10 mm
taken 90 ° from true level over a length of 4 m
along any support.

PET 3.4 Disinfection

Upon completion of the installation the interior of the tank and all associated pipework shall be disinfected as follows :

- a) The tank shall be flushed out with clean water until all sediment and other foreign matter have been removed.
- b) The tank shall then be filled with water containing 0,15 g/l of calcium hypochlorite and shall be left there for at least 48 hours.
- c) The tank shall then be thoroughly and repeatedly flushed with clean water until a sample of the washwater drawn from the tank complies with the requirements for potable water of the local authority or the authority supplying water to the area.

PET 4. Testing

The tank shall be hydraulically tested for water tightness by filling it with potable water to the full supply level (at overflow level). The same water used for disinfection of the tank, can be used for the water tightness testing. After 48 hours the tank shall be inspected for leakages and drop in water level. No visible leakages or drop in water level will be allowed. Should leakages occur the bolts shall be adjusted or other actions implemented and the tank will be retested. This procedure will be repeated until the tank is certified by the Engineer as being watertight.

PET 5. Measurement and Payment

PET 5.1 Supply, deliver, erection and corrosion protection sectional pressed steel tank with cover, access, two roof vents, catladder, 4 pipe connections complete on position as indicated on the drawings.....Unit : No

The complete water tank and stand assembly shall be measured and paid for by number in accordance with the capacity and/or dimensions specified for the tank as well as height of tank stand. Payment shall be for the supply and delivery of all materials and complete installation of the following components :

- a) Pressed steel tank, including manhole, four flanged pipe connections, two roof vents, and corrosion protection.
- b) Catladder complete with safety cage and corrosion protection.

PET 5.2 Supply and install Float Level Indicator Unit : No
Level indicators shall be measured and paid for by number installed completely as detailed.

PET 5.3 Supply and install Lightning Protection Unit : No
Lightning protection will be measured and paid for by number installed completely as detailed.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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PET 5.4 Disinfect of the tankUnit : Sum
 Disinfect of the water tank shall be measured and paid for as a lump sum in accordance with the dimensions of the tank upon successful disinfect of the tank.

PET 5.5 Test for Water Tightness of the tank Unit : Sum
 Testing of water tightness of the tank shall be measured and paid for as a lump sum in accordance with the dimensions of the tank upon successful testing of the tank.

PET 5.6 Connect to existing (size of tank kl steel tank with a (size) mm flanged connection Unit : No
 Shall be measured and paid by number of connections and shall include all labour, material, fittings and tools for the connecting to an existing steel tank with a specified mm flanged steel pipe section 400mm long and to be flanged both on the inside and outside of the steel tank after connecting to the tank. An access manhole as described in PET 2.1.3 in the roof of the steel tank above the connection shall also be included under this item.

<i>Contractual Services- Internal Water Reticulation- Phase 1- Contract A - NTWANE</i>					
SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:

PARTICULAR SPECIFICATION PC - PROVISION OF STRUCTURED TRAINING

CONTENTS

PC 01 SCOPE

This specification covers the requirements for the provision of the following training:

- (a) Specified structured training to selected members of the workforce and small, medium and micro enterprises (SMME's) by an approved Training Service Provider as accepted by the Employer.
- (b) Additional training deemed necessary by the Contractor, to members of the workforce and small, medium and micro enterprises (SMME's).

PC 02 INTERPRETATIONS

PC 02.01 Supporting documents

The tender rules, conditions of contract, standard, supplementary and specific specifications and project specifications and drawings shall *inter alia* be read in conjunction with this specification.

PC 02.02 Application

The provisions of this specification shall apply in respect of all workers and small, medium and micro enterprises other than the Contractor's key personnel, who are engaged on the execution of the works.

PC 03 ENGINEERING SKILLS TRAINING

PC 03.01 The Contractor shall, from the commencement of the contract, implement a structured training programme comprising of the training delivered by the selected subcontractor and any additional training as provided for by the Contractor, in which the various skills required for the execution and completion of the works are imparted to the workers, and where applicable, small, medium and micro enterprises engaged thereon, in a programmed and progressive manner. Selected workers shall be trained progressively throughout the duration of the contract in the various stages of a particular type of work.

PC 03.02 The skills training programme to be implemented by the selected subcontractor shall comply with the following minimum standards:

- (a) Be accredited by the Civil Engineering Training Authority (CETA) or other institutions recognised by the Department of Labour, as being appropriate for application on this project. Accredited training refers to both the trainers as well as to the training materials.
- (b) Be delivered by suitably qualified and experienced trainers accredited to do so.

PC 03.03 The Contractor shall provide with his tender, full details of any additional accredited and in-house training, viewed to be necessary by the Contractor, which he intends to implement at his own cost. These details shall include the following:

- (a) The name of the accredited training institution and programme
- (b) The various aspects of each type of training comprised in the programme
- (c) The manner in which the training is to be delivered

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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- (d) The numbers and details of the trainers to be utilised.

PC 03.04 The Contractor shall be responsible for the provision of the necessary items for the delivery of the specified and additional skills training programme, including the following:

- (a) Sufficient skilled, competent and accredited trainers to deliver the additional training programme to workers in accordance with the training programme
- (b) A suitably furnished venue
- (c) Transport of the workers as required
- (d) Tools, equipment, and teaching aids
- (e) Stationery and all other necessary materials.

PC 03.05 Selection of candidates

- (a) Members of the workforce will be selected by the Engineer, assisted by the Contractor and the Liaison Officer, to receive specific training as approved by the Engineer.
- (b) The following will be taken into account in the selection of the workers to receive the specified training:
 - i. Previous experience (if any)
 - ii. Previous courses completed (if any)
 - iii. Module specific requirements.

PC 03.06 Duration of training

- (a) The Contractor shall allow in his programme for the selected members of the workforce to be engaged in the specified training modules.
- (b) Provision must also be made by the Contractor for members of the workforce to receive any additional training as provided for by the Contractor.

PC 03.07 All specified skills-related training shall take place only during normal working hours and the Contractor shall ensure that the selected workers are available at the appropriate times to undergo such training.

PC 03.08 Both the selected subcontractor's and the Contractor's additional training programme shall be subject to the approval of the Engineer, and if so instructed by the Engineer shall alter or amend the programme and course content to suit changing conditions on site and all changes in the Contractor's programme of work.

PC 03.09 The Contractor shall keep comprehensive records of the training given to each worker involved in training as well as the nature and number of each task executed by the worker and whenever required shall provide copies of such records to the Engineer.

PC 03.10 Workers shall be remunerated in respect of all time spent undergoing the specified training in terms of Clause D03.02, at the minimum specified wage as per BCCEI.

PC 03.11 Use of workers

The Contractor shall, in so far as it is reasonably feasible take due cognisance of the nature of the works to be executed at any given time, and use trained workers on those aspects of the works for which they have been trained.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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PC 04 GENERIC TRAINING

PC 04.01 The Contractor shall, from the commencement of the contract, implement a structured progressive training programme comprising of the training delivered by the selected subcontractor and any additional training as provided for by the Contractor. Selected workers shall be trained progressively throughout the duration of the contract.

PC 04.02 The generic training programme is to be implemented by a training subcontractor to be nominated by the Engineer, upon the instruction of the Employer's Capex Programme Manager.

PC 04.03 The Contractor shall provide with his tender, full details of any additional recognised and in-house training viewed to be necessary by the Contractor, which he intends to implement at his own cost. These details shall include the following:

- (a) The name of the training institution and programme
- (b) The various aspects of each type of training comprised in the programme
- (c) The manner in which the training is to be delivered
- (d) The numbers and details of the trainers to be utilized.

PC 04.04 The Contractor shall be responsible for the provision of the necessary items for the delivery of the specified and additional generic training programme, including the following:

- (a) A suitably furnished venue
- (b) Transport of the workers as required
- (c) Tools, equipment, and teaching aids
- (d) Stationery and all other necessary materials.

PC 04.05 All generic training shall take place outside of normal working hours.

PC 04.06 The Contractor's training programme, if any, shall be subject to the approval of the Engineer, and if so instructed by the Engineer shall alter or amend the programme and course content.

PC 04.07 The Contractor shall keep comprehensive records of the training given to each worker involved in training and whenever required shall provide copies of such records to the Engineer. At the successful completion of each course provided by the Contractor each student shall be issued with a certificate indicating the course contents as proof of attendance and completion.

PC 04.08 No remuneration in respect of time spent undergoing training in terms of this Clause will be made to any of the workers.

PC 05 ENTREPRENEURIAL SKILLS TRAINING

PC 05.01 Training needs assessments of the Contractor and his sub-contractors will be undertaken during the course of the Contract by a sub-contractor to be nominated by the Engineer, on the instruction of the Employer's Capex Programme Manager. The training needs assessments shall have as their focus contractor development, and shall identify needs for business development, business management and technical construction management skills. Such training needs may be identified in personnel both in the permanent employ of the Contractor and/or his sub-contractors, as well as temporary employees thereof.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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PC 05.02 Once the needs assessments have been completed, training to meet the needs identified in the assessment phase will be provided, again by a sub-contractor to be nominated by the Engineer, upon the instruction of the Employer's Capex Programme Manager.

PC 05.03 The Contractor shall assist in facilitating in the delivery of the training, by instructing and motivating personnel and subcontractors regarding attendance and participation therein.

PC 05.04 The Contractor shall further make all reasonable efforts to co-ordinate the programming of the subcontractor's work with that of the delivery of the structured training.

PC 05.05 Following completion of the structured training, members of small, medium and micro contractors/subcontractors that have demonstrated understanding of and competence in the training material are to be appropriately certified by the accrediting body.

PC 05.06 The Contractor shall provide with his tender, full details of any additional accredited and in-house training, viewed to be necessary by the Contractor, which he intends to implement at his own cost. These details shall include the following:

- (a) The name of the training institution and programme
- (b) The various aspects of each type of training comprised in the programme
- (c) The manner in which the training is to be delivered
- (d) The numbers and details of the trainers to be utilized.

PC 05.07 The Contractor shall be responsible for the provision of the necessary items for the delivery of the entrepreneurial training programme, including the following:

- (a) A suitably furnished venue
- (b) Transport of the subcontractors as required
- (c) Tools, equipment, and teaching aids
- (d) Stationery and all other necessary materials.

PC 05.08 All specified entrepreneurial training shall take place within normal working hours.

PC 05.09 The Contractor's training programme, if any, shall be subject to the approval of the Engineer, and if so instructed by the Engineer shall alter or amend the programme and course content.

PC 05.10 The Contractor shall keep comprehensive records of all training given to personnel and subcontractors involved in training and whenever required shall provide copies of such records to the Engineer. At the successful completion of each course each subcontractor shall be issued with a certificate indicating the course contents as proof of attendance and completion.

PC 05.11 No remuneration in respect of time spent undergoing specified training in terms of this Clause will be made to any of the subcontractors.

PC 06 MEASUREMENT AND PAYMENT

PC 06.01 Basic principles

(a) General

Measurement and payment for all work executed in terms of this contract shall be measured and paid for in accordance with the principles set out in Clause D 06.02 of the project

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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specifications, irrespective of whether the work is executed as an integral part of the provision of training in terms of this specification.

(b) Training

The Contractor shall only be reimbursed for the amounts actually paid by the Contractor to the selected subcontractors appointed as directed by the Employer, in execution of the Engineer's written instruction, plus a percentage as tendered to cover all his charges and profits.

PC 06.02 Scheduled items

Payment items are included in the Bill of Quantities under Section 1200 for the provision of the specified training by selected subcontractors only. Any additional training as viewed by the Contractor to be necessary shall be viewed to be included under Section 1300 and shall not be paid for separately.

Item	Unit
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PC 06.03 Training:

- | | |
|---|-----------------|
| (a) Engineering (technical) skills | Provisional Sum |
| (b) Generic skills | Provisional Sum |
| (c) Training venue | Provisional sum |
| (d) Contractor's handling costs, profit and all other charges in respect of subitems D 06.03(a),(b) and (c): | |
| (i) Technical skills | percentage (%) |
| (ii) Generic skills | percentage (%) |
| (iii) Training venue | percentage (%) |
| (e) Training allowance paid to targeted labour i.r.o. formal training (equal to pay for 1 day of task) | person days |
| (f) Extra over (e) for the administration of payment of training allowances to targeted labour. | person days |
| (g) Transport and accommodation of workers for training where it is not possible to undertake the training in close proximity of the site. | Provisional Sum |
| (h) Contractor's handling costs, profit and all other charges in respect of subitem (g) | percentage (%) |

Payment under subitems PC 06.03(a) and (b) shall be the amounts actually paid to the training institutions and shall be made in accordance with the provisions of the General Conditions of Contract.

The provisional sum for subitem PC 06.03 (c) shall include full compensation for the provision of a suitable training venue, for all necessary lighting, furniture, stationery, consumables and study material, and for transportation of the workers to and from the training venue. Payment of the provisional sum shall be made in accordance with the provisions of the General Conditions of Contract:

The percentages tendered for subitem PC 06.03 (d) shall be the percentages of the amounts actually reimbursed to the Contractor under subitems PC 06.03 (a), (b) and (c) and shall be in full and final

compensation in respect of the Contractor's handling costs, profit, mentoring, record keeping, reporting and all other charges in connection with providing the services.

Payment under subitem PC 06.03 (e) shall be the actual sum paid to workers undergoing training. The Contractor will be reimbursed directly for his administrative costs under subitem PC 06.03 (f).

Payment under subitems PC 06.03(g) shall be the amount actually paid for transporting the labourers to the training venue and shall be made in accordance with the provisions of the General Conditions of Contract.

The percentages tendered for subitem PC 06.03 (h) shall be the percentage of the amount actually reimbursed to the Contractor under subitem PC 06.03 (g) and shall be in full and final compensation in respect of the Contractor's handling costs, profit and all other charges in connection with providing the transport.

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PARTICULAR SPECIFICATION: PD PROVISION OF TEMPORARY WORKFORCE

CONTENTS

PD 01 SCOPE

This Specification covers the provisions and requirements relating to the provision of the temporary workforce.

PD 02 INTERPRETATIONS

PD 02.01 Supporting documents

The Tender Rules, Conditions of Contract, Standard and Project Specifications, Drawings and statutory minimum requirements relating to the employment and remuneration of labour shall *inter alia* be read in conjunction with this Specification.

PD 02.02 Definitions and abbreviations

For the purposes of this specification, the definitions given in the Conditions of Contract, the Standard Specifications and the Project Specifications, together with the following additional definitions shall, unless the context dictates otherwise, apply:

- (a) **"Key Personnel"** means all contracts managers, site agents, materials and survey technicians, trainers, supervisors, foremen, skilled plant operators, artisans and the like, and all other personnel in the permanent employ of the Contractor or Subcontractor who possess special skills and/or who play key roles in the Contractor's or Subcontractor's operation
- (b) **"Project Committee"** means a committee consisting of the Employer, the Engineer, the Contractor, (or their nominated representatives) as well as representatives of the temporary workforce, which is convened from time to time at the discretion of the Engineer, for the purposes of acting as an avenue for effective communication and liaison between all the parties referred to, in all matters pertaining to the Contract
- (c) **"Subcontractor"** means any person or group of persons in association, or firm, or body corporate (whether formally constituted or otherwise) not being the Contractor, to whom specific portions or aspects of the Works are sublet or subcontracted by the Contractor in accordance with the provisions of the Contract
- (d) **"Worker"** for the purposes of this Specification means any person, not being one of the Contractor's key personnel, nor any key personnel of any Subcontractor, who is engaged by the Contractor, a Subcontractor or the Employer to participate in the execution of any part of the Contract Works and shall include unskilled labour, semi-skilled and skilled labour, clerical workers and the like
- (e) **"Workforce"** means the aggregate body comprising all workers and shall, unless the context dictates otherwise, include the workforces of the Contractor and all Subcontractors
- (f) **"Liaison Officer"** means a representative from the temporary workforce, duly elected by them, to act on their behalf and through whom all matters pertaining to the temporary workforce can be channelised.

PD 02.03 Status

Where any provisions or requirements of this Specification are in conflict with anything elsewhere set out in the Contract, the provisions and requirements of this Specification shall take precedence and prevail.

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PD 03 PERMITTED SOURCES OF TEMPORARY WORKERS

The Contractor shall as far as possible make optimum use of the human resources outside his own workforce and the workforces of all subcontractors. The temporary workforce that is to be used in the execution of the Works in terms of Part A may consist of the workers of various communities, and shall not be bound to one particular community.

PD 04 EMPLOYMENT RECORDS TO BE PROVIDED

- (a) The Contractor shall maintain accurate and comprehensive records of all workers engaged on the Contract and shall provide the Engineer at monthly intervals from the commencement of the Contract, with interim records substantiating the actual numbers of employment opportunities that shall have been generated to date and the amounts actually paid in respect thereof. Such interim records shall be in a format approved by the Engineer.
- (b) The Contractor shall, on completion of the Contract, and as a pre-requisite event to the release of any retention money in terms of the Conditions of Contract, provide the Engineer with copies of the Terms of Employment as well as independently audited documentary evidence of the total number of temporary and permanent employment opportunities actually generated during the Contract.

PD 05 VARIATIONS IN WORKER PRODUCTION RATES

Notwithstanding anything to the contrary as may be stated in or inferred from any other provision of this Contract, the Contractor shall not be entitled to any additional payment or compensation whatever, in respect of any differences as may result between the production rates actually achieved by workers in the course of the execution of the Contract Works and those production rates on which he has based his tender.

PD 06 TRAINING OF THE TEMPORARY WORKFORCE

- (a) Selected members of the workforce are to be provided with structured training in accordance with the provisions of Part D.
- (b) The Contractor shall make all necessary allowances in his programme of work to accommodate and facilitate the delivery of such structured training and shall comply fully with the requirements of Part D.
- (c) The provision of structured training as described in Part D shall not relieve the Contractor of any of his obligations in terms of the Conditions of Contract and the Contractor shall remain fully liable for the provision, at his own cost, of all training of the workforce, additional to that as provided for in Part D, as may be necessary to achieve the execution and completion of the works strictly in accordance with the provisions of the Contract.

PD 07 RECRUITMENT AND SELECTION PROCEDURES

PD 07.01 The Contractor shall be fully responsible for the recruitment and selection of workers to constitute the temporary workforce.

PD 07.02 The Contractor shall advise the Engineer in writing of the numbers of each category of temporary worker which he requires, together with the personal attributes which he considers desirable that each category of worker shall possess (taking due cognisance of the provisions of the Contract relating to training).

PD 07.03 The Contractor shall, at his own cost, take all necessary actions to advertise within the communities comprising the personnel resources, the fact that temporary employment opportunities exist and the time and place where recruiting will occur.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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PD 07.04 The Contractor shall record in writing, the details of all persons applying for employment, including *inter alia*:

- (a) Name, address, age and sex
- (b) Marital status and number of dependants
- (c) Qualifications and previous work experience (whether substantiated or not)
- (d) Period since last economically active
- (e) Preference for type of work or task.

PD 07.05 The Contractor shall make his selection of workers from amongst the applicants, taking due cognisance of his requirements for the workforce and the provisions of the contract in regard to the provision of training to the workforce and in accordance with the following principles:

- (a) No potential temporary worker shall be precluded from being employed by the Contractor on the execution of the Works, by virtue of his lack of skill in any suitable operation forming part of the Works, unless-
 - (i) all available vacancies have been or can be filled by temporary workers who already possess suitable skills, or
 - (ii) the Time for Completion allowed in the Contract, or the remaining portion of the Contract Period (as the case may be) is insufficient to facilitate the creation of the necessary skills.
- (b) Preference shall be given to the unemployed and single heads of households.
- (c) The Contractor shall, in so far as is reasonably practicable, give priority to accommodating the applicants' expressed preferences regarding the types of work for which they are selected.
- (d) The selection process shall not be prejudicial to youth (over the age of fifteen years) and women.

PD 07.06 After making his selection, the Contractor shall advise the Engineer thereof, in writing and the Engineer shall, without undue delay, ratify the Contractor's selection.

PD 07.07 The provisions of this clause shall apply *mutatis mutandis* in respect of the selection of additional or replacement members of the workforce as may be necessary from time to time during the Contract.

PD 07.08 The Contractor shall, after selecting his temporary workforce, arrange at his own cost for the appointment of the Liaison Officer as representative of the workforce to act on their behalf with regards to all matters pertaining to the workforce."

PD 08 TERMS AND CONDITIONS PERTAINING TO THE EMPLOYMENT OF THE TEMPORARY WORKFORCE

PD 08.01 All temporary workers engaged in accordance with the provisions of Part A of the Project Specifications, shall be employed on the terms and conditions of employment as are consistent with those as set out in this Contract. The Contractor shall implement and adhere strictly to such terms and conditions relating to the employment of the temporary workforce, and subject only to the provisions of this Contract, shall not employ any temporary worker on terms and conditions which are less favourable to the worker or inconsistent with the standards and norms generally applicable to temporary workers in the Civil Engineering Industry and applicable to the particular area.

PD 08.02 The Contractor shall pay to all temporary workers engaged in terms of Part A of the Project Specifications, not less than the minimum rate of remuneration as specified in Part A – General Clause A17.2.

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PD 09 LABOUR RELATIONS AND WORKER GRIEVANCE PROCEDURES

PD 09.01 The Contractor, as the Employer of the workforce, shall be fully responsible for the establishment and maintenance at his own cost, of satisfactory labour relations on site and the resolution of all grievances of temporary workers as may occur.

PD 09.02 The Contractor shall at all times adhere to the accepted norms and standards of labour relations prevailing generally in the Civil Engineering Construction Industry and shall conduct himself in a fair and reasonable manner, within the constraints as may be imposed upon him by the terms of the Contract.

PD 09.03 In the event of any temporary worker engaged by the Contractor in terms of the Contract, being aggrieved with regard to his Terms of Employment, working conditions and training, he shall have the right, at his discretion, to be supported in any inquiry or disciplinary hearing or investigation instituted by the Contractor in terms of Subclause C 09.02 above, by one member of the temporary workforce and one member of the Project Committee, which persons shall be nominated by the worker.

PD 09.04 In the event of any grievance not being satisfactorily resolved through the application of normal dispute resolution procedures in accordance with Subclauses C 09.02 and C 09.03, then either the Contractor or the worker concerned may require that the matter be referred to the Project Committee for further consideration, with a view to facilitate the resolution thereof.

PD 10 THE SUBCONTRACTORS' WORKFORCES

PD 10.01 The provisions of this Part C shall apply *mutatis mutandis* to the workforces employed by all subcontractors engaged by the Contractor and the Contractor shall be fully responsible for ensuring, at his own cost, that the terms of every subcontract agreement entered into are such as to facilitate the application of these provisions in respect of the workforces of all subcontractors.

PD 10.02 The Contractor shall at his own cost and to the extent necessary, assist and monitor all subcontractors in the application of the provisions of this Specification, and shall, in terms of the Conditions of Contract, remain fully liable in respect of the acts, omissions and neglects of all subcontractors, in respect of the application of the provisions of this Specification.

PD 11 PROJECT LIAISON OFFICER (PLO)

The Contractor or his appointed agent will appoint a Project Liaison Officer (PLO) after consultation with the local communities, the Engineer and the Employer. The Contractor shall direct all his liaison efforts with the local communities through the appointed officer. The Contractor shall, however, accept the appointed as part of his management personnel.

PD 11.01 Duties of the Project Liaison Officer

The Community Liaison Officer's duties will be:

- (i) To be available on site daily between the hours of 07:00 and 18:00 and at other times as the need arises. His normal working day will extend from 07:00 in the morning until 18:00 in the afternoon.
- (ii) To determine, in consultation with the Contractor, the needs of the temporary labour for relevant skills training. He will be responsible for the identification of suitable trainees and will attend one of each of the training sessions.

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- (iii) To communicate daily with the Contractor and the Engineer to determine the labour requirements with regard to numbers and skill, to facilitate in labour disputes and to assist in their resolution.
- (iv) To assist in and facilitate in the recruitment of suitable temporary labour and the establishment of a "labour desk".
- (v) To attend all meetings in which the community and/or labour are present or are required to be represented.
- (vi) To assist in the identification, and screening of labourers from the community in accordance with the Contractor's requirements.
- (vii) To inform temporary labour of their conditions of temporary employment and to inform temporary labourers as early as possible when their period of employment will be terminated.
- (viii) To attend disciplinary proceedings to ensure that hearings are fair and reasonable.
- (ix) To keep a daily written record of his interviews and community liaison.
- (x) To attend monthly site meetings to report on labour and RDP matters.
- (xi) All such other duties as agreed upon between all parties concerned.
- (xii) To submit monthly returns regarding community liaison in a format prescribed by the Engineer.

PD 11.02 Payment for the project liaison officer

A special pay item is incorporated in section 1200 of the Bill of Quantities relating to payment of the liaison officer on a prime cost sum basis. This payment shall only be made for the period for which the duties of the liaison officer are required and not necessarily for the full duration of the contract. The remuneration of the PLO shall be determined jointly by the Contractor, Engineer and Employer.

PD 11.03 Period of employment of the project liaison officer

The period of employment of the community liaison officer shall be as decided upon jointly by the Contractor, Engineer and Employer.

PD 12 MEASUREMENT AND PAYMENT

The Contractor will not be separately reimbursed or compensated in respect of the provision of the workforce and creation of temporary employment opportunities and all the Contractor's costs associated with compliance with the provisions of this part of the Project Specifications shall, except to the extent provided for as relevant, be deemed to be included in the rates tendered for in Section 1300 of the Bill of Quantities.

Item	Unit
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PD 12.01 Remuneration of the Project Liaison Officer and members of the Project Liaison committee:

- (a) Project Liaison Officer(s)..... Prime cost (PC) sum
- (b) Project Liaison Committee Prime cost (PC) sum
- (c) Contractor's charge to allow for handling costs and profit in respect of subitem C12.01(a) and (b):

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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- (i) Project Liaison Officer(s) percentage (%)
- (ii) Project Liaison Committee percentage (%)

Payment under the Prime cost (PC) sum provided in subitem C12.01(a) and (b) to cover the employment and remuneration of the Project Liaison Officer(s) and the attendant members of the Project Liaison Committee established by the Contractor, shall be effected in accordance with the provisions of Clause 6.6 of the General Conditions of Contract.

The tendered percentage in subitem PD12.01(c) is the percentage of the amount actually spent under subitem PD12.01(a) and (b) that will be paid to the Contractor in full compensation for the Contractor's handling costs and profit in respect of the employment and remuneration of the Liaison Officer(s) and Liaison Committee.

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PARTICULAR SPECIFICATION PE: HIV/AIDS SPECIFICATION

CONTENTS

PE 01 SCOPE

PE 01.01 This specification contains all requirements applicable to the Contractor for creating HIV/AIDS awareness amongst all of the Workers involved in this project for the duration of the construction period, through the following strategies: This should be read in conjunction with the OHS consultant specification which shall be applicable should there be a conflicting statement.

PE 01.02 Raising awareness about HIV/AIDS through education and information on the nature of the disease, how it is transmitted, safe sexual behaviour, attitudes towards people affected and people living with HIV/AIDS, how to live a healthy lifestyle with HIV/AIDS, the importance of voluntary testing and counselling, the diagnosis and treatment of Sexually Transmitted Infections, and the closest health service providers.

PE 01.03 Informing Workers of their rights with regard to HIV/AIDS in the workplace.

PE 01.04 Providing Workers with access to condoms and other awareness material that will enable construction Workers to make informed decisions about sexual practices.

PE 02 DEFINITIONS AND ABBREVIATIONS

PE 02.01 Definitions

Service Provider:	The natural or juristic person recognised and approved by the Department of Public Works and Roads as a specialist in conducting HIV/AIDS awareness programmes.
Service Provider Workshop Plan:	A plan outlining the content, process and schedule of the training and education workshops presented by a Service Provider, which has been approved by the Representative/Agent.
Worker:	Persons in the employ of the Contractor or under the direction or supervision of the Contractor or any of his sub-contractors, who are on site for a minimum period of 30 days in all.

PE 02.02 Abbreviations

HIV	: Human Immunodeficiency Virus.
AIDS	: Acquired Immune Deficiency Syndrome.
STI	: Sexually Transmitted Infection.

PE 03 BASIC METHOD REQUIREMENT

PE 03.01 The Contractor shall, through a Service Provider, conduct onsite workshops with the Workers.

PE 03.02 The Service Provider shall develop and compile a Service Provider Workshop Plan to be presented at the workshops and which will be best suited for this project to achieve the specified objectives with regards to HIV/AIDS awareness. The Contractor shall submit the Service Provider Workshop Plan for approval within 21 days after the tender acceptance date. After approval by the Department's Tender

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Committee, the Contractor shall make available an appropriate venue that will be conducive to education and training.

PE 03.03 The Service Provider Workshop Plan shall address, but will not be limited to the following:

- (a) The nature of the disease;
- (b) How it is transmitted;
- (c) Safe sexual behaviour;
- (d) Post exposure services such as voluntary counselling and testing (VCT) and nutritional plans for people living with HIV/AIDS;
- (e) Attitudes towards other people with HIV/AIDS;
- (f) Rights of the Worker in the workplace;
- (g) How the awareness champion will be equipped prior to commencement of the HIV/AIDS awareness programme with basic HIV/AIDS information and the necessary skills to handle questions regarding the HIV/AIDS awareness programme on site sensitively;
- (h) How the Service Provider will support the awareness champion;
- (i) Location and contact numbers of the closest clinics, VCT facilities, counselling services and referral systems;
- (j) How the workshops will be presented, including frequency and duration;
- (k) How the workshops will fit in with the construction programme;
- (l) How the Service Provider will assess the knowledge and attitude levels of attendees to structure workshops accordingly;
- (m) How the video will be used;
- (n) How the Service Provider will elicit maximum participation from the Workers;
- (o) A questions and answers slot (interactive session).

The Service Provider Workshop Plan shall encompass the Specific Learning Outcomes (SLO) as stipulated

PE 04 HIV/AIDS AWARENESS EDUCATION AND TRAINING

PE 04.01 Workshops

The Contractor shall ensure that all the Workers attend the workshops.

The workshops shall adequately deal with all the aspects contained in the Service Provider Workshop Plan. In order to enhance the learning experience, groups of not exceeding 25 people shall attend the interactive sessions of the workshops.

PE 04.02 Recommended practice

Workshop Schedule

Presenting information contained in the Service Provider Workshop Plan can be divided in as many workshop sessions as deemed practicable by the Contractor, provided that all Workers are exposed to all aspects of the workshops as outlined in the Service Provider Workshop Plan.

Breaking down the content of information to be presented to Workers into more than one workshop session however, has the added advantage that messages are reinforced over time while providing opportunity between workshop sessions for Workers to reflect and test information. Workers will also have an opportunity to ask questions at a next session.

An attendance register should be kept by the Service Provider at every workshop and should be handed to the Department's Project Manager on a monthly basis together with Process Indicator Forms.

Service Providers

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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A data base of recommended Service Providers is available from the Department of Public Works, Private Bag X65, Pretoria, 0001, located at the Central Government Offices, corner of Bosman and Vermeulen Streets, Pretoria and at all Public Works Regional Offices.

HIV/AIDS Specific Learning Outcomes and Assessment Criteria

Workers shall be exposed to workshops for a minimum duration of two-and-a-half hours. In order to set a minimum standard requirement, the following specific learning outcomes and assessment criteria shall be met:

(a) UNIT 1: The nature of HIV/AIDS

After studying and understanding this unit the Worker will be able to differentiate between HIV and AIDS and comprehend whether or not it is curable. The Worker will also be able to explain how the HI virus operates once a person is infected and identify the symptoms associated with the progression of HIV/AIDS.

Assessment Criteria:

1. Define and describe HIV and AIDS
2. List and describe the progression of HIV/AIDS

(b) UNIT 2: Transmission of the HI virus

After studying and understanding this unit the Worker will be able to identify bodily fluids that carry the HI virus. The Worker will be able to recognise how HIV/AIDS is transmitted and how it is not transmitted.

Assessment Criteria:

1. Record in what bodily fluids you will find the HI virus.
2. Describe how HIV/AIDS can be transmitted.
3. Demonstrate your ability to distinguish between how HIV/AIDS is transmitted and misconceptions around transmittance of HIV/AIDS.

(c) UNIT 3: HIV/AIDS preventative measures

After studying and understanding this unit the Worker will comprehend how to act in a way that would minimise the risk of HIV/AIDS infection and to use measures to prevent the HI virus to enter the blood stream.

Assessment Criteria:

1. Report on how you could minimise your risk of HIV/AIDS infection.
2. Report on precautions that can be taken to prevent HIV/AIDS infection.
3. Explain or demonstrate how to use a male and female condom.
4. List of factors that could jeopardize the safety condoms provide against HIV/AIDS transmission.

(d) UNIT 4: Voluntary HIV/AIDS counselling and testing

After studying and understanding this unit the Worker will be able to recognise methods of testing for HIV/AIDS infection. The Worker will be able to understand the purpose of voluntary HIV/AIDS testing and pre- and post-test counselling.

Assessment Criteria:

1. Describe kinds of testing for HIV/AIDS infection.

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2. Report on why voluntary testing is important.
3. Report on why pre- and post-test counselling is important.
- (e) **UNIT 5: Living with HIV/AIDS**

After studying and understanding this unit the Worker will be able to recognise the importance of caring for people living with HIV/AIDS and be able to manage HIV/AIDS.

Assessment Criteria:

1. List and describe ways to manage HIV/AIDS.
2. Describe nutritional needs of people living with HIV/AIDS.
3. Describe ways to embrace a healthy lifestyle as a person living with HIV/AIDS.
4. Explain the need of counselling and support to people living with HIV/AIDS.

(f) UNIT 6: Treatment options for people with HIV/AIDS

After studying and understanding this unit the Worker will be familiar with the various treatments available to HIV/AIDS infected or potentially HIV/AIDS infected people.

Assessment Criteria:

1. Discuss anti-retroviral therapy
2. List methods of treatment to prevent HIV/AIDS transmission from mother-to-child.
3. Describe the need for treatment of opportunistic diseases for people living with HIV/AIDS.
4. Describe post exposure prophylactics.

(g) UNIT 7: The rights and responsibilities of Workers in the workplace with regards to HIV/AIDS

After studying and understanding this unit the Worker will be able to identify the rights and responsibilities of the Worker living with HIV/AIDS in the workplace. The Worker will recognise the importance of accepting colleagues living with HIV/AIDS and treating them in a non- discriminative way.

Assessment Criteria:

1. Discuss the rights of a person living with HIV/AIDS in the workplace.
2. Discuss the responsibilities of a person living with HIV/AIDS in the workplace.
3. Report on why acceptance and non-discrimination of colleagues living with HIV/AIDS is important.

PE 04.03 Displaying of plastic laminated posters and distribution of information booklets

- (a) The Contractor shall obtain a set of four posters conveying different key messages, and information booklets from the Construction Industry Development Programme Unit (CIDP), Room A520 located in the Central Government Offices, corner of Bosman and Vermeulen Streets, Pretoria or at all Regional Offices of the Department of Public Works. The postal address is the Department of Public Works, Private Bag X65, Pretoria, 0001.
- (b) The above-mentioned posters and information booklets have been prepared to raise awareness and to share information about HIV/AIDS and STI's.
- (c) Posters or display stands shall be displayed on site as soon as possible but not later than 14 days after the date of site hand over.
- (d) Posters shall be displayed in areas highly trafficked by Workers, including toilets, rest areas, the site office and compounds.
- (e) The posters on display should always be intact, clear and readable.
- (f) Information booklets must be distributed to all Workers as soon as possible but not later than 14 days after site hand over, or as soon as the Worker joins the site.

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PE 05 PROVIDING WORKERS WITH ACCESS TO CONDOMS

PE 05.01 The Contractor shall provide and maintain condom dispensers and make both male and female condoms complying with the requirements of SANS 4074:2003 available at all times to all Workers at readily accessible points on site, for the duration of the contract. The Contractor may obtain condom dispensers from the Department of Health and condoms may be obtained from the local clinic or the Department of Health.

PE 05.02 At least one male and one female condom dispenser and a sufficient supply of condoms, all to the approval of the Representative/Agent, shall be on site within 14 days of site hand over. Contractors should note that arrangements to obtain condoms from the Department of Health Clinics prior to site hand over may be necessary to ensure that condoms are available within 14 days of site hand over.

PE 05.03 Condoms shall be made available in areas highly trafficked by Workers, including toilets, the site office and compounds.

PE 06 ENSURING ACCESS TO HIV/AIDS TESTING AND COUNSELLING FACILITIES AND TREATMENT OF SEXUALLY TRANSMITTED INFECTIONS (STI)

PE 06.01 The Contractor shall provide the Workers with the names of the closest Service Providers that provide HIV/AIDS testing and counselling and Clinics providing Sexually Transmitted Infection (STI) diagnosis and treatment. Information on these Service Providers and Clinics should be displayed on a poster of a size not smaller than A1 in an area highly trafficked by Workers.

PE 07 APPOINTMENT OF AN HIV/AIDS AWARENESS CHAMPION

PE 07.01 Within 14 days of site hand over the Contractor shall appoint an Awareness Champion, from, amongst the Workers, who speaks and understands all the languages spoken by the Workers and he/she shall be on site during all stages of the construction period. The Contractor shall ensure that the Awareness Champion has been trained by the Service Provider on basic HIV/AIDS information, the support services available and the necessary skills to handle questions regarding the HIV/AIDS programme in a sensitive way.

The Awareness Champion shall be responsible for:

- (a) Liaising with the Service Provider on organising awareness workshops;
- (b) Filling condom dispensers and monitoring condom distribution;
- (c) Handing out information booklets;
- (d) Placing and maintaining posters

PE 08 MONITORING

PE 08.01 The Contractor shall grant to the Representative/Agent reasonable access to the construction site in order to conduct unannounced site visits in order to establish that the Contractor complies with his obligations regarding HIV/AIDS awareness under this contract.

PE 08.02 The Representative/Agent shall conduct the site visits with the least possible disruption to the Contractor's daily routine.

PE 08.03 Contractors must report problems that they experience in implementing the HIV/AIDS requirements to the Representative/Agent.

PE 08.04 A SITE CHECKLIST (SCHEDULE A) shall be completed and submitted at every construction progress inspection to the Representative/Agent.

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- PE 08.05 A SERVICE PROVIDER REPORT (SCHEDULE B) shall be completed and submitted on a monthly basis to the Department's Project Manager through the Representative/Agent.
- PE 08.06 The Contractor shall, at the end of the contract, complete and submit a close out programme report CONTRACTOR HIV/AIDS PROGRAMME REPORT (SCHEDULE C).

PE 09 MEASUREMENT AND PAYMENTS

- PE 09.01 It is required of tenderers to thoroughly study the HIV/AIDS Specifications of the Department that must be read together with and is deemed to be incorporated in the Bill of Quantities. Provision for pricing of HIV/AIDS awareness must be made under Item E10.01 hereafter and it is explicitly pointed out that all requirements of the aforementioned specifications are deemed to be priced hereunder as the said item represents the only method of measurement and no additional items or extras to the contract in this regard shall be entertained.
- PE 09.02 Contractor should take note that compliance with the HIV/AIDS Specification is compulsory. In the event of partial or total non-compliance, the Representative /Agent, notwithstanding the provisions of any other clause to the contrary, reserves the right to delay issuing any progress payment certificate until the Contractor provides satisfactory proof of compliance. The Contractor shall not be entitled to any compensation of whatsoever nature, including interest, due to such delay of payment

Item	Unit
PE 10.01 HIV AIDS Awareness obligations.....	Lump Sum

The tendered lump sum shall be in full compensation for the Contractor providing an approved selected service provider to comply with the requirements and conditions of the Department's HIV/AIDS Specifications, including the workshop education and training within an HIV/AIDS Awareness programme and the Contractor's handling costs, profit, record keeping, reporting and all other charges in connection with providing the HIV/AIDS Awareness programme.

Payment under item E10.01 will be made as follows:

80% of the amount will be paid once the service provider has complied with the requirements and conditions of the Department's HIV AIDS Specifications, including the workshop education and training within an HIV/AIDS Awareness programme.

The outstanding 20% will be paid on completion of the contract, subject to the Contractor's compliance in all respects with the requirements and conditions of the Department's HIV/AIDS Specifications.

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PARTICULAR SPECTIFICATION PF - GENERIC LABOUR-INTENSIVE SPECIFICATION

CONTENTS

PF 01 SCOPE

This specification establishes general requirements for activities, which are to be, executed by hand involving the following:

- (a) trenches having a depth of less than 1.5 metres
- (b) storm water drainage
- (c) low-volume roads and sidewalks

PF F 02 PRECEDENCE

Where this specification is in conflict with any other standard or specification referred to in the Scope of Works to this Contract, the requirements of this specification shall prevail.

PF 03 HAND EXCAVATEABLE MATERIAL

Hand excavateable material is material:

(a) Granular materials:

- (i) Whose consistency when profiled may in terms of Table 1 be classified as very loose, loose, medium dense, or dense; or
- (ii) Where the material is gravel having a maximum particle size of 10 mm and contains no cobbles or isolated boulders, no more than 15 blows of a dynamic cone penetrometer is required to penetrate 100mm;

(b) Cohesive materials:

- (i) whose consistency when profiled may in terms of Table 1 be classified as very soft, soft, firm, stiff and stiff / very stiff; or
- (ii) where the material is gravel having a maximum particle size of 10 mm and contains no cobbles or isolated boulders, no more than 8 blows of a dynamic cone penetrometer is required to penetrate 100 mm;

- Note: (1) A boulder, a cobble and gravel is material with a particle size greater than 200 mm, between 60 and 200 mm.
- (2) A dynamic cone penetrometer is an instrument used to measure the in-situ shear resistance of a soil comprising a drop weight of approximately 10 kg, which falls through a height of 400 mm and drives a cone having a maximum diameter of 20 mm (cone angle of 60° with respect to the horizontal) into the material being used.

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Table 1: Consistency of materials when profiled

GRANULAR MATERIALS		COHESIVE MATERIALS	
CONSISTENCY	DESCRIPTION	CONSISTENCY	DESCRIPTION
Very loose	Crumbles very easily when scraped with a geological pick.	Very soft	Geological pick head can easily be pushed in as far as the shaft of the handle.
Loose	Small resistance to penetration by sharp end of a geological pick.	Soft	Easily dented by thumb; sharp end of a geological pick can be pushed in 30-40 mm; can be moulded by fingers with some pressure.
Medium dense	Considerable resistance to penetration by sharp end of a geological pick.	Firm	Indented by thumb with effort; sharp end of geological pick can be pushed in up to 10 mm; very difficult to mould with fingers; can just be penetrated with an ordinary hand spade.
Dense	Very high resistance to penetration by the sharp end of geological pick; requires many blows for excavation.	Stiff	Can be indented by thumbnail; slight indentation produced by pushing geological picks point into soil; cannot be moulded by fingers.
Very dense	High resistance to repeated blows of a geological pick.	Very stiff	Indented by thumbnail with difficulty; slight indentation produced by blow of a geological pick point.

PF 04 LABOUR INTENSIVE WORKS

Trench excavation

All hand excavatable material in trenches having a depth of less than 1,5 metres shall be excavated by hand.

Compaction of backfilling to trenches (areas not subject to traffic)

Backfilling to trenches shall be placed in layers of thickness (before compaction) not exceeding 100 mm. Each layer shall be compacted using hand tampers

- (a) To 90% Proctor density;
- (b) Such that in excess of 5 blows of a dynamic cone penetrometer (DCP) is required to penetrate 100 mm of the backfill, provided that backfill does not comprise more than 10% gravel of size less than 10mm and contains no isolated boulders; or
- (c) Such that the density of the compacted trench backfill is not less than that of the surrounding undisturbed soil when tested comparatively with a DCP.

Excavation

All hand excavatable material including topsoil classified, as hand excavatable shall be excavated by hand. Harder material may be loosened by mechanical means prior to excavation by hand.

The excavation of any material, which presents the possibility of danger or injury to workers, shall not be excavated by hand.

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Clearing and grubbing

Grass and small bushes shall be cleared by hand.

Shaping

All shaping shall be undertaken by hand.

Loading

All loading shall be done by hand, regardless of the method of haulage.

Haul

Excavation material shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150 m.

Offloading

All material, however transported, is to be off-loaded by hand, unless tipper-trucks are utilised for haulage

Spreading

All material shall be spread by hand.

Compaction

Small areas may be compacted by hand provided that the specified compaction is achieved.

Grassing

All grassing shall be undertaken by sprigging, sodding, or seeding by hand.

Stone pitching and rubble concrete masonry

All stone required for stone pitching and rubble concrete masonry, whether grouted or dry, must to be collected, loaded, off loaded and placed by hand.

Sand and stone shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150 m.

Grout shall be mixed and placed by hand.

Manufactured Elements

Elements manufactured or designed by the Contractor, such as manhole rings and cover slabs, pre-cast concrete planks and pipes, masonry units and edge beams shall not individually, have a mass of more than 320 kg. In addition, the items shall be large enough so that four workers can conveniently and simultaneously acquire a proper handhold on them.

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PARTICULAR SPECIFICATION PG - ENVIRONMENTAL MANAGEMENT PLAN

CONTENTS

PG 01 SCOPE

This environmental management programme (EMP) sets out the methods by which proper environmental controls are to be implemented by the Contractor. The duration over which the Contractor's controls shall be in place cover the construction period of the project as well as the limited time after contract completion defined by the General Conditions of Contract, and the project specifications, as the defects liability period (maintenance period).

The provisions of this EMP are binding on the Contractor during the life of the contract. They are to be read in conjunction with all the documents that comprise the suite of documents for this contract. In the event that any conflict occurs between the terms of the EMP and the project specifications or Record of Decision, the terms herein shall be subordinate.

The EMP is a dynamic document subject to similar influences and changes as are brought by variations to the provisions of the project specification. Any substantial changes shall be submitted to the Employer in writing for approval.

The EMP identifies the following:

Construction activities that will impact on the environment. Specifications with which the Contractor shall comply in order to protect the environment from the identified impacts. Actions that shall be taken in the event of non-compliance.

This should be read in conjunction with the Environmental Mitigation Plan of the Environmental Consultant specification which shall be applicable should there be a conflicting statement.

PG 02 DEFINITIONS

Alien Vegetation: alien vegetation is defined as undesirable plant growth which shall include, but not be limited to, all declared category 1 and 2 listed invader species as set out in the Conservation of Agricultural Resources Act (CARA) regulations. Other vegetation deemed to be alien shall be those plant species that show the potential to occupy in number, any area within the defined construction area and which are declared to be undesirable.

Construction Activity: a construction activity is any action taken by the Contractor, his subcontractors, suppliers or personnel during the construction process as defined in the South African National Roads Agency Limited and National Roads Act, 1998 (Act No. 7, 1998)

Environment: environment means the surroundings within which humans exist and that could be made up of:

- the land, water and atmosphere of the earth;
- micro-organisms, plant and animal life;
- any part or combination of (i) and (ii) and the interrelationships among and between them; and
- the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

Environmental Aspect: an environmental aspect is any component of a contractor's construction activity that is likely to interact with the environment.

Environmental Impact: an impact or environmental impact is the change to the environment, whether desirable or undesirable, that will result from the effect of a construction activity. An impact may be the direct or indirect consequence of a construction activity.

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Record of Decision: a record of decision is a written statement from the National Department of Environmental Affairs and Tourism, (NDEAT), that records its approval of a planned undertaking to improve, upgrade or rehabilitate a section of road and the mitigating measures required to prevent or reduce the effects of environmental impacts during the life of a contract.

Road Reserve: the road reserve is a corridor of land, defined by co-ordinates and proclamation, within which the road, including access intersections or interchanges, is situated. A road reserve may, or may not, be bounded by a fence.

Road Width: for the purposes of the EMP, the road width is defined as the area within the road reserve i.e. fence line to fence line, but also includes all areas beyond the road reserve that are affected by the continuous presence of the road, e.g. a reach of a water course.

PG 03 IDENTIFICATION OF ENVIRONMENTAL ASPECTS AND IMPACTS

The Contractor shall identify likely aspects before commencing with any construction activity. Examples of environment aspects include:

- waste generation
- stormwater discharge
- emission of pollutants into the atmosphere
- chemical use operations
- energy use operations
- water use operations
- use of natural resources
- noise generation

Thereafter the Contractor shall programme his work in such a way that each cause and effect of a construction activity is also identified and the activity planned so as to prevent any impact from happening. If prevention is not practicable, or in the event of mishap or misapplication, the Contractor shall provide plans and measures for the Engineer's approval, which will limit and contain the magnitude, duration and intensity of the impact. The Contractor shall demonstrate that he/she is capable of carrying out any repair and reinstatement of the damaged environment. These requirements shall be concurrent with the time constraints to produce an approved construction programme according to subclause 5.6 of the general conditions of contract and clause B1204 of these project specifications.

Listed below are some environmental impacts that could adversely alter an aspect of the environment through usual construction activities:

- Pollution of atmosphere, soil or water
- Destruction or removal of fauna and flora and effect on biological diversity
- Deformation of the landscapes oil erosion
- Destruction of historical/heritage sites
- Effect on the built environment
- Effect on agricultural land and wetlands

General good construction practice will play an important role in avoiding the occurrence of an Impact. The Contractor's attention is drawn, in this regard, to G 08. Environmental Management of Construction Activities.

PG 04 LEGAL REQUIREMENTS

PG 04.01 General

Construction will be according to the best industry practices, as identified in the project documents. This EMP, which forms an integral part of the contract documents, informs the Contractor as to his duties in the fulfilment of the project objectives, with particular reference to the prevention and mitigation of environmental impacts caused by construction activities associated with the project. The

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:

Contractor should note that obligations imposed by the EMP are legally binding in terms of environmental statutory legislation and in terms of the additional conditions to the general conditions of contract that pertain to this project. In the event that any rights and obligations contained in this document contradict those specified in the standard or project specifications then the latter shall prevail.

PG 04.02 Statutory and other applicable legislation

The Contractor is deemed to have made himself conversant with all legislation pertaining to the environment, including provincial and local government ordinances, which may be applicable to the contract.

PG 05 ADMINISTRATION OF ENVIRONMENTAL OBLIGATIONS

PG 05.01 Appointment of a Designated Environmental Officer (DEO)

For the purposes of implementing the conditions contained herein, the Contractor shall submit to the Engineer for approval the appointment of a nominated representative of the Contractor as the DEO for the contract. The request shall be given, in writing, at least fourteen days before the start of any work clearly setting out reasons for the nomination, and with sufficient detail to enable the Engineer to make a decision. The Engineer will, within seven days of receiving the request, approve, reject or call for more information on the nomination. Once a nominated representative of the Contractor has been approved he/she shall be the DEO and shall be the responsible person for ensuring that the provisions of the EMP are complied with during the life of the contract. The Engineer will be responsible for issuing instructions to the Contractor where environmental considerations call for action to be taken. The DEO shall submit regular written reports to the Engineer, but not less frequently than once a month.

The Engineer shall have the authority to instruct the Contractor to replace the DEO if, in the Engineer's opinion, the appointed officer is not fulfilling his/her duties in terms of the requirements of the EMP or this specification. Such instruction will be in writing and shall clearly set out the reasons why a replacement is required.

There shall be an approved DEO on the site at all times.

PG 05.02 Administration

Before the Contractor begins each construction activity the DEO shall give to the Engineer a written statement setting out the following:

- The type of construction activity.
- Locality where the activity will take place.
- Identification of the environmental aspects and impacts that might result from the activity.
- Methodology for impact prevention for each activity or aspect.
- Methodology for impact containment for each activity or aspect.
- Emergency/disaster incident and reaction procedures.
- Treatment and continued maintenance of impacted environment.
- The Contractor may provide such information in advance of any or all construction activities provided that new submissions shall be given to the Engineer whenever there is a change or variation to the original.

The Engineer may provide comment on the methodology and procedures proposed by the DEO, but he shall not be responsible for the Contractor's chosen measures of impact mitigation and emergency/disaster management systems. However, the Contractor shall demonstrate at inception and at least once during the contract that the approved measures and procedures function properly.

PG 05.03 Good Housekeeping

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The Contractor shall undertake "good housekeeping" practices during construction as stated in SANS 1200. This will help avoid disputes on responsibility and allow for the smooth running of the contract as a whole. Good housekeeping extends beyond the wise practice of construction methods that leaves production in a safe state from the ravages of weather to include the care for and preservation of the environment within which the site is situated.

PG 06 TRAINING

The designated environmental officer (DEO) must be conversant with all legislation pertaining to the environment applicable to this contract and must be appropriately trained in environmental management and must possess the skills necessary to impart environmental management skills to all personnel involved in the contract.

The Contractor shall ensure that adequate environmental training takes place. All employees shall have been given an induction presentation on environmental awareness. Where possible, the presentation needs to be conducted in the language of the employees. The environmental training should, as a minimum, include the following:

- The importance of conformance with all environmental policies
- The environmental impacts, actual or potential, of their work activities
- The environmental benefits of improved personal performance;
- Their roles and responsibilities in achieving conformance with the environmental policy and procedures and with the requirement of the Agency's environmental management systems, including emergency preparedness and response requirements;
- The potential consequences of departure from specified operating procedures;
- The mitigation measures required to be implemented when carrying out their work activities.
- In the case of permanent staff the Contractor shall provide evidence that such induction courses have been presented. In the case of new staff (including contract labour) the Contractor shall inform the Engineer when and how he/she intends concluding his environmental training obligations.

PG 07 ACTIVITIES/ASPECTS CAUSING IMPACTS

A list of possible causes of environmental impacts that occur during construction activities is given in Table 1: Aspects or Activities that Cause Environmental Impacts during Construction Activities, which is to be found at the end of this part. This list is not exhaustive, and shall be used for guideline purposes only.

PG 08 ENVIRONMENTAL MANAGEMENT OF CONSTRUCTION ACTIVITIES

PG 08.01 Site Establishment

PG 08.01.01 Site Plan

The Contractor shall establish his construction camps, offices, workshops, staff accommodation and testing facilities on the site in a manner that does not adversely affect the environment. However, before construction can begin, the Contractor shall submit to the Engineer for his approval, plans of the exact location, extent and construction details of these facilities and the impact mitigation measures the Contractor proposes to put in place.

The plans shall detail the locality as well as the layout of the waste treatment facilities for litter, kitchen refuse, sewage and workshop-derived effluents. The site offices should not be sited in close proximity to steep areas, as this will increase soil erosion. Preferred locations would be flat areas along the route. If the route traverses water courses, streams and rivers, it is

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recommended that the offices, and in particular the ablution facilities, aggregate stockpiles, spoil areas and hazardous material stockpiles are located as far away as possible from any water course as possible. Regardless of the chosen site, the Contractor's intended mitigation measures shall be indicated on the plan. The site plan shall be submitted not later than the first site meeting. Detailed, electronic colour photographs shall be taken of the proposed site before any clearing may commence. These records are to be kept by the Engineer for consultation during rehabilitation of the site.

PG 08.01.02 Vegetation

The Contractor has a responsibility to inform his staff of the need to be vigilant against any practice that will have a harmful effect on vegetation.

The natural vegetation encountered on the site is to be conserved and left as intact as possible. Vegetation planted at the site shall be indigenous and in accordance with instructions issued by the Engineer. Only trees and shrubs directly affected by the works, and such others as may be indicated by the Engineer in writing, may be felled or cleared. In wooded areas where natural vegetation has been cleared out of necessity, the same species of indigenous trees as were occurring, shall be re-established.

The project specification for the rehabilitation of the grass cover shall be strictly adhered to. Any proclaimed weed or alien species that propagates during the contract period shall be cleared by hand before seeding. Fires shall only be allowed in facilities or equipment specially constructed for this purpose. A firebreak shall be cleared and maintained around the perimeter of the camp and office sites.

PG 08.01.03 Rehabilitation

The area where the site offices were erected will require rehabilitation at the end of the contract. All construction material, including concrete slabs and braai areas shall be removed from the site on completion of the contract.

PG 08.01.04 Water for human consumption

Water for human consumption shall be available at the site offices and at other convenient locations on site.

All effluent water from the camp/office sites shall be disposed of in a properly designed and constructed system, situated so as not to adversely affect water sources (streams, rivers, pans dams etc). Only domestic type wastewater shall be allowed to enter this drain.

PG 08.01.05 Heating and Cooking fuel

The Contractor shall provide adequate facilities for his staff so that they are not encouraged to supplement their comforts on site by accessing what can be taken from the natural surroundings. The Contractor shall ensure that energy sources are available at all times for construction and supervision personnel for heating and cooking purposes.

PG 08.02 **Sewage treatment (impose penalties on solid waste non-conformance)**

Particular reference in the site establishment plan shall be given to the treatment of sewage generated at the site offices, site laboratory and staff accommodation and at all localities on the site where there will be a concentration of labour. Sanitary arrangements should be to the satisfaction of project management, the local authorities and legal requirements.

Safe and effective sewage treatment will require one of the following sewage handling methods: septic tanks and soak-aways, dry-composting toilets such as "enviro loos", or the use of chemical toilets which are supplied and maintained by a subcontractor. The type of sewage treatment will depend on

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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the geology of the area selected, the duration of the contract and proximity (availability) of providers of chemical toilets. Should a soak-away system be used, it shall not be closer than 800 metres from any natural water course or water retention system. The waste material generated from these facilities shall be serviced on a regular basis. The positioning of the chemical toilets shall be done in consultation with the Engineer. Read with COLTO Specifications 1402(g) and 1404(a).

Toilets and latrines shall be easily accessible and shall be positioned within walking distance from wherever employees are employed on the works. Use of the veld for this purpose shall not, under any circumstances, be allowed.

Outside toilets shall be provided with locks and doors and shall be secured to prevent them from blowing over. The toilets shall also be placed outside areas susceptible to flooding. The Contractor shall arrange for regular emptying of toilets and 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.

PG 08.03Waste Management

The Contractor's intended methods for waste management and waste minimisation shall be implemented at the outset of the contract. All personnel shall be instructed to dispose of all waste in the proper manner.

PG 08.03.01 Solid Waste

Solid waste shall be stored in an appointed area in covered, tip proof metal drums for collection and disposal. A refuse control system shall be established for the collection and removal of refuse to the satisfaction of the Engineer. Disposal of solid waste shall be at a DWS licensed landfill site or at a site approved by DWS in the event that an existing operating landfill site is not within reasonable distance from the site offices and staff accommodation. No waste shall be burned or buried at or near the site offices, nor anywhere else on the site, including the approved solid waste disposal site.

PG 08.03.02 Litter

No littering by construction workers shall be allowed. During the construction period, the facilities shall be maintained in a neat and tidy condition and the site shall be kept free of litter.

Measures shall be taken to reduce the potential for litter and negligent behaviour with regard to the disposal of all refuse. At all places of work the Contractor shall provide litter collection facilities for later safe disposal at approved sites.

PG 08.03.03 Hazardous waste

Hazardous waste such as bitumen, tar, oils etc. shall be disposed of in a DWS approved landfill site. Special care shall be taken to avoid spillage of tar or bitumen products such as binders or pre-coating fluid to avoid water-soluble phenols from entering the ground or contaminating water.

Under no circumstances shall the spoiling of tar or bituminous products on the site, over embankments, in borrow pits or any burying, be allowed. Unused or rejected tar or bituminous products shall be returned to the supplier's production plant. Any spillage of tar or bituminous products shall be attended to immediately and affected areas shall be promptly reinstated to the satisfaction of the Engineer.

PG 08.04Control at the workshop

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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The Contractor's management and maintenance of his plant and machinery will be strictly monitored according to the criteria given below, regardless whether it is serviced on the site (i.e. at the place of construction activity or at a formalised workshop)

PG 08.04.01 Safety

All the necessary handling and safety equipment required for the safe use of petrochemicals and oils shall be provided by the Contractor to, and used or worn by, the staff whose duty it is to manage and maintain the Contractor's and his subcontractor's and supplier's plant, machinery and equipment.

PG 08.04.02 Hazardous Material Storage

Petrochemicals, oils and identified hazardous substances shall only be stored under controlled conditions. All hazardous materials e.g. tar or bitumen binders shall be stored in a secured, appointed area that is fenced and has restricted entry. Storage of tar or bituminous products shall only take place using suitable containers to the approval of the Engineer.

The Contractor shall provide proof to the Engineer that relevant authorisation to store such substances has been obtained from the relevant authority. In addition, hazard signs indicating the nature of the stored materials shall be displayed on the storage facility or containment structure. Before containment or storage facilities can be erected the Contractor shall furnish the Engineer with details of the preventative measures he proposes to install in order to mitigate against pollution of the surrounding environment from leaks or spillage. The preferred method shall be a concrete floor that is bunded. Any deviation from the method will require proof from the relevant authority that the alternative method proposed is acceptable to that authority. The proposals shall also indicate the emergency procedures in the event of misuse or spillage that will negatively affect an individual or the environment.

PG 08.04.03 Fuel and Gas Storage

Fuel shall be stored in a secure area in a steel tank supplied and maintained by the fuel suppliers. An adequate bund wall, 110% of volume, shall be provided for fuel and diesel areas to accommodate any leakage spillage or overflow of these substances. The area inside the bund wall shall be lined with an impervious lining to prevent infiltration of the fuel into the soil. Any leakage, spillage or overflow of fuel shall be attended to without delay.

Gas welding cylinders and LPG cylinders shall be stored in a secure, well-ventilated area.

PG 08.04.04 Oil and Lubricant Waste

Used oil, lubricants and cleaning materials from the maintenance of vehicles and machinery shall be collected in a holding tank and sent back to the supplier. Water and oil should be separated in an oil trap. Oils collected in this manner, shall be retained in a safe holding tank and removed from site by a specialist oil recycling company for disposal at approved waste disposal sites for toxic/hazardous materials. Oil collected by a mobile servicing unit shall be stored in the service unit's sludge tank and discharged into the safe holding tank for collection by the specialist oil recycling company.

All used filter materials shall be stored in a secure bin for disposal off site. Any contaminated soil shall be removed and replaced. Soils contaminated by oils and lubricants shall be collected and disposed of at a facility designated by the local authority to accept contaminated materials.

PG 08.05 Clearing the Site

In all areas where the Contractor intends to, or is required to clear the natural vegetation and soil, either within the road reserve, or at designated or instructed areas outside the road reserve, a plan of action shall first be submitted to the Engineer for his approval.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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The plan shall contain a photographic record and chainage/land reference of the areas to be disturbed. This shall be submitted to the Engineer for his records before any disturbance/stockpiling may occur. The record shall be comprehensive and clear, allowing for easy identification during subsequent inspections.

The Contractor shall be responsible for the re-establishment of grass within the road reserve boundaries for all areas disturbed during road construction. This includes, for example, service roads, stockpile areas, stop/go facilities, windrows and wherever material generated for, or from, road construction has to be stored temporarily or otherwise within the road reserve, or at designated or instructed areas outside the road reserve. This responsibility shall extend until expiry of the defects liability period.

PG 08.06 Soil Management

PG 08.06.01 Topsoil

Topsoil shall be removed from all areas where physical disturbance of the surface will occur and shall be stored and adequately protected. The contract will provide for the stripping and stockpiling of topsoil from the site for later re-use. Topsoil is considered to be the natural soil covering, including all the vegetation and organic matter. Depth may vary at each site. The areas to be cleared of topsoil shall include the storage areas. All topsoil stockpiles and windrows shall be maintained throughout the contract period in a weed-free condition. Weeds appearing on the stockpiled or windrowed topsoil shall be removed by hand. Soils contaminated by hazardous substances shall be disposed of at an approved Department of Water and Sanitation waste disposal site. The topsoil stockpiles shall be stored, shaped and sited in such a way that they do not interfere with the flow of water to cause damming or erosion, or itself be eroded by the action of water. Stockpiles of topsoil shall not exceed a height of 2m, and if they are to be left for longer than 6 months, shall be analysed, and if necessary, upgraded before replacement. Stockpiles shall be protected against infestation by weeds.

The Contractor shall ensure that no topsoil is lost due to erosion – either by wind or water. Areas to be topsoiled and grassed shall be done so systematically to allow for quick cover and reduction in the chance of heavy topsoil losses due to unusual weather patterns. The Contractor's programme shall clearly show the proposed rate of progress of the application of topsoil and grassing. The Contractor shall be held responsible for the replacement, at his own cost, for any unnecessary loss of topsoil due to his failure to work according to the progress plan approved by the Engineer. The Contractor's responsibility shall also extend to the clearing of drainage or water systems within and beyond the boundaries of the road reserve that may have been affected by such negligence.

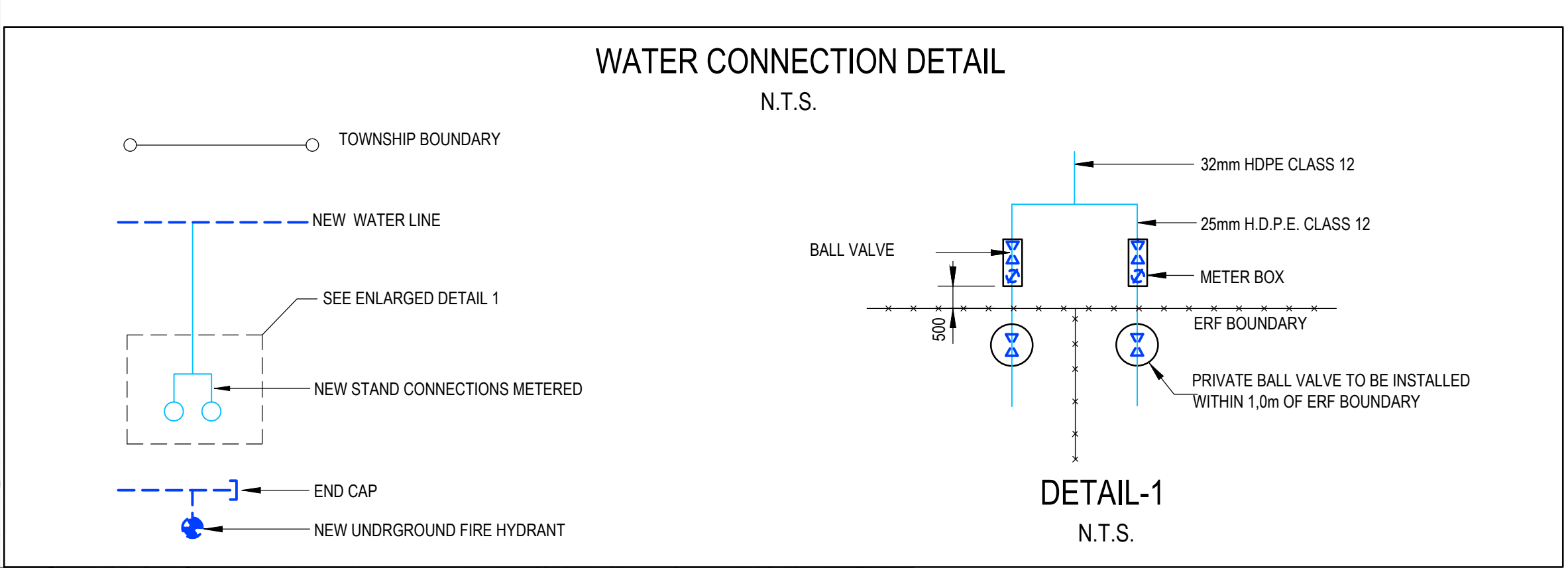
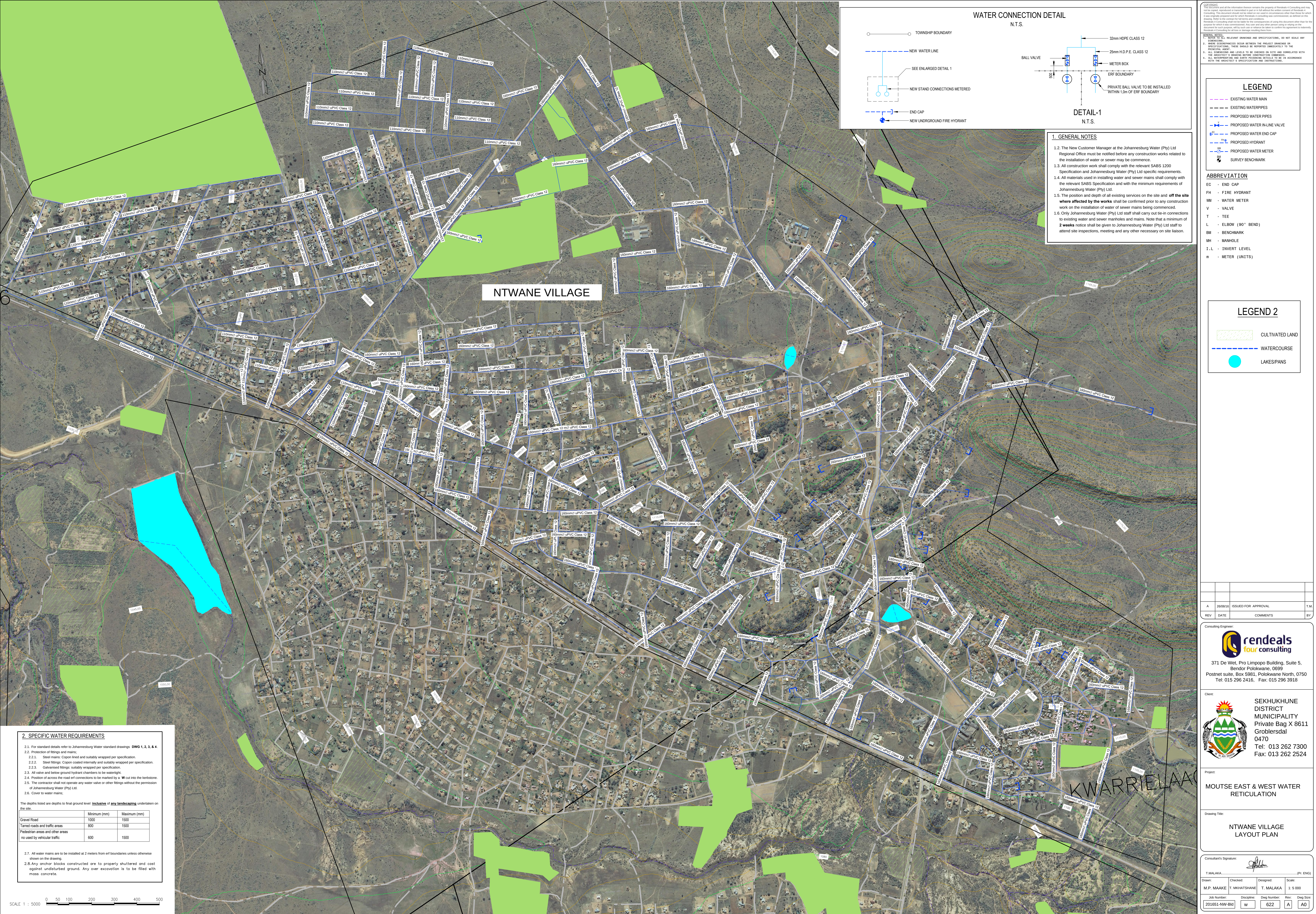
PG 08.06.02 Subsoil

The subsoil is the layer of soil immediately beneath the topsoil. It shall be removed, to a depth instructed by the Engineer, and stored separately from the topsoil if not used for road building. This soil shall be replaced in the excavation in the original order it was removed for rehabilitation purposes.

PG 08.07 Drainage

The quality, quantity and flow direction of any surface water runoff shall be established prior to disturbing any area for construction purposes. Cognisance shall be taken of these aspects and incorporated into the planning of all construction activities. Before a site is developed or expanded, it shall be established how this development or expansion will affect the drainage pattern. Recognised water users / receivers shall not be adversely affected by the expansion or re-development. No water source shall be polluted in any way due to proposed changes.

SDM:	Witness 1:	Witness 2:	Tenderer:	Witness 1:	Witness 2:
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- 1. GENERAL NOTES**
- 1.2. The New Customer Manager at the Johannesburg Water (Pty) Ltd. Regional Office must be notified before any construction works related to the installation of water or sewer may be commenced.
- 1.3. All construction work shall comply with the relevant SABS 1200 Specification and Johannesburg Water (Pty) Ltd specific requirements.
- 1.4. All materials used in installing water and sewer mains shall comply with the relevant SABS Specification and with the minimum requirements of Johannesburg Water (Pty) Ltd.
- 1.5. The position and depth of all existing services on the site and **off the site where affected by the works** shall be confirmed prior to any construction work on the installation of water of sewer mains being commenced.
- 1.6. Only Johannesburg Water (Pty) Ltd staff shall carry out in-line connections to existing water and sewer manholes and mains. Note that a minimum of **2 weeks** notice shall be given to Johannesburg Water (Pty) Ltd staff to attend site inspections, meeting and any other necessary on site liaison.

- LEGEND**
- EXISTING WATER MAIN
 - EXISTING WATERPIPPES
 - PROPOSED WATER PIPES
 - PROPOSED WATER IN-LINE VALVE
 - PROPOSED WATER END CAP
 - PROPOSED HYDRANT
 - PROPOSED WATER METER
 - BM SURVEY BENCHMARK

- ABBREVIATION**
- EC - END CAP
 - FH - FIRE HYDRANT
 - WM - WATER METER
 - V - VALVE
 - T - TEE
 - L - ELBOW (90° BEND)
 - BM - BENCHMARK
 - MH - MANHOLE
 - I.L - INVERT LEVEL
 - m - METER (UNITS)

- LEGEND 2**
- CULTIVATED LAND
 - WATERCOURSE
 - LAKES/PANS

- 2. SPECIFIC WATER REQUIREMENTS**
- 2.1. For standard details refer to Johannesburg Water standard drawings: **DWG 1, 2, 3, & 4.**
- 2.2. Protection of fittings and mains:
- 2.2.1. Steel mains: Copon lined and suitably wrapped per specification.
 - 2.2.2. Steel fittings: Copon coated internally and suitably wrapped per specification.
 - 2.2.3. Galvanised fittings: suitably wrapped per specification.
- 2.3. All valve and below ground hydrant chambers to be watertight.
- 2.4. Position of across the road erf connections to be marked by a **W** cut into the kerbside.
- 2.5. The contractor shall not operate any water valve or other fittings without the permission of Johannesburg Water (Pty) Ltd.
- 2.6. Cover to water mains:
- The depths listed are depths to final ground level **inclusive of any landscaping** undertaken on the site.
- | | Minimum (mm) | Maximum (mm) |
|---|--------------|--------------|
| Gravel Road | 1000 | 1500 |
| Tarred roads and traffic areas | 800 | 1500 |
| Paved areas and other areas not used by vehicular traffic | 600 | 1500 |
- 2.7. All water mains are to be installed at 2 meters from erf boundaries unless otherwise shown on the drawing.
- 2.8. Any anchor blocks constructed are to properly shuttered and cast against undisturbed ground. Any over excavation is to be filled with mass concrete.

A	25/08/16	ISSUED FOR APPROVAL	T.M.
REV	DATE	COMMENTS	BY

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Fax: 013 262 2524

Project:

MOUTSE EAST & WEST WATER RETICULATION

Drawing Title:

NTWANE VILLAGE LAYOUT PLAN

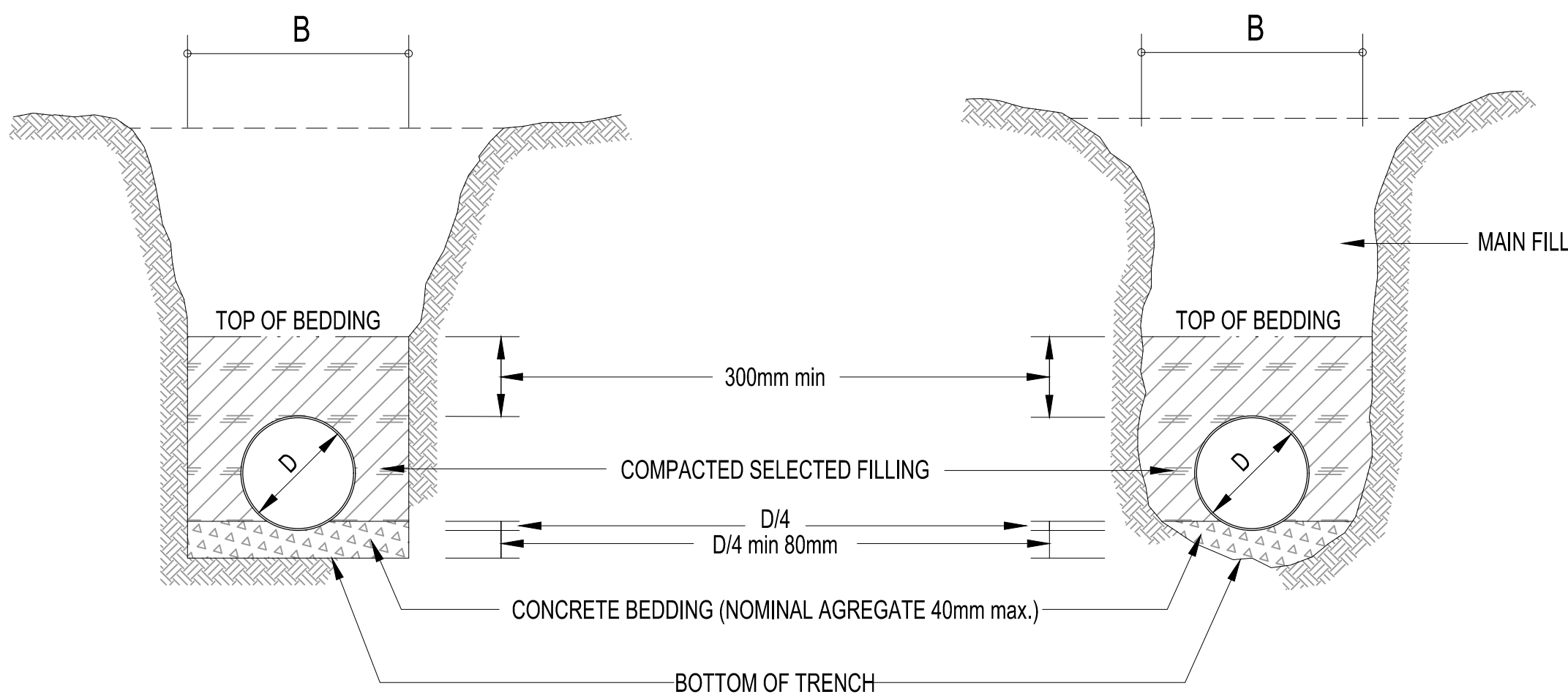
Consultant's Signature:

T.MALAKA (P.V. ENG)

Drawn: M.P. MAAKE Checked: T. MKHATSHANE Designed: T. MALAKA Scale: 1:5 000

Job Number: 201651-NW-Bld Discipline: W Dwg Number: 622 Rev: A Dwg Size: A0

CLASS A BEDDING: LOADFACTOR = 3.0



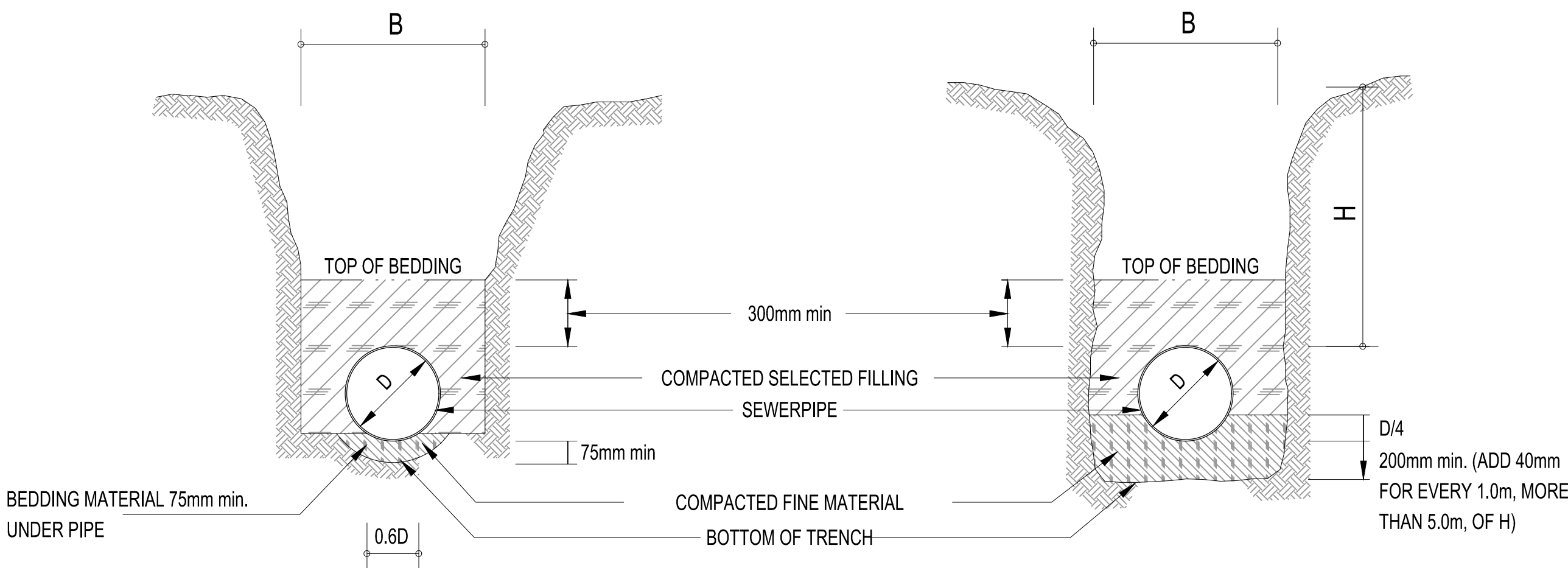
(1) TRENCH IN SOFT MATERIAL
APPROVED FOR TRENCH BOTTOM

(2) TRENCH IN HARD ROCK MATERIAL

CLASS A1

CLASS A2

CLASS B BEDDING: LOADFACTOR = 1.9



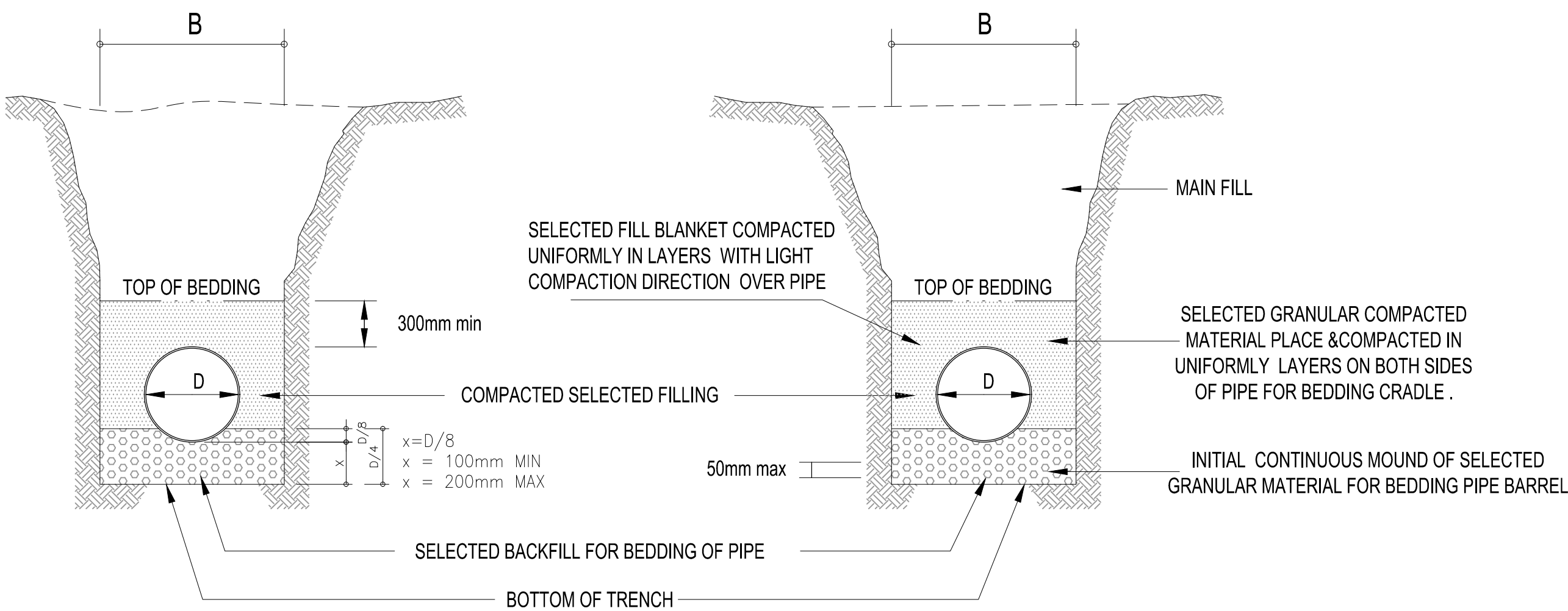
(1) BOTTOM MATERIAL ACCEPTABLE
FOR BEDDING OF PIPE

(2) BOTTOM MATERIAL UNACCEPTABLE
FOR BEDDING OF PIPE

CLASS B1

CLASS B2

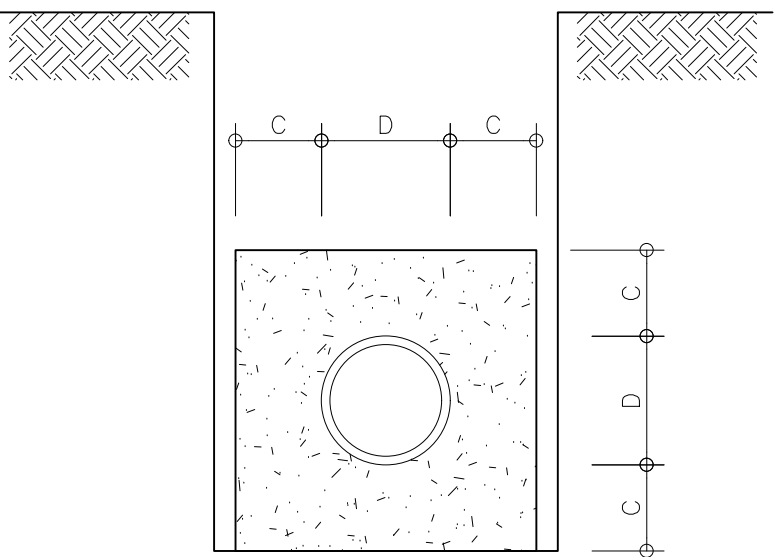
CLASS C BEDDING: LOADFACTOR = 1,5



(1) BOTTOM MATERIAL ACCEPTABLE
FOR BEDDING OF PIPE

CLASS C

DETAIL OF CONCRETE ENCASEMENT



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3. ALL DIMENSIONS AND LEVELS TO BE CHECKED ON SITE AND CORRELATED WITH THE ARCHITECT'S DRAWING BEFORE CONSTRUCTION COMMENCES.
4. ALL WATERPROOFING AND EARTH POISONING DETAILS TO BE IN ACCORDANCE WITH THE ARCHITECT'S SPECIFICATION AND INSTRUCTIONS.

A	02/01/23	ISSUED FOR INFORMATION	P.S
REV	DATE	COMMENTS	BY

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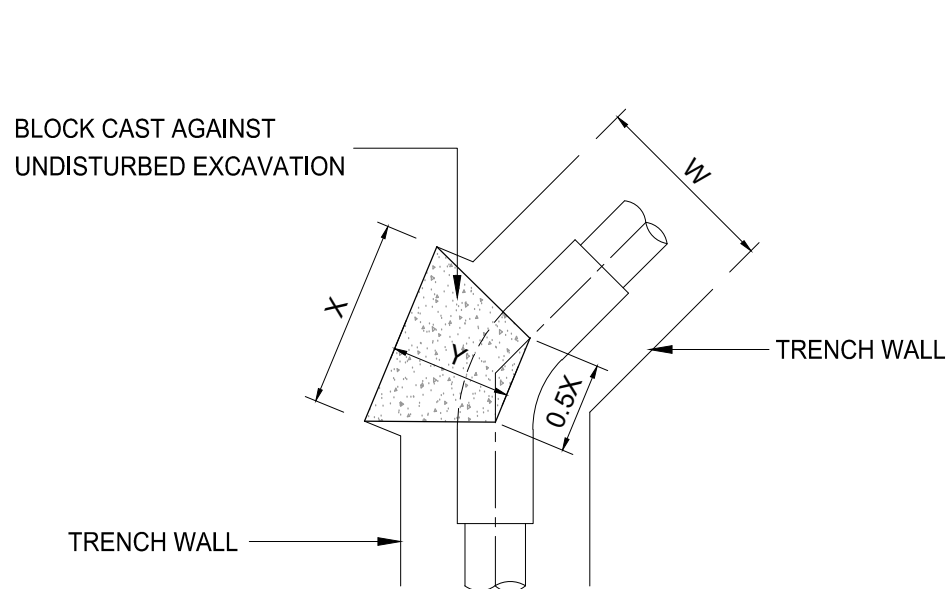
Project: **MOUTSE EAST & WEST WATER RETICULATION
PHASE 1: NTWANE VILLAGE**

Drawing Title: **TYPICAL TRENCH, BEDDING & DETAILS**

Consultant's Signature: 

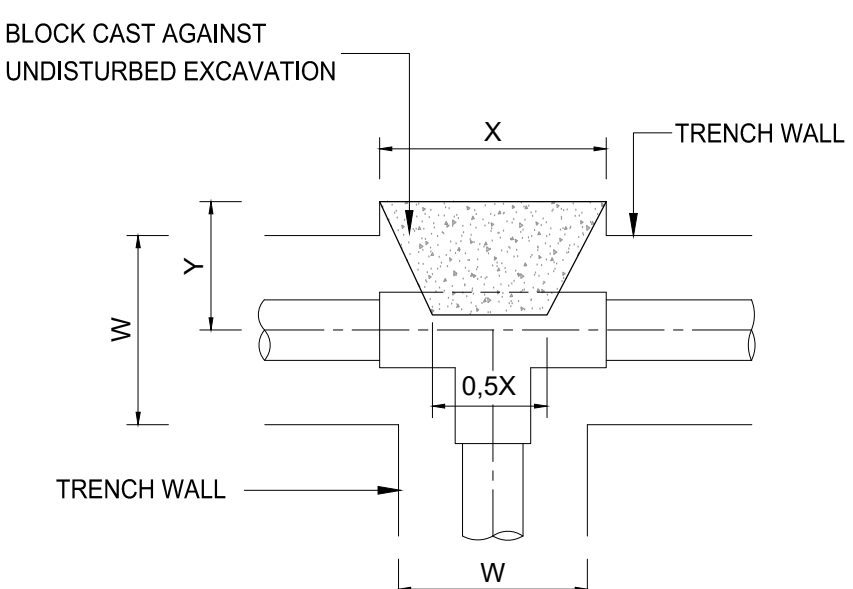
P. LOUWPr TECH (ENG)

Drawn: P.S NDLOVU	Checked: N.MUVHANGO	Designed: P. LOUW	Scale: AS SHOWN	
Job Number: 201651-LP-W	Discipline: CIV	Dwg Number: 500	Rev: A	Dwg Size: A1



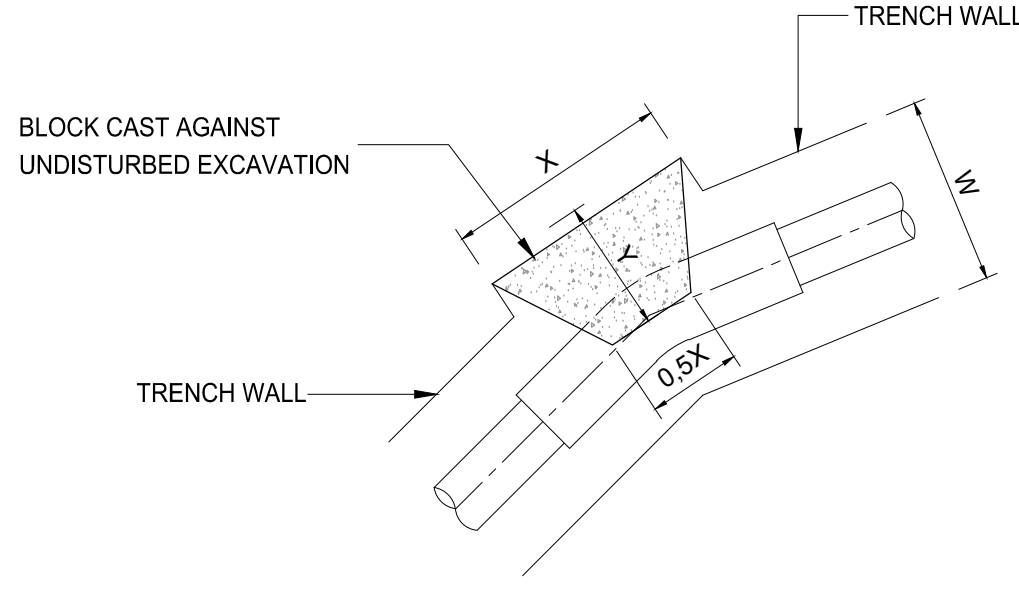
THRUST BLOCK FOR 45° BEND

NOMINAL DIAMETER Ø (mm)	DIMENSIONS				
	D (mm)	Z (mm)	X (mm)	Y (mm)	VOL. (m³)
300	1 400	700	2 000	1 000	1,400
250	1 300	650	1 600	800	0,800
200	1 200	600	1 200	600	0,430
150	1 000	500	1 000	500	0,250
100	1 000	500	350	250	0,043
75	800	400	350	200	0,028



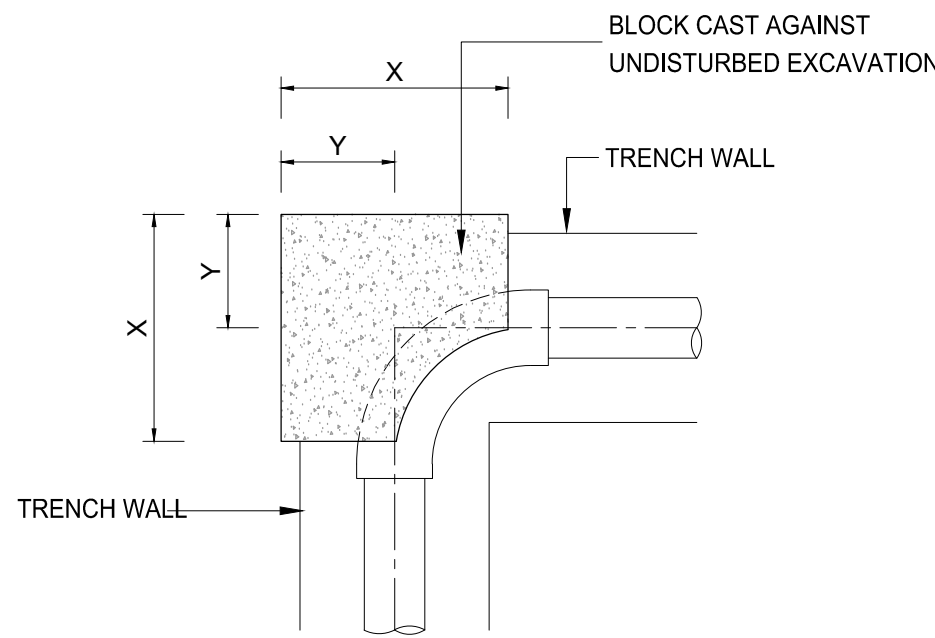
THRUST BLOCK FOR TEE

NOMINAL DIAMETER Ø (mm)	DIMENSIONS				
	D (mm)	Z (mm)	X (mm)	Y (mm)	VOL. (m³)
300	1 400	700	2 700	1 300	2,550
250	1 300	650	2 150	1 100	1,500
200	1 200	600	1 600	800	0,770
150	1 000	500	1 300	650	0,420
100	1 000	500	500	300	0,075
75	800	400	450	300	0,054



THRUST BLOCK FOR 22,5° BEND

NOMINAL DIAMETER Ø (mm)	DIMENSIONS				
	D (mm)	Z (mm)	X (mm)	Y (mm)	VOL. (m³)
300	1 400	700	1 000	500	0,350
250	1 300	650	760	400	0,200
200	1 200	600	600	400	0,150
150	1 000	500	500	300	0,075
100	1 000	400	300	200	0,024
75	800	300	300	200	0,018

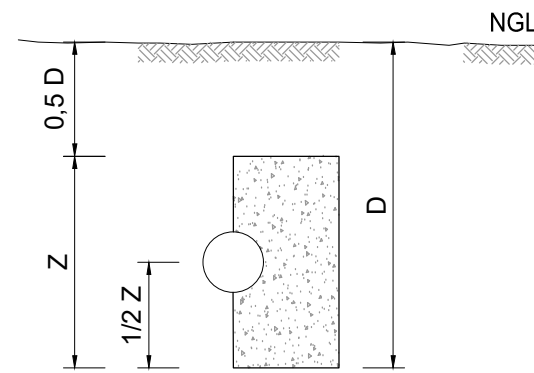


THRUST BLOCK FOR 90° BEND

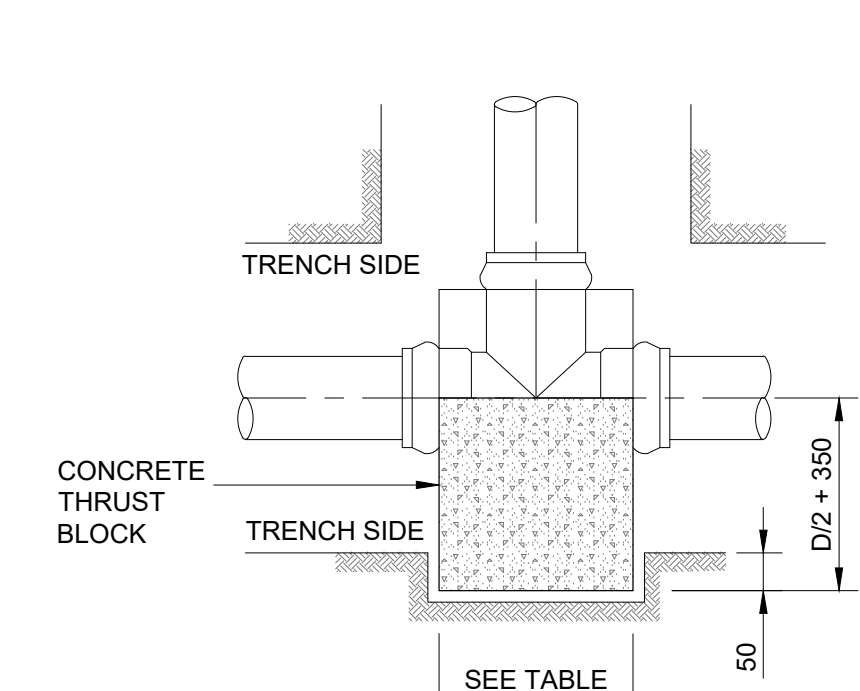
NOMINAL DIAMETER Ø (mm)	DIMENSIONS				
	D (mm)	Z (mm)	X (mm)	Y (mm)	VOL. (m³)
300	1 400	700	2 700	1 400	5,00
250	1 300	650	2 150	1 100	3,00
200	1 200	600	1 600	800	1,54
150	1 000	500	1 300	700	0,80
100	1 000	500	500	300	0,12
75	800	400	450	300	0,08

NOTES:

1. THIS TABLE WAS CALCULATED FOR ANCHOR BLOCKS IN SANDY SOILS.
2. USE 10MPa CONCRETE.
3. HALF THE DEPTH OF THE ANCHOR BLOCK NEEDS TO BE BELOW THE PIPE AXIS.
4. KEEP THE CONCRETE AWAY FROM THE COUPLINGS & THE PIPE JOINTS.
5. ANCHOR BLOCKS FOR PIPE Ø LARGER THAN 300mm & HIGHER TEST PRESSURES THAN 18 BAR NEEDS TO BE DESIGNED BY THE ENGINEER.
6. ANCHOR BLOCKS AT PADDLE FLANGES NEEDS TO BE REINFORCED & DESIGNED BY THE ENGINEER.
7. IN CASES OF SOFT CLAY & SILTY SANDS, THE ANCHOR BLOCKS NEED TO BE DESIGNED BY THE ENGINEER.

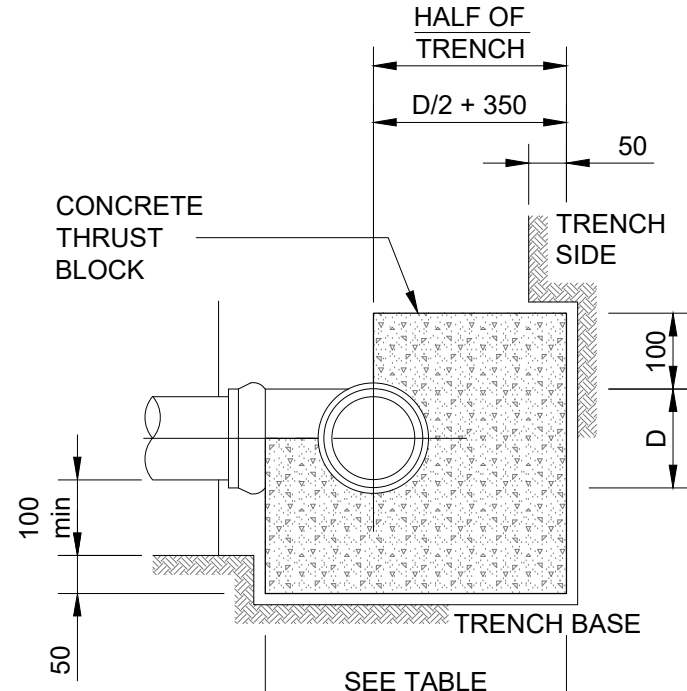


SECTION



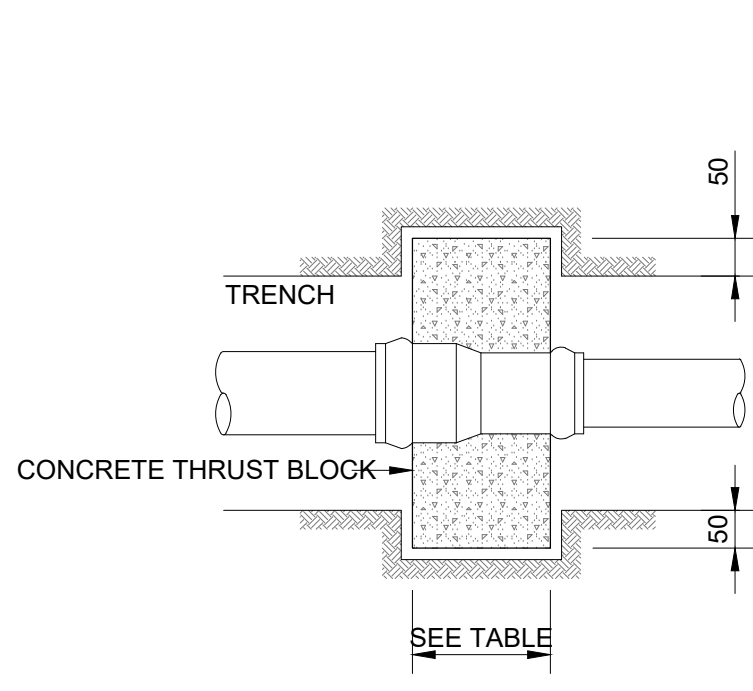
PLAN OF TEE

EXAMPLE SHOWS A
110 EQUAL TEE
SCALE 1 : 10



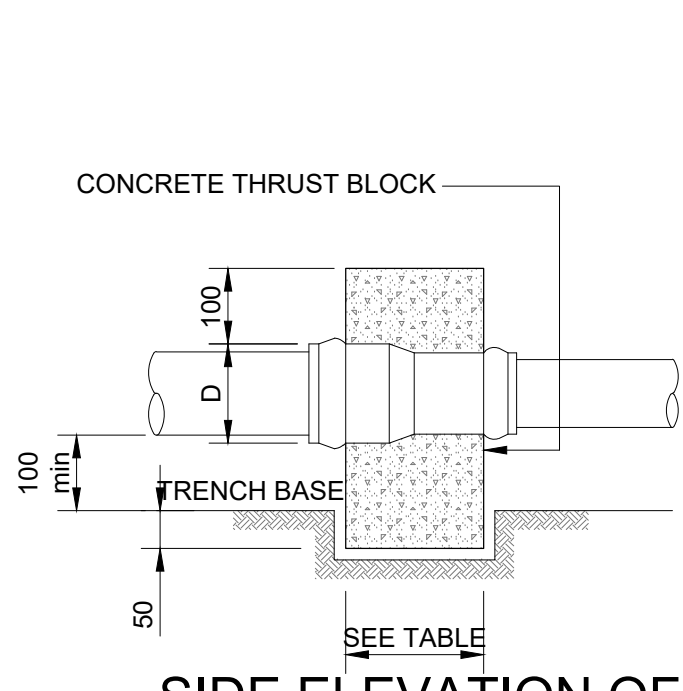
ELEVATION OF TEE

EXAMPLE SHOWS A
110 EQUAL TEE
SCALE 1 : 10



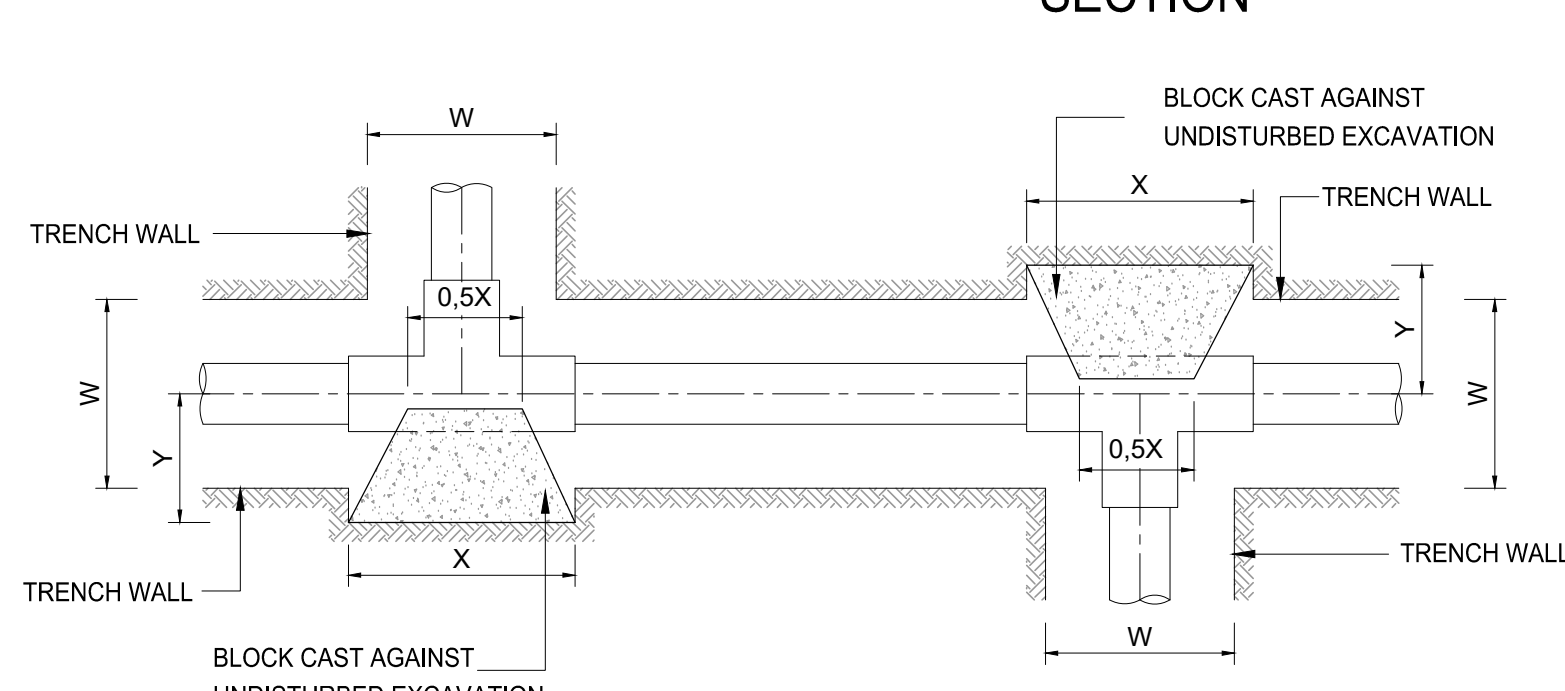
PLAN OF REDUCER

EXAMPLE SHOWS A 110
TO 90 REDUCER
SCALE 1 : 10

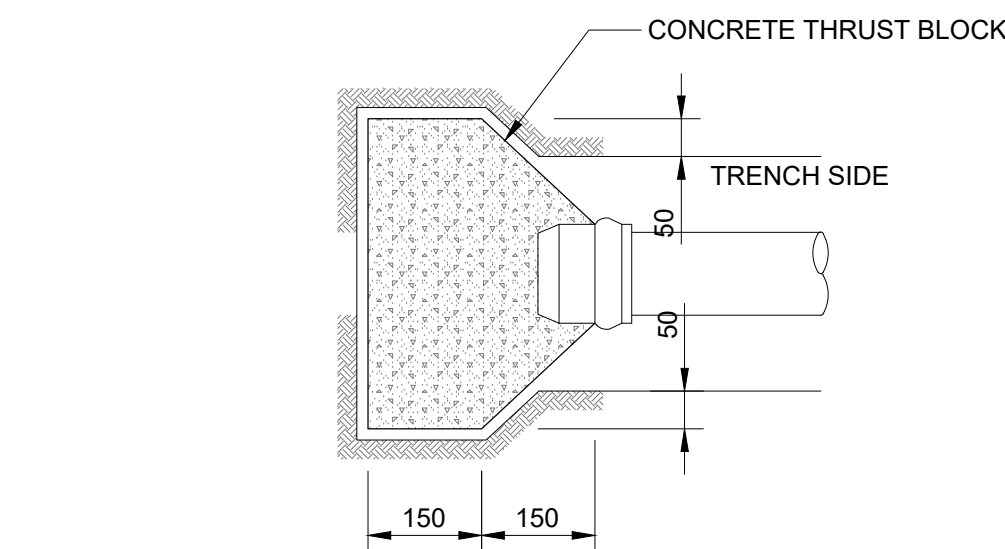


SIDE ELEVATION OF
REDUCER

EXAMPLE SHOWS A 110
TO 90 REDUCER
SCALE 1 : 10

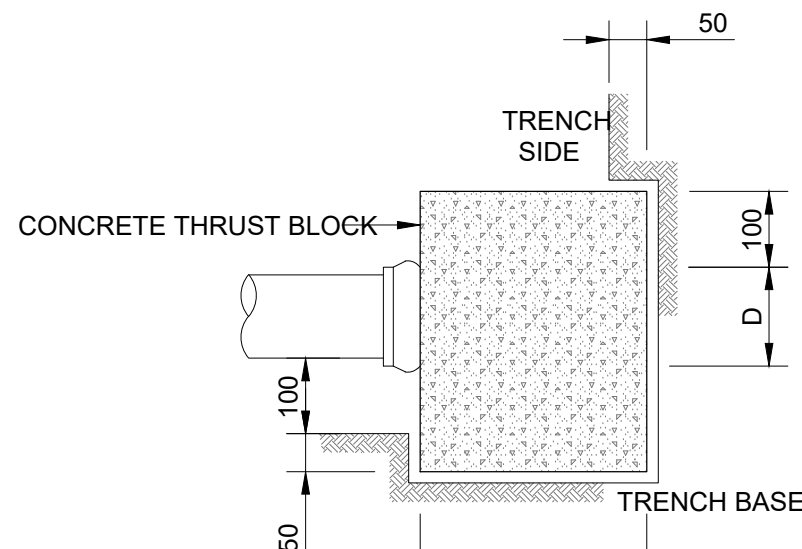


THRUST BLOCK FOR TEE



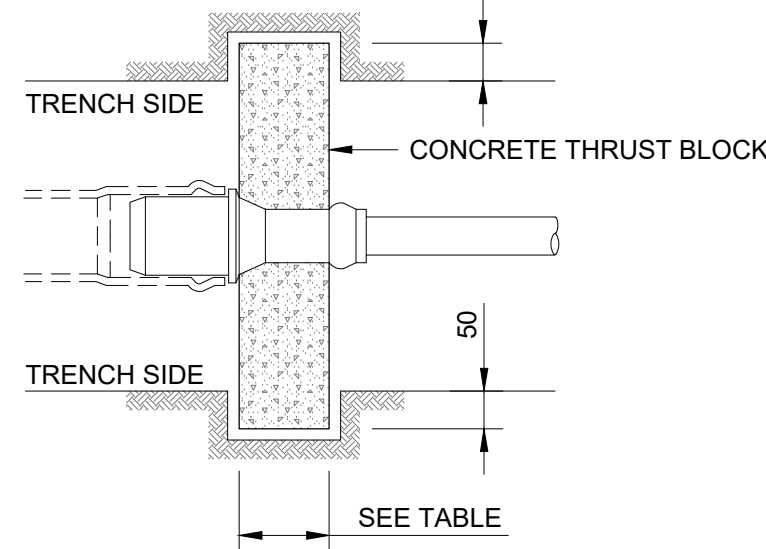
PLAN OF END CAP

EXAMPLE SHOWS A
110 END CAP
SCALE 1 : 10



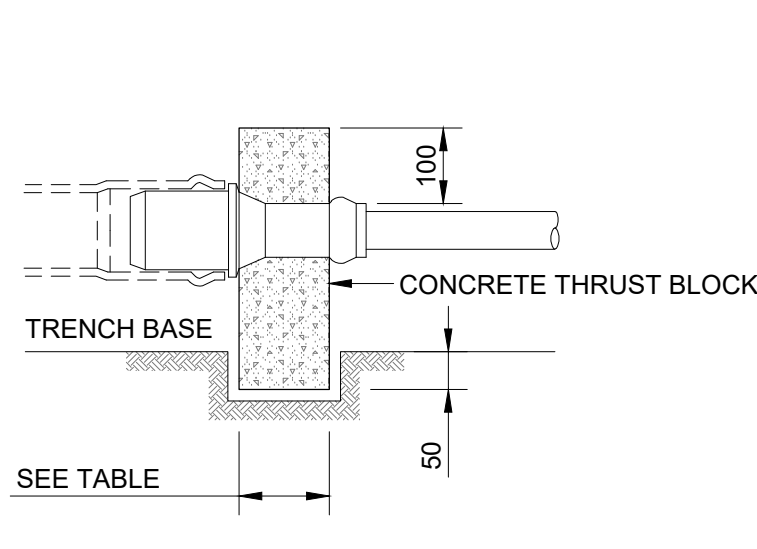
ELEVATION OF END CAP

EXAMPLE SHOWS A
110 END CAP
SCALE 1 : 10



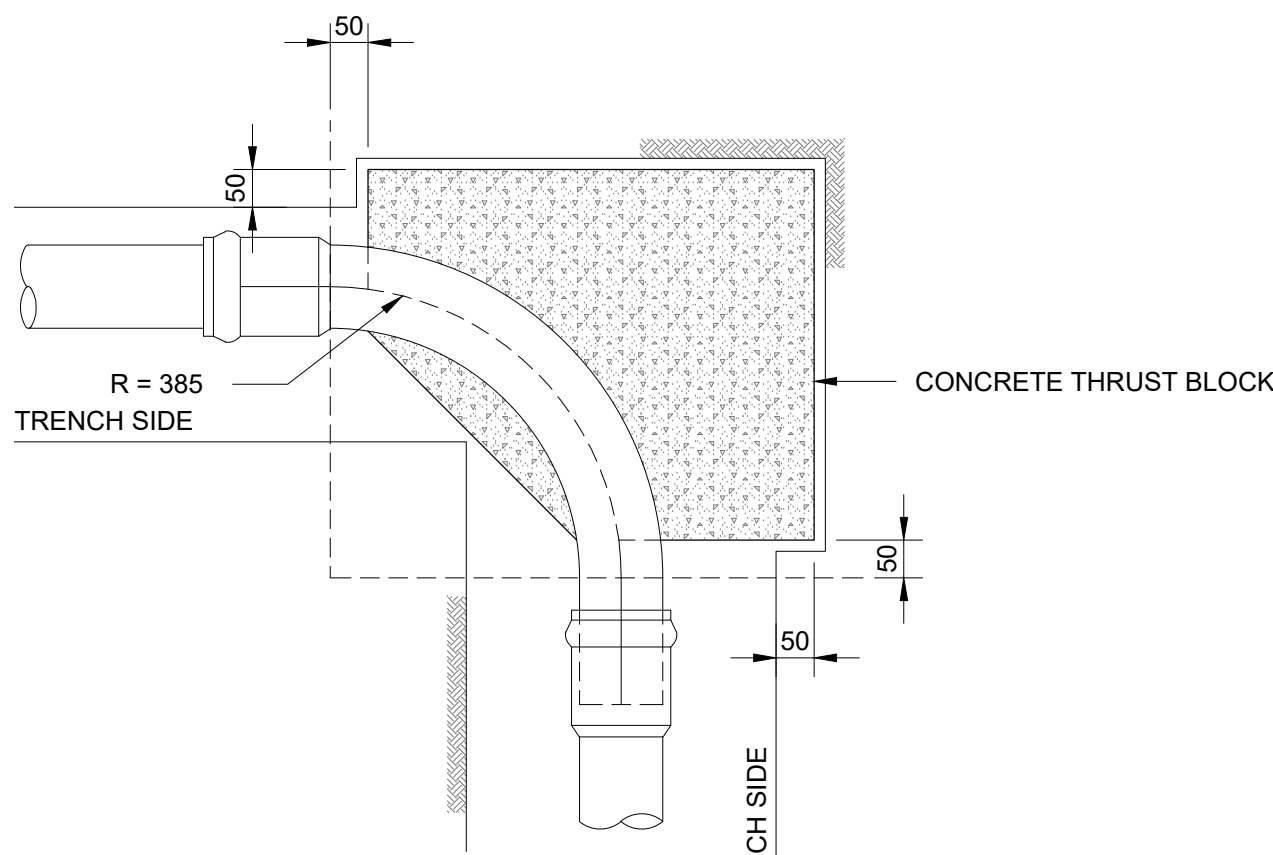
PLAN OF REDUCER BUSH

EXAMPLE SHOWS A 110
TO 50 REDUCER BUSH
SCALE 1 : 10



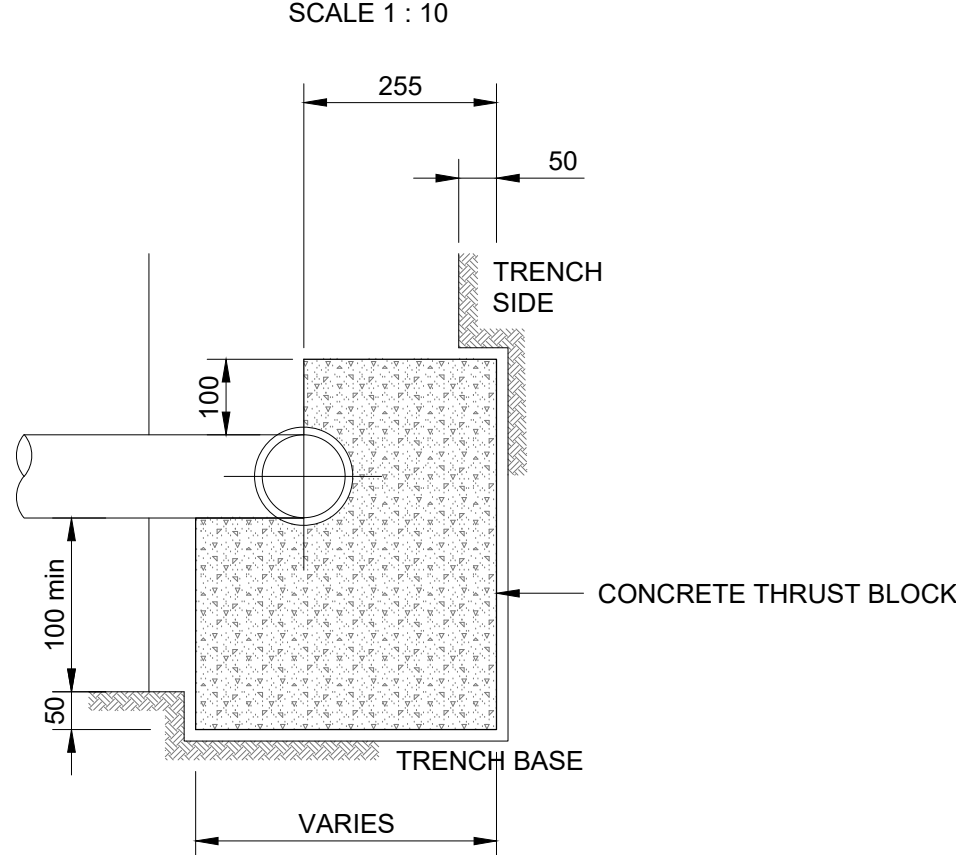
SIDE ELEVATION OF
REDUCER BUSH

EXAMPLE SHOWS A 110
TO 50 REDUCER BUSH
SCALE 1 : 10



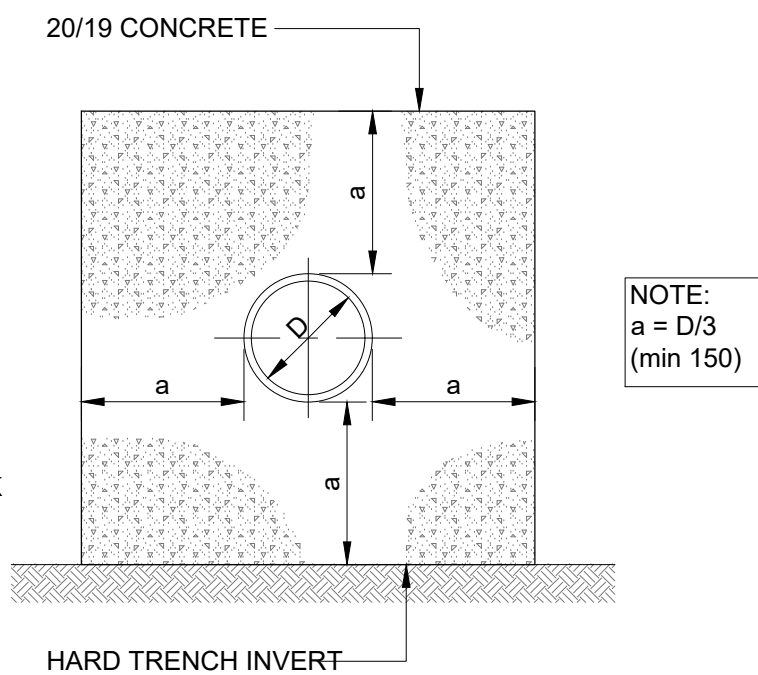
PLAN OF 90° BEND

EXAMPLE SHOWS A
110 90° BEND
SCALE 1 : 10



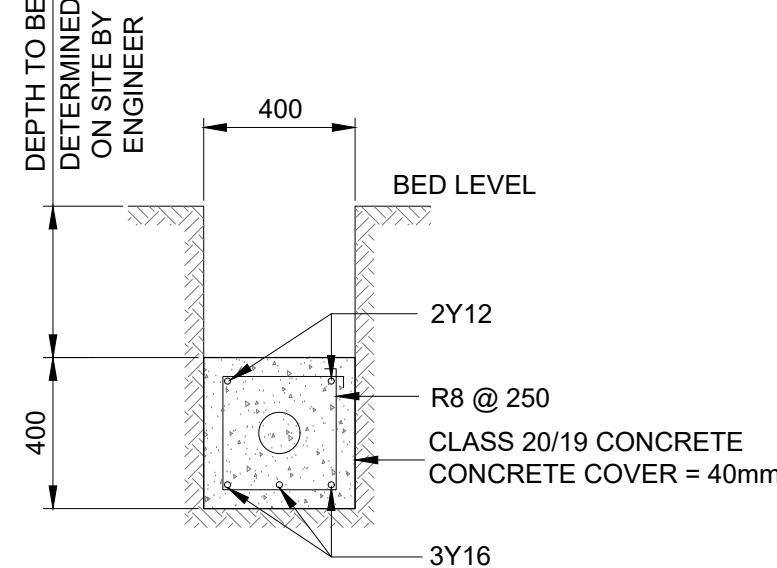
SIDE ELEVATION OF
90° BEND

EXAMPLE SHOWS A
110 90° BEND
SCALE 1 : 10



CONCRETE
ENCASING DETAILS

NOT TO SCALE



RIVERCROSSING
REINFORCEMENT DETAIL

SCALE 1 : 10

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A	02/01/23	ISSUED FOR INFORMATION	P.S
REV	DATE	COMMENTS	BY

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Fax: 013 262 2524

Project:

MOUTSE EAST & WEST WATER
RETICULATION
PHASE 1: NTWANE VILLAGE

Drawing Title:

TYPICAL THRUST BLOCKS DETAILS

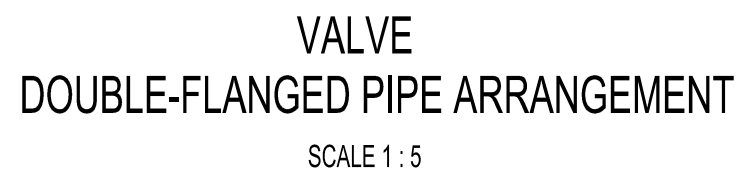
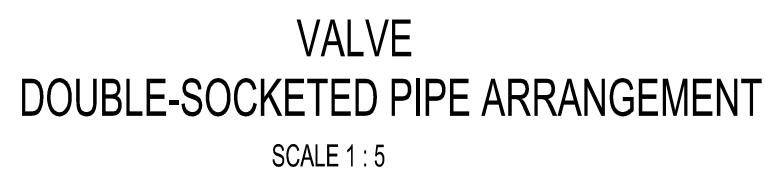
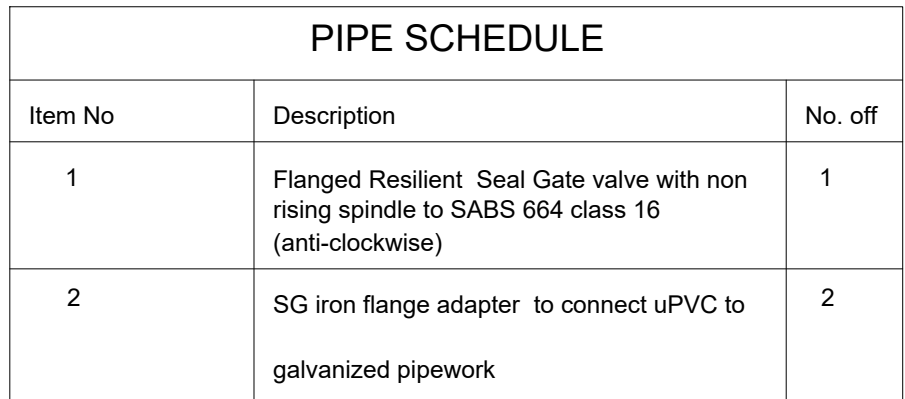
Consultant's Signature:

P. Louw

P. LOUWPr TECH (ENG)

Drawn: P.S NDLOVU	Checked: N.MUVHANGO	Designed: P. LOUW	Scale: AS SHOWN
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Job Number: 201651-LP-W	Discipline: CIV	Dwg Number: 501	Rev: A	Dwg Size: A1
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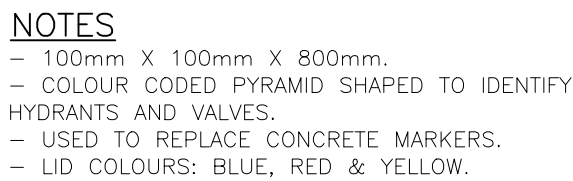


3. THE LETTER 'FH' IS TO BE FORMED IN THE CONCRETE KERB WITH YELLOW COLOR.

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3. ALL DIMENSIONS AND LEVELS TO BE CHECKED ON SITE AND CORRELATED WITH THE ARCHITECT'S DRAWING BEFORE CONSTRUCTION COMMENCES.
4. ALL WORKING DRAWINGS AND MATERIALS TO BE CHECKED ON SITE FOR CONFORMANCE WITH THE ARCHITECT'S SPECIFICATION AND INSTRUCTIONS.



FIRE HYDRANT MARKER

SCALE 1 : 10



A	02/01/23	ISSUED FOR INFORMATION	P.S
REV	DATE	COMMENTS	BY

Consulting Engineer:



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0470
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Project:

MOUTSE EAST & WEST WATER
RETICULATION
PHASE1:NTWANE VILLAGE

Drawing Title:

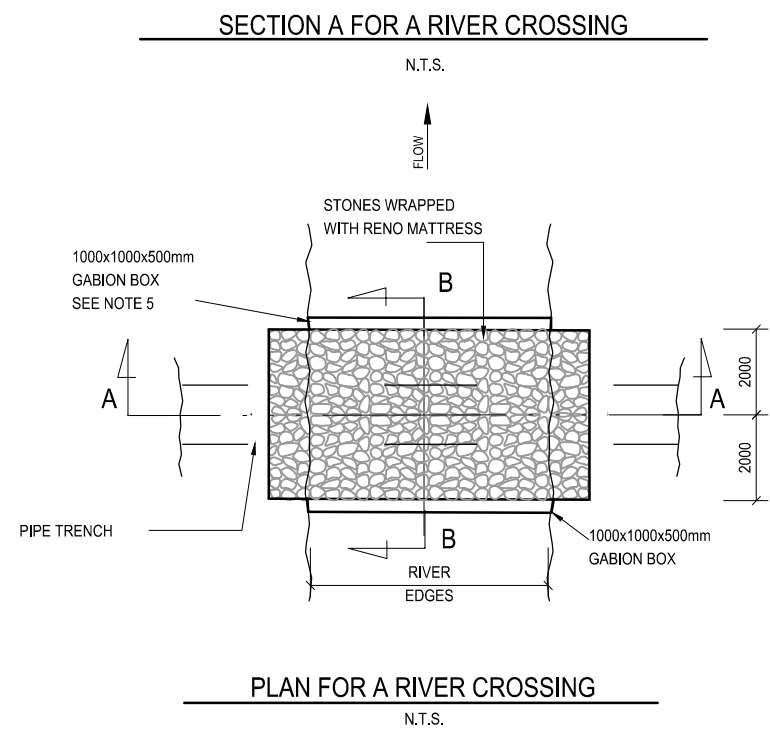
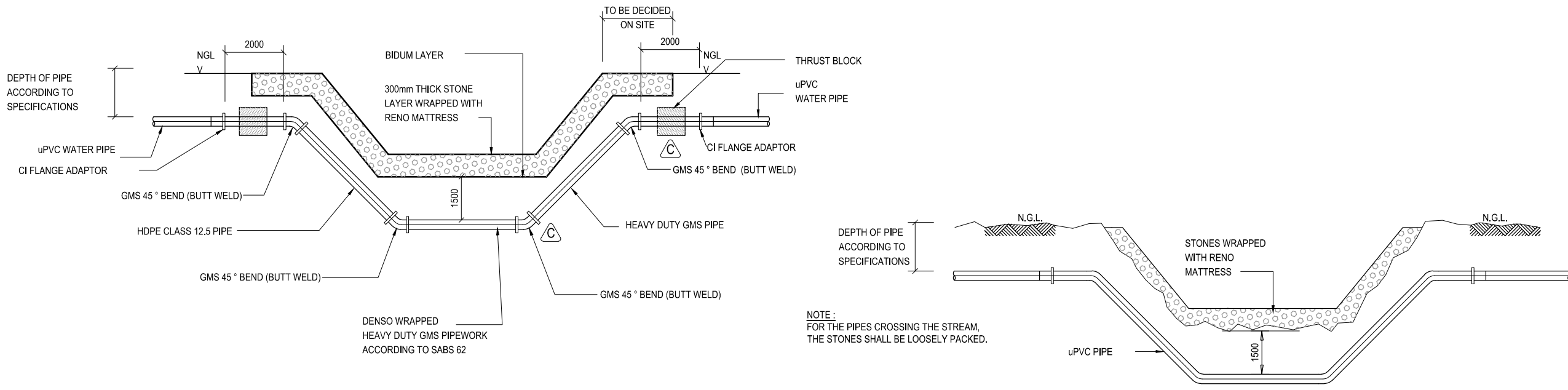
VALVES, FIRE HYDRANT & MARKER DETAILS.

Consultant's Signature: _____

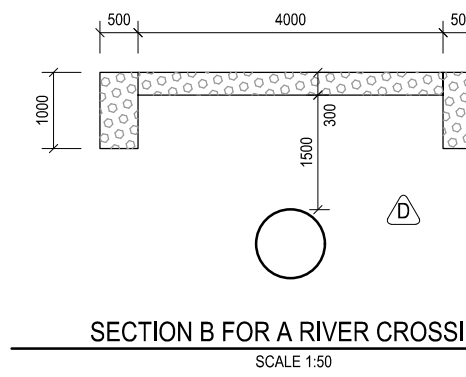
P. LOUW Pr TECH (ENG)

Drawn:	Checked:	Designed:	Scale:
P.S NDLOVU	N.MUVHANGO	P. LOUW	AS SHOWN

Job Number:	Discipline:	Dwg Number:	Rev:	Dwg Size
201651-LP-W	CIV	502	A	A1



PLAN FOR A RIVER CROSSING
N.T.S.



SECTION B FOR A RIVER CROSSING
SCALE 1:50

NOTES:

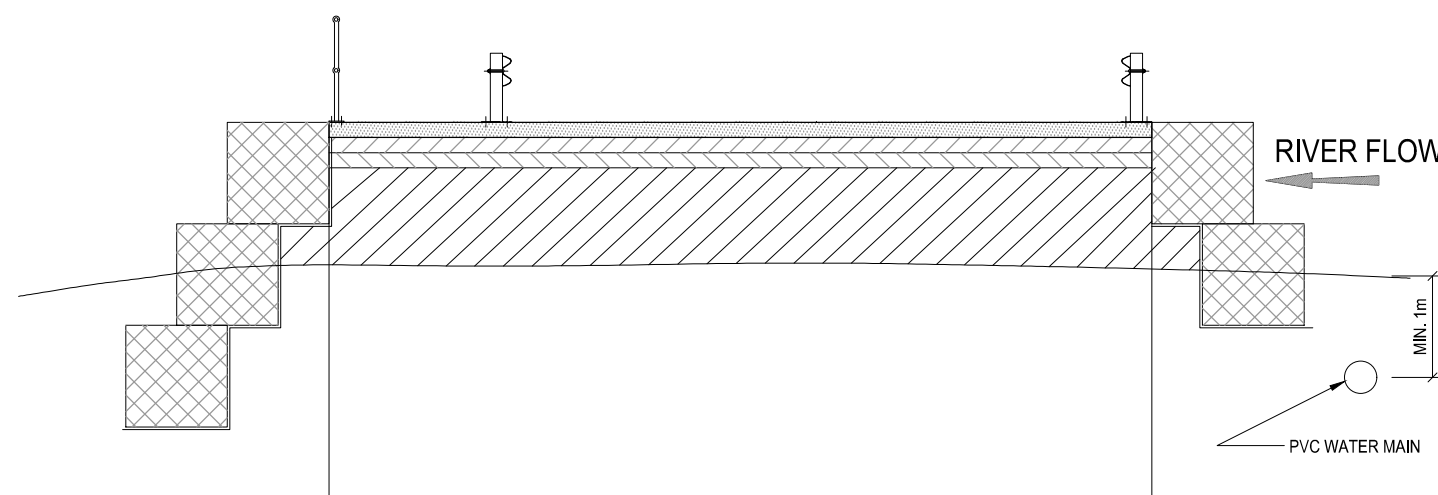
1. FOR THE PIPES CROSSING THE STREAM, THE STONES SHALL BE LOOSELY PACKED.
2. ALL FLANGES TO BE DRILLED ACCORDING TO SABS 1123 TABLE 1000.
3. ALL GMS PIPEWORK IN ACCORDANCE WITH SABS 62, AND DENSO WRAPPED.
4. ALL CONCRETE TO BE 20MPa.
5. 1/1x0.5m GABION BOX TO BE PROVIDED ON INSTRUCTION OF THE RESIDENT ENGINEER.
6. ALL PIPEWORK TO BE TESTED BEFORE DENSO-WRAPPED AND INSTALLED.

PIPE SIZE mm	MAX. WORKING PRESSURE (bar) SABS 62 (Heavy)
50	17
60	17
80	17
100	14
125	14
150	10.5

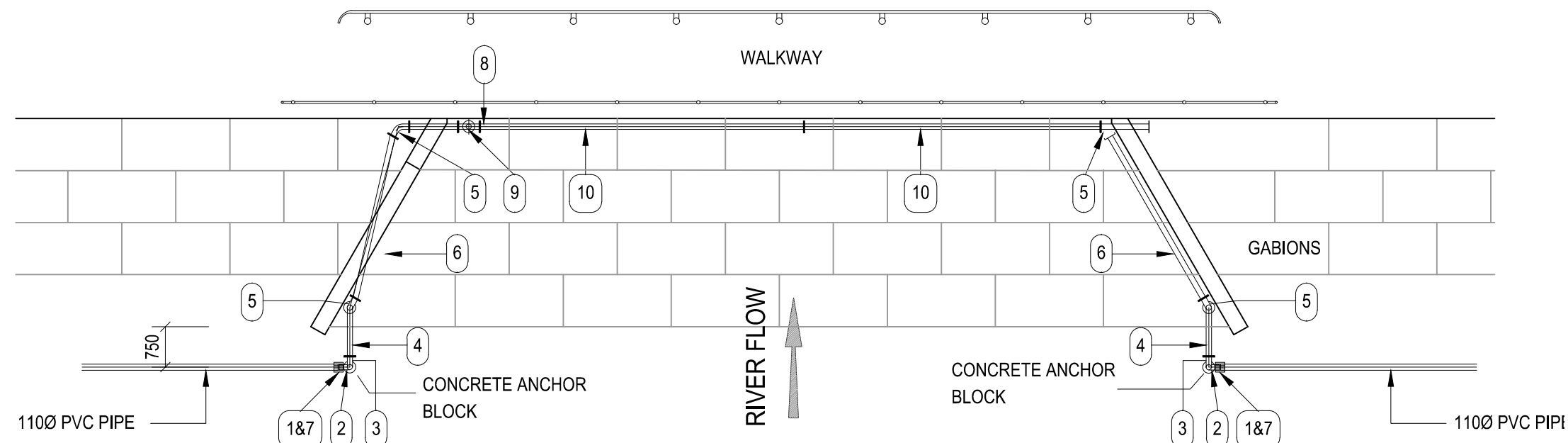
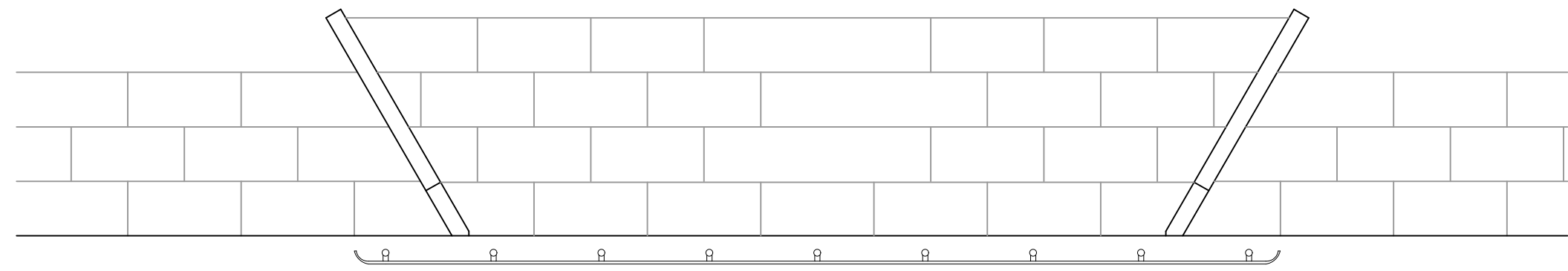
NOTE: TEST PIPEWORK FOR LEAKAGE BEFORE BACKFILL.

ITEM	NO	DESCRIPTION	DIMENSIONS	ITEM	NO	DESCRIPTION	DIMENSIONS
1	2	FLEXIBLE FLANGE ADAPTOR COUPLING (VJ OR SIMILAR APPROVED)	STANDARD	8	1	1000 GALV. MS FLANGED STRAIGHT.	510 1000
2	2	1000 x 90° GALV. MS BEND ONE END FLANGED, OTHER SUITABLE FOR VJ COUPLING	250 1000	9	1	1000x500 GALV. MS T-PIECE FLANGED	500 1000
3	2	1000 x 90° GALV. MS FLANGED UNEQUAL BEND	1050 1000	10	2	1000 GALV. MS PIPE ONE END FLANGED THE OTHER END SUPPLIED WITH LOOSE FLANGE. CONFIRM LENGTH ON SITE	6000 1000 CUT TO SUIT ON SITE
4	2	1000 x 90° GALV. MS FLANGED UNEQUAL BEND	740 1000	11	1	AIR VALVE (VENT-Q-MAT) 850 RB X 25 1 1 WITH ISOLATING BALL VALVE & FLANGE OR SIMILAR APPROVED	A
5	4	1000 x 90° GALV. MS FLANGED BEND	1000 120°				
6	2	1000 GALV. MS FLANGED STRAIGHT WITH LOOSE FLANGE. CUT ANGLE TO SUIT HORIZONTAL SITE INSTALLATION AT LOOSE FLANGE	3000 1000 CUT TO SUIT ON SITE				
7	2	1000 CI FLANGE ADAPTOR TO CONNECT PVC TO GALV. PIPE WORK	STANDARD				

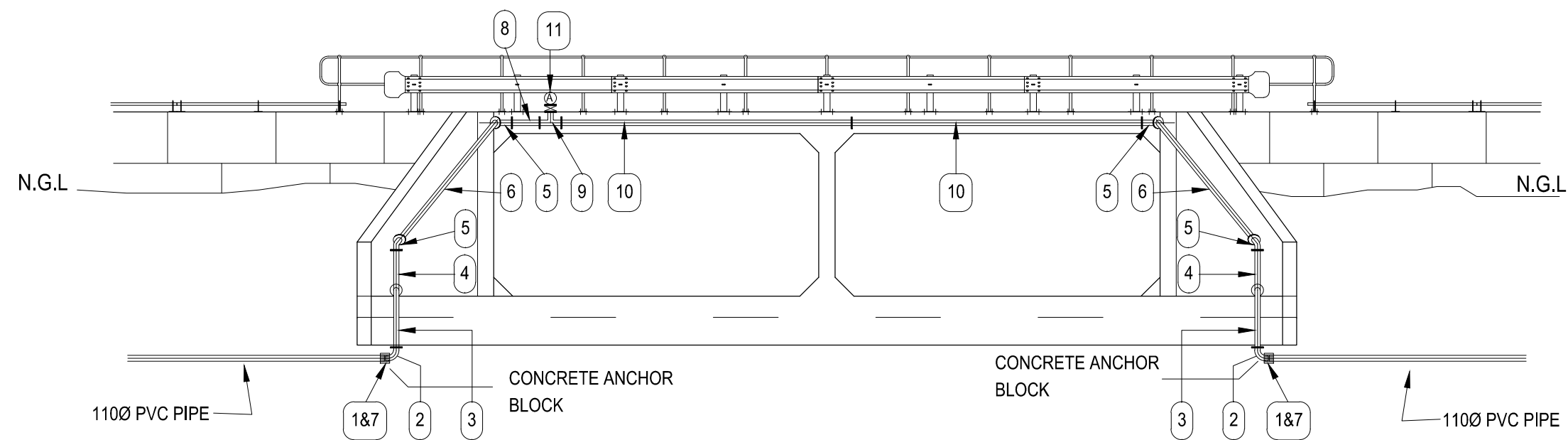
NOTE: ALL LENGTHS MUST BE CONFIRMED AND FINALISED ON SITE. DIMENSIONS ARE PROVISIONAL.



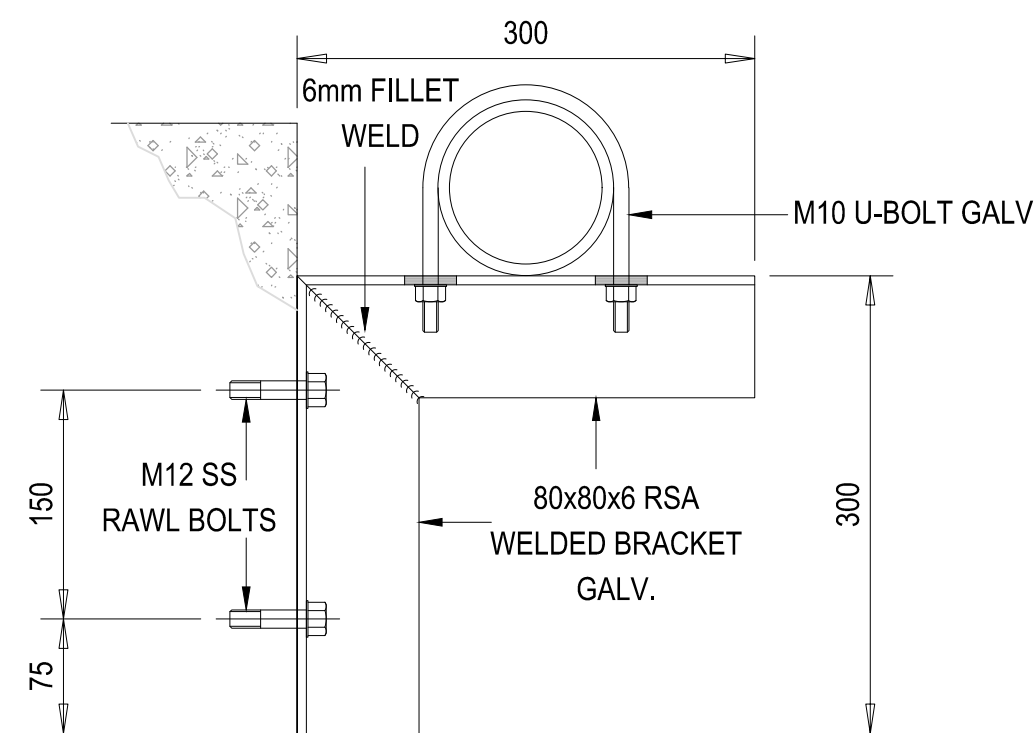
SECTION THROUGH GABION PROTECTED
LOW-WATER ROAD CROSSING
SCALE 1:50



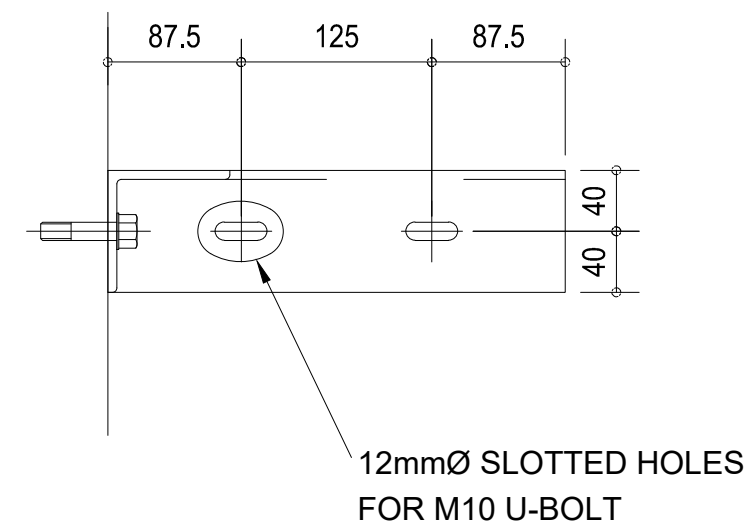
PLAN
SCALE 1:100



ELEVATION B
SCALE 1:100



SIDE ELEVATION : PIPE BRACKET
SCALE 1:5



PLAN : PIPE BRACKET
SCALE 1:5

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REV	DATE	COMMENTS	BY

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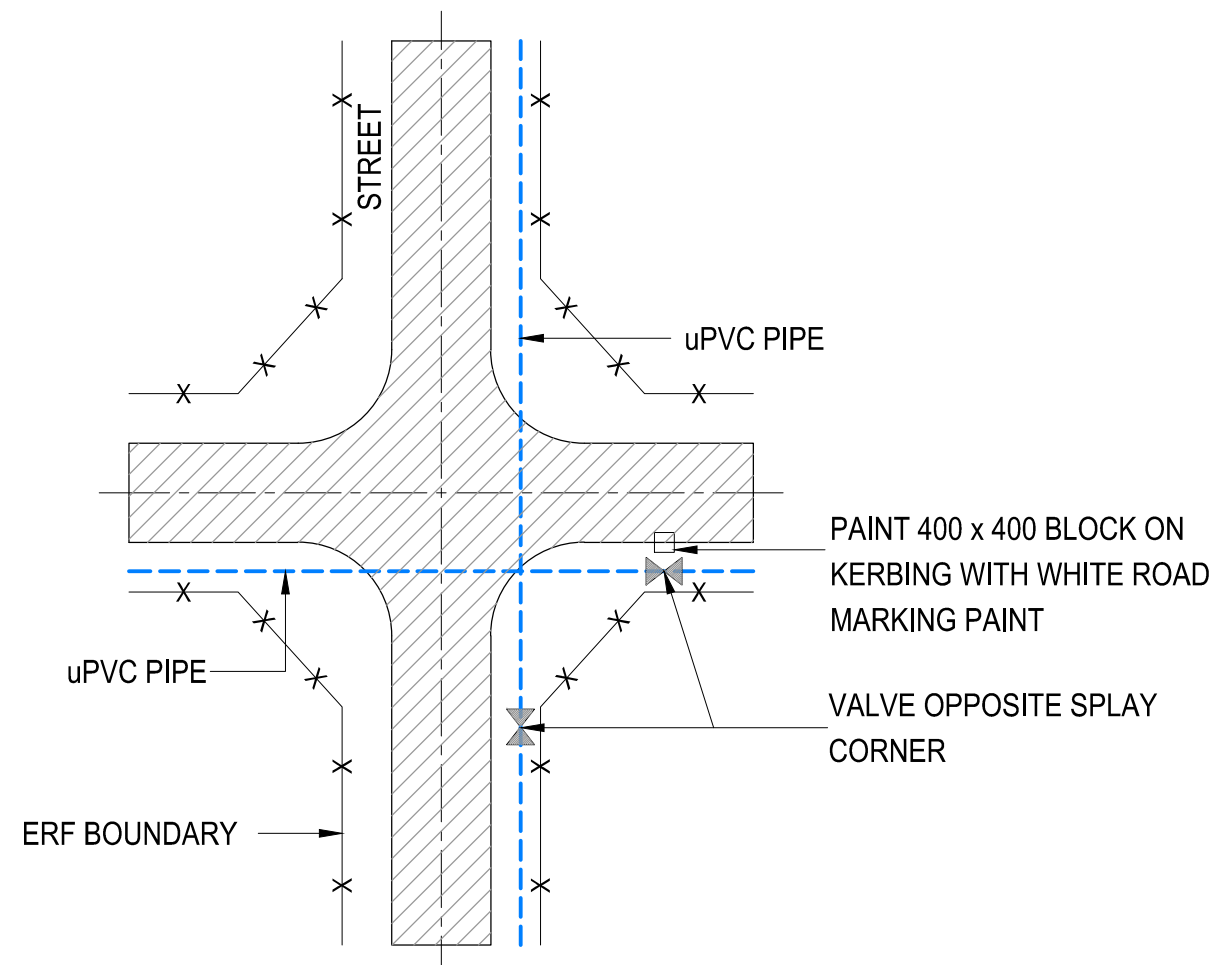
Project:

**MOUTSE EAST & WEST WATER RETICULATION
PHASE 1: NTWANE VILLAGE**

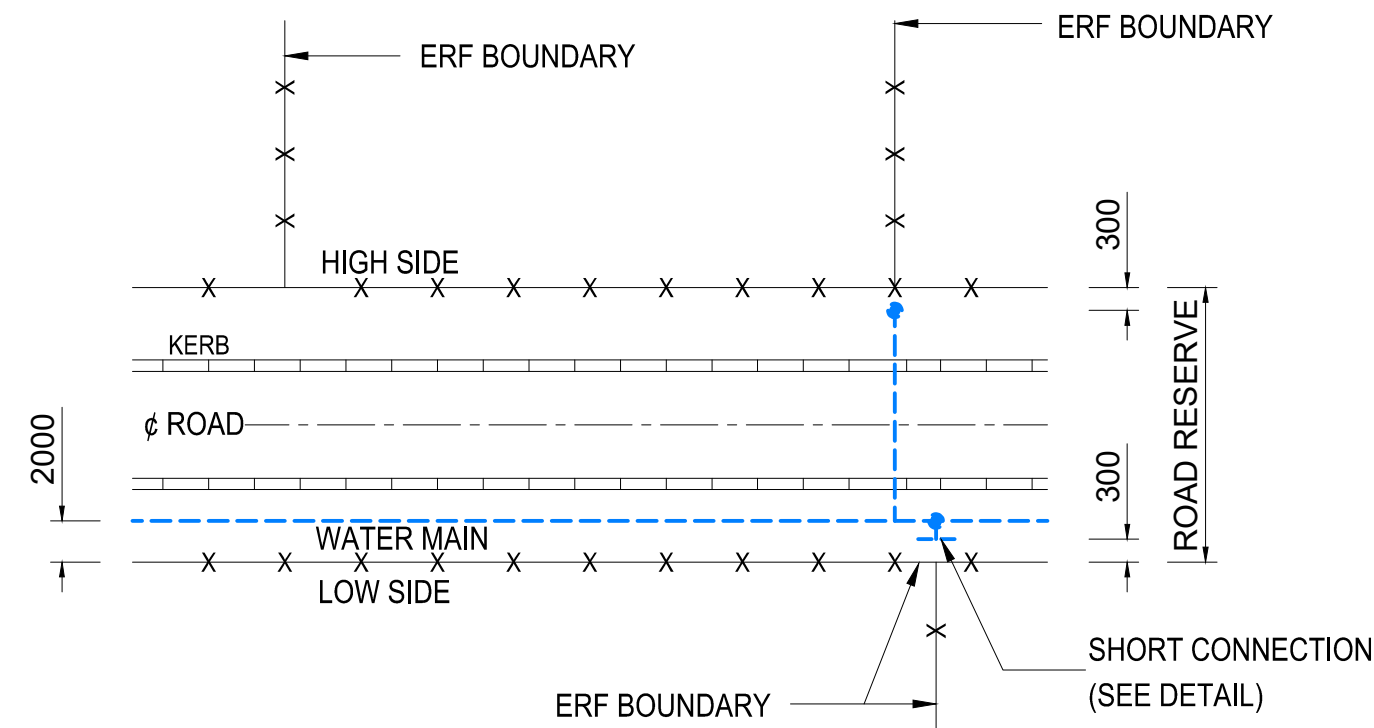
Drawing Title:

TYPICAL DETAILS RIVERS & STREAM CROSSING

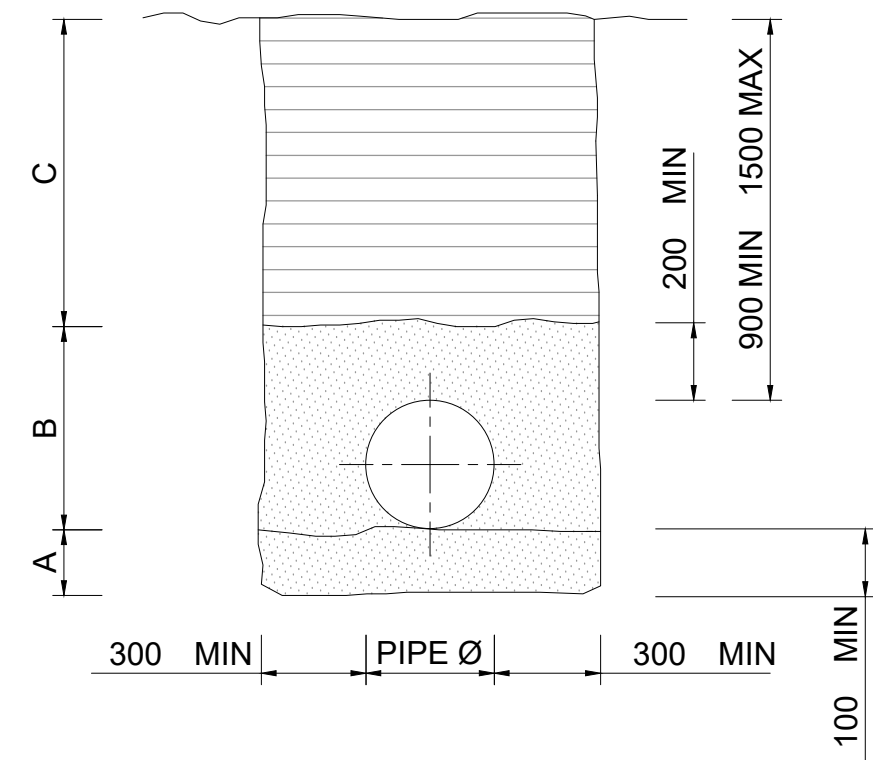
Consultant's Signature:				
P. LOUW		Pr TECH (ENG)		
Drawn:	Checked:	Designed:	Scale:	
P.S NDLOVU	N.MUVHANGO	P. LOUW	AS SHOWN	
Job Number:	Discipline:	Dwg Number:	Rev:	Dwg Size:
201651-LP-W	CIV	503	A	A1



PIPE & VALVES AT INTERSECTION
NOT TO SCALE

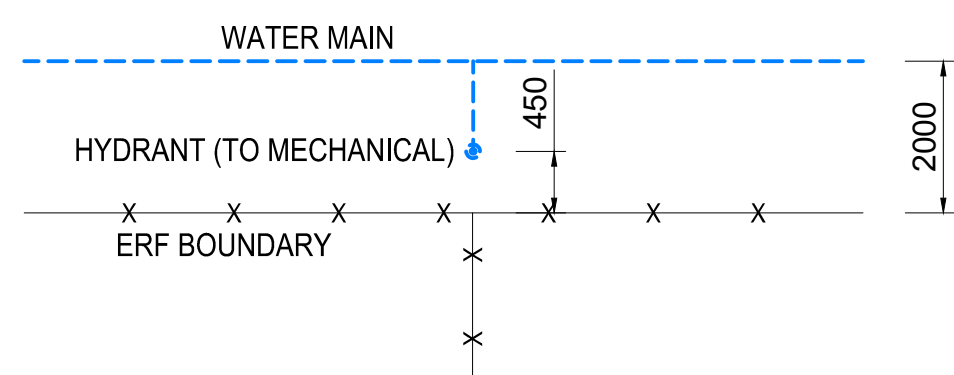


PLAN
ROAD RESERVE
NOT TO SCALE

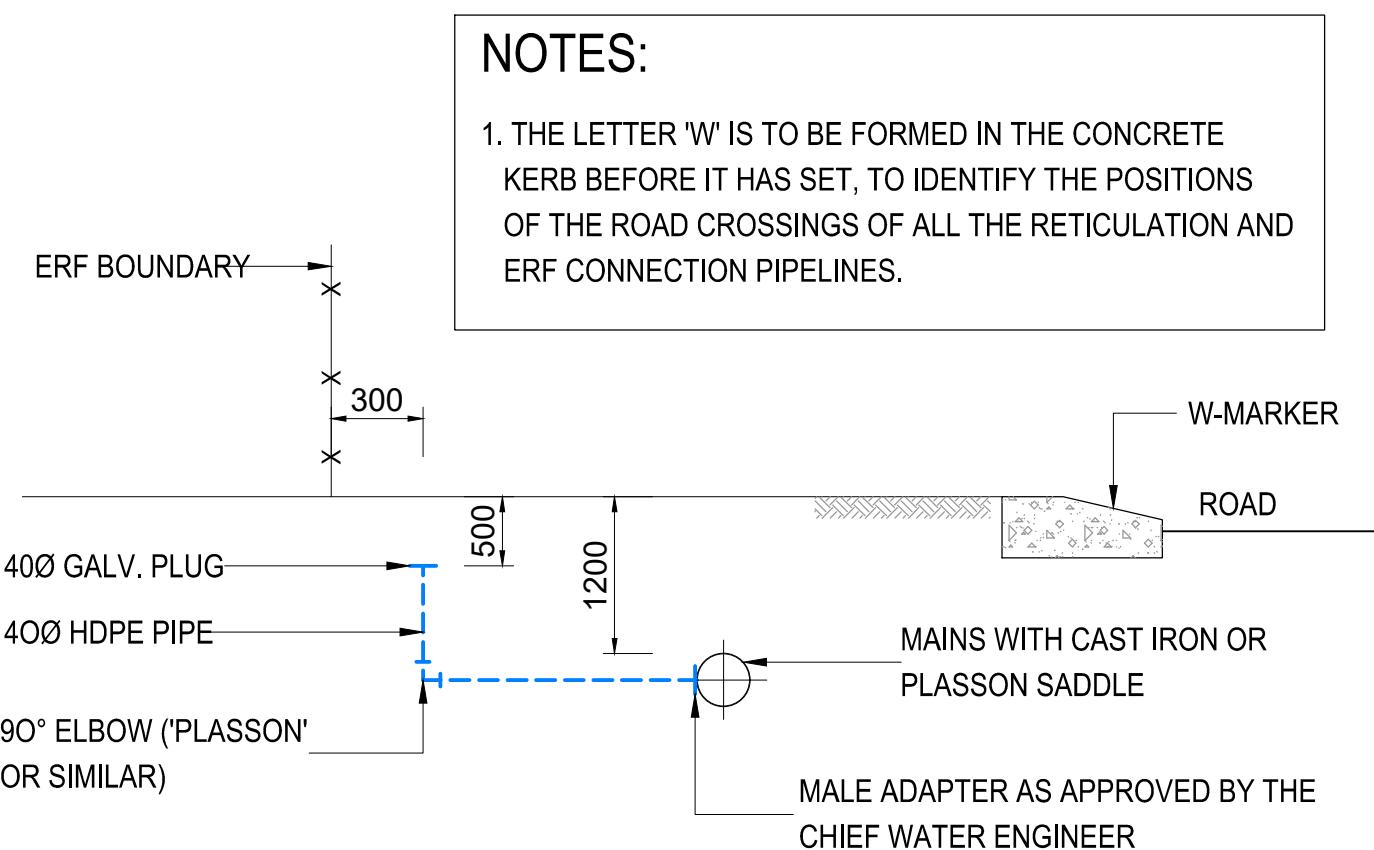


A: SELECTED BEDDING LAYER (UNCOMPACTED)
B: SELECTED BACK FILL (AGGREGATE MAX 10mm)
C: BACK FILL (COMPACTED)

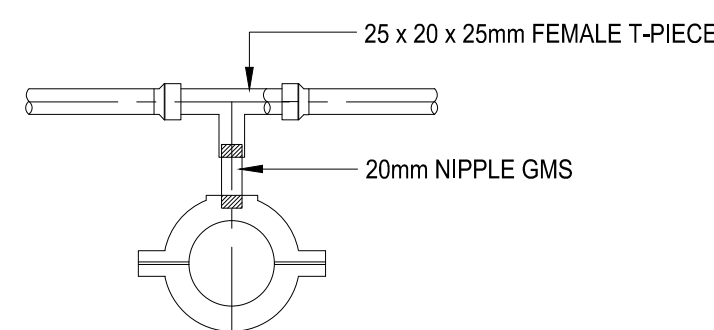
TYPICAL CROSS SECTION OF PIPE TRENCH
NOT TO SCALE



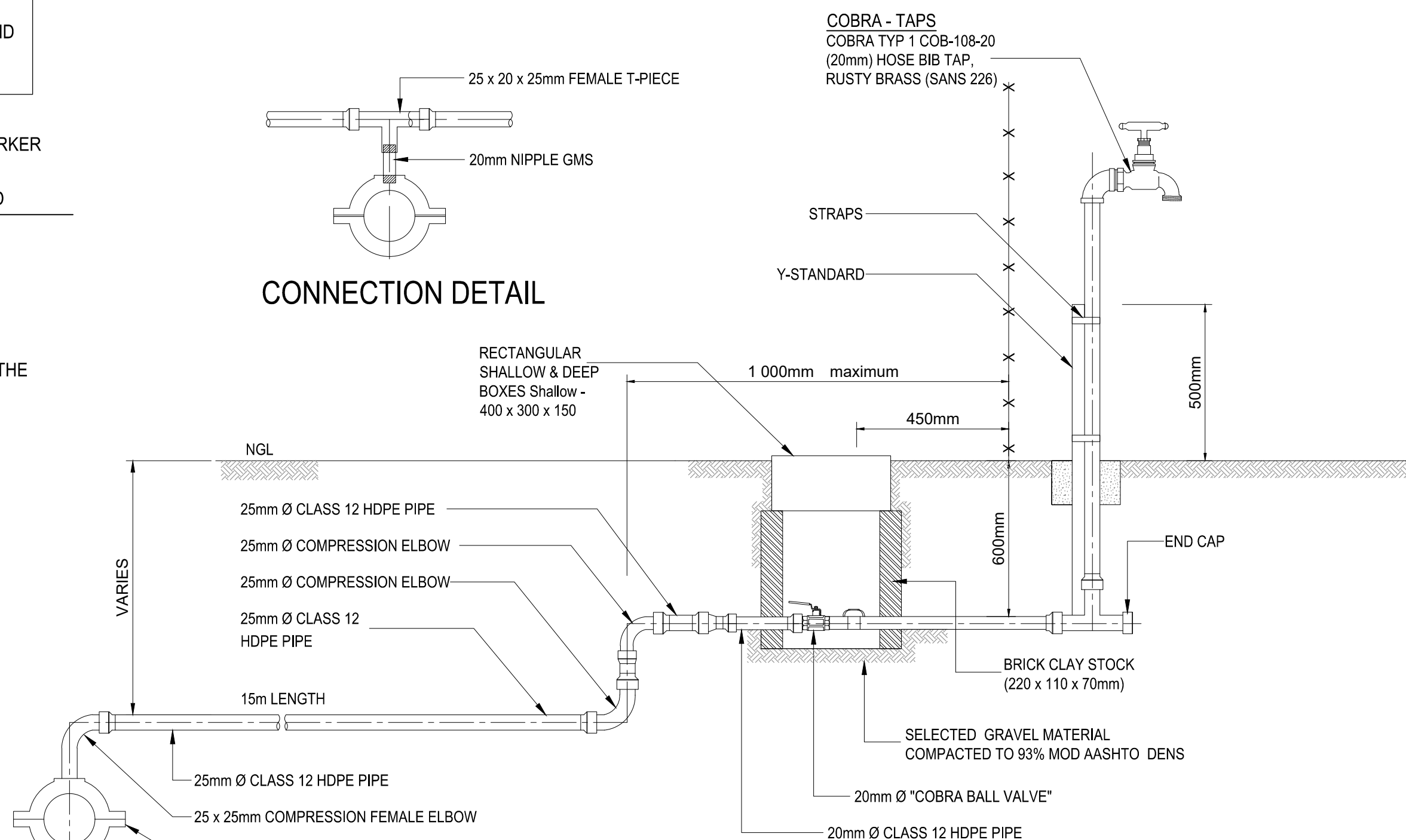
HYDRANT LOCATION
NOT TO SCALE



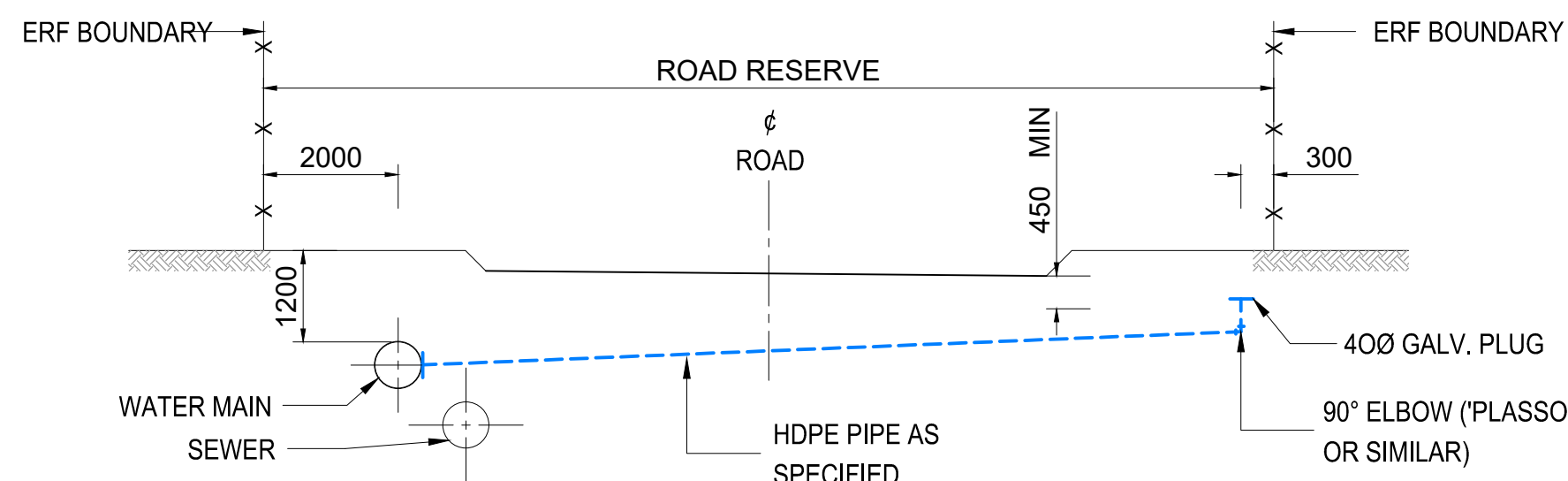
SECTION
SHORT CONNECTION
NOT TO SCALE



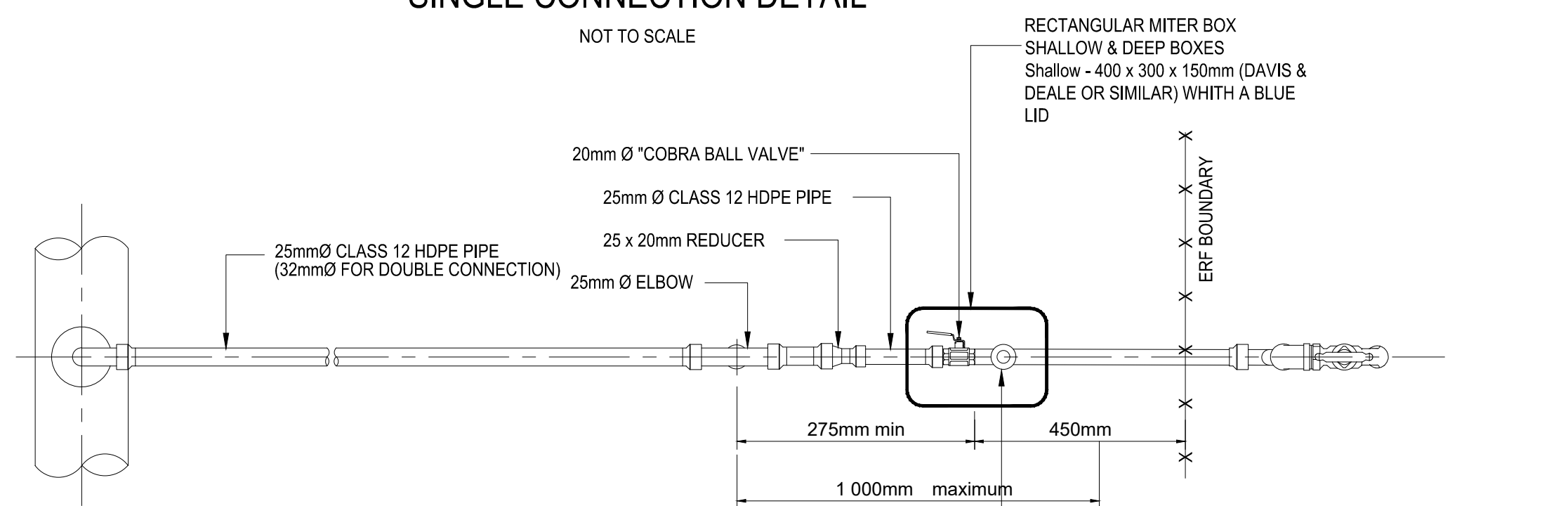
CONNECTION DETAIL



SECTION
SINGLE CONNECTION DETAIL
NOT TO SCALE



SECTION
LONG CONNECTION
NOT TO SCALE



PLAN
CONNECTION FOR SINGLE

WATER METERS
CLASS C, BLENDED UV STABILISED ENGINEERING, PLASTIC BODIED,
SEMI-POSITIVE ROTARY PISTON TYPE POSITIVE DISPLACEMENT
WATER METER WITH A SEALED WET DIAL OR SIMILAR.
- 15MM OR 20MM VARIANTS
- UV PROTECTED, CORROSION AND IMPACT RESISTANT -
GLASS-FILLED POLYMER
- 8-DIGIT WET DIAL WITH ROLLERS
- NOMINAL PRESSURE 16 BAR
- DISPLAY RANGE FROM 0.1LITRES TO 9999 CUBIC LITRES

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REV	DATE	COMMENTS	BY

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Fax: 013 262 2524

Project:

**MOUTSE EAST & WEST WATER RETICULATION
PHASE 1: NTWANE VILLAGE**

Drawing Title:

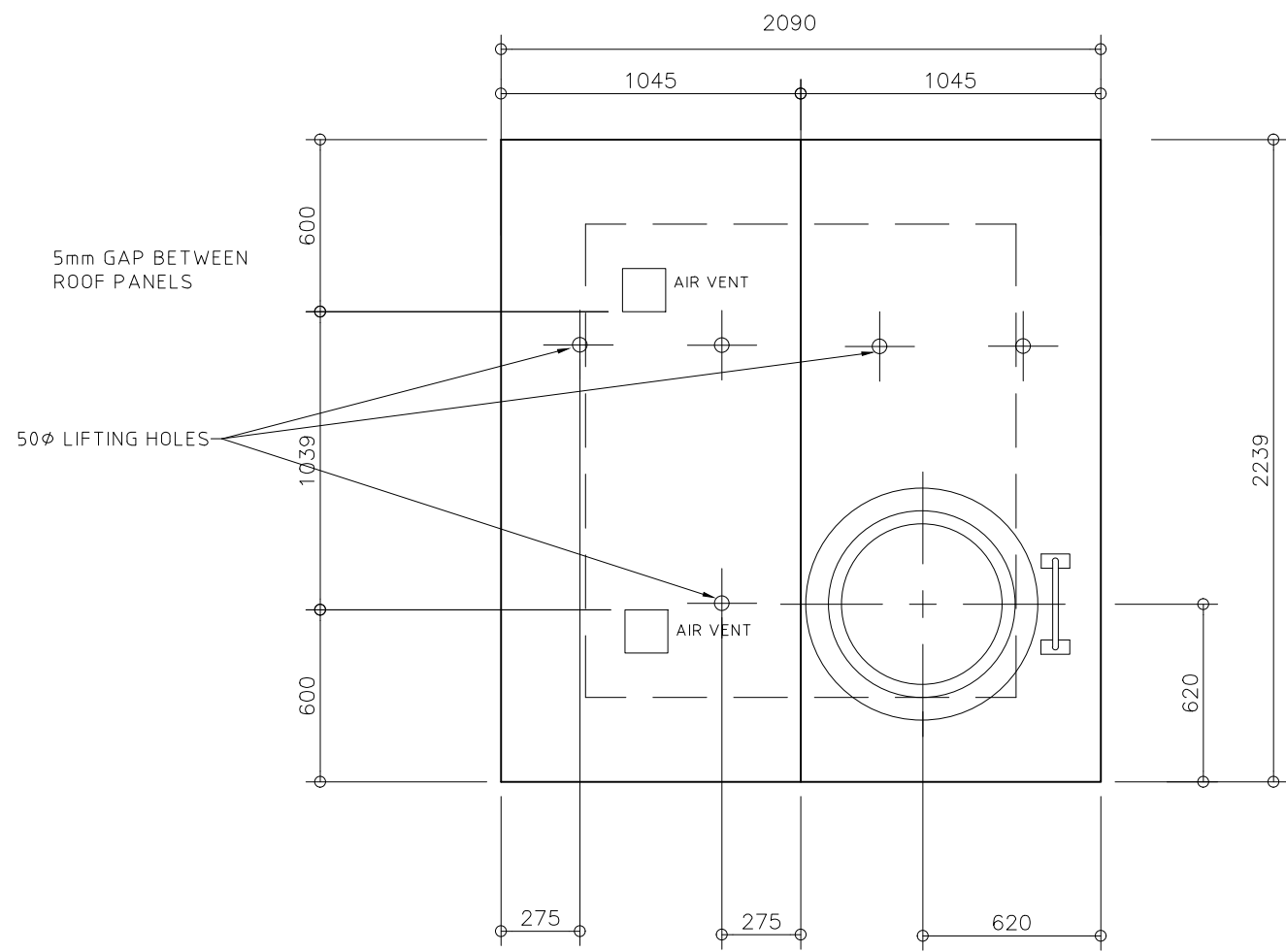
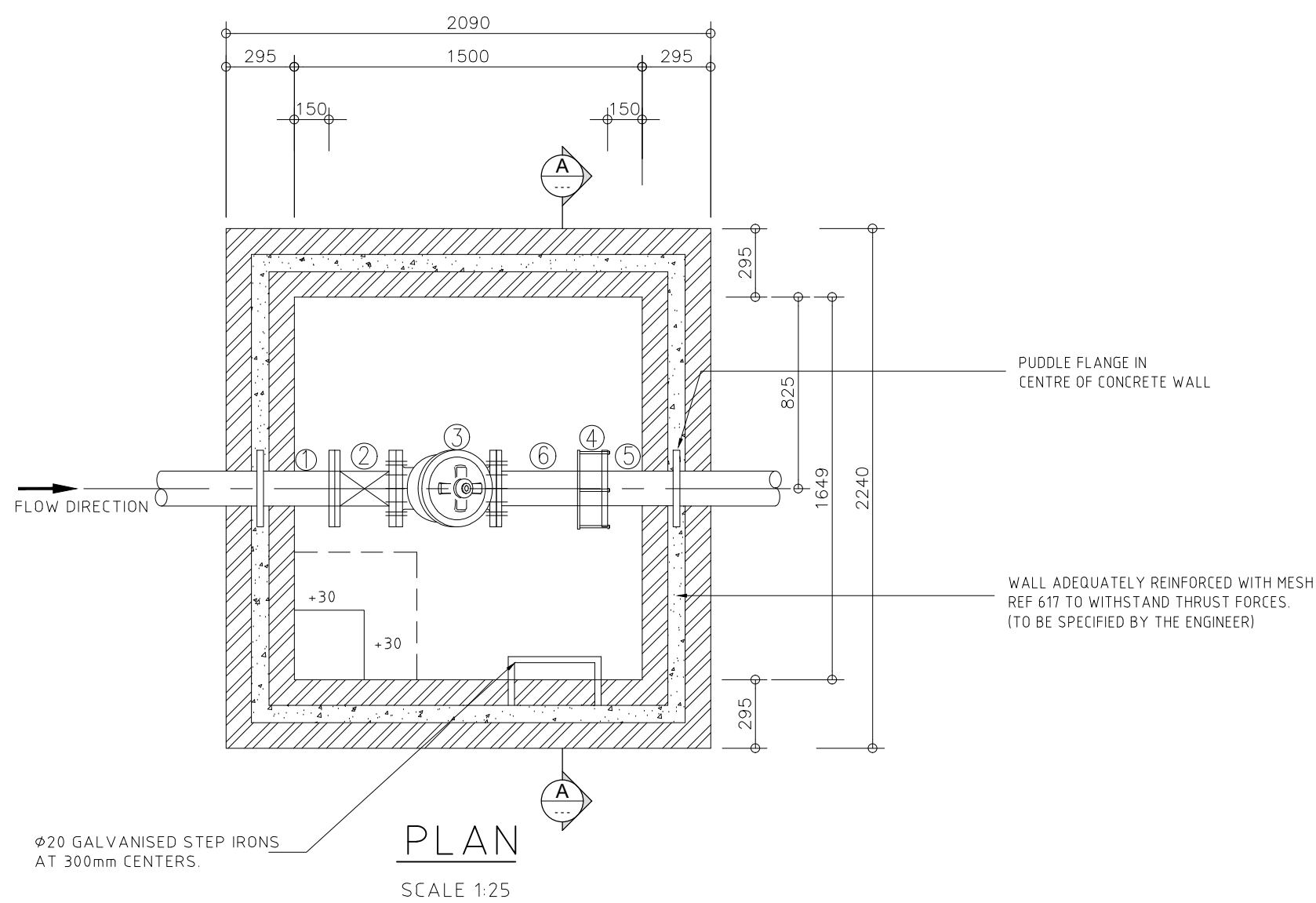
TYPICAL PLACEMENT OF VALVES & HOUSE CONNECTION DETAIL

Consultant's Signature: *P. Louw*

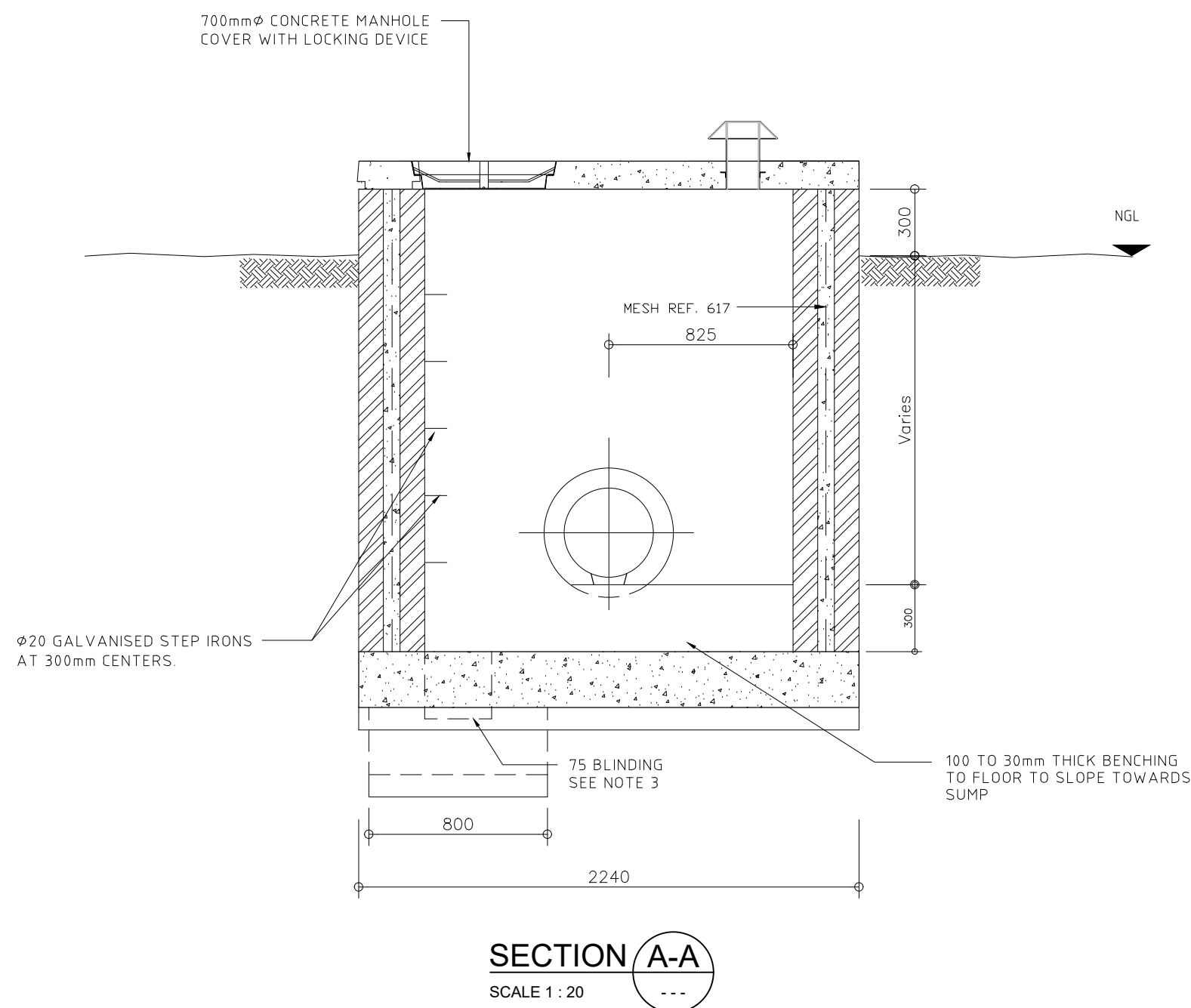
P. LOUW Pr TECH (ENG)

Drawn:	Checked:	Designed:	Scale:
P.S NDLOVU	N.MUVHANGO	P. LOUW	AS SHOWN

Job Number:	Discipline:	Dwg Number:	Rev:	Dwg Size:
201651-LP-W	CIV	504	A	A1



ROOF PLAN
SCALE 1:25



TYPICAL STEEL PIPE FITTINGS AND ITEM LIST (150ND PIPE LINE USED AS AN EXAMPLE)			
ITEM NR.	DESCRIPTION	NO. OFF.	DIMENSIONS
1	PIPE SPECIAL 150Ø STEEL PIPE, ONE END FLANGED OTHER END SUITABLE FOR FLANGE ADAPTOR WITH PUDDLE FLANGE IN POSITION AS INDICATED. FLANGES TO SABS 1123	1	
2	150Ø RSV GATE VALVE (PN16) WITH HANDWHEEL AND ANTI-CLOCKWISE CLOSING TO SABS 664. BOTH ENDS FLANGED TO SABS 1123 - 1600/3.	1	
3	150Ø BERMAD WW-700 OR SIMILAR FLAT DISK PRESSURE REDUCING VALVE COMPLETE. PN25 ENDS FLANGED TO SABS 1123 - 2500/3.	1	
4	150 ND "VIKING JOHNSON" FLANGE ADAPTOR COUPLING	1	2500/3
5	PIPE SPECIAL 150Ø STEEL PIPE, ONE END FLANGED OTHER END SUITABLE FOR FLANGE ADAPTOR WITH PUDDLE FLANGE IN POSITION AS INDICATED. FLANGES TO SABS 1123	1	
6	150Ø STEEL PIPE, ONE END FLANGED OTHER END SUITABLE FOR FLANGE ADAPTOR WITH PUDDLE FLANGE IN POSITION AS INDICATED. FLANGES TO SABS 1123	1	

TYPICAL STEEL PIPE FITTINGS AND ITEM LIST (100ND PIPE LINE USED AS AN EXAMPLE)			
ITEM NR.	DESCRIPTION	NO. OFF.	DIMENSIONS
1	PIPE SPECIAL STEEL PIPE WITH BOTH ENDS FLANGED, 6mm WALL THICKNESS PUDDLE FLANGE AS INDICATED	1	
2	100Ø RSV GATE VALVE (PN16) WITH HANDWHEEL AND ANTI-CLOCKWISE CLOSING TO SABS 664. BOTH ENDS FLANGED TO SABS 1123 - 1600/3.	1	
3	100Ø BERMAD WW-700 OR SIMILAR FLAT DISK PRESSURE REDUCING VALVE COMPLETE. PN25 ENDS FLANGED TO SABS 1123 - 2500/3.	1	
4	100 ND "VIKING JOHNSON" FLANGE ADAPTOR COUPLING	1	2500/3
5	PIPE SPECIAL 100Ø STEEL PIPE, ONE END FLANGED OTHER END SUITABLE FOR FLANGE ADAPTOR WITH PUDDLE FLANGE IN POSITION AS INDICATED. FLANGES TO SABS 1123	1	
6	PIPE SPECIAL 100Ø STEEL PIPE, ONE END FLANGED OTHER END SUITABLE FOR FLANGE ADAPTOR WITH PUDDLE FLANGE IN POSITION AS INDICATED. FLANGES TO SABS 1123	1	

TYPICAL STEEL PIPE FITTINGS AND ITEM LIST (65ND PIPE LINE USED AS AN EXAMPLE)			
ITEM NR.	DESCRIPTION	NO. OFF.	DIMENSIONS
1	PIPE SPECIAL STEEL PIPE WITH BOTH ENDS FLANGED, 6mm WALL THICKNESS PUDDLE FLANGE AS INDICATED	1	
2	65Ø RSV GATE VALVE (PN16) WITH HANDWHEEL AND ANTI-CLOCKWISE CLOSING TO SABS 664. BOTH ENDS FLANGED TO SABS 1123 - 1600/3.	1	
3	65Ø BERMAD WW-700 OR SIMILAR FLAT DISK PRESSURE REDUCING VALVE COMPLETE. PN25 ENDS FLANGED TO SABS 1123 - 2500/3.	1	
4	65 ND "VIKING JOHNSON" FLANGE ADAPTOR COUPLING	1	2500/3
5	PIPE SPECIAL 65Ø STEEL PIPE, ONE END FLANGED OTHER END SUITABLE FOR FLANGE ADAPTOR WITH PUDDLE FLANGE IN POSITION AS INDICATED. FLANGES TO SABS 1123	1	
6	PIPE SPECIAL 65Ø STEEL PIPE, ONE END FLANGED OTHER END SUITABLE FOR FLANGE ADAPTOR WITH PUDDLE FLANGE IN POSITION AS INDICATED. FLANGES TO SABS 1123	1	

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- NOTES**
- CONCRETE
 - STRUCTURAL TO BE GRADE 25/19
 - BLINDING TO BE 15/19
 - BENCHING TO BE 1:4 CEMENT:SAND SCREED
 - CHAMBER TO BE WATERTIGHT
 - 75mm BLINDING UNDER ALL FOUNDATIONS
 - CONCRETE FINISHES
 - ALL EXPOSED CONCRETE EDGES TO HAVE 20x20mm CHAMFER
 - SMOOTH OFF SHUTTER TO EXPOSED VERTICAL FACES
 - ROUGH OFF SHUTTER TO UNEXPOSED VERTICAL FACES
 - WOOD FLOAT TO TOP OF WALLS AND ROOF SLAB
 - STEEL FLOAT TO TOP OF FLOOR BENCHING
 - 6mm RUBBER INSERTION BETWEEN VALVE FEET & CONCRETE PLINTH
 - ALL METALWORK TO BE HOT DIP GALVANISED TO ISO 1461
 - FLANGES TO SABS 1123-1977 - PN 16

A	02/01/23	ISSUED FOR INFORMATION		P.S
REV	DATE	COMMENTS		BY

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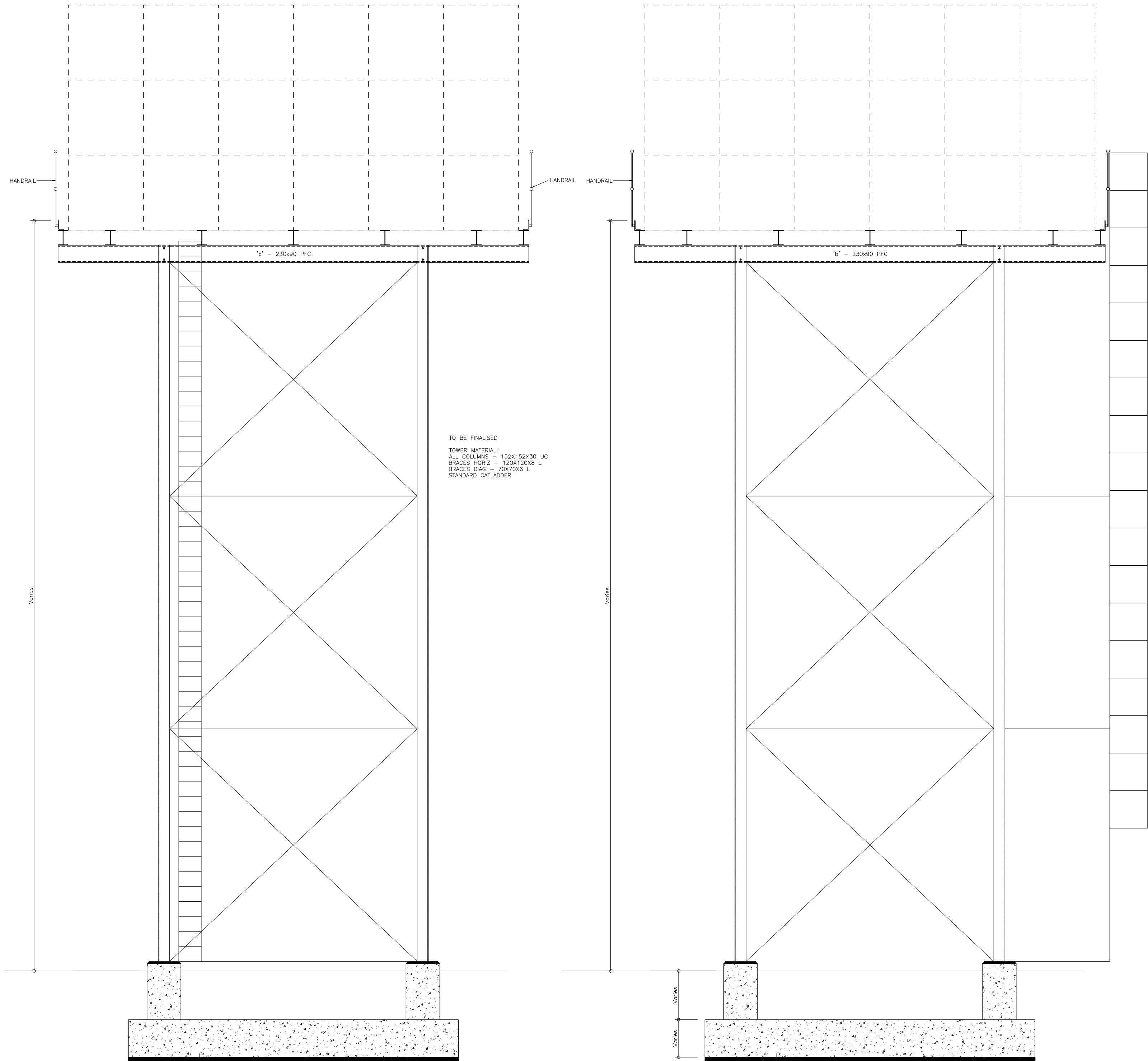
Project:

**MOUTSE EAST & WEST WATER RETICULATION
PHASE 1: NTWANE VILLAGE**

Drawing Title:

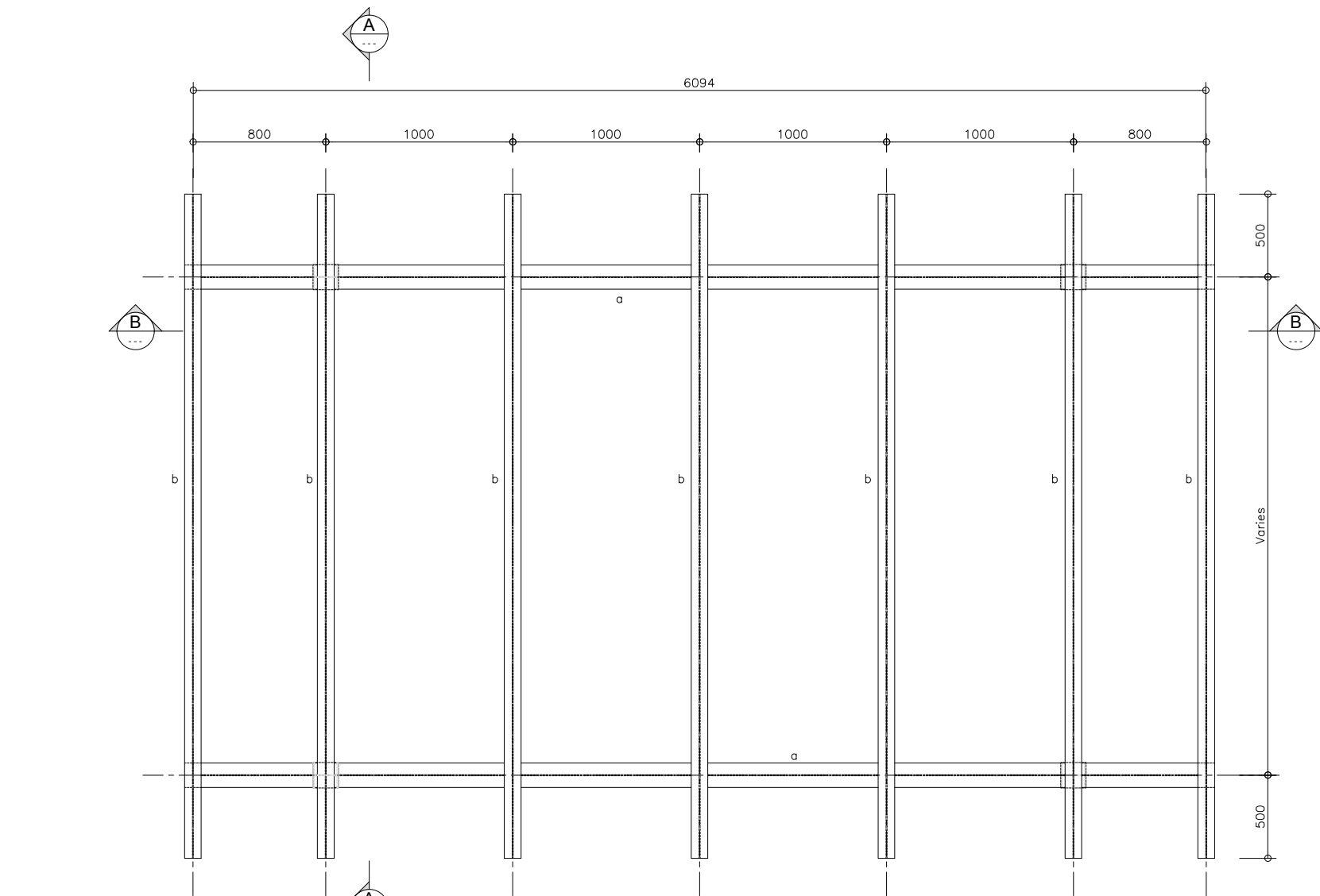
**TYPICAL DETAILS
PRESSURE REDUCING
VALVE CHAMBER DETAILS**

Consultant's Signature:				
P. LOUWPr (ENG)				
Drawn:	Checked:	Designed:	Scale:	
P.S NDLOVU	P. LOUW	N.MUVHANGO	AS SHOWN	
Job Number:	Discipline:	Dwg Number:	Rev:	Dwg Size:
201651-LP-W	CIV	505	A	A1



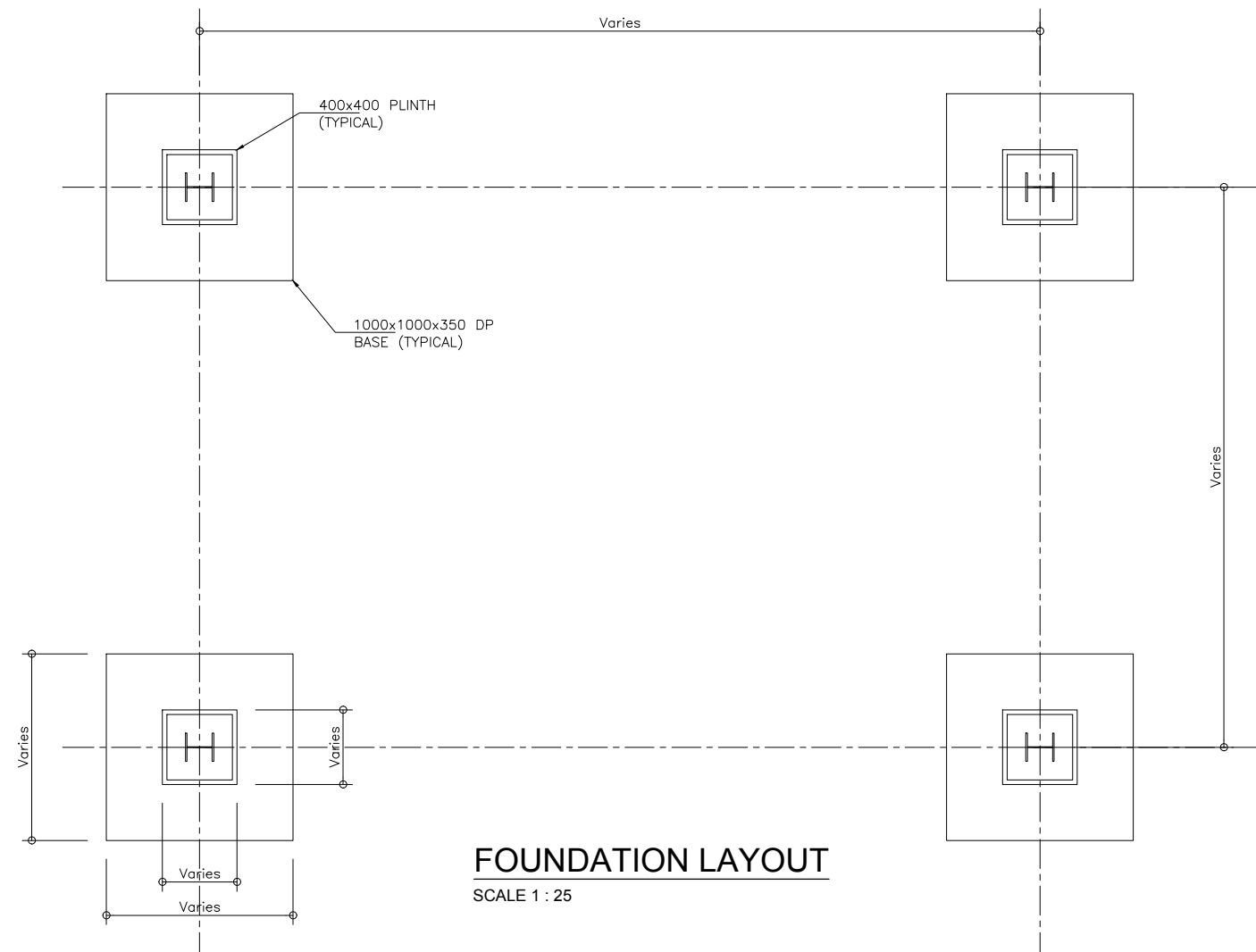
FRONT ELEVATION
SCALE 1 : 25

SIDE ELEVATION
SCALE 1 : 25

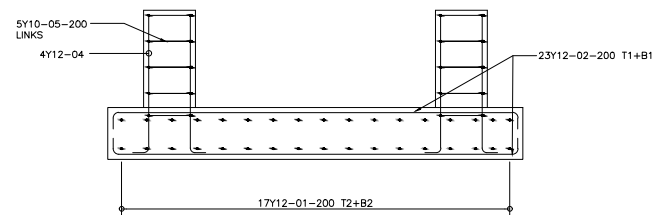


PLAN LAYOUT
SCALE 1 : 25

TO BE FINALISED
GRILLAGE MATERIAL:
BEAMS A - 406X142X46 UB
BEAMS B - 406X142X30 UB
BEAMS C - 457X191X67 UB
KERB D - 406X142X46
KERB E - 406X142X46



FOUNDATION LAYOUT
SCALE 1 : 25



FOUNDATION OF FOOTING STRUCTURAL DESIGN TO BE FINALISED BY ENGINEER
SCALE 1 : 25

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CONCRETE NOTES:

FOUNDATIONS

- 1.1 EXCAVATIONS FOR FOUNDATIONS TO BE APPROVED BY THE ENGINEER BEFORE CONCRETE IS CAST.
 - 1.2 ALL FOUNDATIONS TO BE BUILT ON FIRM IN-SITU SOIL (NOT ON FILL).
 - 1.3 PILING LOGS TO BE USED TO RECORD DEPTH, DIAMETER, REINFORCING, DATE CAST, CUT OFF LEVEL, CONCRETE STRENGTH AND REFERENCE TO RELEVANT CUBES MADE FOR TESTING.
- CONCRETE**
- 2.1 CONCRETE CHARACTERISTIC 28-DAY STRENGTH:
PILE CAPS 30 MPa
GROUND BEAMS 30 MPa
COLUMNS & WALLS 30 MPa
SURFACE BEDS (INTERNAL) 30 MPa
SURFACE BEDS (EXTERNAL) 30 MPa
SUSPENDED SLABS 30 MPa
 - 2.2 NOMINAL CONCRETE AGGREGATE SIZE 19mm
 - 2.3 ALL CONCRETE TO BE PROPERLY CURED BY KEEPING SURFACES CONTINUOUSLY DAMP FOR AT LEAST 5 DAYS AFTER CASTING.
 - 2.4 ALL CONCRETE TO BE CONSTRUCTED TO THE SABS 1200 G PERMISSIBLE DEVIATION DEGREE OF ACCURACY CLASS II, UNLESS OTHERWISE SPECIFIED.
 - 2.5 CONCRETE CUBE TESTS TO BE SUBMITTED TO ENGINEER FOR APPROVAL.

REINFORCEMENT

- 3.1 ALL REINFORCEMENT TO BE CHECKED AND APPROVED BY THE ENGINEER BEFORE ANY CONCRETE IS CAST.
- 3.2 LAP LENGTH TO REINFORCING TO BE MIN. 50 x SMALLER DIAMETER, UNLESS OTHERWISE NOTED.
- 3.3 MINIMUM COVER TO REINFORCING:
PILE CAPS & GROUND BEAMS 50mm
COLUMNS & WALLS 30mm
STEEL & PAD FOUNDATIONS 50mm
SUSPENDED SLABS 30mm
BEAMS TO SLABS 30mm
- 3.4 THE CONTRACTOR MUST TAKE PARTICULAR CARE TO ENSURE THAT THE SPECIFIED COVER TO ALL REINFORCEMENT HAS BEEN ATTAINED THROUGHOUT BEFORE THE ENGINEER IS CALLED TO SITE.
- 3.5 REINFORCING YIELD STRENGTH:
HIGH TENSILE 'Y' 450 MPa
MILD STEEL 'R' 250 MPa
WELDED STEEL WIRE MESH 485 MPa

FORMWORK

- 4.1 STRIPPING TIMES FOR:
COLUMN AND WALL SHUTTERING 1.5 DAYS
SLAB PROPS 14 DAYS
BEAM PROPS 21 DAYS
- 4.2 CONCRETE FINISHES:
SURFACED POWER FLOAT
SUSPENDED SLABS WOOD FLOAT
COLUMNS & WALLS OFF SHUTTER
BEAMS OFF SHUTTER
SLAB SOFFIT OFF SHUTTER

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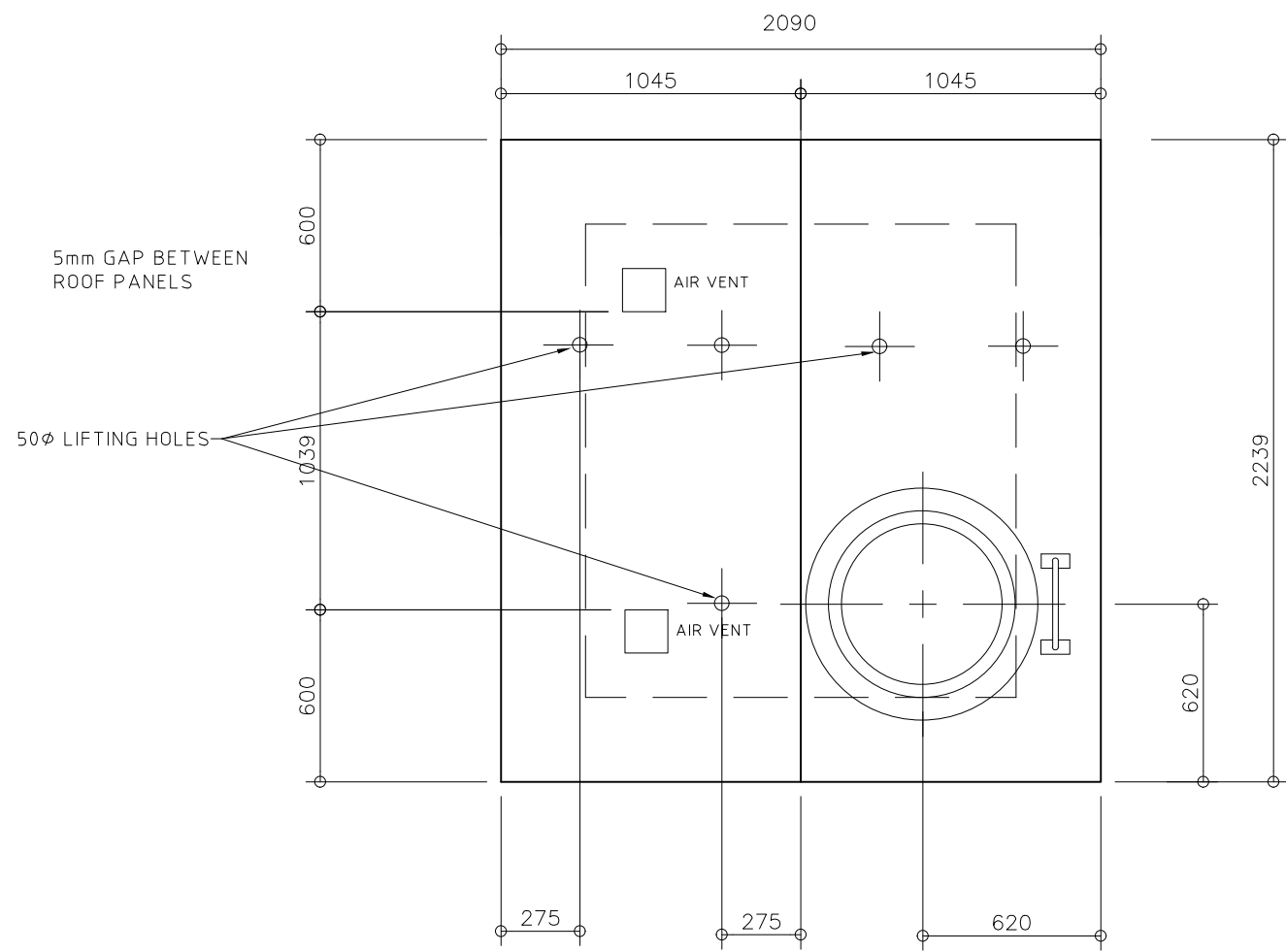
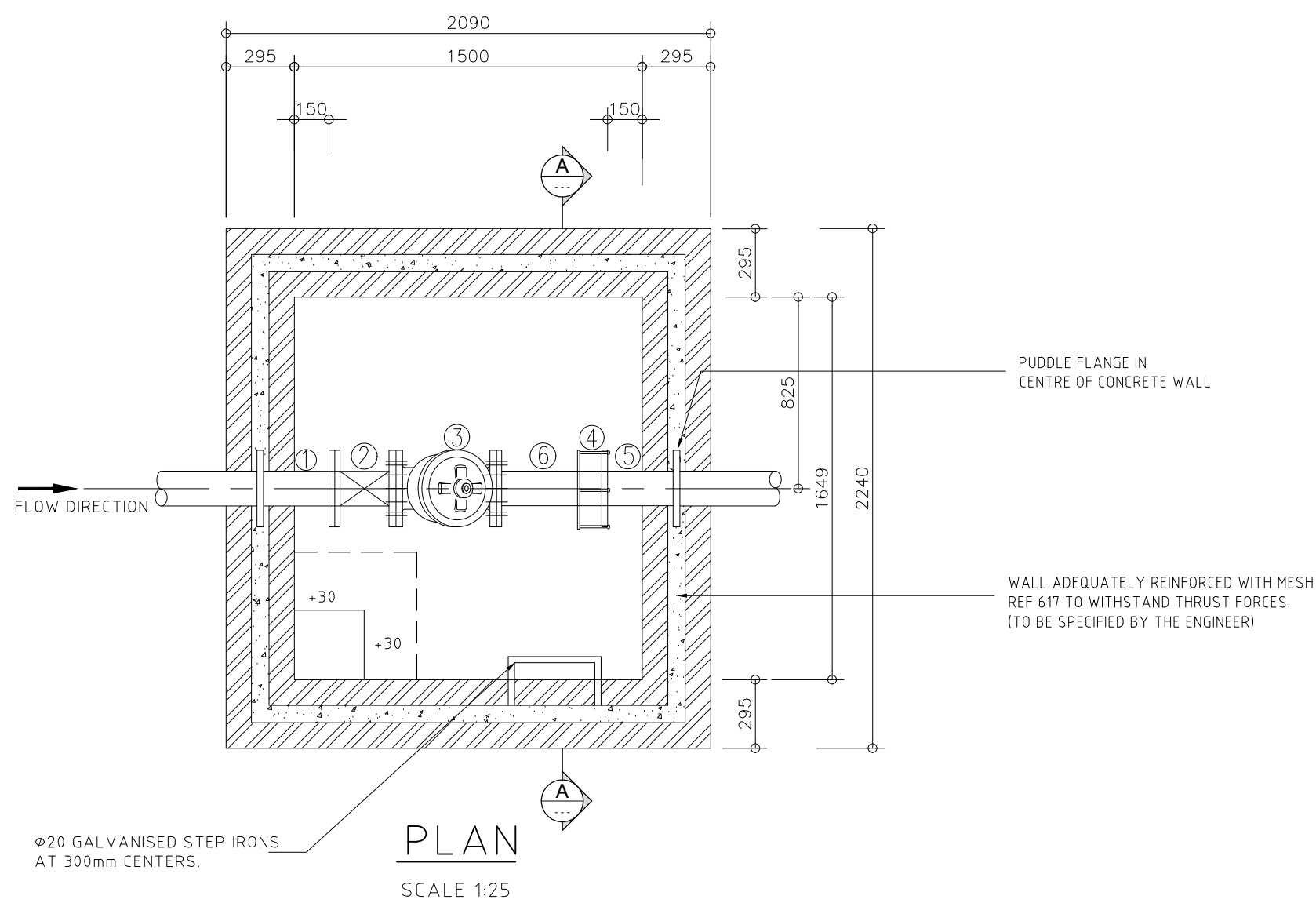
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Project:
**MOUTSE EAST & WEST WATER
RETICULATION
PHASE 1: NTWANE VILLAGE**

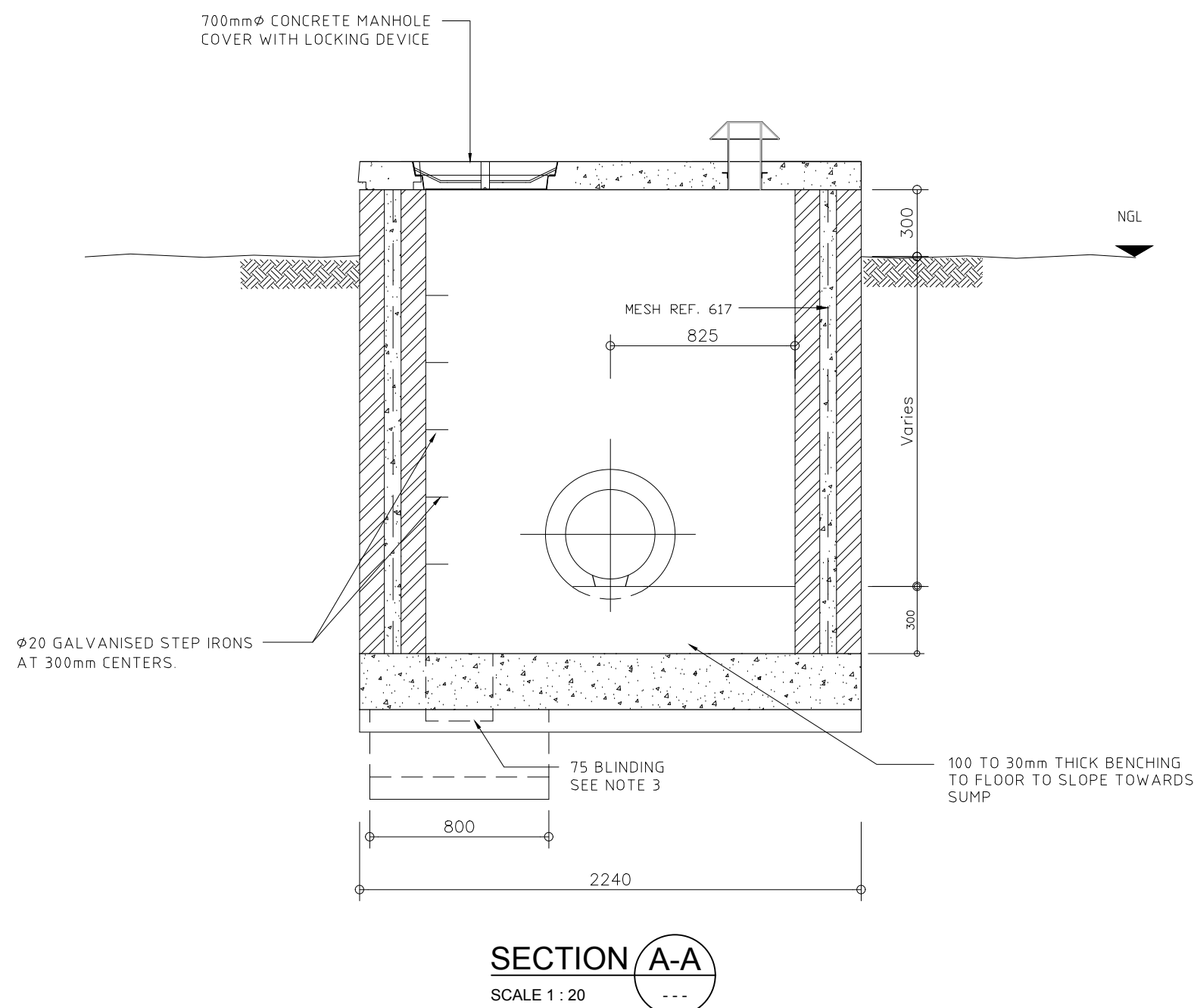
Drawing Title:
**TYPICAL ELEVATED WATER
TANK AND STAND LAYOUT**

Consultant's Signature:

P.LOUW			
Drawn:	Checked:	Designed:	Scale:
N. MUVHANGO	P. LOUW	N. MUVHANGO	AS SHOWN
Job Number:	Discipline:	Dep Number:	Rev:
201502-NW-89d	SS	508	0
A0			



ROOF PLAN
SCALE 1:25



TYPICAL STEEL PIPE FITTINGS AND ITEM LIST (150ND PIPE LINE USED AS AN EXAMPLE)			
ITEM NR.	DESCRIPTION	NO. OFF.	DIMENSIONS
1	PIPE SPECIAL 150Ø STEEL PIPE, ONE END FLANGED OTHER END SUITABLE FOR FLANGE ADAPTOR WITH PUDDLE FLANGE IN POSITION AS INDICATED. FLANGES TO SABS 1123	1	
2	150Ø RSV GATE VALVE (PN16) WITH HANDWHEEL AND ANTI-CLOCKWISE CLOSING TO SABS 664. BOTH ENDS FLANGED TO SABS 1123 - 1600/3.	1	
3	150Ø BERMAD WW-700 OR SIMILAR FLAT DISK PRESSURE REDUCING VALVE COMPLETE. PN25 ENDS FLANGED TO SABS 1123 - 2500/3.	1	
4	150 ND "VIKING JOHNSON" FLANGE ADAPTOR COUPLING	1	2500/3
5	PIPE SPECIAL 150Ø STEEL PIPE, ONE END FLANGED OTHER END SUITABLE FOR FLANGE ADAPTOR WITH PUDDLE FLANGE IN POSITION AS INDICATED. FLANGES TO SABS 1123	1	
6	150Ø STEEL PIPE, ONE END FLANGED OTHER END SUITABLE FOR FLANGE ADAPTOR WITH PUDDLE FLANGE IN POSITION AS INDICATED. FLANGES TO SABS 1123	1	

TYPICAL STEEL PIPE FITTINGS AND ITEM LIST (100ND PIPE LINE USED AS AN EXAMPLE)			
ITEM NR.	DESCRIPTION	NO. OFF.	DIMENSIONS
1	PIPE SPECIAL STEEL PIPE WITH BOTH ENDS FLANGED, 6mm WALL THICKNESS PUDDLE FLANGE AS INDICATED	1	
2	100Ø RSV GATE VALVE (PN16) WITH HANDWHEEL AND ANTI-CLOCKWISE CLOSING TO SABS 664. BOTH ENDS FLANGED TO SABS 1123 - 1600/3.	1	
3	100Ø BERMAD WW-700 OR SIMILAR FLAT DISK PRESSURE REDUCING VALVE COMPLETE. PN25 ENDS FLANGED TO SABS 1123 - 2500/3.	1	
4	100 ND "VIKING JOHNSON" FLANGE ADAPTOR COUPLING	1	2500/3
5	PIPE SPECIAL 100Ø STEEL PIPE, ONE END FLANGED OTHER END SUITABLE FOR FLANGE ADAPTOR WITH PUDDLE FLANGE IN POSITION AS INDICATED. FLANGES TO SABS 1123	1	
6	PIPE SPECIAL 100Ø STEEL PIPE, ONE END FLANGED OTHER END SUITABLE FOR FLANGE ADAPTOR WITH PUDDLE FLANGE IN POSITION AS INDICATED. FLANGES TO SABS 1123	1	

TYPICAL STEEL PIPE FITTINGS AND ITEM LIST (65ND PIPE LINE USED AS AN EXAMPLE)			
ITEM NR.	DESCRIPTION	NO. OFF.	DIMENSIONS
1	PIPE SPECIAL STEEL PIPE WITH BOTH ENDS FLANGED, 6mm WALL THICKNESS PUDDLE FLANGE AS INDICATED	1	
2	65Ø RSV GATE VALVE (PN16) WITH HANDWHEEL AND ANTI-CLOCKWISE CLOSING TO SABS 664. BOTH ENDS FLANGED TO SABS 1123 - 1600/3.	1	
3	65Ø BERMAD WW-700 OR SIMILAR FLAT DISK PRESSURE REDUCING VALVE COMPLETE. PN25 ENDS FLANGED TO SABS 1123 - 2500/3.	1	
4	65 ND "VIKING JOHNSON" FLANGE ADAPTOR COUPLING	1	2500/3
5	PIPE SPECIAL 65Ø STEEL PIPE, ONE END FLANGED OTHER END SUITABLE FOR FLANGE ADAPTOR WITH PUDDLE FLANGE IN POSITION AS INDICATED. FLANGES TO SABS 1123	1	
6	PIPE SPECIAL 65Ø STEEL PIPE, ONE END FLANGED OTHER END SUITABLE FOR FLANGE ADAPTOR WITH PUDDLE FLANGE IN POSITION AS INDICATED. FLANGES TO SABS 1123	1	

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NOTES

- CONCRETE
 - STRUCTURAL TO BE GRADE 25/19
 - BLINDING TO BE 15/19
 - BENCHING TO BE 1:4 CEMENT:SAND SCREED
- CHAMBER TO BE WATERTIGHT
- 75mm BLINDING UNDER ALL FOUNDATIONS
- CONCRETE FINISHES
 - ALL EXPOSED CONCRETE EDGES TO HAVE 20x20mm CHAMFER
 - SMOOTH OFF-SHUTTER TO EXPOSED VERTICAL FACES
 - ROUGH OFF-SHUTTER TO UNEXPOSED VERTICAL FACES
 - WOOD FLOAT TO TOP OF WALLS AND ROOF SLAB
 - STEEL FLOAT TO TOP OF FLOOR BENCHING
- 6mm RUBBER INSERTION BETWEEN VALVE FEET & CONCRETE PLINTH
- ALL METALWORK TO BE HOT DIP GALVANISED TO ISO 1461
- FLANGES TO SABS 1123-1977 - PN 16

A	02/01/23	ISSUED FOR INFORMATION		P.S
REV	DATE	COMMENTS		BY

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Project:

MOUTSE EAST & WEST WATER RETICULATION PHASE 1: NTWANE VILLAGE

Drawing Title:

TYPICAL DETAILS PRESSURE REDUCING VALVE CHAMBER DETAILS

Consultant's Signature:

P. LOUW Pr (ENG)

Drawn:	Checked:	Designed:	Scale:
P.S NDLOVU	P. LOUW	N.MUVHANGO	AS SHOWN

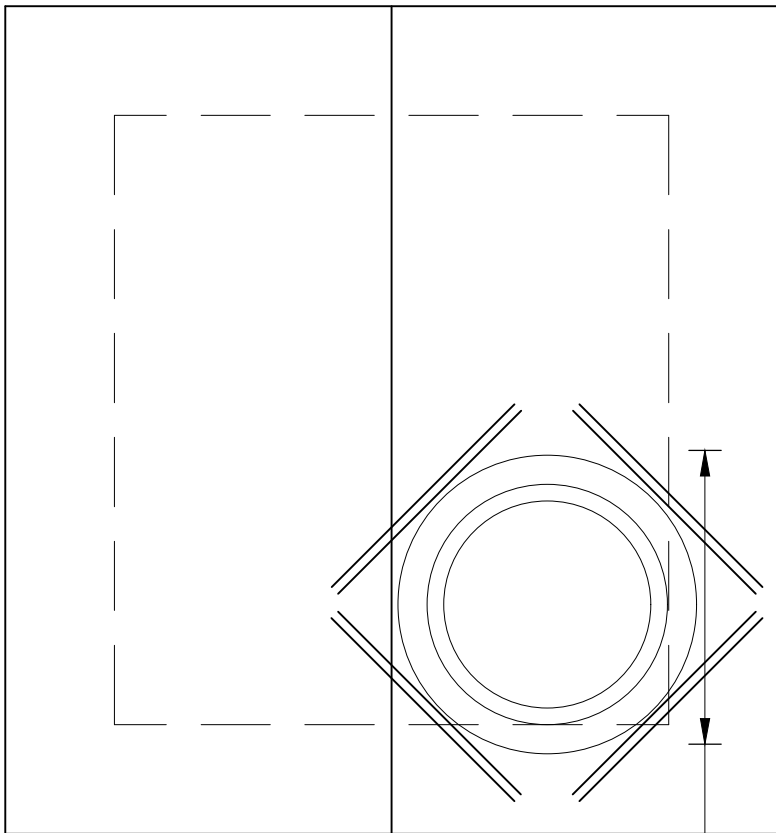
Job Number:	Discipline:	Dwg Number:	Rev:	Dwg Size:
201651-LP-W	CIV	505	A	A1

WALL STIFFNER SCHEDULE	
HEIGHT A (m)	REINFORCING
< 2.0	SEE DETAIL 1

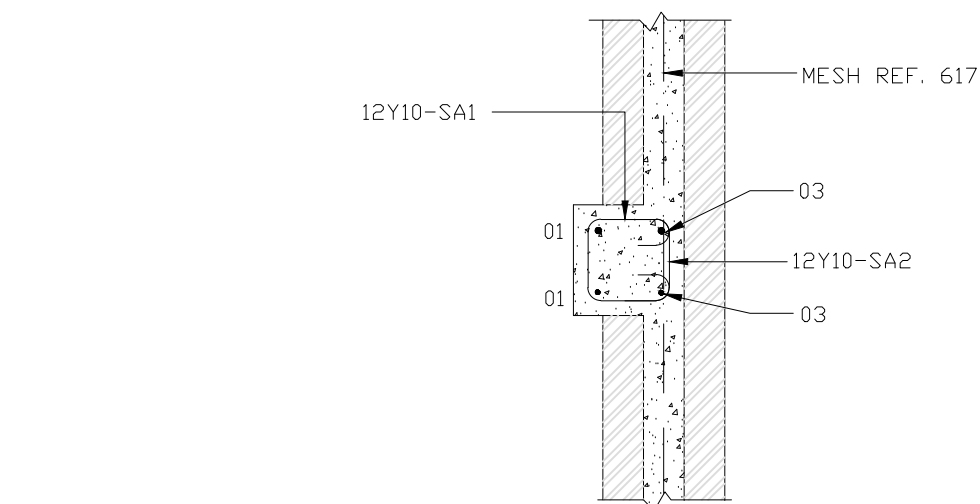
CHAMBER ROOF SLAB SCHEDULE		
LENGTH C (m)	THICKNESS (mm)	REINFORCING
< 2.5	125	MESH REF. 617

CHAMBER WALL SCHEDULE
NOTE: PROVIDE MESH REF. 617 IN ALL CONCRETE WALLS
CHAMBER WALLS = 330mm (2X 110mm BRICKWORK + 110mm CONCRETE)

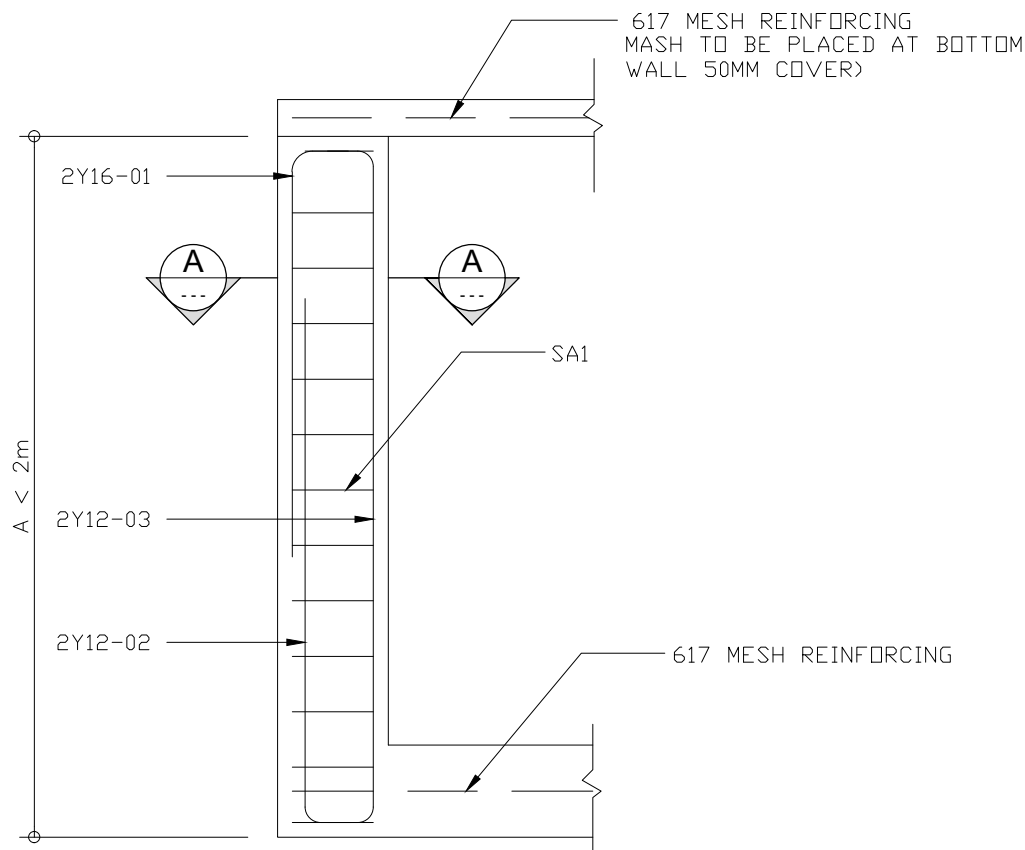
CHAMBER WALL SCHEDULE



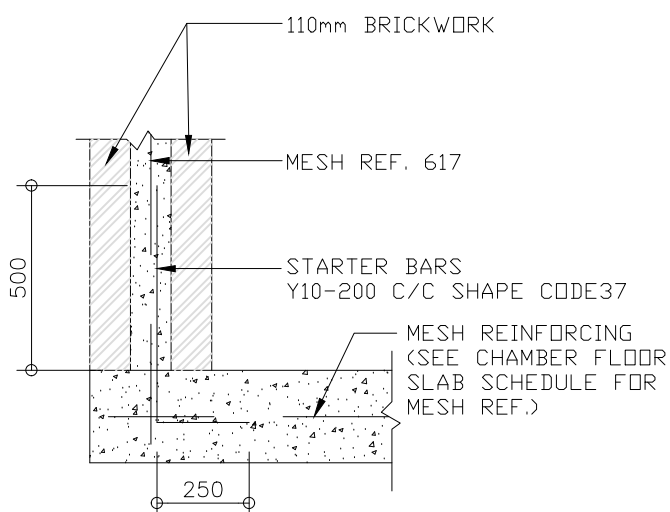
ROOF SLAB OPENING



SECTION A-A
SCALE 1 : 20



DETAIL 1
SCALE 1 : 20



DETAIL 2
SCALE 1 : 20

BENDING SCHEDULE												
MEMBER	No OF	BARS PER MEMB	DIA.	LENGTH	TOTAL NUM-BER	MARK	S	B E N D I N G				
								A	B	C	D	E/r
<2m STIFFNER	1	2	Y16	1350	2	01	34	1200				
		2	Y12	1550	2	02	34	1420				
		2	Y12	2150	2	03	35	1920				
STIFFRUPS		12	Y10	850	12	SA1	72	220				
		12	Y10	850	12	SA2	35	220				
ROOF SLAB OPENING		2	Y10	700		08	04	20	700			
NOTE:								Date Det. by Ref Dwg Job No	02/02/23 NM			
								Revision	A			
								Schedule No	...			

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NOTES:

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- 1.2 LAP LENGTH TO REINFORCING TO BE MIN. 50 x SMALLER DIAMETER, UNLESS OTHERWISE NOTED.
- 1.3 MINIMUM COVER TO REINFORCING:

STIFFNERS	50mm
WALLS	50mm
COLUMNS	50mm
FLOOR SLABS	50mm
ROOF SLABS	30mm
- 1.4 THE CONTRACTOR MUST TAKE PARTICULAR CARE TO ENSURE THAT THE SPECIFIED COVER TO ALL REINFORCEMENT HAS BEEN ATTAINED THROUGHOUT BEFORE THE ENGINEER IS CALLED TO SITE.
- 1.5 REINFORCING YIELD STRENGTH:

HIGH TENSILE 'Y'	450 MPa
MILD STEEL 'R'	250 MPa
WELDED STEEL WIRE MESH	485 MPa
- 1.6 BENDING AND SCHEDULING OF REINFORCEMENT SHALL BE IN ACCORDANCE WITH SANS 282:2004
- 1.7 ABBREVIATIONS:

T1	- HIGHEST TOP LAYER
T2	- SECOND TOP LAYER
T3	- THIRD TOP LAYER
B1	- LOWEST BOTTOM LAYER
B2	- SECOND BOTTOM LAYER
B3	- THIRD BOTTOM LAYER
EF	- EACH FACE
NF	- NEAR FACE
FF	- FAR FACE
EW	- EACH WAY
ALT	- ALTERNATE BARS
ABR	- ALTERNATE BARS REVERSED
STG	- ALTERNATE BAR STAGGERED

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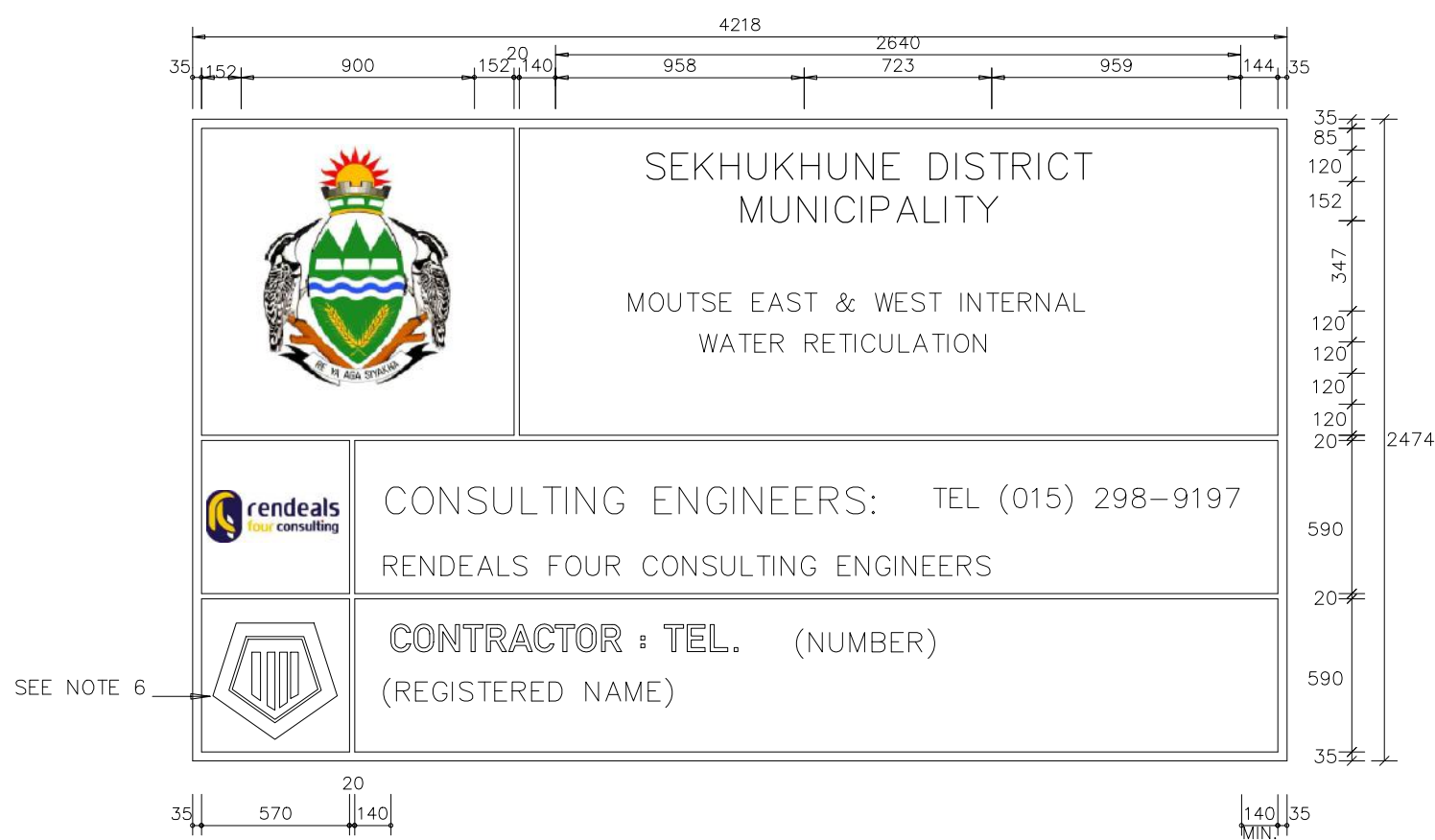
Project:

**MOUTSE EAST & WEST WATER RETICULATION
PHASE 1: NTWANE VILLAGE**

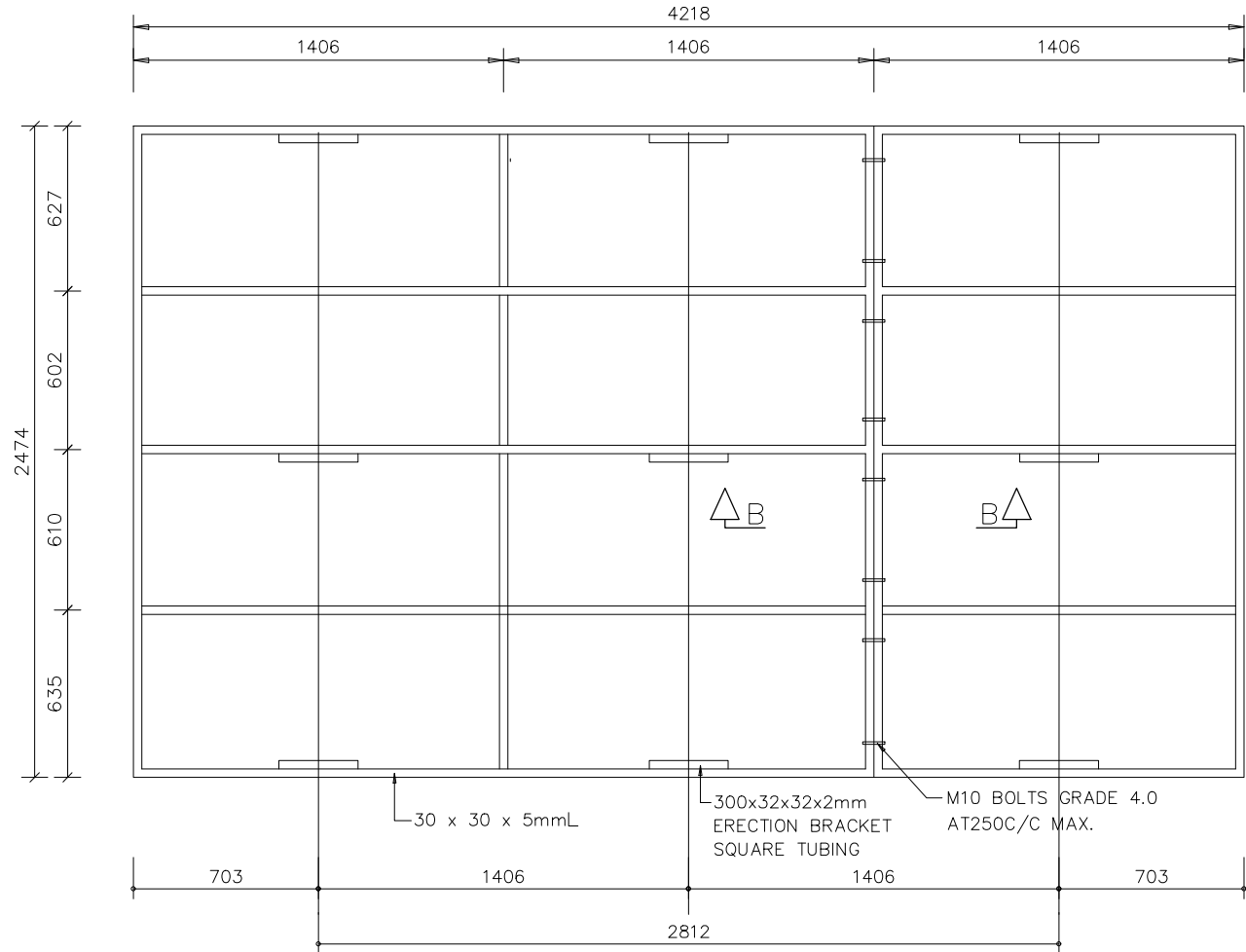
Drawing Title:

CHAMBER ROOF AND FLOOR SLABS, STIFFNERS AND WALL REINFORCEMENT

Consultant's Signature:				
P. LOUWPr (ENG)				
Drawn:	Checked:	Designed:	Scale:	
P.S NDLOVU	N.MUVHANGO	P. LOUW	AS SHOWN	
Job Number:	Discipline:	Dwg Number:	Rev:	Dwg Size:
201651-LP-W	SR	506	A	A1

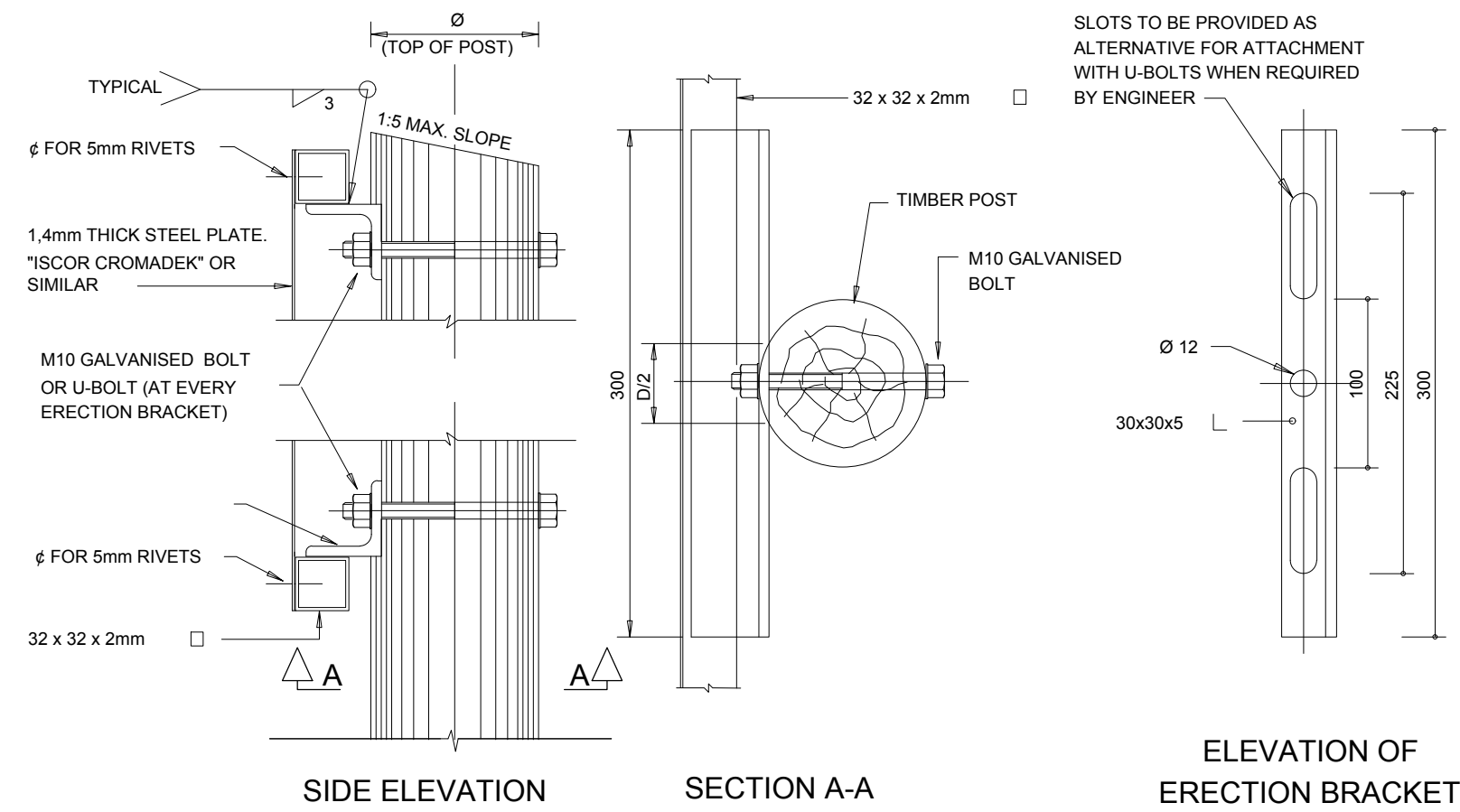


FRONT ELEVATION



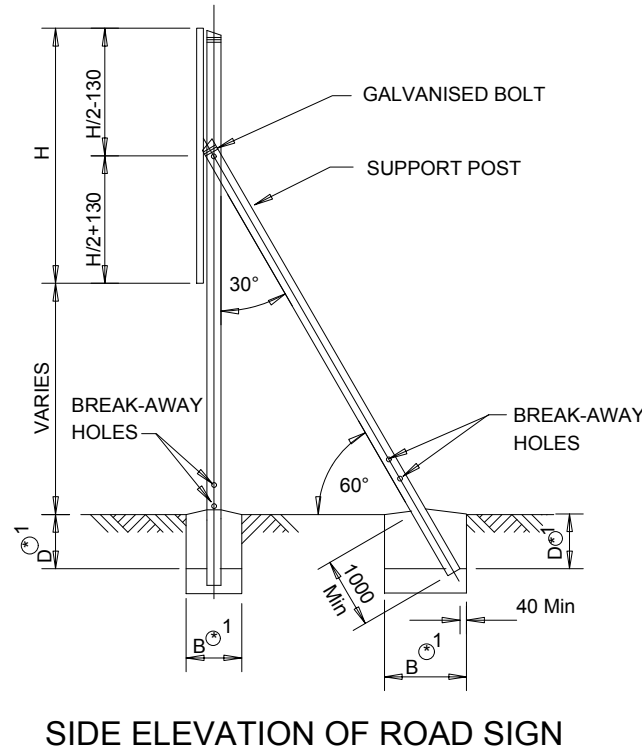
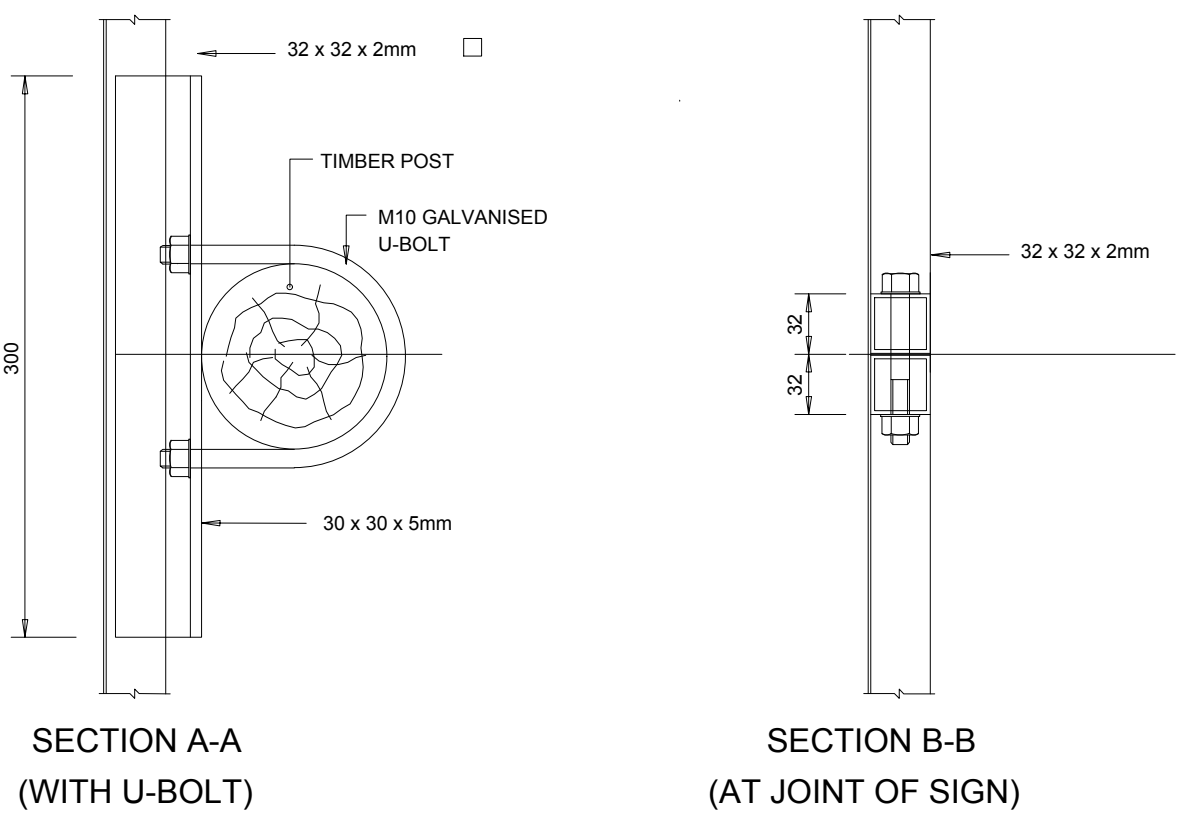
REAR SIDE BRACING

- NOTES:**
- EMBLEME:**
1. ALL EMBLEMS TO BE DISPLAYED IN FULL COLOUR ON A SEMI-MATT BACKGROUND.
- LETTERS AND NUMBERS:**
2. DESCRIPTION : MATT-BLACK, SERIES DIN B LETTERS AND NUMBERS ON A SEMI-MATT SMOKE-GREY BACKGROUND.
- BORDERS:**
3. BORDER : GREEN NON-REFLECTORIZED.
- QUANTITY:**
4. TWO SIGN BOARDS, SHALL BE ERECTED AT POSITIONS AS DETERMINED BY THE ENGINEER.
- DESCRIPTION:**
5. DESCRIPTION OF WORK (NUMBER OF KILOMETRES AND TYPE OF WORK, eg "13.9km RECONSTRUCTION OF ROAD 1974" DESCRIPTION STARTS CENTERED ON THE LEFT-HAND SIDE AND THE FIRST 105mm-DIMENSION BELOW "NORTHERN"
6. SAFCEC EMBLEM ONLY IF CONTRACTOR IS A MEMBER OTHERWISE BLANK.
7. NEW SAACE LOGO TO BE OBTAINED FROM SAACE, JOHANNESBURG.

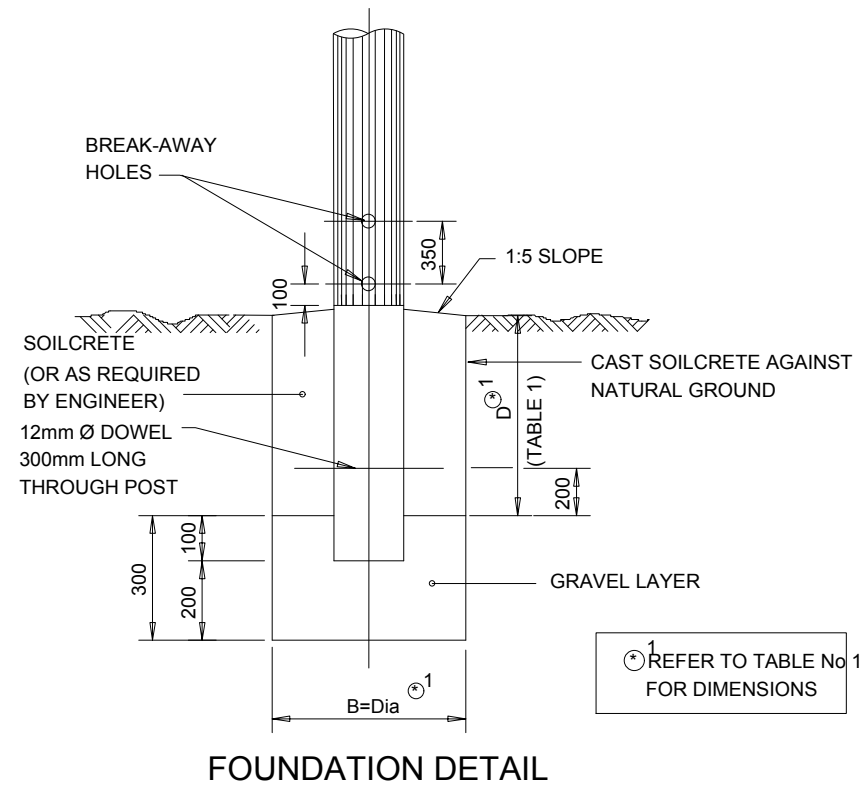


FIXING DETAIL FOR SIGN BOARDS

TABLE 1: DETERMINATION OF POSTS & FOOTINGS				
ERECTION DETAILS				
TYPE OF POST	UPRIGHT	STAY	D	B (DIA)
TIMBER POST AND STAY	100mm	80mm	600mm	850mm
TIMBER POST	80mm	-	1000mm	1450mm
D SECTION STEEL POST	100mm x 4mm	-	1000mm	1450mm



SIDE ELEVATION OF ROAD SIGN



FOUNDATION DETAIL

DETERMINATION OF BREAK-AWAY HOLES	
POLE DIA (mm)	HOLE DIA (mm)
< 140	NONE
141 - 170	40
171 - 200	50
201 - 225	65

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A	02/05/23	ISSUED FOR INFORMATION	T.M.

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Project:
MOUTSE EAST & WEST WATER RETICULATION
PHASE 1: NTWANE VILLAGE

Drawing Title:
NAME BOARD

Consultant's Signature: *P. Louw*
P. LOUW.....(Pr. ENG)
Drawn: PS.NDLOVU Checked: N.MUVHANGO Designed: P. LOUW Scale: N.T.S
Job Number: 201651-LP-W Discipline: CIV Dwg Number: 509 Rev: A Dwg Size: A1