

LEPELLE-NKUMPI LOCAL MUNICIPALITY



BID DOCUMENT

BID NO: LNM019/2020/21

CONSTRUCTION OF GRADE A VTS (LEBOWAKGOMO) (WARD 18)

LEPELLE NKUMPI LOCAL MUNICIPALITY

CLOSING DATE: 12 NOVEMBER 2021 at 11H00

TECHNICAL ENQUIRIES	BIDDING RELATED ENQUIRIES
TECHNICAL SERVICES (PMU): Mr Phasha Tebogo LEPELLE-NKUMPI LOCAL MUNICIPALITY P/BAG X 07 CHUENESPOORT 0745 Tel: (015) 633 4556/7 Fax: (015) 632 4594	MANAGER: SUPPLY CHAIN MANAGEMENT Mr. Jeffrey Pitseng LEPELLE-NKUMPI LOCAL MUNICIPALITY P/BAG X 07 CHUENESPOORT 0745 Tel: (015) 633 4519 Fax: (015) 633 6896

NAME OF BIDDER (BIDDING ENTITY) : _____

TEL NUMBER : _____

FAX NUMBER : _____

CENTRAL SUPPLIER DATABASE NO : _____

BBBEE STATUS : _____

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

R..... (In figures)



Contractor

Witness 1

Witness 2

Employer

Witness 1

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LEPELLE-NKUMPI LOCAL MUNICIPALITY



CONTRACT NO. LNM019/2020/21

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LEPELLE-NKUMPI LOCAL MUNICIPALITY



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PART T1

TENDERING PROCEDURES

Objections and complaints

Persons aggrieved by decisions or actions taken in the appointment of this tender or affected by the entire process of supply chain management system, may lodge within 14 days of the decision or action, a written objection or complaint against the decision or action to: The Municipal Manager, Private Bag X 07, Chuenespoort, 0745. To report any fraud; irregularities or corruption related incidents you may call our Anti Fraud Hotline number: 0800 20 50 53

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

TENDERING PROCEDURES

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Contractor

Witness 1

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Employer

Witness 1

Witness 2

PART T1.1

Tender Notice and Invitation to Tender

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

LEPELLE-NKUMPI LOCAL MUNICIPALITY



CONTRACT NO. LNM019/2020/21

CONSTRUCTION OF GRADE A VTS(LEBOWAKGOMO) (WARD 18) **T1.1 TENDER NOTICE AND INVITATION TO TENDER**

VERY IMPORTANT NOTICE ON DISQUALIFICATIONS:

The Lepelle-Nkumpi Municipality will consider no Bid unless it meets the following responsiveness criteria:

Pre-qualification criteria for preferential procurement

- 1) That only one or more of the following tenders may respond
 - An EME or QSE
 - A tenderer who fails to meet any pre-qualifying criteria stipulated in the tender documents is an unacceptable tender.

Administrative compliance

- The bid must be properly received in a sealed envelope clearly indicating the description of the service and the bid number for which the bid is submitted.
- The bid must be deposited in the relevant bid box as indicated on the notice of the bid on or before the closing date and time of the bid.
- Tax Compliance Pin/ CSD number must be completed in MBD form 1
- Bid forms must be completed in full and each page of the bid initialized or signed
- Alterations must be signed/initialized
- Copy of the company registration certificate must be submitted with the bid.
- Copy of BBBEE Certificate or original sworn affidavit must also be attached
- Certified copy of Identity document (ID) of all director (s) must be attached
- CIDB Grading 6GB OR Higher.
- Submission of a Joint Venture Agreement, where applicable, which has been properly signed by all parties.
- Complies with the requirements of the bid and technical specifications.
- Bidders to attach Authority for signatory in company letterhead -attach resolution
- Adheres to Pricing Instructions(e.g. Providing lump sums on quantified items in the BOQ)
- Attached valid certified copy of NHBRC certificate
- Letter of good standing from Department of Labour
- THE USE OF CORRECTION FLUID (TIPPEX) WILL AUTOMATICALLY INVALIDATE YOUR BID
- Bidders must attach the Statement of Municipal Rates on the municipality letterhead not older than 3 months for the company and all directors (if the Statement of Municipal Rates is not in the name of bidder and all directors affidavit from SAPS must be attached) or letter from Traditional Authority not older than 3 months for the company and all directors or a lease agreement for the company and all directors.
- The bid will be rejected if any municipal rates and taxes or municipal service charges owed by that bidder or any of its directors to the Municipality or Municipal entity, or to any other Municipality or Municipal entity are in arrears for more than three months (90 days)

- **Recovery of rates in arrears from tenants and occupiers**

- (1) If an amount due for rates levied in respect of a property is unpaid by the owner of the property after the date determined in terms of section 26(2), the municipality may recover the amount in whole or in part from a tenant or occupier of the property, despite any contractual obligation to the contrary on the tenant or occupier. The municipality, may recover an amount only after the municipality has served a written notice on the tenant or occupier.
- (2) The amount a municipality may recover from the tenant or occupier of a property in terms of subsection (1) is limited to the amount of the rent or other money due and payable, but not yet paid, by the tenant or occupier to the owner of the property.
- (3) Any amount a municipality recovers from the tenant or occupier of the property must be set off by the tenant or occupier against any money owed by the tenant or occupier to the owner.
The tenant or occupier of a property must, on request by a municipality, furnish the municipality with a written statement specifying all payments to be made by the tenant or occupier to the owner of the property for rent or other money payable on the property during a period determined by the municipality Proof of Municipal Rates and Taxes or letter for Tribal Authority or lease agreement must be attached (Not older than 3 months).

- Late bids shall not be admitted for consideration.

PART A INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE LEPELLE NKUMPI MUNICIPALITY					
BID NUMBER:	LNM019/2020/21	CLOSING DATE:	12 NOVEMBER 2021	CLOSING TIME:	11H00
DESCRIPTION	CONSTRUCTION OF GRADE A VTS(LEBOWAKGOMO) (WARD 18)				
THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (MBD7).					
BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX					

SITUATED AT (STREET ADDRESS

LEPELLE-NKUMPI MUNICIPALITY					
UNIT 170 BA, CIVIC CENTRE					
LEBOWAKGOMO					
0737					
SUPPLIER INFORMATION					
NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
TAX COMPLIANCE STATUS	TCS PIN:		OR	CSD No:	
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE [TICK APPLICABLE BOX]	<input type="checkbox"/> Yes <input type="checkbox"/> No		B-BBEE STATUS LEVEL SWORN AFFIDAVIT <input type="checkbox"/> Yes <input type="checkbox"/> 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]					
ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	<input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES ENCLOSE PROOF]		ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES /WORKS OFFERED? <input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES, ANSWER PART B:3]		
TOTAL NUMBER OF ITEMS OFFERED		TOTAL BID PRICE		R.....
SIGNATURE OF BIDDER		DATE	
CAPACITY UNDER WHICH THIS BID IS SIGNED					

BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO:		TECHNICAL INFORMATION MAY BE DIRECTED TO:	
DEPARTMENT	Lepelle Nkumpi Municipality	CONTACT PERSON	Mr Mxolisi Bembe
CONTACT PERSON	Jeffrey Pitseng	TELEPHONE NUMBER	015 633 4560
TELEPHONE NUMBER	015 633 4531	FACSIMILE NUMBER	(015) 633 6896
FACSIMILE NUMBER	(015) 633 6896	E-MAIL ADDRESS	Malekate.phasha@lepelle-nkumpi.gov.za
E-MAIL ADDRESS	Jeffrey.pitseng@lepelle-nkumpi.gov.za		

MBD1

PART B TERMS AND CONDITIONS FOR BIDDING

<p>1. BID SUBMISSION:</p> <p>1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.</p> <p>1.2. ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED–(NOT TO BE RE-TYPED) OR ONLINE</p> <p>1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.</p>
<p>2. TAX COMPLIANCE REQUIREMENTS</p> <p>2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.</p> <p>2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VIEW THE TAXPAYER'S PROFILE AND TAX STATUS.</p> <p>2.3 APPLICATION FOR THE TAX COMPLIANCE STATUS (TCS) CERTIFICATE OR PIN MAY ALSO BE MADE VIA E-FILING. IN ORDER TO USE THIS PROVISION, TAXPAYERS WILL NEED TO REGISTER WITH SARS AS E-FILERS THROUGH THE WEBSITE WWW.SARS.GOV.ZA.</p> <p>2.4 FOREIGN SUPPLIERS MUST COMPLETE THE PRE-AWARD QUESTIONNAIRE IN PART B:3.</p> <p>2.5 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.</p> <p>2.6 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.</p> <p>2.7 WHERE NO TCS IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.</p>
<p>3. QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS</p> <p>3.1. IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)? YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>3.2. DOES THE ENTITY HAVE A BRANCH IN THE RSA? YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>3.3. DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA? YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>3.4. DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA? YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>3.5. IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION? YES <input type="checkbox"/> NO <input type="checkbox"/></p> <p>IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 ABOVE.</p>

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

SIGNATURE OF BIDDER:

CAPACITY UNDER WHICH THIS BID IS SIGNED:

DATE:

LEPELLE-NKUMPI LOCAL MUNICIPALITY



CONSTRUCTION OF GRADE A VTS(LEBOWAKGOMO) (WARD 18)

SUMMARY FOR BID OPENING PURPOSES

NAME OF BIDDING ENTITY:

PHYSICAL STREET ADDRESS:	POSTAL ADDRESS:

TELEPHONE NUMBER.....:

FAX NUMBER :

E-mail ADDRESS

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

Signed by authorised representative of the Bidding Entity:

DATE:

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

LEPELLE-NKUMPI LOCAL MUNICIPALITY



CONTRACT NO. LNM019/2020/21

CONSTRUCTION OF GRADE A VTS(LEBOWAKGOMO) (WARD 18)

INVITATION TO TENDER

Tenders are hereby invited from Contractors with necessary experience and compliance documents, have an active **CIDB grading of a minimum 6GB** and are in good standing with the South African Revenue Services.

Tender documents will be available and downloadable for free from the municipal website at www.lepelle-nkumpi.gov.za.

A Compulsory Site meeting and Inspection will NOT be necessary for this tender request, any bidder interested in visiting the site can make appointments to be taken to site where project's construction will be taking place.

All tenders and supporting documents shall be sealed in an envelope or package clearly marked **“Contract Number: LNM019/2020/21? – CONSTRUCTION OF GRADE A VTS(LEBOWAKGOMO) (WARD 18).**

Duly completed tenders shall be placed in the tender box situated at the main entrance of Lepelle-Nkumpi Municipality situated Civil Centre, Lebowakgomo Unit F, **not later than 11h00 on TBA**. No Fax or Late tenders will be accepted. The municipality shall adjudicate and award tenders in accordance with the Preferential Procurement Policy Framework Act 5/2000 and revised Preferential Procurement Regulation 2017 on Pre – qualification criteria for preferential procurement, 80/20 points system, where 80 points are for the price and 20 points for B-BBEE according to the said legislation and 100 points on Functionality.

The Tenderer must have a staff member who has completed, or, is registered for training towards, the NQF level 5 unit standard "Develop and Promote Labour Intensive Construction Strategies".

All Technical enquiries are to be directed to Mr.Mxolisi Bembe on 015 633 4560.

**KG MANKGA
MUNICIPAL MANAGER**

LEPELLE-NKUMPI LOCAL MUNICIPALITY



CONTRACT NO. LNM019/2020/21

CONSTRUCTION OF GRADE A VTS(LEBOWAKGOMO) (WARD 18)

PART T1.2

TENDER DATA

LEPELLE-NKUMPI LOCAL MUNICIPALITY



CONTRACT NO. LNM019/2020/21

CONSTRUCTION OF GRADE A VTS(LEBOWAKGOMO) (WARD 18)

T1.2 TENDER DATA

The conditions of tender are the Standard Conditions of Tender as contained in Annexure F of the CIDB Standard for Uniformity in Construction Procurement (Jan 2009) as published in Government Gazette No: 31823, Board Notice 11 of 2008 of 30 February 2009. (See www.cidb.org.za).

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

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

Clause Number	
F.1.1	The Employer is: Lepelle-Nkumpi Local Municipality P/BAG X07 CHUENESPOORT 0745
F.1.2	The Tender documents issued by the Employer comprise the following documents: THE TENDER Part T1 : Tendering Procedures T1.1 Tender Notice and invitation to tender T1.2 Tender Data Part T2: Returnable Documents T2.1 List of Returnable documents T2.2 Returnable schedules

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

	<p>THE CONTRACT</p> <p>Part C1: Agreements and Contract Data</p> <p>C1.1 Form of offer and acceptance</p> <p>C1.2 Contract Data</p> <p>C1.3 Performance guarantee</p> <p>C1.4 OHS</p> <p>Part C2: Pricing Data</p> <p>C2.1 Pricing Instructions</p> <p>C2.2 Bill of Quantities</p> <p>Part C3: Scope of Work</p> <p>C3 Scope of Work</p> <p>Part C4: Site Information</p> <p>C4 Site Information</p>
F1.3	<p>Interpretation</p> <p>The tender data and additional requirements contained in the tender schedules that are included in the returnable documents are deemed to be part of these tender conditions.</p>
F.1.4	<p>The Employer is:</p>
	<p>Lepelle-Nkumpi Local Municipality</p> <p>P/BAG X07</p> <p>CHUENESPOORT</p> <p>0745</p>
F.1.5.1	<p>Reject or accept</p> <p>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 a cancellation and rejection, but will give written reasons for such action upon written request to do so.</p>
F.2.1	<p>Eligibility</p> <p>Only those tenderers who satisfy the following criteria are eligible to submit tenders:</p>
F.2.1	<p>Only those Tenderers who are registered with the CIDB, or are capable of being so prior to the evaluation of submissions, in a Contractor grading designation equal to or higher than a Contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25 (7A) of the Construction Industry Development Regulations, for a 6GB or higher class construction work, are eligible to have their tenders evaluated.</p> <p>Joint Ventures are eligible to submit tenders provided that:</p>

Contractor

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Employer

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	<ol style="list-style-type: none"> every member of the joint venture is registered with the CIDB; the e lead partner has a Contractor grading designation in the 6GB 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 a 6GB or higher class of construction work or a value determined in accordance with Regulation 25 (1B) of 25 (7A) of the Construction Industry Development Regulations. <p>Only tenderers who employ staff which satisfy EPWP requirements are eligible to submit tenders. The Tenderer must have a staff member who has completed, or, is registered for training towards, the NQF level 5 unit standard "Develop and Promote Labour Intensive Construction Strategies".</p>				
F.2.2	Compensation of tendering Accept that the Employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer satisfy requirements.				
F.2.3	Check documents Check the tender documents on receipt for completeness and notify the employer of any discrepancy or omission.				
F.2.4	Confidentiality and copyright Treat as confidential all matters arising in connection with the tender. Use and copy the documents issued by the employer only for the purpose of preparing and submitting a tender offer in response to the invitation.				
F.2.5	Reference documents Obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, conditions of contract and other publications, which are not attached but which are incorporated into the tender documents by reference.				
F.2.6	Acknowledge Addenda Acknowledge receipt of addenda to the tender documents, which the employer may issue, and if necessary apply for an extension of the closing time stated in the tender data, in order to take the addenda into account.				
F.2.7	The arrangements for a compulsory site meeting are:				
	<table> <tr> <td>Date: N/A</td><td>Location: N/A</td></tr> <tr> <td>Starting time: N/A</td><td></td></tr> </table>	Date: N/A	Location: N/A	Starting time: N/A	
Date: N/A	Location: N/A				
Starting time: N/A					
F.2.10	Pricing the tender State the rates and prices in Rand.				

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Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

F.2.11	<p>Alterations to documents</p> <p>Do Not make any alterations or additions to the tender documents, except to comply with instructions issued by the employer, or necessary to correct errors made by the tenderer. All signatories to the tender offer shall initial all such alterations. Erasures and the use of masking fluid are prohibited.</p>
F.2.12	<p>Alternative tender offers</p> <p>Alternative offers may be submitted only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted. The alternative tender offer is to be submitted with the main tender offer together with a schedule that compares the requirements of the tender documents with the alternative requirements the tenderer proposes.</p> <p>Acceptance of an alternative tender offer will mean acceptance in principle of the offer. It will be an obligation of the contract for the tenderer, in the event that the alternative is accepted, to accept full responsibility and liability that the alternative offer complies in all respects with the Employer's standards and requirements.</p>
F2.13.3	Tender offer communicated on paper shall be submitted as an original.
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:
	<p>CONSTRUCTION OF GRADE A VTS(LEBOWAKGOMO) (WARD 18)</p> <p>(LEPELLE NKUMPI MUNICIPALITY)</p>
	Closing date and time: Closing date: 12 NOVEMBER 2021 Closing Time: 11H00
	Location of Tender box: Lepelle-Nkumpi Local Municipality, Civic Centre, Lebowakgomo Unit F.
	Physical address: Lepelle-Nkumpi Local Municipality, Civic Centre, Lebowakgomo Unit F.
F.2.13.9	Telephonic, telegraphic, telex, facsimile or e-mailed tender offers will not be accepted.
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.
F2.15	The closing time for submission of tender offers is as mentioned in F.2.13.5 above and as stated in the Tender Notice and Invitation to Tender.
F.2.16	The Tender offer validity period is 90 Days .
F.2.18	The tenderer shall, when requested by the Employer to do so, submit the names of all management and supervisory staff that will be employed to supervise the Labour Intensive portion of the works together with satisfactory evidence that such staff members satisfy the eligibility requirements.
F2.20	The tenderer is required to submit a Performance Guarantee from an approved insurer within 14 days from appointment. A format is included in Part C1.3 of this

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

	<p>document.</p> <p>The tenderer is to submit to the employer 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.</p>
F.2.23	<p>The tenderer is required to submit with his tender:</p> <p>(1) an original valid Tax Clearance Certificate issued by the South African Revenue Services; and</p> <p>(2) An original or certified copy of the Company / CC Registration. In case of Joint Venture – both companies / cc to submit registration documentation.</p> <p>(3) In case of Joint Venture – the Joint Venture Agreement.</p>
F.3.4	<p>The time and location for opening of the Tender offers are:</p> <p>Closing date: 12 NOVEMBER 2021 Closing Time: 11H00</p> <p>Location: Lepelle-Nkumpi Local Municipality, Civic Centre, Lebowakgomo Unit F.</p>
F3.9.1	<p>Replace the contents of the clause with the following:</p> <p>Check responsive tender offers for arithmetical errors, correcting them in the following manner:</p> <p><i>Where there is a discrepancy between the amounts in figures and in words, <u>the amount in words shall govern.</u></i></p> <p><i>If a bill of quantities (or schedule of rates) apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, <u>the line item total shall govern and the rate shall be corrected.</u> Where there is an obviously gross misplacement of the decimal point in the unit rate, <u>the line item total</u> as quoted shall govern, and the unit rate will be corrected.</i></p> <p><i>Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total of the prices shall govern and the tenderer will be asked to revise selected item prices (and their rates if a bills of quantities applies) to achieve the tendered total of the prices.</i></p> <p>Consider the rejection of a tender offer if the tenderer does not correct or accept the correction of his arithmetical errors in the manner described above.</p>
F3.11	

Contractor

Witness 1

Witness 2

Employer

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LEPELLE-NKUMPI LOCAL MUNICIPALITY



CONTRACT NO. LNM019/2020/21

CONSTRUCTION OF GRADE A VTS(LEBOWAKGOMO) (WARD 18)

PART T1.3

Standard Conditions of Tender

Contractor

Witness 1

Witness 2

Employer

Witness 1

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Annex F

(Normative) Standard Conditions of Tender

- Note: 1 These Standard Conditions of Tender are identical to that contained In Annex F of SANS 294: 2004, *Construction Procurement Processes, Procedures and Methods*.
- 2 Annex E of SANS 294, *Construction Procurement Processes, Procedures and Methods*, and SAICE's Practice Manual #1, *The use of South African National Standards in Construction Procurement*, provide guidance on referencing these Standard Conditions of Tender in procurement documents.

F.1 General

F.1.1 Actions

The employer and each tenderer submitting a tender offer shall comply with these conditions of tender. In their dealings with each other, they shall discharge their duties and obligations as set out in F.2 and F.3, timeously and with integrity, and behave equitably, honestly and transparently.

F.1.2 Tender Documents

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

F.1.3 Interpretation

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

F.1.3.2 These conditions of tender, the tender data and tender schedules which are only required for tender evaluation purposes, shall not form part of any contract arising from the invitation to tender.

F.1.3.3 For the purposes of these conditions for the calling for expressions of interest, the following definitions apply:

a) Comparative offer means the tenderer's financial offer after the factors of non-firm prices, all unconditional discounts and any other tendered parameters that will affect the value of the financial offer have been taken into consideration

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

c) fraudulent practice means the misrepresentation of the facts in order to influence the tender process or the award of a contract arising from a tender offer to the detriment of the employer, including collusive practices intended to establish prices at artificial levels quality (functionality) means the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs

F.1.4 Communication and employer's agent

Each communication between the employer and a tenderer shall be to or from the employer's agent only, and in a form that can be read, copied and recorded. Writing shall be in the English language.

The employer shall not take any responsibility for non-receipt of communications from or by a tenderer. The name and contact details of the employer's agent are stated in the tender data.

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

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

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

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

F.2 Tenderer's obligations

F.2.1 Eligibility

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

F.2.2 Cost of tendering

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

F.2.3 Check documents

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

F.2.4 Confidentiality and copyright of documents

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

F.2.5 Reference documents

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

F.2.6 Acknowledge addenda

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

F.2.7 Clarification meeting

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

F.2.8 Seek clarification

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

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

F.2.9 Insurance

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

F.2.10 Pricing the tender offer

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

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

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

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

F.2.11 Alterations to documents

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

F.2.12 Alternative tender offers

F.2.12.1 Submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted. The alternative tender offer is to be submitted with the main tender offer together with a schedule that compares the requirements of the tender documents with the alternative requirements the tenderer proposes.

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

F.2.13 Submitting a tender offer

F.2.13.1 Submit a tender offer to provide the whole of the works, services or supply identified in the contract data and described in the scope of works, unless stated otherwise in the tender data.

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

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

F.2.13.4 Sign the original and all copies of the tender offer where required in terms of the tender data.

The employer will hold all authorized signatories liable on behalf of the tenderer. Signatories for tenderers proposing to contract as joint ventures shall state which of the signatories is the lead partner whom the employer shall hold liable for the purpose of the tender offer.

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

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

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

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

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

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

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

F.2.15 Closing time

F.2.15.1 Ensure that the employer receives the tender offer at the address specified in the tender data not later than the closing time stated in the tender data. Proof of posting shall not be accepted as proof of delivery. The employer shall not accept tender offers submitted by telegraph, telex, facsimile or e-mail, unless stated otherwise in the tender data.

F.2.15.2 Accept that, if the employer extends the closing time stated in the tender data for any reason, the requirements of these conditions of tender apply equally to the extended deadline.

F.2.16 Tender offer validity

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

F.2.16.2 If requested by the employer, consider extending the validity period stated in the tender data for an agreed additional period.

F.2.17 Clarification of tender offer after submission

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

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

F.2.18 Provide other material

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

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

may regard the tender offer as non-responsive.

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

F.2.19 Inspections, tests and analysis

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

F.2.20 Submit securities, bonds, policies, etc.

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

F.2.21 Check final draft

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

F.2.22 Return of other tender documents

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

F.2.23 Certificates

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

F.3 The employer's undertakings

F.3.1 Respond to clarification

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

F.3.2 Issue Addenda

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

F.3.3 Return late tender offers

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

F.3.4 Opening of tender submissions

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

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

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

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

F.3.5 Two-envelope system

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

F.3.5.2 Evaluate the quality of the technical proposals offered by tenderers, then advice tenderers who remain in contention for the award of the contract of the time and place when the financial proposals will be opened. Open only the financial proposals of tenderers, who score in the quality evaluation more than the minimum number of points for quality stated in the tender

data, and announce the score obtained for the technical proposals and the total price and any preferences claimed. Return unopened financial proposals to tenderers whose technical proposals failed to achieve the minimum number of points for quality.

F.3.6 Nondisclosure

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

F.3.7 Grounds for rejection and disqualification

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

F.3.8 Test for responsiveness

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

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

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

- a) Detrimently affect the scope, quality, or performance of the works, services or supply identified in the Scope of Work,
- b) Change the Employer's or the tenderer's risks and responsibilities under the contract, or
- c) Affect the competitive position of other tenderers presenting responsive tenders, if it were to be rectified. Reject a non-responsive tender offer, and not allow it to be subsequently made responsive by correction or withdrawal of the non-conforming deviation or reservation.

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

F.3.9 Arithmetical errors

F.3.9.1 Check responsive tender offers for arithmetical errors, correcting them in the following manner:

a) Where there is a discrepancy between the amounts in figures and in words, the amount in figures shall govern.

b) If bills of quantities (or schedule of quantities or schedule of rates) 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.

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

F.3.9.2 Consider the rejection of a tender offer if the tenderer does not correct or accept the correction of his arithmetical errors in the manner described in F.3.9.1.

F.3.10 Clarification of a tender offer

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

F.3.11 Evaluation of tender offers

F.3.11.1 General

Appoint an evaluation panel of not less than three persons. Reduce each responsive tender offer to a comparative offer and evaluate it using the tender evaluation method that is indicated in the Tender Data and described below:

Method 1 : Financial offer	1) Rank tender offers from the most favourable to the least favourable comparative offer. 2) Recommend highest ranked tenderer for the award of the contract, unless there are compelling and justifiable reasons not to do so.
Method 2 : Financial offer and preferences	1) Score tender evaluation points for financial offer. 2) Confirm that tenderers are eligible for the preferences claimed and if so, score tender evaluation points for preferencing. 3) Calculate total tender evaluation points. 4) Rank tender offers from the highest number of tender evaluation points to the lowest. [5) Recommend tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.
Method 3 : Financial offer and quality	1) Score quality, rejecting all tender offers that fail to score the minimum number of points for quality stated in the Tender data. 2) Score tender evaluation points for financial offer. 3) Calculate total tender evaluation points. 4) Rank tender offers from the highest number of tender evaluation points to the lowest. 5) Recommend tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.
Method 4 : Financial offer, quality and preferences	1) Score quality, rejecting all tender offers that fail to score the minimum number of points for quality stated in the Tender data. 2) Score tender evaluation points for financial offer. 3) Confirm that tenderers are eligible for the preferences claimed, and if so, score tender evaluation points for preferencing. 4) Calculate total tender evaluation points. 5) Rank tender offers from the highest number of tender evaluation points to the lowest. 6) Recommend tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.

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

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

F.3.11.2 Scoring Financial Offers

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

N_{FO}	= $W_1 \times A$ where:		
N_{FO}	= the number of tender evaluation points awarded for the financial offer.		
W_1	= the maximum possible number of tender evaluation points awarded for the financial offer as stated in the Tender Data.		
A	= a number calculated using either formulas 1 or 2 below as stated in the Tender Data.		
Formula	Comparison aimed at achieving	Option 1	Option 2
1	Highest price or discount	$A = (1 + \frac{(P - P_m)}{P_m})$	$A = P / P_m$
2	Lowest price or percentage commission/fee	$A = (1 - \frac{(P - P_m)}{P_m})$	$A = P_m / P$

Where:

P_m = the comparative offer of the most favourable tender offer.

P = the comparative offer of tender offer under consideration.

F.3.11.3 Scoring for B-BBEE

B-BBEE Status Level of Contributor	Number of points (90/10 system)	Number of points (80/20 system)
1	10	20
2	9	18
3	8	16
4	5	12
5	4	8
6	3	6
7	2	4
8	1	2
Non-compliant contributor	0	0

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

2. Functionality – Phase Two (100 points allocation)

The bidders who complied administratively are considered for further evaluation on ability to execute the project. The assessment of functionality will be done in terms of the evaluation criteria and minimum threshold as specified. A bid will be disqualified if it fails to meet the minimum threshold for functionality as per the bid invitation.

	Functionality	Points Allocation
	Company Experience (Certified copy of appointment letters & Completion certificates for Building project qualifies points) Each appointment letter accompanied by its completion certificate will carry 10 Point Total	Max 40
	Management and key Staff (Site Agent) Certified copy of Qualifications to be attached <ul style="list-style-type: none"> • Technical Certificate (N6 Civil Engineering) FET College 10 • Technical Diploma (N dip) University of Technology 15 • Degree (B-Tech, B Eng ,B sc Civil) University or University of Technology 20 • Professional registration ECSA/SACPMP (Pr. Techni, Pr CPM. Pr CM. Pr. Tech ,Pr. Eng 25 Total	Max 20
	Safety Officer: Certified copy of Qualifications to be attached <ul style="list-style-type: none"> • National Diploma In OHS 	Max 10
	Attached letter of intent from Registered financial institution with full details as guarantor in the amount of 10% as specified for surety purposes Total	Max 10
	Plant (attach certified copies of registration documents of plants or letter of intent to rent) NB. In terms of hiring of Plant, letter of intent to rent must be accompanied by certified copies of registration documents from the plant company. Required Plant: TLB 2 Water Tanker 2 Roller 2 Tipper Truck x2 (2 points each) 4 Grader 5 Excavator 5 Flat Bed Truck (Minimum 4 Ton)=5 points Total	Max 20
	Total Points Achievable	100
	Minimum Score required	60

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

F.3.12 Insurance provided by the employer

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

F.3.13 Acceptance of tender offer

F.3.13.1 Accept tender offer only if the tenderer complies with the legal requirements stated in the Tender Data.

F.3.13.2 Notify the successful tenderer of the employer's acceptance of his tender offer by completing and returning one copy of the form of offer and acceptance before the expiry of the validity period stated in the tender data, or agreed additional period. Providing the form of offer and acceptance does not contain any qualifying statements, it will constitute the formation of a contract between the employer and the successful tenderer as described in the form of offer and acceptance.

F.3.14 Notice to unsuccessful tenderers

After the successful tenderer has acknowledged the employer's notice Of acceptance, notify other tenderers that their tender offers have not been accepted.

F.3.15. Prepare 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,
- c) Other revisions agreed between the employer and the successful tenderer, and
- d) The schedule of deviations attached to the form of offer and acceptance, if any.

F.3.16 Issue final contract

Prepare and issue the final draft of contract documents to the successful tenderer for acceptance as soon as possible after the date of the employer's signing of the form of Offer and acceptance (including the schedule of deviations, if any). Only those documents that the conditions of tender require the tenderer to submit, after acceptance by the employer, shall be included.

F.3.17 Complete adjudicator's contract

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

F.3.18 Provide copies of the contracts

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

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

LEPELLE-NKUMPI LOCAL MUNICIPALITY



CONTRACT NO. LNM019/2020/21

CONSTRUCTION OF GRADE A VTS(LEBOWAKGOMO) (WARD 18)

PART T2

LIST OF RETURNABLE DOCUMENTS

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Contractor

Witness 1

Witness 2

Employer

Witness 1

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RETURNABLE DOCUMENTS

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Section	Description	Page No
PART T2.1	LIST OF RETURNABLE DOCUMENTS AND RETURNABLE SCHEDULEST2.1-1	

END OF SECTION

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Employer

Witness 1

Witness 2

PART T2.1

LIST OF RETURNABLE DOCUMENTS AND RETURNABLE SCHEDULES

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

LEPELLE-NKUMPI LOCAL MUNICIPALITY



CONTRACT NO. LNM019/2020/21

CONSTRUCTION OF GRADE A VTS(LEBOWAKGOMO) (WARD 18)

T2.2 RETURNABLE DOCUMENTS

RETURNABLE DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

T2.1-2

FORM A COMPULSORY ENTERPRISE QUESTIONNAIRE

In the case of a Joint Venture – This questionnaire is to be completed and submitted in respect of each partner.

1. **Name of Enterprise:**
2. **VAT Registration number, if any:**.....
3. **CIDB Registration number:**
4. **Particulars of sole proprietors and partners in partnership:**

Name	Identity Number	Personal Income Tax Number

* Complete only if sole proprietor or partnership and attach separate page if more than 4 partners.

5. Particulars of companies and close corporations:

Company Registration Number:

Close Corporation Number :

Tax reference Number :

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

6. Record in the service of the state:

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

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

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

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

Name of Tenderer :

Date :

Signature :

Position :

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

Full name of signatory :

ATTACH THE FOLLOWING DOCUMENTS HERETO

1. For Closed Corporations

CK1 or CK2 as applicable (Founding Statement)

2. For Companies

Shareholders register

3. For Joint Venture Agreements

Copy of the Joint Venture Agreement between all the parties, as well as the documents in (1) or (2) of each Joint Venture member.

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

FORM B RECORD OF ADDENDA TO TENDER DOCUMENTS

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

	Date	Title of Details

Name of Tenderer :

Date :

Signature :

Position :

Full name of signatory :

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

PRO-FORMA FOR JOINT VENTURES:

Certificate of Authority for Joint Ventures

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

NAME OF FIRM	ADDRESS	DULY AUTHORISED SIGNATORY
Lead Partner: CIDB Reg No:		Signature: Name: Designation:
 CIDB Reg No:		Signature: Name: Designation:
 CIDB Reg No:		Signature: Name: Designation:
 CIDB Reg No:		Signature: Name: Designation:
 CIDB Reg No:		Signature: Name: Designation:

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

**ATTACH HERETO THE DULY SIGNED AND DATED
ORIGINAL OR CERTIFIED COPY OF AUTHORITY OF
SIGNATORY ON COMPANY LETTERHEAD**

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

T2.1-8

FORM E SCHEDULE OF PREVIOUS EXPERIENCE

Provide the following information on relevant previous experience (indicate specifically projects of similar or larger size and/or which is similar with regard to type of work. **This information is material to the award of the Contract.**

Description	Value (R) VAT excluded	Year(s) work executed	Reference		
			Name	Organisation	Tel no

Name of Tenderer :

Date :

Signature :

Position :

Full name of signatory :

FORM F SCHEDULE OF CURRENT PROJECTS

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

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

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

Name of Tenderer :

Date :

Signature :

Position :

Full name of signatory :

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

FORM I PROPOSED KEY PERSONNEL

Please list the personnel that you intend to appoint on this contract.

DESCRIPTION	<u>Name</u> of Full time member	Staff to be appointed on this contract	
		No of Full Time employment	No of Part Time employment
Contract Manager			
Site Agent			
Clerk			
Foreman			
Material			
Surveyor			
Operators			
Supervisor			
Labourers			
Other			
1.			
2.			

Name of Tenderer :

Date :

Signature :

Position :

Full name of signatory :

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

FORM J SCHEDULE OF PLANT AND EQUIPMENT

1. TRENCH EXCAVATION	NUMBER OF UNITS OWNED BY CONTRACTOR	NUMBER OF UNITS ALLOCATED TO THIS CONTRACT	
		OWNED	HIRED
2. EARTH MOVING EQUIPMENT			
3. CONSTRUCTION EQUIPMENT			
4. TRANSPORT			

Name of Tenderer :

Date :

Signature :

Position :

Full name of signatory :

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

FORM K SCHEDULE OF PROPOSED SUB-CONTRACTORS

NAME OF SUB-CONTRACTOR	FULL DESCRIPTION OF WORK TO BE PERFORMED BY SUB-CONTRACTOR

Name of Tenderer :

Date :

Signature :

Position :

Full name of signatory :

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

FORM L FINANCIAL REFERENCES

FINANCIAL STATEMENTS

I/We agree, if required, to furnish an audited copy of the latest set of financial statements together with my/our Directors' and Auditors' report for consideration by the Client.

DETAILS OF TENDERERS BANKING INFORMATION

I/We hereby authorise the Client/Engineer to approach all or any of the following banks for the purposes of obtaining a financial reference: you are also required to attach a financial reference letter stating bank rating from your financial institution,

BANK NAME										
ACCOUNT NAME : (e.g. ABC Civil Construction cc)										
ACCOUNT TYPE : (e.g. Savings, Cheque etc)										
ACCOUNT NO										
ADDRESS OF BANK										
CONTACT PERSON										
TEL. NO. OF BANK / CONTACT										
How long has this account been in existence:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">0-6 months</td> <td style="width: 10%; text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>7-12 months</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>13-24 months</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>More than 24 months</td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> </table>	0-6 months	<input type="checkbox"/>	7-12 months	<input type="checkbox"/>	13-24 months	<input type="checkbox"/>	More than 24 months	<input type="checkbox"/>	(Tick which is appropriate)
0-6 months	<input type="checkbox"/>									
7-12 months	<input type="checkbox"/>									
13-24 months	<input type="checkbox"/>									
More than 24 months	<input type="checkbox"/>									

Name of Tenderer :

Date :

Signature :

Position :

Full name of signatory :

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

FORM N MBD 4

MBD 4

DECLARATION OF INTEREST

1. Any legal person, including persons employed by the state¹, or persons having a kinship with persons employed by the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid (includes an advertised competitive bid, a limited bid, a proposal or written price quotation). In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons employed by the state, or to persons connected with or related to them, it is required that the bidder or his/her authorised representative declare his/her position in relation to the evaluating/adjudicating authority where-

- the bidder is employed by the state; and/or
- the legal person on whose behalf the bidding document is signed, has a relationship with persons/a person who are/is involved in the evaluation and or adjudication of the bid(s), or where it is known that such a relationship exists between the person or persons for or on whose behalf the declarant acts and persons who are involved with the evaluation and or adjudication of the bid.

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

2.1 Full Name of bidder or his or her representative:

2.2 Identity Number:.....

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

2.4 Registration number of company, enterprise, close corporation, partnership agreement or trust:
.....

2.5 Tax Reference Number:

2.6 VAT Registration Number:

2.6.1 The names of all directors / trustees / shareholders / members, their individual identity numbers, tax reference numbers and, if applicable, employee / PERSAL numbers must be indicated in paragraph 3 below.

¹"State" means –

- (a) any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No. 1 of 1999);
- (b) any municipality or municipal entity;
- (c) provincial legislature;
- (d) national Assembly or the national Council of provinces; or
- (e) Parliament.

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

²"Shareholder" means a person who owns shares in the company and is actively involved in the management of the enterprise or business and exercises control over the enterprise.

2.7 Are you or any person connected with the bidder presently employed by the state? **YES / NO**

2.7.1 If so, furnish the following particulars:

Name of person / director / trustee / shareholder/ member:
Name of state institution at which you or the person connected to the bidder is employed :
Position occupied in the state institution:

Any other particulars:

.....
.....
.....

2.7.2 If you are presently employed by the state, did you obtain the appropriate authority to undertake remunerative work outside employment in the public sector? **YES / NO**

2.7.2.1 If yes, did you attach proof of such authority to the bid document? **YES / NO**

(Note: Failure to submit proof of such authority, where applicable, may result in the disqualification of the bid.

2.7.2.2 If no, furnish reasons for non-submission of such proof:

.....
.....
.....

2.8 Did you or your spouse, or any of the company's directors / trustees / shareholders / members or their spouses conduct business with the state in the previous twelve months? **YES / NO**

2.8.1 If so, furnish particulars:

.....
.....
.....

2.9 Do you, or any person connected with the bidder, have any relationship (family, friend, other) with a person employed by the state and who may be involved with the evaluation and or adjudication of this bid? **YES / NO**

2.9.1 If so, furnish particulars.

.....

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

.....
 2.10 Are you, or any person connected with the bidder, **YES/NO**
 aware of any relationship (family, friend, other) between
 any other bidder and any person employed by the state
 who may be involved with the evaluation and or adjudication
 of this bid?

2.10.1 If so, furnish particulars.

2.11 Do you or any of the directors / trustees / shareholders / members **YES/NO**
 of the company have any interest in any other related companies
 whether or not they are bidding for this contract?

2.11.1 If so, furnish particulars:

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

Full Name	Identity Number	Personal Income Tax Reference Number	State Number Number	Employee / Persal

4 DECLARATION

I, THE UNDERSIGNED (NAME).....

CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 2 and 3 ABOVE IS CORRECT.
 I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME SHOULD THIS
 DECLARATION PROVE TO BE FALSE.

.....
 Signature

.....
 Date

.....
 Contractor

.....
 Witness 1

.....
 Witness 2

.....
 Employer

.....
 Witness 1

.....
 Witness 2

.....
Position

.....
Name of bidder

MBD 5

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

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

- 1 Are you by law required to prepare annual financial statements for auditing? *YES/NO
- 1.1 If yes, submit audited annual financial statements for the past three years or since the date of establishment if established during the past three years.

.....
.....

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

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

- 2.2 If yes, provide particulars.

.....
.....

* Delete if not applicable

- 3.Has any contract been awarded to you by an organ of state during the past five years, including particulars of any material non-compliance or dispute concerning the execution of such contract?

*YES/NO

- 3.1 If yes, furnish particulars

.....
.....
.....

4. Will any portion of goods or services be sourced from outside the Republic, and, if so, what portion and whether any portion of payment from the municipality / municipal entity is expected to be transferred out of the Republic?

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

*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

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

MBD 6.1

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

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

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

1. GENERAL CONDITIONS

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

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

1.2

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

1.3 Points for this bid shall be awarded for:

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

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

	POINTS
PRICE	80
B-BBEE STATUS LEVEL OF CONTRIBUTOR	20
Total points for Price and B-BBEE must not exceed	100

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

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

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

2. DEFINITIONS

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

3. POINTS AWARDED FOR PRICE

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

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

80/20

or

90/10

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

Where

P_s = Points scored for price of bid under consideration

P_t = Price of bid under consideration

P_{\min} = Price of lowest acceptable bid

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

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

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

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

5. BID DECLARATION

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

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

- 6.1 B-BBEE Status Level of Contributor: . =(maximum of 10 or 20 points)
(Points claimed in respect of paragraph 7.1 must be in accordance with the table reflected in paragraph 4.1 and must be substantiated by relevant proof of B-BBEE status level of contributor.

7. SUB-CONTRACTING

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

(*Tick applicable box*)

YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
-----	--------------------------	----	--------------------------

- 7.1.1 If yes, indicate:

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

(*Tick applicable box*)

YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
-----	--------------------------	----	--------------------------

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

--

Contractor

--

Witness 1

--

Witness 2

--

Employer

--

Witness 1

--

Witness 2

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

8. DECLARATION WITH REGARD TO COMPANY/FIRM

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

8.2 VAT registration number:.....

8.3 Company registration number:.....

8.4 TYPE OF COMPANY/ FIRM

- ☐ Partnership/Joint Venture / Consortium
- ☐ One person business/sole propriety
- ☐ Close corporation
- ☐ Company
- ☐ (Pty) Limited

[TICK APPLICABLE BOX]

8.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

.....
.....
.....
.....

8.6 COMPANY CLASSIFICATION

- ☐ Manufacturer
- ☐ Supplier
- ☐ Professional service provider
- ☐ Other service providers, e.g. transporter, etc.

[TICK APPLICABLE BOX]

8.7 MUNICIPAL INFORMATION

Municipality where business is situated:

Registered Account Number:

Stand Number:.....

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

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

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

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 6.1, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;
- iv) If the B-BBEE status level of contributor has been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have –
 - (a) disqualify the person from the bidding process;
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
 - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
 - (d) recommend that the bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted by the National Treasury from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and
 - (e) forward the matter for criminal prosecution.

<p>WITNESSES</p> <p>1.</p> <p>2.</p>

<p>.....</p> <p>SIGNATURE(S) OF BIDDERS(S)</p>
<p>DATE:</p> <p>ADDRESS</p> <p>.....</p> <p>.....</p>

Contractor	Witness 1	Witness 2	Employer	Witness 1	Witness 2

DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT

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

Before completing this declaration, bidders must study the General Conditions, Definitions, Directives applicable in respect of Local Content as prescribed in the Preferential Procurement Regulations, 2011 and the South African Bureau of Standards (SABS) approved technical specification number SATS 1286:201x.

1. General Conditions

1.1. Preferential Procurement Regulations, 2011 (Regulation 9.(1) and 9.(3) make provision for the promotion of local production and content.

1.2. Regulation 9.(1) prescribes that in the case of designated sectors, where in the award of bids local production and content is of critical importance, such bids must be advertised with the specific bidding condition that only locally produced goods, services or works or locally manufactured goods, with a stipulated minimum threshold for local production and content will be considered.

1.3. Regulation 9.(3) prescribes that where there is no designated sector, a specific bidding condition may be included, that only locally produced services, works or goods or locally manufactured goods with a stipulated minimum threshold for local production and content, will be considered.

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

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

1.6. The local content (LC) as a percentage of the bid price must be calculated in accordance with the SABS approved technical specification number SATS 1286: 201x as follows:

$$LC = 1 - \left(\frac{x}{y} \right) \times 100$$

Where

x imported content

y bid price excluding value added tax (VAT)

Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by the South African Reserve Bank (SARB) at 12:00 on the date, one week (7 calendar days) prior to the closing date of the bid as required in paragraph 4.1 below.

1.7. A bid will be disqualified if:

- the bidder fails to achieve the stipulated minimum threshold for local production and content indicated in paragraph 3 below; and.

--	--	--	--	--	--

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

- this declaration certificate is not submitted as part of the bid documentation.

2. Definitions

- 2.1. **“bid”** includes advertised competitive bids, written price quotations or proposals;
- 2.2. **“bid price”** price offered by the bidder, excluding value added tax (VAT);
- 2.3. **“contract”** means the agreement that results from the acceptance of a bid by an organ of state;
- 2.4. **“designated sector”** means a sector, sub-sector or industry that has been designated by the Department of Trade and Industry in line with national development and industrial policies for local production, where only locally produced services, works or goods or locally manufactured goods meet the stipulated minimum threshold for local production and content;
- 2.5. **“duly sign”** means a Declaration Certificate for Local Content that has been signed by the Chief Financial Officer or other legally responsible person nominated in writing by the Chief Executive, or senior member / person with management responsibility (close corporation, partnership or individual).
- 2.6. **“imported content”** means that portion of the bid price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or its subcontractors) and which costs are inclusive of the costs abroad, plus freight and other direct importation costs, such as landing costs, dock duties, import duty, sales duty or other similar tax or duty at the South African port of entry;
- 2.7. **“local content”** means that portion of the bid price which is not included in the imported content, provided that local manufacture does take place;
- 2.8. **“stipulated minimum threshold”** means that portion of local production and content as determined by the Department of Trade and Industry; and
- 2.9. **“Sub-contract”** means the primary contractor’s assigning, leasing, making out work to, or employing another person to support such primary contractor in the execution of part of a project in terms of the contract.

3. The stipulated minimum threshold(s) for local production and content for this bid is/are as follows:

<u>Description of services, works or goods</u>	<u>Stipulated minimum threshold</u>
___Electrical cables_____	90%
___Valves Products and Actuators_____	90%
___Steel Products and components of Construction_____	100%
___Plastic Pipes and fittings_____	100%

4. Does any portion of the services, works or goods offered have any imported content?

YES / NO

- 4.1 If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.6 of the general conditions must be the rate(s) published by the

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

SARB for the specific currency at 12:00 on the date, one week (7 calendar days) prior to the closing date of the bid.

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

Indicate the rate(s) of exchange against the appropriate currency in the table below:

Currency	Rates of exchange
US Dollar	
Pound Sterling	
Euro	
Yen	
Other	

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

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

IN RESPECT OF BID No.
ISSUED BY: (Procurement Authority / Name of Municipality / Municipal Entity):

NB The obligation to complete, duly sign and submit this declaration cannot be transferred to an external authorized representative, auditor or any other third party acting on behalf of the bidder.

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

- (a) The facts contained herein are within my own personal knowledge.
- (b) I have satisfied myself that the goods/services/works to be delivered in terms of the above-specified bid comply with the minimum local content requirements as specified in the bid, and as measured in terms of SATS 1286.
- (c) The local content has been calculated using the formula given in clause 3 of SATS 1286, the rates of exchange indicated in paragraph 4.1 above and the following figures:

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

If the bid is for more than one product, a schedule of the local content by product shall be attached.

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

(d) I accept that the Procurement Authority / Municipality /Municipal Entity has the right to request that the local content be verified in terms of the requirements of SATS 1286.

(e) I understand that the awarding of the bid is dependent on the accuracy of the information furnished in this application. I also understand that the submission of incorrect data, or data that are not verifiable as described in SATS 1286, may result in the Procurement Authority / Municipal / Municipal Entity imposing any or all of the remedies as provided for in Regulation 13 of the Preferential Procurement Regulations, 2011 promulgated under the Policy Framework Act (PPPFA), 2000 (Act No. 5 of 2000).

SIGNATURE: _____

DATE: _____

WITNESS No. 1 _____

DATE: _____

WITNESS No. 2 _____

DATE: _____

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

CONTRACT FORM - RENDERING OF SERVICES

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

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

1. I hereby undertake to render services described in the attached bidding documents to (name of the institution)..... in accordance with the requirements and task directives / proposals specifications stipulated in Bid Number..... at the price/s quoted. My offer/s remain binding upon me and open for acceptance by the Purchaser during the validity period indicated and calculated from the closing date of the bid.
2. The following documents shall be deemed to form and be read and construed as part of this agreement:
 - (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 2011;
 - Declaration of interest;
 - Declaration of Bidder's past SCM practices;
 - Certificate of Independent Bid Determination;
 - Special Conditions of Contract;
 - (ii) General Conditions of Contract; and
 - (iii) Other (specify)
3. I confirm that I have satisfied myself as to the correctness and validity of my bid; that the price(s) and rate(s) quoted cover all the 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

WITNESSES

1

2

DATE:

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

DATE

MBD 7.2

CONTRACT FORM - RENDERING OF SERVICES

PART 2 (TO BE FILLED IN BY THE PURCHASER)

1. I.....in my capacity asaccept your bid under reference numberdated.....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.

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

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

SIGNED AT ON

NAME (PRINT)

SIGNATURE



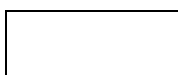
OFFICIAL STAMP

WITNESSES

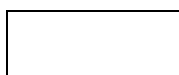
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2

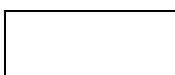
DATE:



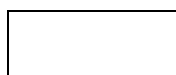
Contractor



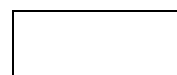
Witness 1



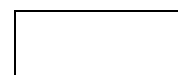
Witness 2



Employer



Witness 1



Witness 2

DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

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

Item	Question	Yes	No
	<p>Is the bidder or any of its directors listed on the National Treasury's Database of Restricted Suppliers as companies or persons prohibited from doing business with the public sector?</p> <p>(Companies or persons who are listed on this Database were informed in writing of this restriction by the Accounting Officer/Authority of the institution that imposed the restriction after the <i>audi alteram partem</i> rule was applied).</p> <p>The Database of Restricted Suppliers now resides on the National Treasury's website(www.treasury.gov.za) and can be accessed by clicking on its link at the bottom of the home page.</p>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.1.1	If so, furnish particulars: <div style="border: 1px solid black; height: 100px; margin-top: 5px;"></div>		

 Contractor

 Witness 1

 Witness 2

 Employer

 Witness 1

 Witness 2

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 <input type="checkbox"/>	No <input type="checkbox"/>
4.2.1	If so, furnish particulars:		
4.3	Was the bidder or any of its directors convicted by a court of law (including a court of law outside the Republic of South Africa) for fraud or corruption during the past five years?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.3.1	If so, furnish particulars:		
Item	Question	Yes	No
4.4	Does the bidder or any of its directors owe any municipal rates and taxes or municipal charges to the municipality / municipal entity, or to any other municipality / municipal entity, that is in arrears for more than three months?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.4.1	If so, furnish particulars:		
4.5	Was any contract between the bidder and the municipality / municipal entity or any other organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.7.1	If so, furnish particulars:		

CERTIFICATION

**I, THE UNDERSIGNED (FULL NAME)CERTIFY THAT
THE INFORMATION FURNISHED ON THIS
DECLARATION FORM 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

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

MBD 9

CERTIFICATE OF INDEPENDENT BID DETERMINATION

- 1 This Municipal Bidding Document (MBD) must form part of all bids¹ invited.
- 2 Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging).² Collusive bidding is a *pe se* prohibition meaning that it cannot be justified under any grounds.
- 3 Municipal Supply Regulation 38 (1) prescribes that a supply chain management policy must provide measures for the combating of abuse of the supply chain management system, and must enable the accounting officer, among others, to:
 - a. take all reasonable steps to prevent such abuse;
 - b. reject the bid of any bidder if that bidder or any of its directors has abused the supply chain management system of the municipality or municipal entity or has committed any improper conduct in relation to such system; and
 - c. cancel a contract awarded to a person if the person committed any corrupt or fraudulent act during the bidding process or the execution of the contract.
- 4 This MBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging.
- 5 In order to give effect to the above, the attached Certificate of Bid Determination (MBD 9) must be completed and submitted with the bid:

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

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

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Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

(Bid Number and Description)

in response to the invitation for the bid made by:

(Name of Municipality / Municipal Entity)

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

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

1. I have read and I understand the contents of this Certificate;
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign, the bid, on behalf of the bidder;
5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:
 - (a) has been requested to submit a bid in response to this bid invitation;
 - (b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
 - (c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

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

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

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

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

LEPELLE-NKUMPI LOCAL MUNICIPALITY



CONTRACT NO. LNM019/2020/21

C. THE CONTRACT

Part C1: Agreements and Contract Data

C1.1 Form of Offer and Acceptance

C1.2 Contract Data

END OF SECTION

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

PART C1.1

Form of Offer and Acceptance

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

C1.1 FORM OF OFFER AND ACCEPTANCE

OFFER

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

.....

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

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

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

.....

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

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

Signature(s) _____

Name(s) _____

Capacity _____

For the tenderer _____

(Name and address of organisation)

Name & Signature of Witness

Name

Date

Contractor

Witness 1

Witness 2

Employer

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 1 Agreements and Contract Data (which includes this Agreement)

Part 2 Pricing Data

Part 3 Scope of Work

Part 4 Site information

and drawings and documents or parts thereof, which may be incorporated by reference into Parts 1 to 4 above.

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

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

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

Signature(s) _____

Name(s) _____

Capacity _____

For the tenderer _____

(Name and address of organisation)

Name & Signature of Witness

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

LEPELLE-NKUMPI LOCAL MUNICIPALITY



CONTRACT NO. LNM019/2020/21

CONSTRUCTION OF GRADE A VTS(LEBOWAKGOMO) (WARD 18)

PART C1.2

Contract Data

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

C1.2 CONTRACT DATA

PART 1: DATA PROVIDED BY THE EMPLOYER

CONDITIONS OF CONTRACT

The Conditions of Contract are the *General Conditions of Contract for Construction Works (2010) 2ND Edition*, published by the South African Institution of Civil Engineering. Private Bag x200, Halfway House, 1685. Is applicable to this contract and is obtainable from www.saice.org.za.

The following contract specific data, referring to the General Condition of Contract for Construction Works, Second Edition, 2010, are applicable to this contract:.

PART 1: Data provided by the Employer

Clause	Data
1.1.1.1.13	The Defects Liability Period is 12 months.
1.1.1.1.15	The Name of the Employer is Lepelle-Nkumpi Local Municipality
1.1.1.1.26	Pricing Strategy is fixed Contract .
1.2.1.2	The address of the Employer is: Private Bag x07 CHUENESPOORT, 0745 Telephone: 015 633 4500 Facsimile: 015 633 6896
1.1.1.16 1.2.1.2	The address of the Employer is: Private Bag x07 CHUENESPOORT, 0745 Telephone: 015 633 4500 Facsimile: 015 633 6896
5.3.1	The documentations required before commencement with works execution are: Healthy and Safety Plan (Ref to Clause 4.3) Initial Programme (Ref to Clause 5.6) Security/Gurantee (Ref to Clause 6.2) Insurance (Ref to Clause 8.6) 25% local SMMES breakdown plan And other requirements
5.3.2	The time to submit documentation required before commencement with works execution is 14 days.
5.8.1	The non-working days are Sundays and the special non-working days are official

 Contractor

 Witness 1

 Witness 2

 Employer

 Witness 1

 Witness 2

	builder's holiday plus all statutory public holidays. The year-end break commences on 15 th December and the first Monday of the subsequent year.
5.13.1	The penalty for failing to complete the works is 0.05% of the total contract value per calendar day.
6.2	The Form of Guarantee is to contain the wording of the proforma document included in the General Conditions of Contract (Pro-forma included in section C1.3 to this document).
6.2	The liability of the guarantee shall be 10 % .
6.5.1.2.3	The percentage allowance to cover overhead charges is 14%
6.10.1.5	The percentage advance on materials not yet built into the Permanent Works is 80 % .
6.10.3	The limit of retention money is 10 % of the contract value.
8.6.1.1.2	The value of the 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 indemnity for liability insurance shall be applicable.
	The Works shall be completed within Six (06) Months.
5.12.2.2	<p>The additional clauses to the General Conditions of Contract are:</p> <p>Extensions of time in respect of clause 42 in respect of abnormal rainfall shall be calculated using the following formula for each calendar month or part thereof:</p> $V = (Nw - Nn) + \frac{(Rw - Rn)}{X}$ <p>Where:</p> <p>V = Extension of time in calendar days in respect of the calendar month under consideration.</p> <p>Nw = Actual number of days during the calendar month on which a rainfall of 10 mm or more has been recorded.</p> <p>Nn = Average number of days in the relevant calendar month , as derived from existing rainfall records, on which a rainfall of 20mm or more has been recorded for the calendar month.</p> <p>Rw = Actual average rainfall in mm recorded for the calendar month under consideration.</p> <p>Rn = Average rainfall in mm for the calendar month as derived from existing rainfall records as stated in the Site Information.</p> <p>For purposes of the Contract Nn, Rn, X and Y shall have those values assigned to them in the South African Weather Service's rainfall records of the nearest station to the site.</p>

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

	<p>If V is negative and its absolute value exceeds Nn, then V shall be taken as equal to minus Nn.</p> <p>The total extension of time shall be the algebraic sum of all monthly totals for the period under consideration, but if the total is negative the time for completion shall not be reduced due to subnormal rainfall. Extensions of time for part of a month shall be calculated using pro rata values of Nn and Rn.</p> <p>This formula does not take account flood damage which could cause further or concurrent delays and will be treated separately as far as extension of time is concerned.</p> <p>The factor (Nw – Nn) shall be considered to represent a fair allowance for variations from the average in the number of days during which rainfall exceeds 10 mm. The factor (Rw-Rn) shall be considered to represent a fair allowance for variations from the average in the number of days during which the rainfall did not exceed 10 mm but wet conditions prevented or disrupted work.</p> <p>For the purpose of applying the formula, accurate rain gauging shall be taken at a suitable point on the Site and the Contractor shall at his own expense, take all necessary precautions to ensure that rain gauges cannot be interfered with by unauthorized persons.</p>
5.12.2.2	<p>A delay caused by inclement weather conditions will be regarded as a delay only if, in the opinion of the Engineer, all progress on an item or items of work on the critical path of the working programme of the contractor has been brought to a halt. Delays on working days only (based on a five-day working week) will be taken into account for the extension of time, but the Contractor shall make provision in his programme of work for an expected delay of "n" working days caused by normal rainy weather, for which he will not receive any extension of time, where "n" equals days. Extension of time during working days will be granted to the degree to which actual delays, as defined above, exceed the number of "n" workings days.</p>

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

PART 1: DATA PROVIDED BY THE CONTRACTOR

The Contractor is advised to read the *General Conditions of Contract for Construction Works (2010)*^{2nd Edition}, published by the South African Institution of Civil Engineering, in order to understand the implications of this Data which is required to be completed.

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

Clause	Data
1.1.1.9	The Contractor is:
	Name:
1.2.1.2	The Address of the Contractor is:
	Address (physical):
	Address (postal):
	Telephone: Facsimile:
	E-mail:
6.5.1.2.3	The percentage allowance to cover overhead charges is 14%.
	The Works are to be completed within ,,,,,,,,,,,,,,weeks.

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

LEPELLE-NKUMPI LOCAL MUNICIPALITY



CONTRACT NO. LNM019/2020/21

CONSTRUCTION OF GRADE A VTS(LEBOWAKGOMO) (WARD 18)

PART C2

Pricing Data

--	--	--	--	--	--

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

PART C2: PRICING DATA

CONTENTS

	PAGE
C2.1 Pricing Instructions	C2.1-1
C2.2 Bill of Quantities	C2.2-1
C2.3 Banking Details	C2.4-1

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

PART C2.1

Pricing Instruction

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

PRICING INSTRUCTIONS

1. The General Conditions of Contract, the Contract Data, Standard Specifications For Roads and Bridge Works for State Road Authorities (including the Project Specifications) and the Drawings shall be read in conjunction with the Bill of Quantities.
2.
 - a. The Schedule comprises items covering the Contractor's profit and costs of general liabilities and of the construction of temporary and permanent Works.
 - b. Although the Tenderer is at liberty to insert a rate of his own choosing for each item in the Schedule, his attention is drawn to the fact that the Contractor has the right, under various circumstances, to payment for additional works carried out and that the Engineer is obliged to base his assessment of the payment to be paid for such additional work on the rates inserted in the Schedule by the Contractor.
 - c. Clause 8 of each Standardized Specification and the measurement and payment clause of each Particular Specification, read together with the relevant clause of the Project Specification, set out what ancillary or associated activities are included in the rate for the operations specified.
3. Descriptions in the Schedule of Quantities are abbreviated. The schedule has been drawn up generally in accordance with the "Standard Specifications for Roads and Bridge Works for State Road Authorities, 1998 Edition". Should any requirement of the measurement and payment clause of the applicable Standardized Specification, or the Project Specification, or the Particular Specification(s) conflict with the terms of the Schedule or, when relevant "Standard Specifications for Roads and Bridge Works for State Road Authorities, 1998 Edition", the requirement of the Standardized, Project or Particular Specification, as applicable, shall prevail.
4. Unless otherwise stated, items are measured net in accordance with the Drawings, and no allowance has been made for waste.
5. The prices and rates to be inserted in the Schedule of Quantities are to be the full inclusive prices to the Employer for the work described under the several items. The prices and rates shall be exclusive of Value Added Tax. Such prices shall cover all costs and expenses that may be required in and for the construction of the work described, and shall cover the cost of all general risks, liabilities, and obligations set forth or implied in the documents on which the tender is based.
6. A price or rate is to be entered, in **BLACK INK**, against each item in the Schedule of Quantities.
7. In the event of the Tenderer failing to price any item it will be held that the Tenderer has made adequate allowance under other items for all labour, material and costs required for the execution, not only of the quantum of work covered by the unpriced item but also for any increase in the said quantum which may have to be undertaken during the course of the Contract.

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

8. The quantities set out in the schedule of quantities are only approximate quantities. The quantities of work finally accepted and certified for payment, and not the quantities given in the schedule of quantities, will be used to determine payments to the contractor.
9. An amount or rate shall be entered against each item in the Bill of Quantities, whether or not quantities are stated. An item against which no amount or rate is entered will be considered to be covered by the other amounts or rates in the Bill.
10. The Bidder shall also fill in a rate against the items where the words "rate only" appear in the amount column. Although no work is foreseen under these items and no quantities are consequently given in the quantity column, the bid rates shall apply should work under these items actually be required.
11. Should the Bidder group a number of items together and bid one sum for such group of items, the single bid 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.
12. **The bid rates, prices and sums shall, subject only to the provisions of the Conditions of Contract, remain valid irrespective of any change in the quantities during the execution of the Contract.**
13. The quantities of work as measured and accepted and certified for payment in accordance with the Conditions of Contract, and not the quantities stated in the Bill of Quantities, will be used to determine payments to the Contractor. The validity of the Contract shall in no way be affected by differences between the quantities in the Bill of Quantities and the quantities certified for payment.

Ordering of materials are not to be based on the Bill of Quantities, but only on information issued for construction purposes.

14. For the purposes of this Bill 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 Standardized, Project or Particular Specifications
Quantity	:	The number of units of work for each item
Rate	:	The payment per unit of work at which the Bidder bids to do the work
Amount	:	The quantity of an item multiplied by the bid rate of the (same) item
Sum	:	An amount bid for an item, the extent of which is described in the Bill of Quantities, the Specifications or elsewhere, but of which the quantity of work is not measured in units

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

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

mm = millimetre
m = metre
km = kilometre
km-pass = kilometre-pass
m² = square metre
m²-pass = square metre-pass
ha = hectare
m³ = cubic metre
m³-km = cubic metre-kilometre
kW = kilowatt
kN = kilonewton
kg = kilogram
t = ton (1 000 kg)
% = per cent
MN = meganewton
MN-m = meganewton-metre
PC Sum = Prime Cost Sum
Prov Sum = Provisional Sum

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

PART C2.2

BILL OF QUANTITIES

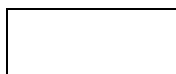
TENDER NO: LNM019/2020/21



Contractor



Witness 1



Witness 2



Employer



Witness 1



Witness 2

LEPELLE-NKUMPI LOCAL MUNICIPALITY



CONTRACT NO. LNM019/2020/21

THE CONSTRUCTION OF GRADE A VTS(LEBOWAKGOMO) (WARD 18)

PART C3.1 Description of Works

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

C3.1 DESCRIPTION OF THE WORKS

C3.1.1 MISCELLANEOUS

The Project Specifications form an integral part of the Contract Documents and supplement the Standard Specifications.

In the event of any discrepancy with a part or parts of the Standard Specifications, the Schedule of Quantities or the drawings, the Particular or Project Specifications shall take precedence.

The Standard Specifications, which form part of this contract, have been written to cover all phases of work normally required for building contracts, and they may therefore cover items not applicable to this particular contract.

C3.1.2 THE SITE

The project comprises the **Construction of grade A VTS(Lebowakgomo) (Ward 18)**

The description of the project as described in this section is merely an outline of the contract works and shall not be regarded as limiting to the amount of work to be done by the Contractor under this contract.

The brief scope of work is as follows:

- Site clearance
- 780m² wall plate (Brick wall), plastering, painting and floor tiling, IBR Roofing
- Supply and installation of uPVC pipes complete with fittings and valve for water connection to the building
- Supply and installation electricity supply to the entire building
- Reinforced concrete spread footing foundation, reinforced concrete columns and fabrication of roof steel trusses
- The project shall include Electrical Work (Cabling and tubing)
- Mechanical for vehicle servicing
- Installation and connection of water sewerage system
- Paving using 80mm grey interlocking paving bricks

Dealing with existing services including water pipes, electrical and Telkom cables and existing sewer lines form part of the works.

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

No housing is available for the Contractor's employees and the Contractor shall make his own arrangements for housing his employees or transporting them to and from the site. The Contractor is in all respects responsible for the housing and transporting of his employees and for the arrangement thereof, and no extension of time due to any delays resulting from this will be granted.

No housing is required for the Engineer. Other facilities such as an office, telephone, name board, survey equipment, and any relevant services required for the Engineer are described under the relevant sections.

The tenderers are to tender for the road by completing all the bills of quantities. A valid bid shall be a completed bill of quantities with a total after VAT, corresponding with the amount recorded in the offer of acceptance.

C3.1.2.5 CIDB Rating

The tender notice calls for a minimum CIDB grading of **6GB or Higher**. A bid with a CIDB rating not complying with what is specified shall be regarded as non-responsive.

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2



CONTRACT NO. LNM019/2020/21

Construction of grade A VTS(Lebowakgomo) (Ward 18)

PART C3.2

Particular Specifications

Contractor

Witness 1

Witness 2

Employer

Witness 1

Witness 2

PART C3.2.1

Particular Specification

(read with PW371-A)

This specification falls under the Scope of Work as defined in *Standard for Uniformity in Construction Procurement*, published by the Construction Industry Development Board (CIDB), and is based on national or international standards, where such exist.

Works: **THE CONSTRUCTION OF GRADE A VTS(LEBOWAKGOMO) (WARD 18)** Ref no: **LN057/2016/17**

☐ NOTE TO THE COMPILER

- > Make an office print-out of this part of PW371 for marking up during documentation.
- > Delete irrelevant clauses and add variations or additional requirements where necessary. Do not change heading numbers – they should correlate with PW371-A.
- > Choose the desired attribute or value where choices are separated with a double space-slash-double space. Delete unwanted attribute(s) or value(s). Asterisk (*) denotes the preferred attribute or value.
- > The specification data for SANS 2001 standards as listed in this publication is for guidance only. See Annex A of the relevant standard for the full list of specification data, and follow instructions when required.
- > Where the reader is directed to <see drawings>, ensure the relevant item is shown in the drawings.
- > Dimensions presented are preferred dimensions according to the relevant SANS standard. Check availability or other dimensions with manufacturers/suppliers.
- > Delete all guidance notes (framed text) on completion (click just outside frame on text box and press <delete>).
- > Print out and hand in with drawings.

☐ NOTE TO THE TYPIST

- > Text in this document is “styled”. All styles are listed in the Quickstyle box at the top of your screen under the HOME tab. Use the same styles throughout, and do not create new styles.
- > Heading 1 has autonumbering on (to keep footer text intact).
- > Heading 2 and 3 styles have autonumbering “off” in order to be consistent with Part A. You have to number these headings manually.
- > To update the Table of Contents, click anywhere on the table to highlight and press F9.

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1 Earthworks

1.1 Site clearance

Applicable standard: SANS 2001 – Construction Works Part BS1: Site clearance

Specification data¹:

SANS 2001 standard specifications are deemed to satisfy the provisions of SANS 10400.

SANS 2001-BS1 covers removal of vegetation, fences, guard rails and posts, litter and building rubble, boulders of size up to 0,15 m³, and surface and subsurface obstructions, and demolition and removal of structures (including their basements, if any), not directly associated with or incidental to any excavation.

- ☐ designated area/site in which work is to be carried out: see drawings
- ☐ level of finished earthworks: see drawings
- ☐ site clearing activity numbers: ...

1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 10 / 11 / 12

1 removal and disposal of vegetation; 2 removal and disposal of structures by means of bulldozing; 3 demolition, breaking up and removal of buildings to ground level; 4 demolition, breaking up and removal of underground structures; 5 ditto septic tanks, soak pits; 6 ditto litter, rubble, rocks on surface; 7 removal and stacking of re-useable materials; 8 removal of asphalt layers; 9 removal of paving; 10 removal of kerbs, channels, hunching; 11 scarifying, ripping to blocks <200 mm; 12 removal of disused foul water and storm water drains and water mains

- ☐ description of materials to be reused: ...

Activity 7 requires description of re use able materials

- ☐ depth of underground structures to be demolished: see drawings

Activity 4 requires depth of demolition of underground structures to be specified.

- ☐ depth for ripping or excavation: see drawings

Activity 11 requires depth for ripping or excavation to be specified

- ☐ designated sites for disposal of materials: see drawings
- ☐ designated sites for disposal of reusable materials: see drawings
- ☐ trees, turf, plants, bushes, shrubs and flora to be preserved and/or replanted: see drawings

Look up tree distance guidelines in SANS 10400-H Annex E.

- ☐ topsoil: select and stockpile

Topsoil is mostly a precious commodity.

1.2 Earthworks (general)

Applicable standard: SANS 2001-Construction works Part BE1: Earthworks (general).

Specification data:

SANS 2001-BE1 covers: excavation, filling, compaction and finishing of general excavations for buildings, bridges and structures, terracing, landscaping and private railway sidings, carried out with heavy construction equipment or light construction equipment, or by hand.

- ☐ topsoil: select and stockpile
- ☐ areas where surplus and unsuitable materials shall be disposed of: see drawings
- ☐ areas to be topsoiled: see drawings
- ☐ areas to be grassed or vegetated: see drawings
- ☐ degree of accuracy required : II

Relevant standards:

SANS 10400-F Site Operations.

SANS 10400-G Excavations.

To be published: SANS 2001- Construction works Part BE2: Earthworks (small works).

¹ The specification data for SANS 2001 standards as listed in this publication is a selection of importance mainly for buildings. See Annex A of the relevant standard for the full list of specification data, and follow instructions when required for civil works.

2 Concrete works

2.1 Structural works (SANS 2001-CC1)

Omit this part if not relevant, or SANS 2001-CC2 Concrete Works (Minor Works) is specified.

SANS 2001-CC1 covers: structural concrete in buildings and structures where the design and supervision of reinforced, prestressed and precast concrete are under the direct control of appropriately qualified engineers and technologists. Does not cover piles, harbour and marine works, and underground works in mines.

Specification data: materials

☐ strength concrete grade: see drawings

10 / 15 / 20 / 25 / 30 / 40

Omit if prescribed mix concrete is specified.

Contractor is responsible for design of strength concrete.

Strength concrete is designated by its characteristic strength followed by the size of stone used in its manufacture, for example, grade 30/19 refers to a 30 MPa mix made with 19 mm stone. Stone size has little influence on strength but does affect workability and water demand.

Grades for typical applications are

10 (plain [unreinforced] concrete strip foundations, or surface beds where the slab does not serve as the final wearing surface);

15 (plain concrete strip foundations, floors on the ground that will serve as the final wearing surface);

20 (reinforced concrete subject to non-aggressive (dry) conditions; base courses of lightly loaded floors (no trucking) and one-course domestic and office floors on the ground that will serve as the final wearing surface; landscape footpaths);

25 (general reinforced concrete construction in buildings, bridges, culverts, silos, machine foundations, slab-on-the-ground foundations, unplastered walls above ground);

30 (machine foundations subject to vibration and shock; concrete roads; paving and floors on the ground to carry fork-lift trucks), precast concrete;

40 (specially watertight walls and tanks; highly stressed rc members; precast structural units; concrete subject to severe vibration and shock, abrasion and wear).

☐ prescribed mix concrete: SANS 2001-CC2 table 5 / ...

Omit if strength concrete is specified. SANS 2001-CC2 table 5 (19 mm aggregate) and table 6 (13 mm aggregate) contains generic prescribed concrete mixes for strength grade 10, 15, 20, 25, 30, or specify bespoke requirements.

☐ characteristic strength of tendon steel for prestressing: ...

☐ joint fillers, sealants, waterstops, bearings and accessories: ... / see Section 6

☐ steel joint cover plate finish: not galvanized / galvanized

off-form surfaces

☐ concrete off-form surface finish (smooth-special): steel forms, uniform texture, appearance and colour

Specify special off-form and exposed aggregate surfaces only with permission: timber boards, special patterned finish (hardboard, rubber, plastic), brushed, tooled, sand-blasted or aggregate transfer. See SANS 2001-CC1 table 1.

construction joints

☐ type: see drawings

construction joint / movement joint / contraction joint / expansion joint

In general, in off-form surfaces, construction joints should be shown where a day's casting starts and ends, e.g. bottom and top of slab/column.

☐ joint sealing requirements: see Section 6

SANS 2001-CC1 specifies the finishing of exposed horizontal cast in situ concrete surfaces excluding industrial floors. Public ramps must have a safe gradient and frequent landings for disabled persons. Check with SANS 10400-S. See note on stairways at end of section.

☐ parts of the structure which need to be watertight: see drawings

☐ degree of accuracy required: II

precast/prestressed concrete

- ☐ surface finish required to precast units: special off-form / exposed aggregate / mosaic / ...
- ☐ prestressing particulars: ...
- ☐ order of loading and magnitude of load for each component of prestressing tendon: ...
- ☐ prestressing test requirements: ...
- ☐ position of lifting and supporting points, method of lifting, type of equipment and transport used in handling and erection of precast units: ...
- ☐ method of assembly and erection of precast units: ...
- ☐ design requirements for structural connections of precast units: ...
- ☐ degree of accuracy required: II

additional requirements

- ☐ low-density concrete if not breeze (clinker) concrete at 800-960 kg/m³

60-160 (vermiculite) / 120-240 (perlite) / 450-720 (foamed slag) kg/m³

- ☐ form drip joint or downstand under all exposed off-form slab edges; chamfer exposed edges of off-form columns, slabs, joints etc.; use standard plastic joint formers

2.2 Minor works (SANS 2001-CC2)

Omit this part if SANS 2001-CC1 is specified.

SANS 2001-CC2 covers concrete works in foundations, slabs, stairways, masonry walls, pipelines, manholes, latrines, conservancy tanks, septic tanks and the like where the design and supervision of plain, reinforced and precast concrete are not necessarily under the direct supervision of approved, qualified engineers and technologists and no special finishes to the concrete are required. Use SANS 2001-CC1 when special finishes are required.

Specification data:

- ☐ horizontal surfaces that need to be non-skid: see drawings

2.3 Foundations (SANS 2001-CM2)

SANS 2001-CM2 covers construction requirements for strip footings, pad footings and slab-on-the-ground foundations to receive masonry walling, and the construction of lightly loaded concrete surface beds.

Specification data:

- ☐ site class designation: see drawings

R / H / C / S / P / H1 / C1 / S1 / H2 / C2 / S2 / H3

R rock; H heaving (expansive) soils; C collapsible soils; S compressible sand; P fill, dolomite, marshy areas, mine waste, very soft clays. Site class designations R, H, C, S indicate that the expected range of total soil movements arising from ground movements is such that no special precautionary measures are required to minimize the effects of differential ground movements on buildings. Number denotes higher range of movement. Behaviour of P is variable and the reason for such classification should be given in brackets, e.g. P (fill).

- ☐ foundations: in accordance with the requirements of SANS 10400-H for strip footings, slab-on-the-ground foundations or modified normal construction for category of expected damage 1 or 2 / rational design by competent person

See SANS 10400-H for geotechnical and/or structural solutions for foundations on problem soils.

- ☐ construction of steps in foundations in excess of 400 mm: see drawings
- ☐ minimum founding depth: see drawings

Required where the geotechnical report indicates a deeper requirement than that provided for in SANS 10400-H.

additional requirements

- ☐ protection against termites: SANS 10124.

2.4 Concrete floors and paving on the ground

- ☐ industrial floors: direct-finished one course slab as designed and constructed to SANS 10109 under direction of a competent person

Direct-finished one-course concrete floors on the ground are superior to concrete bases with screed or topping, and should be used if floor is to be left as is, or if to be covered with resilient floor finishes like thermoplastic tiles or carpet.

concrete

- ☐ concrete grade: see drawings

20 / 30

Show grades on drawings.

Default: (grade 20 for base courses of lightly loaded floors [no trucking] and one-course domestic and office floors on the ground that will serve as the final wearing surface, or grade 30 for paving and floors on the ground to carry fork-lift trucks) is acceptable.

damp-proof under-surface membrane

- ☐ DPM under floor area: required / not required

Dpm normally not required under external floors.

fabric reinforcement

- ☐ fabric reinforcement ref. no. 100 / ... / not required
☐ floor/paving thickness: see drawings

Floor thickness ranges between 120 and 360 mm, depending on loading, use

placing

- ☐ levels and gradients: see drawings

joints

- ☐ joint sealing: left open / sealed

Joints should be sealed when the floor is used under wet conditions, or where hygiene or dust has to be controlled.

2.5 Strongrooms

- ☐ fire rating, burglar resistance and wall thickness class: see drawings

1 / 2 / 3 / 4

Class: 1 (4h, no burglar resistance, 200 mm wall, 125 mm floor/ceiling); 2 (4h, limited burglar resistance, 300 mm); 3 (4h, medium burglar resistance, 450 mm); 4 (4h, high burglar resistance, 525 mm)

NOTE ON STAIRWAYS

The rule in SANS 10400 – M of a minimum going of 250 mm and a maximum rise of 200 mm often leads to a disregard for two other rules, i.e., “*the dimension of each step of the stairway shall be such that the sum of the going and twice the riser is not less than 570 mm and not more than 650 mm*”, and “*any stairway ... shall have dimensions appropriate to its use*” (NBR part M Stairways). A maximum rise of 180 and a minimum going of 280 is a more comfortable and safer proportion, and should be used in most public buildings.

The full range of a more comfortable and safer proportion would be (rise/going):

180/280 mm; 170/280 – 320 mm; 150/280 – 350 mm; 120/280

3 Masonry

3.1 Masonry Walling (SANS 2001-CM1)

SANS 2001-CM1 Masonry Walling covers requirements for masonry walls, materials, the laying of masonry units in unreinforced and reinforced applications, the building in of door and window frames, holes and chases, the securing of timber roof structures and the fixing of slips.

Specification data:

masonry units

Bricks and blocks are collectively termed *masonry units*, whether solid or hollow. A block has dimensions which satisfy any one of the following conditions: a length of 300–650 mm, width of 130–300 mm, or height of 120–300 mm.

- ☐ type: burnt clay / concrete
- ☐ masonry units: SANS 2001-CM1 clause 4.1.1.3

Omit if masonry units to SANS 257 and SANS 1215 are specified.

SANS 2001 CM1 clause 4.1.1.1 states “Masonry units shall comply with the requirements of either 4.1.1.2 (SANS 257 and SANS 1215) or 4.1.1.3”. Clause 4.1.1.3 is a generic description, which may be more practical in areas where bricks to SANS 257 are unobtainable. Specify to clause 4.1.1.3 only with permission.

burnt clay masonry units (SANS 257*2)

Omit if requirements of SANS 2001-CM1 clause 4.1.1.3 are acceptable.

- ☐ nature of face unit: hollow / solid / contractor's choice
- ☐ class of face units: FBS / FBX / FBA

Class E bricks are any class of masonry unit produced for structural or load-bearing purposes in face or non-face work, and is supplied to an agreed compressive strength e.g. FBSE2, where the number equals the nominal compressive strength in megapascals.

- ☐ nominal dimensions: 222 x 103 x 76 mm

See SANS 257 for modular sizes, e.g. 190 x 90 x 90 mm.

- ☐ colour of face units: ...

concrete masonry units (SANS 1215*)

Omit if requirements of SANS 2001-CM1 clause 4.1.1.3 are acceptable.

- ☐ nature of unit: hollow / solid
- ☐ colour of face units: ...
- ☐ nominal dimensions: 190 x 90 x 90 / 290 x 90 x 90 / 390 x 90 x 190 / 390 x 190 x 190 mm

mortar

- ☐ sand: SANS 1090*

Omit if default (clause 4.1.4.1) is acceptable.

Clause 4.1.4.1 states that “Sand shall either comply with all of the following requirements or, if required in terms of the *specification data*, the requirements of SANS 1090 for mortar sand (natural or manufactured)”

- ☐ mortar class: II

Class I mortar is *suitable* for highly stressed masonry, e.g. multi-storey loadbearing buildings; class II is *suitable* for normal loadbearing applications, including parapets, balustrades, retaining structures, freestanding and garden walls, and walls exposed to severe dampness; class III mortar (not mentioned in SANS 2001-CM1) is *suitable* for lightly stressed bearing walls where exposure to dampness is not severe, or for renovation to unburnt clay masonry walling.

- ☐ pigments for mortar: ... ; colour: ... ; other requirement(s) : ...

reinforcement

- ☐ prestressing steel (hot-rolled bars or high tensile steel wire and strand) : ...

2 Asterisk (*) denotes the preferred attribute or value.

Provide particulars or omit if not required.

NOTE on metal wall ties: SANS 204 requires masonry walls enveloping habitable portions of the building fabric in all climatic zones to be cavity or insulated cavity walls. Note that existing wire tie types may not be able to be centred centrally and conform to the minimum embedment rule of 50 mm. Note that crimp wire ties are not for use on cavity walls.

work

☐ face work jointing: struck* / flush / recessed / drip

Struck (half-round) joints are denser with better resistance to water penetration. Flush joints require careful cleaning of face work. Face work includes fair face work.

☐ face work pointing shape, colour: ...

Pointing is the raking out of brickwork joints 20 mm deep, then filling with mortar, usually coloured. Joint faces can be left flush, projecting, or shaped in the same way as jointing.

☐ multi-leaf wall bond: stretcher and brickforce / English bond (header course every second course) / collar-jointed bond

SANS 2001-CM1 specifies collar-jointed walls as default. Collar-jointed walls have a narrow cavity (<25 mm) between the leaves (the collar joint) which is filled solid with mortar or grout as the work progresses (not to be confused with *grouted cavity* construction where the cavity is wider and filled with concrete). Collar-jointing is intended for walls that require an effective thickness equal to the actual overall thickness of the wall. The success of this construction depends heavily on proper supervision. Collar-jointing is not mentioned in SANS 10249 Masonry Walling.

☐ position of control and articulation joints: see drawings

additional requirements

☐ wall type: see drawings

single leaf / multileaf / cavity / insulated cavity / grouted cavity / sealed multileaf

Sealed multileaf walls (outside face of inner leaf treated with a bitumen sealer) may be used in place of cavity walls in areas of prolonged, heavy, wind-driven rains, or where wall is faced with masonry-type facings (see *Masonry-type facings*)

☐ special shape face bricks: see drawings

single bullnose / double bullnose / single cant / double cant

☐ lintels in face work: see drawings

bed joint reinforced masonry / prestressed concrete lintels / galvanized steel / wood

For timber lintels see Section 4.

☐ cavity reveals around windows/doors: open / closed / see drawings

In energy rated buildings, at cavity reveals around openings, cavity insulation should continue up to window or door frames to prevent thermal bridging, therefore "open".

A bituminous damp-proofing type may be required where bituminous waterproofing is to be bonded to damp-proofing – see Section 8.

3.2 Glass blockwork

glass blocks

☐ nominal dimensions: ...

☐ surface pattern: ...

☐ opacity: ...

☐ colour: ...

3.3 Stone masonry

Loadbearing stone masonry. For stone cladding see *Masonry-type facings*.

- ☐ type: rubble / dimension stone

3.3.1 Rubble

Rubble (koppieklip) is stone with irregular faces as found in nature on or near surface.

- ☐ bedding of stones: set in mortar / dry set, with smaller stones to achieve stability.

3.3.2 Dimension stone

- ☐ stone type: freestone / granite / marble / slate / cast stone

Freestone (makklip) is building stone soft enough to be cut with tools and uniform enough to be carved in any direction, typically sandstone.

- ☐ face dressing: plain / polished / rusticated / vermiculated / boasted / drafted margin
- ☐ shape and size: square sawn in modular rectangular sizes / ...
- ☐ bond to homogenous pattern: random coursed / regular coursed
- ☐ jointing: flush / keyed
- ☐ pointing colour: ...

3.4 Masonry-type facings

SANS 10073 The Safe Application of Masonry-type Facings to Buildings was withdrawn in May 2011 and “replaced” by SANS 10400-K Walls which does not yet touch on this important subject.

Thin panel cladding, e.g. marble, should be rail-fixed, leaving a cavity between facing and backing. The advantages of this system are avoidance of staining of the stone face, more reliable support, faster erection, smaller joints and less dependency on skilled labour. Consult specialist stonework contractors.

Facings wholly dependent on fixing to the backing with proprietary adhesive only may lead to failure.

- ☐ facing type: precast concrete / natural stone / burnt clay units / concrete units of design, size, colour and finish: ...

Joints should be sealed to prevent ingress of water and to provide for thermal and structural movement.

Relevant standards

SANS 993 Modular co-ordination

SANS 10021 The waterproofing of buildings (in the case of facings this depends on climatic region, facing material and backing).

SANS 10073 The safe application of masonry-type facings to buildings (withdrawn).

SANS 10145 Concrete masonry construction.

SANS 10164 The structural use of masonry.

SANS 10249 Masonry walling.

SANS 10400-H Foundations.

SANS 10400-K Walls.

SANS 10400-M Stairways.

SANS 10400-P Drainage.

4 Structural timberwork

4.1 Structural timberwork (flooring) (SANS 2001-CT1)

SANS 2001-CT1 covers the installation of suspended timber floors in buildings to be constructed for occupancy class H3 (domestic residence) and H4 (dwelling house) buildings, as described in SANS 10400-J Floors, and that have a distance that does not exceed 7 m between supports, and a beam/joist spacing that does not exceed 600 mm. Modify to make this part of SANS 2001 applicable for the installation of suspended timber floors designed for other occupancies or for greater dimensions between beams or supports.

For wood floors on solid substrates see Section 13.

Specification data:

softwood timber joists

- ☐ type: solid / laminated
- ☐ cross section: see drawings

Omit if default description (to SANS 10400-J) is acceptable.

hangers, masonry anchors

- ☐ size/strength: ...

Omit if default description in SANS 2001-CT1 (hangers: 4,0 kN; masonry anchors: 10 dia x 45 mm length, 2,5 kN) is acceptable.

softwood flooring boards

Omit this part if default description in SANS 2001-CT1 is acceptable. NOTE SANS 629 withdrawn 2012 without replacement. Most req'd data kept except marking.

- ☐ softwood flooring boards:

- ☐ genus: Pinus / Cedrus / Podocarpus / Cupressus
- ☐ nature: solid / laminated
- ☐ grade: clear flooring / select flooring / flooring
- ☐ density group: light / heavy

Density group: light (400-550 kg/m³); heavy (550 kg/m³, for example squash court floor boards)

- ☐ cross section: see drawings

Omit if default (50 – 140 x ≥22 mm) is acceptable. Also 33 mm thickness.

- ☐ length: >1 800 mm when square sawn at ends, >600 mm when matched
- ☐ finger joints: not prominent

Omit if default (prominent) is acceptable.

hardwood strip flooring

NOTE SANS 281 Hardwood block and strip flooring withdrawn 2009 without replacement.

- ☐ species: ...
- ☐ dimensions: ≥460 x 57 – 90 x ≥20 mm

additional requirements

- ☐ hardwood species: ...
- ☐ hardwood prefinish: required / not required
- ☐ exposed faces of sawn structural timber: planed, sandpapered, and arris rounded to 3 mm radius.

4.2 Structural timberwork (roofing) (SANS 2001-CT2)

SANS 2001-CT2 covers the construction of timber roof assemblies in buildings. It includes the manufacture of bolted trusses that are designed in accordance with the requirements of SANS 10400, the erection of prefabricated timber trusses, the erection of rafters and purlin rafters, the fixing of purlins and battens, and the fixing of bracing to roofing members to support ceilings that comprise gypsum plasterboard, fibre-cement board or similar boards

Specification data:

softwood roofing timber

- ☐ type: solid / laminated
- ☐ cross section, grade: see drawings / to SANS 10400-L Roofs / to standard ...

roofing poles ("fence poles" SANS 457)

"fence" poles are normally used for roofs. See also "transmission" poles below

- ☐ roofing pole type: softwood SANS 457-2 / hardwood SANS 457-3 / to standard ...
- ☐ top diameter (thin end, colour-coded) : see drawings

50-79 (red), 80-99 (yellow), 100-119 (blue), 120-139 (white), 140-159 (orange), 160-179 (green), 180-199 (black) mm; ditto posts: 145-174, 175-199, 200-230 mm.

hangers, clips, masonry anchors

- ☐ size/strength: ...

Omit if default requirements (hangers: 4,0 kN; hurricane clips: 1,2 kN; masonry anchors: 10 dia x 45 mm length, 2,5 kN) are suitable.

additional clauses

- ☐ truss type: monoplanar prefabricated rational design to SANS 10243 or SANS 1900 / lapped and bolted within scope of SANS 10400-L/10243

In case of lapped and bolted trusses, show all member sizes and connection details on drawings. SANS 10243 provides guidance on the manufacture, erection and bracing of timber roof trusses. SANS 1900 covers a rational design prepared by a *Competent Person* and inspected by such a person during installation.

- ☐ "transmission" poles, diameter: softwood poles SANS 753 / hardwood poles SANS 754

Omit if "fence" poles to SANS 457 as required by SANS 2001-CT2 are acceptable. "Transmission" poles to SANS 753/754 should only be used when high strength is specifically required. See SANS 753 for lengths, minimum top diameter of poles.

- ☐ gang planks: two 150 x 38 mm softwood grade S5, nailed onto tie beams where shown on drawings / nailed onto tie beams of two adjoining trusses on both sides of geysers

Gang planks for walking/crawling in roof space, when required.

- ☐ timber lintels type and size: see drawings

softwood / hardwood / structural laminated timber / composite structural plywood web and solid timber flanges; grade: 5 / 7 / 10

4.3 Structural laminated timber (SANS 1460)

- ☐ material: see drawings

softwood (Pinus) / hardwood (Eucalyptus) / board (fibreboard, plywood, composite board)

- ☐ exposure class: 1 (exterior), 2 (semi-exterior), 3 (humid interior), 4 (dry interior)
- ☐ type: G (stocklam) / C (customlam)
- ☐ appearance and finish: rough-sawn (R), fine-sawn (F), planed (P), sanded (S), smoothed (G), coated (C), special (X)
- ☐ stress grade: 5 / 7 / 10 / 14
- ☐ fire retardant treatment: required / not required
- ☐ cross section: see drawings.

Relevant standards:

SANS 1288 Preservative treated timber.
SANS 1900: Monoplanar prefabricated timber roof trusses (nail-plated).
SANS 10005: Preservative treatment of timber.
SANS 10043: The laying of wood floors.
SANS 10082: Timber buildings.
SANS 10096: Manufacturing of finger-jointed structural timber.
SANS 10163 The structural use of timber.
SANS 10243 The design, manufacture and erection of timber trusses.
SANS 10400-J Floors.
SANS 10400-L Roofs.
SANS 10400-M Stairways.
SANS 10400-T Fire Protection.

5 Structural steelwork

5.1 Structural steelwork (SANS 2001-CS1)

SANS 2001-CS1 covers structural steelwork for buildings and other structures, excluding bridges, offshore structures, mobile equipment (stackers, reclaimers, draglines, cranes, etc.), mine shaft steelwork (buntons and guides) and mining conveyances, but does not cover roof and side cladding, or the detailed aspects of sundry items such as handrails, ladders, steel flooring and the like, neither does it cover protection of steelwork against corrosion or fire.

Specification data:

- ☐ class and grade of fasteners: ...
- ☐ format of drawings: ...

State in which format and to which standards each category of drawings shall be prepared.

- ☐ hole sizes for holding-down bolts in excess of 36 mm diameter: ...
- ☐ connections to allow movement: ...
- ☐ requirements for machining: ...
- ☐ requirements for non-destructive tests on welds: ...

5.2 Sundry steelwork

5.2.1 Material cold-formed structural steel (SANS 10162)

- ☐ commercial quality steel: permitted if yield stress equals 200 MPa, tensile strength 365MPa; obtain proof.

Cold-formed profiles are often made from commercial quality steel of which the yield stress is seldom less than 210 MPa.

structural steel tubes SANS 657-1

- ☐ coating: uncoated / hot dip galvanized coating SANS 32 quality B
- ☐ size/profile: see drawings

Size/profile: 21, 57, 32, 34, 38, 42, 48, 51, 60, 76, 89, 102, 114, 157, 140, 152, 165, 178, 219 mm \varnothing (general purpose); 20 x 20, 25 x 25, 30 x 30, 40 x 40, 50 x 50, 60 x 60, 70 x 70, 80 x 80, 90 x 90, 100 x 100, 115 x 115, 120 x 120, 135 x 135, 140 x 140, 150 x 150, 160 x 160, 175 x 175, 180 x 180 mm (square); 40 x 20, 50 x 30, 60 x 40, 80 x 40, 90 x 50, 100 x 50, 100 x 60, 120 x 60, 120 x 80, 140 x 90, 150 x 100, 160 x 80, 180 x 100, 200 x 100, 200 x 120, 220 x 140, 250 x 150 mm (rectangular)

corrosion resistant (weathering) steel

Corrosion resistant steel also known as COR-TEN, a registered trademark of USX Corporation. Corrosion resistant steel is weldable. Available in sheet (<2,0 mm) and strip (2,5 – 6,0 mm). Consult Mittal Steel.

- ☐ grade: 1 / A

steel wire rope (cables)

- ☐ class: 6 x 7 / 6 x 24 / 6 x 37 / 8 x 19 mm
- ☐ diameter: 6 / 7 / 8 / 9 / 10 mm.

5.3 Coating

- ☐ type: hot dip galvanising / prepainting / hot dip galvanising and prepainting (duplex system)

Other coating types on steel are vitreous enamel, plastic or protective tape.

SANS 121 provides for one set of coating thickness only – see NOTES at end of Section. Thicker (25%) coatings may be requested without affecting specification conformity. The primary influencer on hot dip galvanized coating is the steel composition. See SANS 14713 for design guidelines.

hot dip galvanising

The Hot Dip Galvanizers Association South Africa (HDGASA) is the industry representative body.

- ☐ significant (architectural) surfaces: see drawings

NOTE on appearance of galvanized coatings**SANS 121:**

"The primary purpose of the galvanized coating is to protect the underlying iron or steelwork against corrosion. Considerations related to aesthetics or decorative features should be secondary. Where these secondary features are also of importance it is highly recommended that the galvanizer and customer agree the standard of finish that is achievable on the work [in total or in part], given the range of materials used to form the article. This is of particular importance where the required standard of finish is beyond that set out in this section. It should be noted that 'roughness' and 'smoothness' are relative terms and the roughness of coatings on articles galvanized after fabrication differs from mechanically wiped products, such as galvanized sheet, tube and wire. It is not possible to establish a definition of appearance and finish covering all requirements in practice.

The occurrence of darker or lighter area (e.g. cellular pattern or dark grey areas) or some surface unevenness shall not be cause for rejection: also wet storage stain (white or dark corrosion product – primarily basic zinc oxide – formed during storage in humid conditions after hot dip galvanising) shall not be cause for rejection, providing the coating thickness remains above the specified minimum value."

- ☐ sample: required / not required
- ☐ special pre-treatments: ...
- ☐ special coating thickness: ...
- ☐ any after treatments: ...
- ☐ method of site repair and maximum allowable size of repair: ...

Omit if default (repair by either zinc metal thermal spraying, zinc rich epoxy or a *suitable* zinc rich paint, provided that the repaired surface receive an additional 30 µm over and above that required in terms of the specification; HDGASA recommends a practical repair area of ± a R5 coin) is acceptable.

- ☐ architectural work to be packaged: required / not required

paint or varnish

SANS 12944 covers the following suitable surfaces for painting: uncoated steel; thermally sprayed with zinc, aluminium or their alloys; hot dip galvanized; zinc-electroplated; sherardized; prefabrication primed; other painted surfaces. Part 2 deals with the principal environments and the corrosivity of these environments to which steel structures are exposed: atmospheric corrosivity category: C1 very low / C2 low / C3 medium / C4 high / C5-I very high (industrial) / C5-M (marine); immersed category for water and soil: Im1 (fresh water) / Im2 (sea or brackish water) / Im3 (soil). Part 5 deals with paint systems.

- ☐ paint system: alkyd / chlorinated rubber / PVC / acrylic / epoxy / ethyl silicate / polyurethane / bitumen

Protective paint systems not covered: powder coating; stoving enamel; heat-cured paints; linings of tanks; products for the chemical treatment of surfaces.

5.4 Fire protection

The yield strength of steel is halved at temperatures exceeding 550°C. Consider placing columns outside building.

- ☐ protection of structural steel against fire: see drawings

reinforced concrete grade 25 / solid masonry / sprayed vermiculite-cement/perlite-cement / metal lath and plaster

Relevant standards:

SANS 1921 Construction and management requirements for works contracts.

SANS 10094 The use of high-strength friction-grip bolts.

SANS 10162 The structural use of steel.

SANS 14713 Protection against corrosion of iron and steel in structures – zinc and aluminium coatings – guidelines.

HDGASA code of practice no 1-1990 The Surface Preparation and Application of Organic Coatings to New, Unweathered Hot Dip Galvanized Steel (Sheet and Section) Excluding In-line Coil Coatings.

HDGASA code of practice no 2-1990 Specification for the Performance Requirements of Coating Systems Applied to New Unweathered Hot Dip Galvanized Steel (Sheet and Section) excluding In-line Coil Coating (Duplex Systems).

NOTES on hot dip zinc coating thickness and service life:

Consult the Hot Dip Galvanizer's Association of South Africa (HDGASA) for determination of high corrosivity areas.

All hot dip galvanising specifications state the minimum *suitable* coating thickness and not average coating thickness. The thickness actually achieved varies with steel composition and thickness of steel, and can range from the minimum up to >50% greater. As life expectancy predictions are normally based on the minimum coating thickness, they are usually conservative.

Hot dip galvanized coating on structural steel should in most cases provide a service-free life of 40 – 50 years. This is determined by dividing the minimum achieved coating thickness taken on the thinnest steel component by the corrosion rate per year for the location in question (see table).

HDGASA uses SANS /ISO 9223 to determine corrosivity categories, based on three factors:

1) Time of wetness, being the period that the zinc surface is covered by liquid containing the corrosive elements (electrolyte); 2) Airborne pollution containing sulphur dioxide (SO₂); 3) Airborne pollution containing salinity, usually in the form of chlorides carried on prevailing sea winds.

Estimated service life of hot dip galvanized steel complying with SANS 121				
Corrosivity Category ISO 9223	Zinc corrosion rate / yr	55 µm for steel 1.5 – 3mm thick	70 µm for steel 3 – 6 mm thick	85 µm for steel >6 mm thick
C 1 very low	<0.1 µm	>100 yrs	>100 yrs	>100 yrs
C 2 low	0.1 – 0.7	<78.5 yrs	>100 yrs	>100 yrs
C 3 medium	0.7 – 2.1	26 – 78.5 yrs	33 – 100 yrs	40 – >100 yrs
C 4 high	2.1 – 4.2	13 – 26 yrs	16 – 33 yrs	20 – 40 yrs
C 5 very high	4.2 – 8.4	6.5 – 13 yrs	8.3 – 16 yrs	10 – 20 yrs

Source: HDGASA Information sheet No 8.

Coating thickness in µm can be converted to approximate coating mass per unit area in g/m² by multiplying by the nominal density of the coating (7,2 g/cm³): thus 55 µm = 395 g/m²; 70 µm = 505 g/m²; 85 µm = 610 g/m²

Source: SANS 121 / SANS 14713.

Z575 is the designation for 575 g/m² zinc/surface area on both sides of steel sheet (for sheet that would mean 137.5 g/side) which equals a mean coating thickness of 19 µm. Similarly, Z450 equals 22 µm, and Z600 equals 43 µm).

6 Insulation, sealants, seals

6.1 Thermal insulation

6.1.1 Materials

Consider insulation materials with recycled content, e.g. polystyrene, glass fibre, cellulose and polyester fibre. Consult TIASA (Thermal Insulation Association of SA) or EPSASA (Expanded Polystyrene Ass. of SA).

- ☐ type: bulk (rigid board, fibre mats or batts) / reflective (foil) / composite bulk / loose fill / pipe / spray foam
- ☐ required R-value/thickness: SANS 204

Show all insulation thicknesses on drawings. Actual R-value test results may be obtained from the South African Fenestration and Insulation Energy Rating Association (SAFIERA).

- ☐ required fire performance classification of thermally insulated building envelope systems: SANS 428

☐ combustability: A / B

A (non combustible); B (combustible)

☐ surface fire spread properties: 1 / 2 / 3 / 4 / 5 / 6

1 (no flame spread) / 2 – 6 (rapid flame spread)

☐ application: vertical / horizontal / vertical and horizontal / see drawings

Consult SANS 10400-T for fire performance requirements.

rigid board

- ☐ material: EPS / XPS / EPU
- ☐ expanded polystyrene (EPS) grade: 16D-85 / 24D-170 / 32D-225

16D-85 (standard); 24D-170 (high); 32D-225 (extra high) (density kg/m³–compressive strength kPa)

EPS is combustible on its own but claimed to be fire-safe in a masonry cavity with closed reveals (see EPSASA leaflet *EPS Cavity Wall Insulation*). EPS will resist the passage of moisture. Panel width: 600 mm; thicknesses: 25, 30, 40, 50 (ex stock), 60, 70, 80 (to order)

- ☐ face: plain / foil / ...
- ☐ edge: square / shiplap / tongue and groove

fibre mats/batts

- ☐ form: mats (flexible) / batts (rigid)
- ☐ face: plain / foil / ...

Typical fibres are mineral (rock wool, glass wool), synthetic (polyester, polyethylene), and natural (wool). Fibre insulation is not recommended in partial fill masonry cavity construction – consult manufacturer.

reflective foil

- ☐ reflective foil class: A / B / C / D

A (reinforced, both surfaces reflective), B (reinforced, one surface reflective), C (unreinforced, both surfaces reflective), D (unreinforced, one surface reflective). Foil may double as an effective vapour barrier. See additional notes on foil at end of this section.

The thermal resistance of reflective insulation varies with the direction of heat flow through it, i.e. vertical, horizontal or sloped, and the number and defined thickness of air spaces it faces. It is important that bright surfaces facing air spaces remain untarnished on at least one surface.

The difference in direction of heat flow is generally marginal for bulk insulation but can be pronounced for reflective insulation. Reflective insulation is more effective at reducing summer heat gain than reducing winter heat loss.

Reflective foils are valuable when used in combination with bulk insulation for improved performance.

Composite bulk and reflective materials are available that combine some features of both types. Examples include foil bonded to bulk insulation, whether blankets, batts or boards, i.e. foil faced blankets, foil faced batts and foil faced boards.

metal faced insulation panels

For use in buildings, cold rooms and hot rooms, interior and exterior.

- ☐ corrosion comparison index of panel-facing coating: 1 / 2 / 3 / 4
- ☐ core insulation: calcium silicate / mineral fibre / polyisocyanurate / polyphen / polystyrene / polyurethane / rockwool
- ☐ facing: chromadek / galvanized steel / PVC laminated galvanized steel / stainless steel / zincalume

Metal faced insulation panels are typically used in cold storage systems. Consult TPMA (Thermal Panel Manufacturer's Association).

loose fill

- ☐ loose fill: pellets or granules / cellulose.

6.1.2 Installation

- ☐ system: SANS 204 / rational design

masonry cavity wall insulation

- ☐ type: full fill cavity / partial fill cavity / loose fill / see drawings

Insulation can be installed full fill in cavities in most areas where cavity walls are not required to prevent moisture migration, or where walls are plastered and painted or protected by roof overhangs of >750 mm.

Insulation should be installed partial fill in cavities where the cavity also serves as a moisture barrier against wind-driven rain, mostly in winter rainfall areas, but also in cases of exposed face brick walls in general (e.g. gable walls, walls without roof overhangs, high buildings).

In exposed walls, filling cavities with loose fill insulation may result in insulation becoming wet, losing its insulation value and causing dampness on the inner leaf.

Filling of concrete block cores with any type of insulation offers little energy savings since the majority of heat is conducted through the webs and mortar joints.

masonry wall external face insulation

- ☐ masonry wall external face insulation: ...

Omit if default (patent system of EPS external insulation bonded and mechanically fixed to dry, sound and flat surface, finished with reinforced polymeric plaster) is acceptable, or specify alternative.

Installing insulation against internal face of envelope wall would result in losing capacitive insulation of internal leaf (thermal mass).

pitched roof/ceiling insulation

- ☐ system: reflective foil under roof covering / bulk insulation on ceiling / foil + bulk / see drawings

flat roof insulation

- ☐ material: rigid EPS insulation density 32D
- ☐ flat roof insulation position: over waterproofing / under screed

Insulation on flat trafficable concrete roofs should be firm enough to support the waterproofing system and foreseeable loadings, i.e. under screed. See Section 8 for further particulars.

floor insulation

- ☐ under floor slab insulation: required / not required

In case of in-slab heating as required by SANS 204.

6.2 Vapour barriers

- ☐ type: ...
- ☐ position: see drawings

Clay brick and concrete block masonry is able to accommodate moisture migration (damp open), normally rendering a vapour barrier unnecessary. SANS 204 advises that designers should consider that interstitial condensation occurs in walling systems which are not able to prevent or accommodate moisture migration. Also, that artificial cooling of buildings in some climates can cause condensation to form inside the layers of the building envelope. Such condensation can cause significant structural or cosmetic damage to the envelope before it is detected. Associated mould growth may also create health risks to the occupants. Effective control of condensation is a complex issue. In some locations a fully sealed vapour barrier may need to be installed on the more humid, or generally warmer, side of the insulation.

6.3 Sound absorption materials

- ☐ structure-borne sound insulation: mineral fibre mats SANS 1381 / cork
- ☐ airborne sound absorption: mineral fibre mats SANS 1381 + perforated 10 mm plywood / plasterboard / hardboard / metal / see drawings.

6.4 Joint fillers/sealants

- ☐ joint filler/sealant colour: ...

Industrial sealants compatible with bitumen may not be available in SA.

Two-part sealants are generally more effective and costly than one-part sealants.

See also SANS 2001-CC1 for specification of waterstops.

6.5 Architectural seals

- ☐ type: patent extruded aluminium carriers with flexible seal inserts of synthetic rubber, rigid PVC, nylon brush filaments, polypropylene pile, or silicone rubber / patent PVC, pile or neoprene door and window frame seals / patent silicone intumescent seals (fire and smoke) / patent external extruded aluminium threshold plate seals

Architectural seals need careful study by the designer – consult supplier.

- ☐ aluminium extrusion finish: mill / anodised / painted
- ☐ intended use of seal: energy (draughts, dust, insects) / intumescent (fire and smoke) / acoustic (noise) / finger-pinch protection (schools, day-care centres) / threshold plate / access (mobility, disabled persons)

Intumescent seals are designed to expand when subjected to heat.

- ☐ duty level: light / medium / heavy

Duty level: light (domestic); medium (commercial); heavy (hospitals, airports, shopping malls).

- ☐ mounting: fully morticed / semi morticed / surface mounted / grooved.

NOTE: Additional notes on reflective foil thermal insulation:

The difference in direction of heat flow is generally marginal for bulk insulation but can be pronounced for reflective insulation. Reflective insulation is more effective at reducing summer heat gain than reducing winter heat loss.

The thermal resistance of reflective insulation varies with the direction of heat flow through it, i.e. vertical, horizontal or sloped, the number of air spaces and defined thicknesses of the air spaces. Furthermore, that the bright surfaces facing the air space/spaces remains untarnished on at least one surface.

Reflective foils are valuable when used in combination with bulk insulation for improved performance.

Composite bulk and reflective materials are available that combine some features of both types. Examples include foil bonded to bulk insulation, whether blankets, batts or boards, i.e. foil faced blankets, foil faced batts and foil faced boards.

7 Roof coverings, cladding

To be published: SANS 2001-CR2 Tiled and sheeted roofs.

7.1 General

☐ type of cover, cladding: see drawings

tile / profiled sheet / fully-supported sheet / thatch

☐ roof pitch: see drawings

Check minimum roof pitches with SANS 10400-L. Roof pitches below that recommended by the manufacturer can be achieved by laying plywood boarding over the rafters and covering with waterproofing before tiling. Check with manufacturer.

underlay

☐ underlay type: reflective foil / polymer / the subject of an active Agrément Certificate

See Section 6 for reflective foil. Reflective foil doubles as thermal insulation and should be first choice in hot climates.

7.2 Tile roofing/cladding

7.2.1 Materials

☐ type of tile: concrete / clay / slate / fibre-cement / metal

concrete roof tiles

Concrete roof tiles have a mass of $\pm 55 \text{ kg/m}^2$ laid.

☐ pattern and colour: ...

☐ type: plain / interlocking

☐ body colour or surface coating category: 1 / 2 / 3 / 4

1 (none); 2 (surface coating only); 3 (body colour only); 4 (both).

☐ finish: throughcolour / granular / sanded

clay roof tiles

☐ type: Broseley (plain) / Marseilles (interlocking) / ...

☐ colour: ...

natural slate tiles

☐ size, colour: ...

fibre-cement slates

☐ texture, colour: plain / textured / natural / ...

Mass of fibre-cement tiles is 25 kg/m^2 laid.

metal roofing tiles

☐ material, finish: hot dip galvanized steel / aluminium alloy / stainless steel / coated / uncoated

fixing materials

☐ fixing materials: galvanized steel / stainless steel or aluminium

Galvanized steel in inland regions. Stainless steel or aluminium in *coastal regions* or corrosive atmospheres, except for clay tiles where all fixings shall be stainless steel.

7.2.2 Roof tiling

preparation

☐ terrain category: 1 / 2 / 3 / 4

Terrain category 1: exposed open/ *coastal areas* (generally the area within 5km from the coast-line unless otherwise defined locally); 2: exposed with scattered obstructions; 3 : well-wooded areas and suburbs, town and industrial areas; 4: large city centres.

☐ design wind speed: 40 / 45 / 50 / 55 m/s

☐ height above ground / number of storeys: ...

☐ eaves: open / boarded

Eaves should be boarded in exposed terrains.

laying

- ☐ tile: concrete / clay / slate / fibre-cement / metal
- ☐ valley gutter: open / concealed
- ☐ verge tiles: required / not required

roof underlay

- ☐ roof underlay: required / not required

Underlays are strongly recommended in any area, and are mandatory in exposed and coastal terrains, depending on pitch. Not required for metal roof tiles.

SANS 204 states "all tile roofs in climatic zones 1, 2, 4 and 6 shall have a tile underlay or radiant barrier and the joints shall be sealed to prevent air infiltration and leakage".

7.3 Profiled sheet roofing/cladding**7.3.1 Metal sheet**

Mass of metal sheet roofing is $\pm 11 \text{ kg/m}^2$.

metal

- ☐ metal and coating: zinc-coated (galvanized) steel / AZ-coated steel / prepainted zinc coated steel / weathering steel / natural aluminium alloy / prepainted aluminium alloy / stainless steel / copper

Copper, aluminium, stainless steel or weathering steel should be used in environments where atmospheric corrosion is aggressive. Check availability, thickness and finish of these metals with manufacturer/ supplier.

profile

- ☐ profile: corrugated / box rib (IBR) / interlocking box rib / rib-trough/standing seam
- ☐ sheet length: single lengths per roof slope / standard lengths with overlap / single length standing seam over-ridge (see ridding)

Standard lengths (1,8 – 14 m) – check with manufacturer/ supplier.

Corrugated and IBR sheets in standard lengths with overlap causes less thermal movement stress on exposed fixings than long lengths.

steel

- ☐ nominal sheet thickness: 0,5 / 0,6 mm

Check availability of 0,8 mm sheets. 0,6 mm thick sheet costs $\pm 16\%$ more than 0,5 mm.

- ☐ coating grade: Z575 / Z600 / AZ150 / AZ200

Z575 and AZ150 for inland regions, Z600 and AZ200 for coastal regions and aggressive atmospheres.

Coiled sheeting with hot dip zinc coating (galvanising) class Z575 has an average zinc coating thickness of about $19\mu\text{m}$; Z600 - $42\mu\text{m}$. AZ coatings have increased corrosion resistance over zinc coating by 3 or 4. See notes on hot dip galvanising under Section 5 Structural Steel. Get expert advice from HDGASA or ARTF - SCRACE.

aluminium alloy

- ☐ aluminium roofing sheet thickness: 0,6 (cladding only) / 0,7 / 0,8 / 0,9 mm

stainless steel

- ☐ stainless steel thickness: 0,5 / 0,6 mm

copper

- ☐ copper: 0,6 mm thick

prepainted metal

- ☐ prepainted metal sheet type: 3 / 4 / 5a / 5b / 6a / 6b

Type 3 (mild to moderate rural, urban, tropical and industrial environments) / 4 (marine and industrial) / 5a (severe marine) / 5b (heavy industrial and industrial marine) / 6a very severe marine) / 6b (very severe industrial).

Coil coated and prepainted products are e.g. Chromadek or Chromadek Plus (Mittal Steel) for marine and industrial environments; there are several others. Paint coating more than doubles the life of sheets with metal coating only.

weathering steel (Cor-ten)

- ☐ weathering steel: 0,8 mm

bullnosing

- ☐ bullnosing radius: ...

Minimum radius about 500 mm (inside radius), depending on material, profile and sheet thickness.

roof ventilators

- ☐ roof ventilator type, material, dimensions: ...

7.3.2 Fibre-cement sheet

Mass of 5 mm thick fibre-cement sheets is 15 kg/m². Purlins must be 50 x 76 mm at 1 200 max spacing on trusses/beams at 1 200 max spacing (SANS 10243). Finish fibre-cement sheets in *coastal areas* with an anti-fungicidal paint – see section 14 Painting.

- ☐ bullnosing radius: ...

7.3.3 Glass-reinforced polyester sheet

See also SANS 141 GRP laminates.

- ☐ type: 1 / 2

1 (with weathering protection both sides) / 2 (ditto one side)

- ☐ class: W / WF

W (without fire-retardant properties) / WF (with fire-retardant properties)

SANS 10400-L: “skylights shall have a maximum opening area of 0,6 m² or, if in the form of a translucent roof sheet, an installed width of 700 mm”.

- ☐ mass: 1,0 – 1,4 kg/m² (domestic) / 1,4 / 1,8 / 2,4 kg/m² (industrial)
- ☐ opacity: clear / opaque
- ☐ colour: ...
- ☐ profile: see drawings / to match roofing/cladding sheet / corrugated / IBR / ...

7.3.4 Polycarbonate sheet

- ☐ colour: ...
- ☐ thickness: 1,0 mm / 1,2 mm

1,0 mm (domestic) / 1,2 mm (industrial)

- ☐ profile: see drawings / to match roofing/cladding sheet / corrugated / IBR / ...

7.3.5 Fasteners and washers

- ☐ corrosion resistance class: 1 / 2 / 3 / 4

1 (general internal / 2 (general internal with significant condensation) / 3 external, mild to moderate industrial or marine) / 4 (external severe marine)

Identification of corrosive characteristics of the environment is essential.

Corrosion resistance class 2, 3 and 4 correspond with class C2, C3 and C4 of ISO 9223.

Some coating information for zinc and tin-zinc coated fasteners (corrosion resistance class, coating type, coating thickness in µm):

- 1, electroplated zinc (EZ), 4
- 2, EZ, 12
- 2, mech. plated zinc (MPZ), 17
- 3, EZ, 30
- 3, hot dip galv (HDG), 30
- 3, MPZ, 40
- 4, HDG, 50
- 4, MPZ, 45. For full list see SANS 1573.

- ☐ type and size: hook-bolt / U-bolt / J-bolt / drive screw / self-tapping screw / *according to roofing material manufacturer's instruction*
- ☐ material: zinc-coated carbon steel / stainless steel.

7.3.6 Installation

exposed fixing

- ☐ box rib cladding: with rib against girt / with rib away from girt

lapping

Sealing of laps in sheeted roofs in climate zone 1, 2, 4 and 6 is mandatory (SANS 204)

7.4 Fully-supported metal sheet roofing and cladding

Flat metal sheet with standing seams on continuous solid boarding can follow any shape within limits of the boarding. The specification presented in PW371-A is for copper. Other materials are zinc, lead, aluminium or hot dip galvanized steel. Check material and fixing with specialists.

Boarding must be able to absorb condensation under roof sheet - use of chipboard or other dense boarding material will cause corrosion. Board thickness depends on span.

7.5 Thatch roofing

To be published: SANS 2001- Construction Works Part CR3: Thatch Roofing.

Cost of a thatch roof is 15 – 20 % higher than a conventional roof. Check insurance requirements.

Consider requesting that the work be done by a member of the South African Thatcher's Association.

Avoid penetrations of the roof area – place chimneys preferably at the ridge, ventilation pipes outside the exterior wall faces.

Thatch can be shaped and moulded.

- ☐ thatch type: grass / Cape reed (dekriet) / water reed

Local grass will weather better in the same climate from which it originates. Hyparrhenia and Hyparphilia species should last for 35 years. Thamnochortis species (Cape reed/dekriet) could last for 75 years. Also Phragmites Communis reed. 175 mm thick thatch weighs 35 kg/m², about 40 bundles of grass per m².

Roof pitch in general should not be less than 45 degrees, 40 degrees at dormers (SANS 10400-L).

After the maintenance period the roof should be serviced every 10 – 12 years, and a new layer of 70 – 100 mm thatch added after 35 years. The life of thatch will be prolonged by brushing with a thatch spade at 4 – 5 year intervals.

- ☐ wire sways: prohibited / allowed

Wire sways should not be used in roof construction in areas where lightning is a problem unless provided with a lightning protection system (See SANS 10400-T).

- ☐ ridding: thatch / sand-cement / fibreglass

- ☐ fire retardant treatment: none / pre-treatment / during construction / after installation

7.6 Flashings, trim

Flashings to metal roofs should be similar to roof material to ensure same life to first maintenance and avoid electrolytic corrosion.

Counter flashings with an anti-capillary fold avoid electrolytic corrosion.

7.7 Fascias and barge boards

- ☐ size: see drawings.

Relevant standards:

SANS 10062: The fixing of concrete roof tiles.

SANS 10237: Roof and side cladding.

SANS 1200 HB-Cladding and sheeting.

SANS10400-L Roofs.

SANS 10400-T Fire protection.

Concrete Roof Tiles – Technical Manual. Concrete Manufacturer's Association.

Guide to good thatching practice. Thatcher's Ass of SA.

8 Waterproofing

To be published: SANS 2001-EW Waterproofing.

8.1 Materials

This section covers the conventional system of waterproofing with membranes only. Damp proofing in masonry is covered in SANS 2001-CM1. Consult The Concrete Institute for the waterproofing of concrete with additives.

The Waterproofing Federation of South Africa is the industry representative body.

SANS 10021 is outdated but useful and hopefully to be revised.

Bituminous felt (SANS 92), mastic asphalt (SANS 297/298) and elastomeric membranes like butyl rubber (polyisobutylene, SANS 187), chloroprene rubber (SANS 580) and EPDM (Ethylene Propylene Diene Monomer) have been used in the past but have largely been replaced by polymer modified bitumen membranes. No national standard exists for polymer-modified bitumen membranes, but most systems are Agrément certified.

reinforced bitumen membrane (RBM)

- ☐ finish: plain / slate granular / metal foil: aluminium or copper

self-adhesive plastic membrane (APM)

- ☐ finish: plain / foil / granular / polyester fabric

Self-adhesive membranes are thin (1,5 mm), normally laid as single layer systems to be covered (not UV resistant, except with foil, granular or fabric finishes).

reinforced liquid membrane (RLM)

- ☐ in situ reinforced liquid system: acrylic emulsion / bitumen emulsion / cementitious

Acrylic or bitumen emulsion is suitable only for exposed roofs and parapet walls. Cementitious systems can only be applied to cementitious backgrounds and can be tiled directly.

cavity drainage membrane

Studded polypropylene or HDPE cavity drainage membranes allow damp or running water to travel behind the membrane to a controlled drainage system. They are lighter than conventional stone and geotextile, provide continuous drainage and act as slip/separation layer.

slip/protection layers, geomembranes

Check requirements for bituminous felt or HDPE slip/protection layers and thermoplastics geomembranes.

outlets

- ☐ outlet type: roof / small balcony / shower
- ☐ size: >75 mm.

8.2 Preparation

falls

SANS 10400-L: Slope of a (cast in situ) concrete roof should be achieved by casting the concrete to the required fall, eliminating the need for a screed which may be susceptible to cracking and resultant spreading of leaks.

Falls in flat timber roofs should be created in the rafter/beam design and not by raising purlins.

Show ridges, valleys and falls clearly in drawings.

SANS 10400-L Roofs stipulates a design fall of 1:50, allowing for construction inaccuracies and deflection under dead or imposed loads.

balconies

Ensure balconies are at a sufficiently lower level than door thresholds to allow for the screed or topping to be minimum 50 mm thick, and have sufficient fall to outlet(s).

Balustrades are best fixed to front of upstands.

Balcony door thresholds exposed to rain: waterproofing should be continued up against threshold and finished under door frame

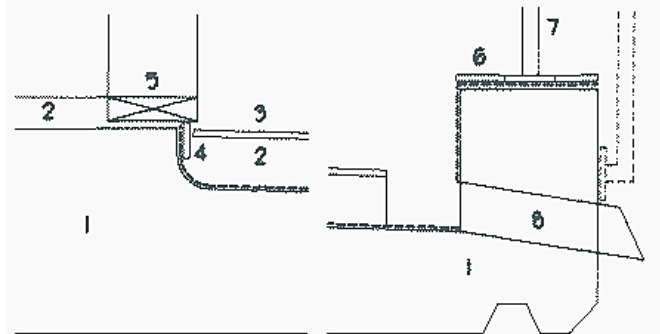


Diagram: Section through a balcony

1 concrete slab; 2 screed (optional); 3 tiles in adhesive on screed or bonded to waterproofing; 4 soft joint/sealant; 5 sliding door frame; 6 tiles bonded to waterproofing; 7 balustrade; 8 outlet.

outlets

Outlets set lower than their surroundings to prevent ponding: SANS 10400-L 4.3.2.4

SANS 10400-L: "attention should be given to the provision of ventilation to allow moist air, which might accumulate below the waterproofing layer, to be vented to the outside air". Check with manufacturer/supplier.

8.3 Application

For basement construction see SANS 10021. Basement floors and walls may be tanked, or formed with a cavity construction combined with drainage or pumping, or both, or may be constructed with cavity drainage membranes.

8.3.2 Termination

Bonding waterproofing with DPC's should be considered in winter rainfall areas. DPC's should be the same material as the waterproofing and have sufficient overhang to facilitate overlapping and bonding.

Balcony door thresholds exposed to rain are a common cause of leakage. Waterproofing should be taken up against thresholds and finished under the door frame and sealed.

1.5 Waterproofing surface finishes/protection

Protection against UV degradation, traffic and hail prolongs life expectancy of membranes. No protection required to exposed bitumen membranes with slate granular or metal foil finishes.

8.5.1 Exposed non-trafficable areas

☐ type finish/protection: see drawings

Paint / crushed stone / crushed stone on insulation panels / tiled insulation panels

paint

Acrylic does not adhere well to new bituminous-based systems.

crushed stone

A layer of gravel protects waterproofing and acts as anchor, but makes leaks difficult to trace. Thermal insulation value of gravel layer on its own is slight.

tilled insulation panels

Thermal insulation should be placed over the waterproofing ("inverted roof"), protecting it from high temperature fluctuation, ultraviolet degradation and mechanical damage, while allowing easy visual inspection of the waterproofing when laid loose.

Depending on tile mass, loose-laid tiled insulation panels should be installed only on flat roofs protected against wind by perimeter upstands. Tiles should be fully vitrified to withstand freeze-thaw cycles and should be sturdy enough to withstand handling and maintenance foot traffic. Panel size depends on multiples of tile size. Panels could float during heavy downfalls. Panels are easily removed for inspection and maintenance.

8.5.2 Pedestrian traffic areas

☐ type finish/protection: see drawings

topping / topping on insulation panels / tiles on screed / tiles on waterproofing / paving slabs on insulation panels / paving slabs on adjustable pads

Paving units are suitable for trafficable roofs, and for roof gardens and planters where waterproofing may be damaged by garden tools.

Paving on adjustable pads can be easily removed for inspection/repair, and the air space provides considerable thermal downward insulation. Paving slabs need to be sturdy, depending on traffic.

thermal insulation panels

☐ lay finish on thermal insulation panels: required / not required

tiles on waterproofing

☐ tile type, size: ...

See Section 12 Tiling.

paving slabs on adjustable pads

☐ paving surface levels: see drawings

8.5.3 Vehicular traffic areas

☐ type finish/protection: see drawings

50 mm premix laid directly onto waterproofing / brick or concrete pavers laid on 25 – 30 mm sand bed (see Section 21 External works) / 75 mm concrete paving on protection/slip layer (see Section 2 Concrete works)

8.5.4 Basement, retaining walls

☐ before backfilling, protect waterproofing with: softboard / hardboard / cavity drainage membrane / masonry leaf

☐ drainage system behind wall: ...

Omit if not agricultural drain encased in stone as specified.

8.5.5 Planters, roof gardens

☐ type finish/protection: 100–150 mm layer stone with geocomposite drainage layer with minimum mass of 210 g/m² laid on top / cavity drainage membrane laid directly on waterproofing.

Relevant standards:

SANS 10021 Waterproofing of buildings (including damp-proofing and vapour barrier installation).

SANS 10400-L Roofs.

BS.8102:2009 - Protection of Below Ground Structures against Water from the Ground.

GP Koning. *The Waterproofing of Buildings*. PO Box 26153 Hout Bay 76872.

9 Ceilings, linings, partitions, access flooring

To be published: SANS 2001- Construction Works Part EC1: Ceilings, partitions, access flooring.

9.1 Brandered ceilings

9.1.1 Branders, grounds

☐ type: timber / steel

timber branders/grounds

SANS 2001-CT2 (and SANS 10400-L) covers the fixing of timber brandering to roofing members to support ceilings that comprise gypsum plasterboard, fibre-cement board or similar boards only: "Brandering of size 38 mm x 38 mm required to support gypsum plasterboard, fibre-cement board or similar board shall be securely spiked to the supporting timbers with 75 mm wire nails. Cross brandering shall be cut in between the longitudinal brandering and skew nailed to the same, using 75 mm wire nails at centres that do not exceed 900 mm".

Grounds for wall linings: depth of 25 mm may be influenced by thickness of required insulation, services.

steel branders

Steel brandering is ideal for bulkhead construction.

☐ perimeter trim: standard / shadowline.

9.1.2 Fibre cement and gypsum board brandered ceilings

☐ type: fibre-cement / gypsum

fibre-cement board

Flat fibre-cement boards are made with organic fibres, plain or textured, and are water and fire resistant.

gypsum board

Gypsum board is non-comustible. Standard board should not be exposed to contact with water – do not use in industrial bathrooms or kitchens, or in exterior applications. For high moisture conditions use moisture resistant board. For fire resistance use X-rated board. Use double layers where acoustic insulation is required.

☐ type: standard / moisture resistant / fire rated

☐ edge: square / tapered

Use tapered edge board for scrim and plaster joints when full ceiling surface is not to be plastered.

cornices

☐ material, size: coved gypsum 75 mm wide / ditto 125 mm wide / coved polystyrene cornice / foam moulded / hardwood / softwood, profile ...

cover strips

☐ joint cover strips: H-profile: prepainted galvanized steel, aluzinc or plastic / gypsum board / hardwood: specie ...; profile, size: see drawings

Omit if ceiling is plastered.

fixing

☐ board pattern: see drawings

Omit if not visible or default (symmetrical about room) is acceptable.

☐ position of movement/control joints: see drawings

movement/control joints should be a clean break of 15 mm through the complete ceiling structure and finish.

finish

☐ finish to plaster board ceiling: plain with cover strips / plain with plastered joints / entire ceiling plastered

9.1.3 Wood board brandered ceilings, linings

☐ type of board: tongue and groove / strip / plywood / perforated plywood

tongue and groove board (SANS 1039)

☐ species: softwood / hardwood / species ...

- ☐ grade: clear / select / knotty
- ☐ profile: see drawings

See SANS 1039 for various profiles.

- ☐ face width: 50 / 65 / 75 / 102 / 140 mm
- ☐ thickness: ceiling board: 12 / 16; panelling 12 / 16 / 22 mm

wood strip, trim

- ☐ strip spacing: see drawings

plywood

- ☐ exposure class: 1 / 2 / 3 / 4

1 (exterior); 2 (semi-exterior); 3 (humid interior); 4 (dry interior).

- ☐ veneer species: ...
- ☐ cut: rotary / sliced
- ☐ grade: S / A / B

S (select, for decorative applications), A (furniture, for joinery where it may be reworked), B (standard, to be covered, coated or painted).

- ☐ perforations: size, spacing: ...

For effect and/or acoustic control.

fixing

- ☐ position of ceiling: see drawings

above / in between / below roof beams

- ☐ strip spacing: ...
- ☐ cornice, trim size and profile: ...

9.1.4 Hatches

- ☐ position of ceiling hatches: see drawings

See note on geyser position under Section 18.

- ☐ trap door: hinged / laid loose

9.2 Suspended ceilings

Consult SABISA (South African Building Interior Systems Association, part of the AAAMSA group).

- ☐ type: board / fabric / louvre / grid / bulkhead
- ☐ material: mineral fibre / metal / ...

performance

- ☐ required fire resistance in minutes: see drawings

20 / 30 / 60 / 90 / 120 / 180 / 240

See also note under 9.3.

- ☐ required airborne sound insulation grading dB: see drawings

30 / 35 / 40 / 45 / 50

For noise measurement and rating consult SANS 10103.

See also note under 9.3.

board

- ☐ type: plain / perforated / smoke-tight / impact-proof (e.g. ball) / removable / fold-down / drop-and-slide
- ☐ material: mineral fibre / gypsum / fibre cement / metal / vinyl clad / grid / flush plaster
- ☐ mineral fibre edge: square / revealed square / bevelled concealed / concealed



- ☐ size: see drawings
- ☐ colour: ...

- ☐ texture: plain / fissured / perforated
- ☐ finish: ...
- ☐ ceiling panels: removable and replaceable from below / fixed / as required for maintenance

suspension fittings

- ☐ suspension system: patent / rational design

installation

- ☐ grid pattern: see drawings

access

- ☐ access: see drawings

Access depends on hold-down system, panel removability, access requirements to above-ceiling services, weight of ceiling panels. Discuss with manufacturer/supplier.

9.3 Partitions, linings

- ☐ type: see drawings

drywall / light weight internal wall / demountable / cubicle / operable

performance

- ☐ required fire resistance in minutes: see drawings

20 / 30 / 60 / 90 / 120 / 180 / 240

Fire resistance: SANS 10400 Part T classifies the performance of materials in respect of fire resistance in categories of 20, 30, 60, 90, 120, 180 and 240 minutes. Architect/*Competent Person* to specify. Fire resistance is achieved by increasing layers of board. Deflection requirements are achieved by multiple studs reinforced with layers of board. Check with SABISA.

- ☐ required sound insulation grading dB: see drawings

30 / 35 / 40 / 45 / 50

30 (normal speech audible, but unintelligible), 35 (loud speech understood), 40 (loud speech audible, but unintelligible), 45 (loud speech barely audible), 50 (shouting barely audible)

Comparable constructions: 26 (solid wood door without seals), 32 (6 mm laminated glass), 42 (100 mm brick wall), 48 (230 mm hollow concrete wall).

For noise measurement consult SANS 10103.

9.3.1 Materials

gypsum plasterboard

- ☐ type: wallboard / moisture resistant wallboard / high-temperature wallboard

Moisture resistant board for use in all wet areas such as bathroom showers as well as locations with high humidity levels.

- ☐ thickness: 12 / 15 mm
- ☐ type of edge: square / tapered / bevelled / rounded
- ☐ covering: paper backed vinyl of weight in g/m² : ...

fibre cement board

- ☐ type: MD / HD

flat unpressed (MD), flat pressed (HD).

- ☐ thickness: 9 mm

studs and tracks

- ☐ material: metal / wood

aluminium extrusions

- ☐ abrasion resistance: required / not required
- ☐ colour: natural / anodized

anodising

- ☐ anodising grade SANS 1407: AG10 / AG15 / AG20 / AG25

grade AG10 (0,1 mm thick), for interior use only; AG15 and 20 for mild atmospheric conditions; AG25 where little or no deterioration is permitted. According to ASFA (Aluminium Surface Finishers Association), SANS 1407 is suitable for internal use only.

- ☐ abrasion resistance when relevant: required / not required
- ☐ colour: ...

powder coating

- ☐ SANS 1574 type: 1 / 2

1 (heavy duty interior), 2 (interior and non-corrosive conditions).

- ☐ colour: ...
- ☐ finish: matt / satin / high gloss / hammertone / textured

glass

- ☐ type: see drawings

float glass / wired / patterned / safety

See GLAZING

- ☐ thickness: see drawings

9.3.2 Drywall partitions, light weight internal walls

- ☐ framing: timber / steel
- ☐ cladding: gypsum board / fibre cement board
- ☐ gypsum board cladding finish: vinyl / paint / tile

For cladding finish of appropriate type to suit expected traffic in designated areas, refer to manufacturer for recommendations.

- ☐ door/window frame finish: anodising / powder coating
- ☐ glazing: clear / opaque / patterned / safety

9.3.3 Demountable partitions

- ☐ framing: steel / aluminium
- ☐ exposed frame finish: anodized aluminium / powder coating
- ☐ cladding: gypsum plasterboard / melamine-faced board / ...
- ☐ cladding finish: vinyl / paint
- ☐ glazing: clear / opaque / patterned / safety

9.3.4 Cubicle partitions

- ☐ mounting: flush floor / raised on stainless steel stiles
- ☐ panels: vitreous enamel / melamine faced
- ☐ hinge type: normal butt / rising butt
- ☐ accessories: indicator bolt / coat hook / ...

9.3.5 Operable partitions

- ☐ operation: individual panels / hinged paired panels
- ☐ accessories: pass doors / work surfaces (chalkboard, dry marker board, tackboard) / pocket doors (to hide stacked panels).

9.4 Raised access flooring

Annex B and C of SANS 1549 gives information on quality verification of components; electrical properties; fire protection and safety; special panels; surface of completed installation; moving and placing of safes and other heavy equipment.

NOTE: this standard has been withdrawn but is regarded by industry as superior to the new (European) standard (SANS 52825). Check with supplier.

☐ required fire resistance in minutes: see drawings

20 / 30 / 60 / 90 / 120 / 180 / 240

See note under Section 9.3.

☐ required sound insulation grading in dB: see drawings

30 / 35 / 40 / 45 / 50

See note under Section 9.3.

☐ class: A / B / C

Class: A, B or C depending on static or dynamic loads. Check with manufacturer.

☐ floor panel covering: heavy duty high pressure laminate on particle board P6 / textile / ...

☐ degree of corrosion resistance if other than default : ...

☐ clear height to underside of floor: see drawings

☐ required life of covering: ...

☐ details of special floor panels: see drawings

☐ whether floor assembly forms part of a plenum system: ...

☐ lifting devices: required / not required.

Relevant standards: SANS 10400-L Roofs.

SANS 10218 Acoustical properties of buildings.

SANS 10103 The measurement and rating of environmental noise with respect to annoyance and to speech communication.

SANS 52825 / EN 12825 Raised access floors.

10 Windows, doors, curtain walls, skylights, solar control

10.1 Performance

mechanical performance

- ☐ site category: 1 / 2 / 3 / 4

Design wind pressure must be specified in terms of SANS 10160. It is derived from the site category and height above ground. Site categories are: 1: open sea, lake shores, flat treeless plains; 2: airfields, parklands, farmlands, outskirts of towns and suburbs; 3 and 4: built-up areas or city centres.

- ☐ height above ground: ...
☐ plastic, shrinkage and creep deflection of floor slabs: ...

Omit if not relevant. If relevant (curtain walling/ window walling), deflection of floor slabs MUST be specified by a structural engineer.

thermal performance

- ☐ fenestration unit conductance: see drawings
☐ fenestration unit SHGC: see drawings

Actual Conductance and SHGF-value test results for fenestration units may be obtained from the South African Fenestration and Insulation Energy Rating Association (SAFIERA), representative of the National Fenestration Rating Council (NFRC) in the USA.

fire resistance

- ☐ fire resistance: ...

sound insulation

- ☐ sound insulation: ...

General requirements

- ☐ type: see drawings

residential / industrial / stock / purpose made

- ☐ type opening section: see drawings

casement / sliding / sash / tilt-and-turn / pivot

- ☐ handing, whether viewed from inside or outside, including proportion of vertically pivoted casements that opens outwards: see drawings
☐ frame material: see drawings

hot-rolled steel / cold-rolled steel / pressed steel / aluminium / wood / polymer / polymer concrete / composite

Aluminium is durable with low maintenance but highly heat conductive – frames with thermal breaks are acceptable. Wood has good insulating values and strength, but needs regular maintenance. Polymer frames are maintenance free with good insulation value.

- ☐ glazing from inside: see drawings

For windows not accessible from outside.

- ☐ shape and size: see drawings
☐ glazing bars: see drawings
☐ burglar bars: ...

to all opening sections / to complete window

Ensure extent to which operable sections can open is acceptable.

- ☐ pattern: see drawings

- ☐ insect screens: see drawings
☐ glazing: see drawings

See Section 17.

- ☐ sealants and seals: ...

see Section 6.

☐ hardware and fixings: see drawings

Hinges (ordinary or projecting), handles, stays, catches, bolts etc.: see also Section 16.

☐ additional security devices: ...

building in

Best way to fit single aluminium frame units is to build in steel or timber subframes, finish all wet trades, and fit window or door at last possible stage. If built in early, protection of frames against damage is required. Another good method is to build and finish openings and make and fit frames to measure – thus also making it possible to fit at last possible moment. Screw fitting of frames can only be done before glazing. Discuss with supplier/installer.

10.3 Steel frame units

☐ factory finish: primed / hot dip galvanized

See notes on zinc coating under Structural Steelwork.

10.3.1 Hot-rolled steel framed units (SANS 757)

Hot-rolled steel frames are not thermal performance rated and will not meet air leakage requirements as specified in SANS 10400 XA or SANS 613 without weather seals. See also cold-rolled steel framed units.

10.3.2 Cell windows

All manganese bars shall display the trade mark TISAT3030tm visible for identification on site.

10.3.3 Pressed steel clisco type window frames (SANS 1311)

☐ type: A / B

A (single rebate surround) / B (double rebate surround)

10.3.4 Pressed steel door frames (SANS 1129)

☐ type: see drawings

single leaf door without fanlight / ditto with fanlight / double door without fanlight / ditto with fanlight / door and frame combination

☐ material of lock strike plate: chromium/cadmium plated steel / brass

☐ hinges: steel / brass

☐ handing: see drawings

☐ size: see drawings

☐ type of profile: see drawings

single rebate / double rebate / half wall width / full wall width

☐ fanlight: see drawings

fixed, with glazing beads / opening hinged bottom / opening hinged top

☐ type of lock/latch: see drawings

additional clauses

Frames for power floated floors need to be shorter, and temporary bracing has to be removed after fixing.

10.4 Cold-rolled steel frame units

Cold rolled steel frames may meet air leakage requirements as specified in SANS 10400 XA or SANS 613. Check with manufacturer/supplier.

10.5 Aluminium frame units

☐ performance class: A1 / A2 / A3

A1 (residential and light commercial); A2 (commercial); A3 (monumental).

Aluminium framed windows, doors and shopfronts manufactured according to the minimum requirements of the Association of Architectural Aluminium Manufacturers of South Africa (AAAMSA) are mark-bearing with the mark and number of the test certificate issued by AAAMSA. Consult AAAMSA General Specification for Glazed Architectural Products (Including Energy Efficiency Design for Fenestration).

☐ frame surface finish: anodised / powder coated / liquid organic coated

Anodising is a harder and more abrasion-resistant finish than powder coating, but has a limited choice of six colours (natural through four shades of metallic bronze to black). Colours are light fast but never identical and virtually impossible to match with older or other finishes. Anodising is susceptible to mortar and lime attack during construction. Consult AAAMSA or the Aluminium Surface Finishers Association (ASFA) for the selection of anodized and powder coating thicknesses.

- ☐ anodising grade: AA15 / AA25

Grade: AA15 (0,015 mm thick, for mild atmospheric conditions in rural environments), AA25 (0,025 mm thick, for polluted atmosphere, sites within 5 km from chemical plants, coastal regions within 25 km from the sea, marine conditions, windy areas where sand causes abrasion). See AAAMSA Surface Finishes.

- ☐ powder coating colour: ... ; gloss category/finish: mat / satin / high gloss / hammertone / textured.

10.5.1 Windows and glazed doors

- ☐ colour of gaskets and weatherstrips: black
- ☐ weatherstrips: renewable.

10.5.2 Skylights

No national standard on skylights exists. The Skylight Association of Southern Africa (SASA, part of the AAAMSA group) is the industry representative body. Consider heat transmission, glare, UV radiation and ventilation carefully. Provide *drawings* at time of tender, if available.

- ☐ type, shape: see drawings

sloped / pitched / arched / domed / single / composite / openable

- ☐ size: see drawings

SANS 10400-L: "skylights shall have a maximum opening area of 0,6 m² or, if in the form of a translucent roof sheet, an installed width of 700 mm".

- ☐ slope: see drawings

To ensure proper condensation and water infiltration control, and to minimize the accumulation of dirt, inclination of glazing materials should be 15° minimum. Sloping glazing to have sufficient overhang to shed rainwater from significant vertical surfaces.

- ☐ frame: powder-coated steel / natural aluminium / anodized aluminium / powder-coated aluminium / painted wood / varnished wood
- ☐ glazing: glass / polycarbonate / acrylic
- ☐ mounting: flush / curb / integral
- ☐ fixed or operable: ...

10.5.3 Curtain walling

- ☐ curtain walling type: ...

site assembled continuous mullions with discontinuous transoms with infill glazing and panels / prefabricated units of framework, glazing and panels / rational design / submit proposals

- ☐ curtain walling panel construction: ...

external finish / internal finish / core insulation / combustability / surface fire spread.

10.6 Adjustable glass louvre windows

- ☐ operation: manual / remote control.

10.7 Wood frame units

No national standard exists on wood frame doors and windows, but check compliance with SANS 613. Wood frames should be protected from rain by adequate roof overhangs or extended lintels with drips.

- ☐ wood species: ...
- ☐ profile and dimensions: see drawings

10.8 PVC-U frame units (SANS 1553)

- ☐ profile and dimensions: see drawings
- ☐ surface finish: matt / glossy.

10.9 Polymer concrete frame units

- ☐ profile and dimensions: see drawings
- ☐ surface finish: ...
- ☐ sub- and opening frame material: aluminium / cold rolled steel.

10.10 Wood doors (SANS 545)

- ☐ type of door: see drawings

balanced / batten / flush / casement / prehung / security-view / louvre / patterned / screen / sliding / special / stable / cupboard / X-ray / single / paired single swing / paired double swing

- ☐ dimensions: see drawings

610 / 762 / 813 / 864 mm x 457 / 2032 x 40/44 mm

457 mm high doors for cupboards. Entry doors for disabled persons in wheelchairs must be at least 813 mm wide.

- ☐ handing: see drawings

Hand refers to position of hinge when door opens towards viewer. Show first opening leaf of paired doors when important.

- ☐ exposure class: see drawings

2 / 3 / 4

2 (semi-exterior, partly or wholly exposed at infrequent intervals to unprotected open air conditions); 3 (humid interior); 4 (dry interior). Note there is no exposure class 1. Hardwood framed and braced batten doors are heavy duty doors, suitable for exposure class 2.

flush panel doors

- ☐ performance class: see drawings

LD / MD / HD

LD (light duty, hollow core) / MD (medium duty, semi-solid core) / HD (heavy duty, solid core)

Solid core flush panel doors are heavy duty doors suitable for dry interior use only – specify for frequent use and abuse, e.g. schools, public places, hospitals.

Semi-solid flush panel doors are medium duty doors suitable for dry interior use only - specify for general use in office blocks, dwellings, barracks and single quarters, including cupboard doors.

Hollow core flush panel doors are light duty doors suitable for dry interior use only – specify for dwellings or cupboard doors in dwellings only.

- ☐ any special properties: ...
- ☐ finish, and wood species when relevant: see drawings

fibre board / sapele mahogany veneer / plywood / coating

Do not specify veneer when door is to be painted. Other commercial veneer species: maple, cherrywood, beech – check with suppliers.

10.11 Fire doors and fire shutters (SANS 1253)

- ☐ class (fire resistance in minutes) : see drawings

A / B / C / D / E / F

A (60 min) / B or C or D (120 min) / E or F (30 min)

- ☐ type door: see drawings

single / double / swing / sliding

Manually operated sliding fire doors are normally parked in open position, closing only in event of a fire by means of a fusible link or electric magnet.

- ☐ type of closing device: see drawings

fusible link / electric magnet

Electrical operation is recommended for larger doors that are frequently used.

- ☐ handing: see drawings

Doors forming part of fire escape routes must open in direction of route.

- ☐ size: see drawings

Maximum 4 x 4 m.

- ☐ finish: see drawings

hardboard / galvanized steel cladding

Galvanized steel for heavy duty and external doors or corrosive conditions.

10.12 Garage doors

- ☐ type: up-and-over / sectional overhead / sliding / swing
- ☐ size: single / double
- ☐ framework material: steel / wood
- ☐ cladding/boarding material: hardwood / aluminium / prepainted galvanised steel / primed steel
- ☐ operation: manual / electric / chain drive / hand crank
- ☐ finish: varnish/sealer / paint / powder coated / anodised / epoxy coated
- ☐ locking devices: chrome plated centre lock with spring loaded side catches, interior/exterior padlock bolt and keep / automated (no locking device required)

sectional overhead doors

- ☐ panels: aluminium / aluminium/zinc / galvanised mild steel / prepainted galvanised mild steel / hardwood / glass
- ☐ specialised applications for solid doors: fire-doors SANS 1253 class ... / with fusible link, permanently open / gas leak proof / tornado wind resistant / high-frequency / petrol bomb resistant / acoustic control.

10.13 Roller shutter doors

Roller shutter doors are *suitable* for from counter closures to aircraft hangars, and may be used for security, fire, smoke, gas, wind and bomb control.

Push-up operation is limited to 7,5 m²; chain 8 – 30 m²; crank to 25 m²; electrical to any size.

- ☐ size: see drawings
- ☐ operation: push-up / chain / crank / electric
- ☐ slats: steel / aluminium / solid / see-through/ventilated / double wall / grille / with end-locks
- ☐ grill pattern: ...
- ☐ finish: mill / hot dip galvanised / wet spray / anodised / powder coated
- ☐ canopy enclosing rolling mechanism: required / not required
- ☐ bottom bar in case of sloping floor: sloping / with flexible weatherstrip
- ☐ locking devices: side bolt at waste height / external pad bolt / centre lift lock with external key and internal knob operation / floor level four point slide bolts
- ☐ wicket door 685 x 1830 mm: opening in / opening out
- ☐ additional features required: card readers / inductive loop circuits / automation
- ☐ specialised applications for solid doors: not required / fire-door SANS 1253 class ... / with fusible link, permanently open / gas leak proof / tornado wind resistant / high-frequency / petrol bomb resistant / floor shutter / acoustic control .

10.14 Strongroom/record room doors, ventilators

- ☐ type: see drawings

strongroom / vault / record room

strongroom and vault doors (SANS 949)

- ☐ category strongroom doors: 1 / 2 / 2 ADM

Category: 1 (fire resistance 30 minutes, entry resistance 15 minutes), 2 (30 minutes, 1 h), 2 ADM (anti-disc cutter material)

- ☐ category vault doors: 1 / 2 / 2 ADM / 3 / 4 / 5

Category 3, 4 and 5 resist increasing levels of attack.

- ☐ dimensions: see drawings
- ☐ fittings: see drawings
- ☐ handing: see drawings

- ☐ type and number of locks if other than specified: ...
- ☐ factory finish: primer only / baked enamel / hammertone

fire-resisting record room doors (SANS 1015)

- ☐ type of lock if other than specified: ...
- ☐ finish: baked enamel / hammertone.

10.15 Solar control

- ☐ type: internal / external / fixed / retractable / awning / canopy / blind / louvre
- ☐ material: fabric / metal / concrete / glass
- ☐ fabric: UV-resistant, washable, rot-proof

- ☐ visible transmission: ...
- ☐ solar transmission: ...

- ☐ metal: aluminium / prepainted hot dip galvanized steel
- ☐ louvre: fixed / adjustable
- ☐ operation when relevant: manual / automated / from inside.

Relevant standards:

SANS 10400-O Lighting and Ventilation.
SANS 204 Energy efficiency in buildings

11 Plaster, screeds, toppings, terrazzo

11.1 Plaster

☐ type: see drawings

cement plaster / gypsum plaster / lime plaster / insulating plaster / barite plaster / waterproof plaster.

11.1.1 Cement plaster (SANS 2001 EM1)

SANS 2001- Construction Works Part EM1: Cement Plaster Admixtures are not permitted in cement plasters to improve workability or improve the properties of the finished plaster.

Specification data:

☐ application: single coat / multicoat

☐ finish to cement plaster: smooth / textured / roughcast / bagged / skimmed

Show in drawings: V-joints through full plaster thickness at dpc level and where different materials meet; metal lath strips over roof anchors on single leaf masonry walls, or across joints between different materials – see SANS 2001-EM1.

11.1.2 Gypsum plaster

Do not mix gypsum-based plaster with plaster made with common cement – the sulphate compound in gypsum attacks common cement paste.

11.1.4 Insulating plaster

☐ low density aggregate density range: 60 – 160 / 120 – 240 / 450 – 720 kg/m³

60 – 160 (exfoliated vermiculite); 120 – 240 (perlite); 450 – 720 (foamed slag).

Omit if default (800 – 960 kg/m³ (clinker) covered in SANS 2001-EM1) is acceptable.

Barite plaster for use in X-ray rooms. Thickness for general diagnostic X-ray work normally between 15 and 30 mm. Check mix and thickness with requirements.

11.1.6 Accessories

☐ expanded metal, type: sheet/plate / angle bead / base bead / corner mesh / plaster lath / plaster stop / rib lath / strip mesh

☐ angle rounded corner protection: 1 500 x 1,0 x 35 mm girth strip, position: see drawings.

11.2 Screeds, toppings, terrazzo

To be published: SANS 2001-EM2 Screeds and toppings.

Screed is a layer of a well-compacted mixture of cement and fine aggregate applied to a concrete base, *suitable* for receiving a floor finish.

Topping is a layer of high-strength concrete designed to provide a dense, abrasion-resistant surface on a concrete base.

Terrazzo is a hard-wearing decorative concrete finish in which crushed or uncrushed aggregate like marble and pigments is used, and of which the surface is generally ground and polished.

Specify screed or topping only where a direct-finished one-course concrete floor is impracticable.

11.2.1 Materials

proprietary surface treatments

Treatments to harden or seal the surface of toppings are not normally required, provided a sufficiently high grade of properly finished concrete is used. They may however be useful in dust sensitive areas or where oil spills or mildly acidic solutions may occur. Expert advice should be sought from the manufacturer/supplier.

☐ form: dry shake / coating / screed

☐ to improve: abrasion resistance / chemical impact resistance / slip resistance / density / UV resistance

☐ colour/finish: ...

mesh reinforcement

- ☐ mesh reinforcement: ...

Mesh reinforcement may be required to restrain differential shrinkage stresses and control cracking on precast concrete elements – not normally required.

water

- ☐ water: SANS 51008

Omit if default (drinking water) is acceptable.

11.2.2 Mix**topping**

- ☐ concrete grade: see drawings

20 / 30 / 40 / 50

Topping: 1 part cement to 1½ parts sand to 1½ parts stone would produce a concrete strength of 25 – 30 MPa. Use concrete of at least grade 20 where abrasion resistance is not a consideration; grade 30 for floors for light duty industrial and commercial purposes; 40 for ditto medium duty; 50 for heavy duty industrial, workshops, special commercial; very heavy duty engineering workshops would require a proprietary topping. Consult The Concrete Institute for advice.

11.2.4 Laying

Method of laying as described here is known as "separate bonded construction", where the topping or screed is laid on and bonded to a hardened base. For other methods, for example monolithic construction, and separate unbonded construction, consult SANS 10109 part 2.

Compaction of the mix is most important. Stiff semi-dry mixes not well compacted are a common cause of bond failure. Compact stiff mixes with power-operated equipment such as vibrating screed boards.

Joints in screeds should be minimal. Screeds laid in large areas may crack, but this is more acceptable than curling at edges of small panels.

- ☐ screed thickness: see drawings

25 – 50 mm

- ☐ topping thickness: see drawings

25 – 40 mm

- ☐ edge/feature/dividing strips: see drawings.

11.2.5 Finishing

- ☐ type of finish: ordinary / hard / colour pigmented / dry shake / surface ground and polished

Ordinary finish is *suitable* for surfaces that are to be covered by flooring. Hard finish is *suitable* for surfaces that are not to be covered with flooring and for toppings that require high resistance to wear (grade 30 and higher).

Hardwearing surfaces like toppings and terrazzo may be ground and polished – not recommended for sand:cement screeds. Grinding tends to create lower slip resistance. Grinding will affect appearance and will remove surface treatments such as dry shakes.

- ☐ surface smoothness: smooth / non-slip

pigmentation

- ☐ type: integral (mix with dry cement) / add to freshly laid surface as a dry shake / not required.

11.2.6 Joints

- ☐ type: isolation joint / intermediate sawn contraction joint / patent movement joint

- ☐ pattern: see drawings

- ☐ seal joints: required / not required

- ☐ patent movement joint system with flexible inserts: aluminium / stainless steel / PVC

Material depends on nature and intensity of traffic. Joints should be sealed when floor is subjected to liquids, hygiene.

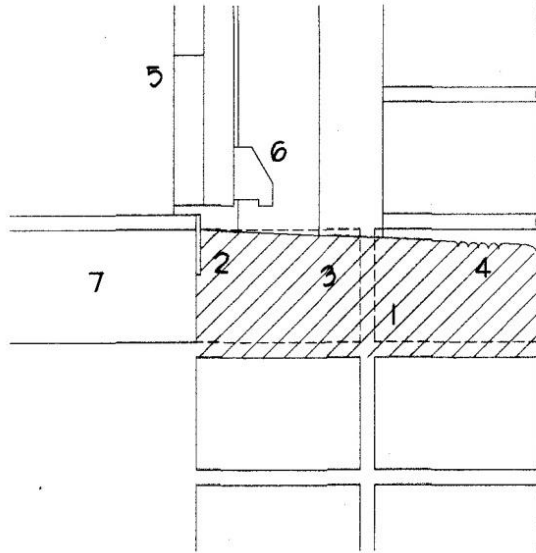
11.2.7 Surface regularity

□ degree of surface regularity: I (3 mm) / III (10 mm over 3 m in any direction)

Omit if default (II) is acceptable. Check with SANS 10155. In small rooms deviation should be less.

11.2.8 External thresholds

Placing the door in line with the inside wall face allows the joint to be under the door and adds a measure of rain protection to the door.



- 1 break out bricks**
- 2 metal edge strip**
- 3 in situ or precast concrete threshold with slight fall**
- 4 reeding**
- 5 external door**
- 6 weather bar**
- 7 concrete surface bed**

11.2.13 Surface sealing

□ seal floor surface with: one coat non-slip wax polish / epoxy / not required.

Relevant standards:

SANS 10109 Part 2 Finishes to Concrete Floors.

Concrete Basics for Building. 2004. Cement and Concrete Institute.

12 Tiling

12.1 Materials

- ☐ type of tile: see drawings

ceramic / stone / concrete / terrazzo / mosaic

ceramic wall and floor tiles (SANS 1449/13006)

- ☐ group: A1 / A2 / A3 / A4 / B1 / B2 / B3 / B4 / C

Group A (extruded split /quarry tiles) and B (dust pressed tiles) are classified according to their water absorption properties. C=other. Group A1 and B1 have the lowest water absorption ($\leq 3\%$). Fully vitrified porcelain tiles, covered by SANS 13006 only, are frost resistant and suitable for cold rooms etc.. Not all manufacturers produce to SANS 13006.

- ☐ surface: glazed / unglazed
☐ shape, pattern, colour: ...
☐ nominal dimensions: see drawings

200 x 200 / 300 x 300 / 400 x 400 / 500 x 500 mm

- ☐ grade: first grade / second grade

Second grade tiles have minor blemishes.

- ☐ glazed tile abrasion resistance class: 1 / 2 / 3 / 4 / 5 / not required

Abrasion resistance class to SANS 13006: 1 for interior soft domestic footwear such as bathrooms and bedrooms; 2 for interior light domestic traffic such as living rooms; 3 for interior and exterior areas such as domestic kitchens, halls and terraces, and low-traffic commercial areas; 4 for frequent traffic such as public entrances, shops, hospitals, hotel kitchens and exhibition rooms; 5 for severe pedestrian traffic such as shopping malls, airport concourses, sports stadia and factories.

- ☐ slip resistance value (coefficient of friction) : dry ..., wet ... / on stairs and ramps only

For slip resistance, contact manufacturer. Slip resistance is important in public places and on ramps and a requirement for disabled people (SANS 10400-S). Several test methods exist. The Pendulum Test Value (PTV) to BS 7932 is acceptable. PTV 0–24 is high, 25–35 moderate, 36+ low slip potential. A calibrated tester is available in SA. Slipperiness is also affected by use, water, spills and floor care.

- ☐ acid and alkali resistance of glazed tiles: type of chemical ... / not required

stone tiles

No local standard exists on natural stone tiles. Consult supplier/installer.

- ☐ type: natural stone / cast stone
☐ natural stone: slate / quartzite / marble / granite
☐ slip resistance value (coefficient of friction) : dry ..., wet ... / on stairs and ramps only / not required

For slip resistance contact manufacturer.

- ☐ nominal dimensions: see drawings

300 x 300 / 450 x 450 / 600 x 600 x 50 / 65 mm

- ☐ shape: ...; colour: ...

concrete tiles

- ☐ type: concrete / terrazzo
☐ nominal size: see drawings

300 / 450 / 600 x 300 / 450/300 / 600/450 x 50 / 65 mm

mosaic

- ☐ material: ceramic / glass / stone
☐ appearance: glazed / unglazed
☐ colour: ...
☐ size of tesserae: ...

grout

- ☐ proprietary grout: cement-based / organic-based / reaction resin (epoxy)

Epoxy grout e.g. in food storage and preparation and processing areas, abattoirs, breweries, dairies, bottling plants, restaurants, industrial kitchens, hospitals and clinics.

profiled and decorative tiles

- ☐ profiled and decorative tiles: see drawings

skirting / dado / bullnose

accessories

- ☐ edging, trim, stair nosing and movement joint strip material: PVC / aluminium / brass / stainless steel

see also Section 16.

- ☐ profile, size, colour: ...

12.2 Tiling

To be published: SANS 2001-ET Tiling.

bedding

- ☐ external angles: see drawings

mitred / lapped / strip edged / bullnose tile

- ☐ internal sills in bathrooms: see drawings / level / sloping

Sloping sill to prevent internal sills being used as a shelf.

External sills should be tucked in under all window frames - fixed in front of window frame will lead to moisture damage in exposed conditions. See also SANS 2001-CM1.

- ☐ field, border, pattern: see drawings.

12.3 Jointing

Floor tiling joint width may be subject to manufacturer's recommendations, irregularities in the tiles, modular discipline or decorative effect.

Extruded tiles require a wider joint to cater for distortions.

In internal work, laser cut natural or cast stone of precise dimensions may be butt jointed with little or no grout.

- ☐ joint width: ...

Omit if default widths are acceptable.

12.4 Movement joints

- ☐ type: formed in situ / preformed strip / isolation joint / intermediate joint / structural joint

preformed compression joint strip

- ☐ material, colour: PVC / aluminium / brass / stainless steel / ...

Preformed joint strip: PVC is suitable for light traffic, stainless steel for heavy traffic. Check whether chemical resistance is required.

isolation (perimeter) joints

Isolation joint design depends on the wall finish, skirting, hygiene requirements and floor cleaning method, e.g. if regularly washed.

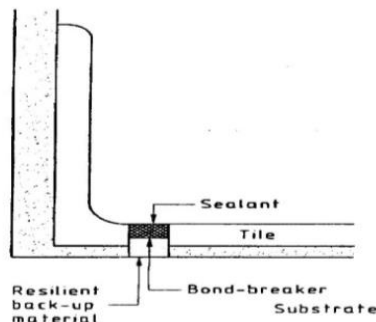


Diagram: Isolation joint where hygiene is important (SANS 10107).

structural joints

In practice structural substrate joints are often not true. Ignoring this fact will result in a tiling joint not uniformly coinciding with the base joint, leading to cracks. Possible solutions are:

- a) if the joint is out of line but straight, consider continuing the joint through the tiling (the joint will not be aligned to the tile joints, but will at least be straight), or
- b) if the joint is irregular within a narrow straight band, consider installing a prefabricated flexible metal joint capable of spanning the irregularity, or
- c) if the joint is out of line and irregular, consider leaving out the row(s) of tiles in which the troublesome joint occurs, and lay the row of tiles over an underlay or in a permanently flexible adhesive, or lay a different flooring material over the joint which is able to accommodate the expected movement, e.g. carpet, thermoplastic, wood or laminate. Reinforce the edges or, in the case of rigid materials, seal both sides of the strip covering the structural movement joint.

Relevant standard: SANS 10107 Design and Installation of Ceramic Tiling.

13 Floor coverings, wall linings

☐ type: see drawings

thermoplastic / wood / textile / epoxy.

13.3 Thermoplastic and similar flexible floor covering

To be published: SANS 2001-EF3 Resilient thermoplastic and similar flexible floor covering.

Consider slip-resistant and tactile floor finishes for disabled persons. See SANS 784 for guidance.

13.3.1 Materials

☐ type: see drawings

vinyl / linoleum / rubber

semi-flexible vinyl floor tiles

☐ tile thickness: 2,0 / 2,5 / 3,2 mm

SANS 581: type of semi-flexible vinyl flooring: 120, 130, 160, 200 (domestic), 250 (heavy traffic), 320 (extra heavy traffic).

☐ pattern: none / marbled / mottled

☐ chemical resistance: ... ; type of chemical ...

flexible vinyl flooring

☐ tile thickness: 2,0 / 2,5 / 3,0 mm

SANS 786: type of flexible vinyl flooring: 125 (1,25 mm, domestic light), 160 (domestic), 200 (commercial, domestic heavy), 250 (industrial light, commercial heavy), 300 (industrial), 320, 360 (industrial heavy).

☐ form: sheet / tile

☐ pattern: none / marbled / mottled

☐ chemical resistance: ... ; type of chemical ...

linoleum sheeting or tiles

Linoleum is manufactured by mixing linseed oil with wood or cork powder, resins, ground limestone and mineral pigments, rolled out onto a jute backing and cured.

☐ thickness: 2,0 / 2,5 / 3,2 / 4,0 mm

☐ form: tile / sheet

☐ shape, size, of tile: ...

☐ colour: ...

☐ finish: unfinished / coated

rubber sheeting or tiles

Recycled and natural rubbers are "green". Recycled rubber lasts longer. Rubber floors are suitable for sport and industries. Interlocking tiles are interchangeable.

☐ form: tile / interlocking tile / sheet

☐ shape, size of tile: 300 x 300 to 500 x 500 mm

☐ texture: plain / studded / diamond

☐ colour: plain / patterned / speckled

☐ installation method: glued / interlock floating

accessories

☐ skirtings: extruded PVC , height: ...

☐ trim, movement joints: extruded PVC / aluminium / brass / stainless steel

☐ nosings: extruded PVC / rubber / extruded aluminium with non-metallic slip-resistant inlays / solid wood

13.3.2 Laying

- ☐ pattern: see drawings / straight joints in both directions
finishing

- ☐ polymer floor dressing type: 1 / 2

Floor dressing type 1 produces hard coating; type 2 produces soft coating.

13.4 Wood flooring, solid and laminate, on solid substrates

To be published: SANS 2001- EF1 Wood and Laminate Floor Covering.

For the installation of timber suspended floors see Section 4 Structural timber (flooring).

Solid wood floors may be sanded several times during their life span.

Wood and laminate flooring is laid directly on solid cementitious substrates. Solid wood floors are glued or nailed to battens. Laminate floors are floating floors assembled by using a patent click lock system. Wood and laminate floors expand and contract – do not use in wet areas.

SAWLFA South African Wood and Laminate Flooring Association is the industry representative body.

- ☐ traffic class: 21 / 22 / 23 / 31 / 32 / 33

See SANS 10043 table 1 for a traffic classification according to EN 13329: 21 (domestic moderate, e.g. bedrooms), 22 (domestic general, e.g. living rooms), 23 (domestic heavy); 31 (commercial moderate, e.g. conference rooms, offices), 32 (commercial general, e.g. offices, hotels, classrooms, 33 (commercial heavy, e.g. corridors, stores, schools, halls, open plan offices).

See SANS 10043 table 6 for traffic, hardness, density and shrinkage classification of flooring timbers in common use.

13.4.1 Materials

Solid wood floors may be sanded several times during their life span.

- ☐ flooring type: see drawings

solid wood strip/block / solid wood parquet/mosaic / plywood / faced plywood or fibreboard / melamine laminates

solid wood strip, block, parquet, mosaic

SANS 281 *Hardwood block and strip flooring* and SANS 978 *Wood mosaic flooring* were withdrawn in May 2009 and not replaced.

- ☐ species: ...
- ☐ grade: clear / figured
- ☐ preservative treatment: ...

Note that some woods are naturally durable.

- ☐ second-hand blocks: allowed / prohibited
- ☐ prefinishing: required / not required

faced plywood or fibreboard

- ☐ facing: natural hardwood / cork / bamboo
- ☐ species: ...
- ☐ prefinishing: required / not required

decorative melamine laminate

- ☐ pattern, colour: ...
- ☐ built-in underlay: required / not required
- ☐ prefinishing: required / not required

underlays

- ☐ required insulating underlay function: acoustic / thermal / noise control / impact (sports)
- ☐ polyethylene elastic-adhesive underlay:

This is an imported underlay with several advantages, not requiring gluing, nailing or clipping of the floor boards. Check with supplier.

- ☐ density: 30 / 50 kg/m³
- ☐ thickness: 2 / 3 / 5 / 10 / 15 mm
- ☐ adhesive type: permanent / re-usable.

13.4.2 Installation

installation in general

- ☐ installation method: nail down / glue down / floating / stick down on elastic-adhesive underlay / sprung / as recommended by manufacturer

Underfloor heating has important repercussions for wood and laminate flooring. Check with supplier, SAWLFA.

- ☐ pattern: see drawings

nail down

Nail down is *suitable* for solid and engineered wood strip on new concrete floors or stairs, on existing rigid floors that are reasonably level, where a dpm is required, and where the total floor covering thickness of about 40 mm can be accommodated. Not to be installed over underfloor heating unless space between battens is filled with a cement:sand mix. Can be installed on walls as panelling.

Nail down floors can reduce impact noise transmission.

13.5 Textile flooring

To be published: SANS 2001- EF2 Textile flooring.

13.5.1 Materials

textile flooring

- ☐ type: pile construction / needle punched construction
- ☐ colour and design: ...
- ☐ fire index class: 1 / 2 / 3 / 4 / 5

Fire index: material to be used for floor covering (including underlays) or wall finish is tested in a standard manner and is classified on a scale of 1 to 5. These classifications are based on a "fire index" which in turn represents the effect of rate of burning and the amount of heat and smoke generated. Most good quality floor coverings have a fire index of 1 or 2. See SANS 10400-T table 9 and 10 for required classes for different occupancies.

- ☐ location grade: U1 / U2 / U3 / U4 / U5

Location grade: U1 (light domestic); U2 (medium domestic); U3 (heavy domestic, light commercial); U4 (medium commercial); U5 (heavy commercial).

carpet underlays

- ☐ type: fibrous / foam / contractor's choice

Underlays: needled fibre, foam rubber, latex bonded fibre or composites. A carpet should be fire tested with its underfelt, since no fire classification for underfelt is currently available. Underfelt makes an important contribution to impact sound insulation, and to airborne sound absorption provided the carpet has a porous backing.

13.5.2 Installation

Seams should run parallel to length of area (so that traffic moves along rather than across the seam) and so that light from windows does not strike across the seam. Pile should face away from incident light and downwards on stairs.

13.6 Epoxy flooring

Epoxy floors are hard-wearing and have excellent resistance to chemicals, oils etc.

- ☐ aggregate colour, size: ...

application

- ☐ position of edge/dividing/feature strips: see drawings
- ☐ thickness: 1 – 6 mm
- ☐ finish: smooth / exposed aggregate finish.

Relevant standards:

SANS 10043 The installation of wood and laminate flooring

SANS 10070 The laying of thermoplastic and similar types of flooring.

SANS 10170 The cleaning and maintenance of floors.

SANS 10177 Fire testing of materials, components and elements used in buildings.

SANS 10186 The installation of textile floor coverings.

SANS 10245: The maintenance of textile floor coverings.

SANS 2424 Textile floor coverings – vocabulary.

SANS 10400-J Floors.

SANS 13746 Textile floor coverings – guidelines for installation and use on stairs.

14 Painting, paperhanging

To be published: SANS 2001-EP Painting.

14.1 Materials

primers

Standards for red lead or red lead/red oxide primers, zinc chromate primers, calcium plumbate primers, metallic lead primers have been withdrawn due to toxic lead content.

undercoats

Universal undercoats are *suitable* for interior and exterior use for subsequent application of solvent-borne finishes, especially gloss finishes.

☐ universal undercoat grade: 1 / 2 / as required

1 (high hiding), 2 (utility grade).

finishing paints alkyd

Alkyd paint, also known as enamel paint, is solvent-borne.

☐ alkyd high gloss finishing paint (SANS 630) grade: 1 / 2 / as required

1 (high hiding), 2 (regular hiding).

☐ decorative paint for interior use (SANS 515) type: semi-gloss / flat

emulsion

☐ emulsion paint (SANS 1586)

☐ grade: 1 / 2 / 3 / 4

Grade: 1 (high hiding, scrub resistant), 2 (high hiding, washable), 3 (general purpose, washable), 4 (utility, interior only)

Emulsion paint is water-borne and suitable for application over plaster and masonry substrates. Grade 1, 2 and 3 is suitable for interior and exterior use, grade 4 for interior use only.

☐ gloss designation: matt / semi-matt / semi-gloss

☐ textured emulsion wall coating (SANS 1257)

☐ type: 1 / 2 / 3 / 4

1 (smooth aggregate-free), 2 (low-relief, sand-textured finish), 3 (high-relief, coarse-textured)

☐ fungus resistance: required / not required

Aluminium paint is typically an alkyd resin binder pigmented with flake aluminium.

Micaceous iron oxide paint is typically solvent-borne. Masonry paint may be solvent-borne or emulsion type.

varnishes, varnish stains, stains, sealers

Varnishes are transparent or semi-transparent.

Stains have no protective or preservative properties and are *suitable* for interior work only.

☐ varnish or varnish stains for interior use (SANS 887)

☐ type: 1 / 2

1 (general purpose), type 2 (heat and chemical resistant)

☐ gloss designation: glossy / eggshell

bituminous and tar-based coatings

Bitumen-based coatings for interior and exterior use on primed metal, masonry, fibre cement, wood, roofing felt, creosoted timber, hard bituminous surfaces.

specialized coatings

Epoxy and polyurethane coatings have superior resistance to abrasion and chemicals. One-pack materials usually do not have the same resistance as the two-pack types. They require a high standard of surface preparation.

14.2 Preparation of surfaces

☐ hardware etc.: remove, mark, store and refix / mask.

14.3 Colours

Specify colours on schedules. There is a marked difference in price for various colours, especially bright colours.

- ☐ identification colour marking (pipes etc.): required / not required.

14.8 Paint systems for on-site application

- ☐ paint system: see drawings

alkyd / emulsion / textured emulsion / masonry / cement / lime / varnish / aluminium / heat-resistant / sealer / intumescent

- ☐ colour: see drawings.

14.8.1 Cement-based surfaces, brick and stone

alkyd paint

Alkyd-based coatings are sensitive to alkali. Alkali-resistant sealers are required on cement plaster and off-shutter concrete.

14.8.3 Wood

transparent finish systems for wood (interior)

In transparent finishes the darker colours are more durable because they absorb ultraviolet light more effectively, but increase solar heat gain so that the moisture content of the wood decreases more rapidly. Varnish is not recommended on exterior wood.

14.8.5 Plastics

paint on unplasticized polyvinyl chloride (PVC-U)

A two-pack wash primer is no guarantee for proper adhesion of conventional paint systems. No general specification can be made with regard to the painting of plastic coatings. Seek expert advice.

14.8.6 Intumescent paint

- ☐ surfaces requiring intumescent paint: ...

Intumescent paint enhances fire resistance by limiting spread of flame. Check compliance with fire regulations.

14.9 Paperhanging

wallpaper

- ☐ type, pattern, colour: ...

Relevant standards:

SANS 10064: Preparation of steel surfaces for coating.

SANS 10305: Painting of buildings:

Part 1: Paint and paint selection.

Part 2: Paint application and defects.

Part 3: Paint types.

Part 4: Painting of walls, ceilings and cladding.

Part 5: Painting of roofs and steel structures.

Part 6: Painting of wood.

15 Furniture, equipment, stairs, architectural metalwork

15.1 Joinery

For wood doors and windows see Section 10.

15.1.1 Solid wood

wood

- ☐ type: hardwood / softwood / laminated wood

hardwood

- ☐ species: ...

SANS 1099 includes requirements for preservative treatment. Annex C gives properties of 29 hardwood species, local or exotic.

softwood

- ☐ species: ...

laminated timber

- ☐ exposure class: 1 / 2 / 3 / 4

1 (exterior); 2 (semi-exterior); 3 (humid interior); 4 (dry interior).

- ☐ type of wood: hardwood / softwood

- ☐ species: ...

15.1.2 Wood board

- ☐ type: plywood / composite board / decorative melamine-faced boards (MFB) / fibreboard / particle board / oriented strand board (OSB)

plywood and composite board (SANS 929)

- ☐ exposure class: 1 / 2 / 3 / 4 / as required

1 (exterior); 2 (semi-exterior); 3 (humid interior); 4 (dry interior).

- ☐ type board: ply / composite

- ☐ type plywood: commercial / marine / structural

- ☐ type composite board: batten board / blockboard / laminated board / high-pressure decorative board / veneered particle board / veneered fibre board

- ☐ thickness plywood: 3 / 6 / 9 / 12 / 15 / 18 / 22 mm

- ☐ number of plies or laminae: 3 / 5 / 7

Number of plies are always odd.

- ☐ veneer: species..., rotary cut / sliced

- ☐ plywood grade: S / A / B

S (select, for decorative applications), A (furniture, for joinery where it may be reworked), B (standard, to be covered, coated or painted).

decorative melamine-faced boards (MFB) (SANS 1763)

MFB is low pressure melamine on particle board or MDF, suitable for medium duty vertical and light duty horizontal surfaces e.g. shelving – not for kitchen and office desktops.

- ☐ core: particle board / MDF

- ☐ thickness: 9 / 12 / 16 / 18 / 22 / 32 mm

Board size 3,6 x 1,8 m.

- ☐ shelving edge: sapele-print / melamine

- ☐ surface finish: smooth matt / textured / embossed wood grain

- ☐ moisture resistant board: required / not required

fibreboard (SANS 540)

- ☐ type: insulation board / medium density fibreboard (MDF) / tempered hardboard

MDF has a fine structure allowing for traditional wood-working techniques like moulding, embossing, routing and edge profiling.

- ☐ thickness of tempered hardboard: 3,2 / 4,8 / 6,4 mm / as required

Hardboard can be bent by cold-dry, cold-moist and hot-moist bending techniques. Consult manufacturer. For full range of thicknesses see SANS 540.

- ☐ moisture content range: ...

particle board (SANS 50312)

- ☐ type: P2 / P3 / P4 / P5 / P6 / P7 / as required

P2 (general purpose, dry conditions); P3 (interior fitments, dry conditions); P4 (load-bearing, dry conditions); P5 (load-bearing, humid conditions); P6 (heavy-duty, dry conditions); P7 (heavy-duty, humid conditions).

- ☐ thickness: 12 / 16 / 18 / 22 / 25 / 28 mm / as required

oriented strand board (OSB) (SANS 472)

- ☐ type: OSB/1 / OSB/2 / OSB/3 / OSB/4 / as required

OSB/1 general purpose dry interior; OSB/2 load-bearing dry conditions; OSB/3 load bearing humid conditions; OSB/4 heavy-duty load-bearing humid conditions, e.g. walls, floors, roofing, I-beams.

- ☐ thickness: 6 / 9 / 12 / 15 / 18 mm / as required

15.1.3 Polymer laminate and solid surfaces

high pressure decorative laminates (HPL) (SANS 4586)

HPLs consist of layers of phenol formaldehyde impregnated sheets of Kraft paper with melamine formaldehyde (MF) impregnated décor and overlay paper, pressed together. Normally glued to suitable board with a backer laminate for balance, but can be self-supportive (solid core).

- ☐ material type: S / F / P / as required

S (standard) / F (flame-retardant) / P (postformable).

- ☐ grade/duty class (wear, impact and scratch resistance) : 1 / 2 / 3 / 4 / / as required

1 (light duty, post-forming), 2 (vertical surface), 3 (general purpose), 4 (heavy duty)

General Purpose grade, thickness 1,2 / 1,5 / 2,0 / 2,5 / 3,0 / 3,5 / 4,5 mm: for work surfaces on counters, vanities, desks and tables, and for vertical surfaces like wall panels and front panels of work stations in hospitals, airports and restaurants.

Vertical Surface grade: for cabinet walls, door and drawer panels, desks, restaurant booths, architectural cladding.

Light duty/post forming grade, thickness 0,35 / 0,6 / 0,8 / 1,0 mm: for rounded edges.

Heavy duty, thickness 6,0 mm

- ☐ thickness: light duty and post forming: 0,35 / 0,6 / 0,8 / 1,0; general purpose: 1,2 / 1,5 / 2,0 / 2,5 / 3,0 / 3,5 / 4,5 mm; heavy duty: 6,0 / as required

Omit if default (1,2 mm for grade 3 (general purpose) and 1,0 mm for grade 1 and 2 (vertical surfaces and post forming) is acceptable.

- ☐ surface finish, colour, texture: smooth matt / textured / embossed wood grain / writing

- ☐ solid core grade: interior grade / exterior grade

- ☐ thickness interior grade: 3 / 6 / 8 / 10 / 20 mm

- ☐ thickness exterior grade: 20 mm

Solid core for horizontal and vertical work surfaces; exterior grade for vertical surfaces only, e.g. cladding, balustrading and signage.

Check thickness and usage with manufacturer.

continuous pressed laminates (CPL)

CPLs are supplied in 100 –150m rolls.

- ☐ grade/duty class, thickness: HGP / VGP / VLP / as required

HGP (horizontal, general purpose, postformable), thickness 0,6 mm, wear index number 3, impact index number 2, scratch index number 2; VGP (vertical, general purpose, postformable), 0,6 mm, 2, 2, 2; VLP (vertical, light duty, postformable), 0,35/0,5 mm, none, 2, 2.

- ☐ colour, pattern: ...

polymer solid surfacing material

- ☐ colour: ...
- ☐ inlays: ...
- ☐ form: ...

15.1.4 Stone surfaces**stone surfacing material**

- ☐ type: ...
- ☐ thickness: ...
- ☐ edge: ...
- ☐ form: ...

15.1.5 Steel tubes for furniture**steel tubes for furniture SANS 657-4**

- ☐ material and grade: mild steel 230 / 250 / stainless steel class A type 1 or 2, grade 304
- ☐ size, profile: see drawings

Size, profile: 16, 20, 25, 32, 38, 40, 50, 60, 70 mm \varnothing (round steel); 16, 20, 25, 32, 50 mm (round stainless steel); 30 x 16 mm (oval steel); 20 x 20, 25 x 25, 32 x 32, 40 x 40, 50 x 50, 65 x 65 mm (square steel); 25 x 25, 32 x 32 mm (square stainless steel); 50 x 20, 50 x 25 mm (rectangular steel and stainless steel)

- ☐ wall thickness: see drawings

0,9 / 1,2 / 1,6 / 1,8 / 2,0 mm, depending on material.

- ☐ stainless steel finish: mill / matt / polished / mirror.

15.1.6 Joinery**general**

Climate zones: inland / coastal. Inland zones represent over 90% of South Africa's climate, made up of an average 8% moisture content, including air-conditioned indoor areas.

- ☐ wood sizes: see drawings

Wood sizes: show finished sizes of timber members on drawings to avoid arguments about tolerance: 25 mm nominal size reduces to 22 mm after planing, 38 to 32, 50 to 44, 76 to 68, 114 to 105, 150 to 140, 228 to 118 mm.

Check available board sizes to ensure optimum yield and to avoid unnecessary waste.

Marine ply is a superior choice to moisture resistant particle board in wet areas.

- ☐ exposed edges of veneered composite board: solid wood edging to match veneer and to full thickness of board

grain, pattern

- ☐ direction of grain or pattern: see drawings

Omit if default (vertical on vertical surfaces, parallel to walls on horizontal surfaces) is acceptable.

backs

- ☐ backs to fittings: 4,8 mm hardboard / 16 mm ply/composite board / contractor's choice / not required

drawers

- ☐ drawer construction: see drawings

Omit if default construction is acceptable.

shop painting

- ☐ delivery of joinery on site: knot and prime / knot and prime hidden faces only / brush apply one coat clear finish as specified under Section 14 / reaction lacquer spray paint

Omit if fully painted (default) is acceptable.

15.1.7 Fixing

Consider tables, counters and shelves at a variety of heights to accommodate standing, sitting and a range of different tasks for disabled persons.

wood cornices, skirtings, quarter rounds, rails

- ☐ material: solid hardwood / medium density fibreboard / ...
- ☐ size and profile: see drawings.

15.2 Commercial kitchen cupboards (SANS 1385)

SANS 1385 covers 8 types of kitchen unit cupboards of steel sheet, composite wood board or solid timber. Kitchen Specialist Association (KSA) is the national trade association of kitchen fitting manufacturers. Consider specifying that the manufacturer/installer is a registered member.

- ☐ type of unit: see drawings

base / sink / was trough / wall / combination / corner / special / floor mounted tall cupboard

- ☐ colour: ...
- ☐ type of stainless steel for sinks, wash troughs, worktops: AISI-304 / AISI-430
- ☐ finish on mild steel fittings, handles, fasteners: electrodeposited nickel-chrome / zinc and cadmium
- ☐ type of wood: solid / laminated / hardboard / plywood / particle board / low pressure decorative board / laminated veneer board / as required
- ☐ material of work tops: composition board / stainless steel / ceramic / mosaic
- ☐ edging of worktops: hardwood / plastic moulding / extruded aluminium / self-edging (same material as top) / aminoplastic / high-pressure decorative laminate
- ☐ number and position of bowls: see drawings
- ☐ material of casings: sheet steel / solid timber / composite (particle board with laminates)
- ☐ material and construction of doors: steel butts / sliding / wood / composite board / glass panel
- ☐ locks: cylinder / lever
- ☐ region: inland / coastal region
- ☐ wood finish: raw linseed oil / lacquer varnish / bees wax and turpentine / epoxy resin
- ☐ dimensions: see drawings

Floor units: 300, 400, 450, 500, 600, 900, 1000, 1200, 1500, 1800, 2100 x 525, 600 x 900 mm; wall units: ditto length x 300 x 300, 600; tall units: 500, 900 x 525, 600; wash trough units: 450, 900, 1050, x 525, 600 x 900 mm / for non-modular dimensions, consult manufacturers.

- ☐ type door, arrangement of drawers, shelves: see drawings

additional items

- ☐ plinths or any other part of wood cupboards in contact with the floor or wet areas, e.g. sinks, food preparation: solid hardwood / marine plywood / moisture resistant particle board / moisture resistant medium density fibreboard.

Composite wood and softwood swells or rots in contact with moisture from floor cleaning operations.

15.3 Commercial steel furniture (SANS 757)

- ☐ type of unit: see drawings

stationary cupboard / linen cupboard / pigeon-hole cupboard / locker / wardrobe / filing cabinet / card-index cabinet

- ☐ class, colour and texture of paint finishes: enamel or powder class 1 / 2

enamel or powder class 1 (minimum 0,06 mm thick) / 2 (minimum 0,03 mm thick)

- ☐ metal finishes: chromium / zinc / cadmium
- ☐ powder coated finishes SANS 1574: type 1 / 2 / high gloss / satin / matt
- ☐ number of drawers, adjustable shelves: ...
- ☐ type hinges: ...
- ☐ type of locking system: cylinder / latch rod / latch plate
- ☐ type of adjusting strip: ...
- ☐ mirrors in wardrobes: see drawings
- ☐ fire resistance rating of vertical plan filing cabinets: ...

15.4 Metal counters, balustrades, cladding, signs, street furniture

☐ material: see drawings

stainless steel / aluminium / prefinished metal

stainless steel

Stainless steel is low carbon steel containing >11% chromium (Cr), providing the steel with a corrosion resisting passive film.

Stainless steel classes are austenitic (300 series) and ferritic (400 series). Each class has several grades. Austenitic stainless steel grade 304 (European Norm 1.4301) is normally used for street furniture, shop fronts, doorways, counters, balustrades, cladding, signs, roofing and street furniture. Use grade 316 in corrosive regions. Ferritic stainless steel is used only in interior applications of a non-aggressive nature.

Locally produced stainless steel is available in flat products, forgings and castings. Hot-rolled flat sheet is 3 – 50 mm thick, cold-rolled 0,4 – 3 mm thick. Sections like angles, channels, welded pipe and tubes are cold-rolled from flat sheet. Other grades and products are imported.

Stainless steel mill finishes can be annealed, pickled or polished. Processed finishes are achieved by grinding, polishing or buffing. Stainless steel can be coloured, acid-etched, mirrored, electro-polished, perforated, expanded, meshed or screened.

Choose the correct grade with consideration of the building's location, prevailing environment and climate.

Design stainless steel elements to avoid receiving run-off water from other metals, or concentrated flows of rainwater over parts of the element. Designs must cater for the facilitation of regular cleaning.

Consult the Southern African Stainless Steel Association (SASSDA).

☐ austenitic stainless steel grade: 304 or 304L / grade 316 in the coastal region 3 – 4km from the coast

☐ finish: annealed and pickled mill finish / polished / coloured / etched / mirrored / electro-polished

☐ form: see drawings

sheet / section / perforated / expanded / meshed / screened

aluminium

☐ finish: mill / anodising / liquid organic coating / powder coating

☐ colour: ...

☐ finish: matt / satin / high gloss / hammertone / textured

prefinished sheet metal products

Organic film coating on steel, aluminium, stainless steel for interior and exterior use.

☐ type: 1 / 2a / 2b / 3 / 4 / 5a / 5b / 6a / 6b / as required

1 (interior, requiring further application after fabrication); 2a (dry areas); 2b (wet corrosive areas); 3 (mild to moderate rural, urban, tropical and industrial environments); 4 (marine and industrial); 5a (severe marine); 5b (heavy industrial and industrial marine); 6a (very severe marine); 6b (very severe industrial)

☐ colour: ...

☐ finish: flat / semi-gloss / gloss

☐ dry film thickness: ...

☐ type of substrate: hot dip galvanized steel / aluminium / stainless steel

15.5 Stairs and ramps

☐ type: see drawings

straight / spiral / dogleg / combination / helical / security/fire / enclosed

The rule in SANS 10400 – M of a minimum going of 250 mm and a maximum rise of 200 mm often leads to a disregard for another rule, i.e. “*any stairway ... shall have dimensions appropriate to its use*” (NBR part M Stairways). The full range of a more comfortable and safer proportion within the rule that “*the sum of the going and twice the riser is not less than 570 mm and not more than 650 mm*” would be: 180/280 mm; 170/280 – 310 mm; 150/280 – 350 mm and should be used in most public buildings.

Public ramps must have a safe gradient and frequent landings for disabled persons. Check with SANS 10400-S.

☐ structure: see drawings

painted mild steel / stainless steel / wood, species

☐ treads: see drawings

wood, species ... / stainless steel / steel / glass

☐ balustrade / handrail: see drawings

stainless steel / wood / glass / polymer concrete.

Relevant standards:

SANS 10400-M Stairways.

SANS 10400-S Facilities for Persons with disabilities.

SANS 10104 Handrailing and balustrading (safety aspects).

16 Hardware

Hardware information should appear on door, window or finishes schedules.

16.1 General

☐ type: see drawings

lock / latch / handle / plate / closer / hook and eye / bracket / hinge / bolt / door stop / door knob / door knocker / sanitary / furniture / curtain rail / edge or feature strip / sunken door mat / signage / drawer runner

☐ fire door hardware type: see drawings

escape hardware / panic bars / locksets with thumb turns / fire bolts

☐ material: see drawings

steel / stainless steel / aluminium / brass / nylon / ceramics / porcelain / wood

finish

For finishes on metal see SANS 1171 Annex C.

☐ finish: see drawings

natural / brass plated / copper plated / chrome plated / zinc plated / nickel plated / sherardised / cadmium plated / phosphated / passivated / antiqued / epoxy coated / powder coated / anodised

☐ sherardising coating thickness class: 15 / 30 / 45

15 µm normal indoor/outdoor / 30 µm severe outdoor / 45 µm highly severe outdoor/industrial/ marine.

☐ electroplating service condition: 1 / 2 / 3

1 (mild), 2 (moderate), 3 (severe)

Commercially plated fasteners are mostly sold with minimum corrosion protection, suitable only for dry interior conditions (corrosion resistance class C1). Thicker plating implies a special order (contact SAMFA – SA Metal Finishers Association – for details).

Rather specify solid brass, stainless steel or sherardized steel (30/45) for exterior or wet interior conditions, or ensure that plated products are protected by an appropriate paint system.

☐ appearance: bright / dull / satin.

16.2 Fasteners

☐ fastener type: bolt / screw / nut / washer / pin / rivet

☐ metal screws for wood, type: countersunk-head / round-head / raised countersunk-head / slotted or cross recess drive / hexagon-head / scant shank

☐ material and size: steel / brass / silicon-bronze / aluminium / stainless steel

☐ mild steel nails: type...; finish...

See SANS 1700 for full list of fastener types.

For roof/cladding fasteners see Section 7.

16.3 Locks, latches, catches, bolts

☐ type lock: see drawings

mortise / rim / cylinder / cupboard / drawer

☐ type handle: see drawings

lever / knob

☐ type latch: see drawings

mortise / cupboard / finger

☐ type catch: see drawings

magnetic / ball / roller

☐ type of bolt, size: see drawings

barrel / flush / tower / stable / extension / size

SANS 10400-S stipulates that door handles should be 450 mm away from any wall.

Consider handles, levers and controls that are easy to operate by disabled persons. SANS 10400-S: The manual operation of handles, taps, levers, switches, locks, control mechanisms and keys is in part affected by their design. The selection of controls requiring a 'twist-action' of the wrist and hand, and fine-finger movements should be avoided.

- ☐ hardware on fire doors: see drawings

padlocks

- ☐ type: see drawings

keyed / combination / masterkeyed

- ☐ duty: medium / heavy

- ☐ material: see drawings

brass / iron / chrome plated brass / aluminium / stainless steel

- ☐ size: see drawings

40 / 50 / ... mm

keys

- ☐ master and grand master keys: see drawings.

16.4 Hinges

hinges for lightweight doors

- ☐ type: see drawings

piano / pivot / flush / european (adjustable) / strap

hinges for medium to heavy doors

- ☐ material: see drawings

steel / stainless steel / brass / bronze

- ☐ number of hinges for fire doors: see drawings.

16.5 Door closers

- ☐ type: see drawings

surface-mounted / concealed in frame / concealed in floor / concealed in door / overhead / floor / manual / automatic

Consult AAAMSA Technical Publication: Hardware, Door Controls etc.

Ensure surface mounted overhead closers do not hit the wall when opening.

All fire doors are required to be fitted with closers (NBR), usually overhead. Do not fit a mechanical hold open arm to a fire door. Use concealed mechanisms in hygienic areas.

For concealed floor types, ensure floor spring box depth of up to 75 mm can be accommodated.

Specify a higher strength closer for exposed, windy or draughty conditions. Specify a lower strength for narrow doors.

Double doors with rebated meeting stiles must be fitted with a door selector to ensure the inactive leaf closes first.

- ☐ floor springs, consisting of a floor spring unit set into the floor, bottom and top door strap of size and finish: see drawings

Size depends on door size and weight – see manufacturer's literature.

16.6 Pelmets, curtain rails, rods, blinds

pelmets

- ☐ type, size and profile: see drawings / wood / metal / fabric

rails with rollers or glides

- ☐ track: single / double

- ☐ duty class: light / heavy

- ☐ finish: ...

- ☐ cord: with / without weighted cord pulleys

rods with rings

- ☐ rod, rings, end caps: wood / aluminium / steel

tie backs

- ☐ tie backs: ...

indoor venetian blinds

- ☐ slat width: 50 / 35 / 25 mm
- ☐ headbox: steel / aluminium
- ☐ type of ladder web: reinforced plastic / woven cotton / knitted cords

16.7 Edge, feature, dividing strips

- ☐ strip material: solid brass / aluminium / hot dip galvanized steel / PVC
- ☐ colour of plastic: ...

16.8 Sunken door matting

- ☐ material: natural coconut fibre with PVC backing / rubber / interlocking aluminium channels with plastic inserts / light or heavy-duty loop matting.

16.9 Number/name plates, safety signs

Type, letter size, position, message etc. should be given in schedule form.

Signs may be grouped: general information signs; hospital signs; safety signs; signs for disabled persons; statutory signs, e.g. fire safety.

- ☐ type: changeable plate system / variable room identification system / changeable letter system / illuminated signs / in-house signage / statutory signage

Changeable plate system: fixed plate holders to which may be attached or inserted removable interchangeable sign plates; variable room identification system: fixed room numbers and removable name strips; changeable letter system: holders into which can be inserted removable individual letters, numbers, etc.; illuminated signs: cabinet enclosing a light source illuminating a translucent face panel bearing the specified signage; in-house signage: project specific signs

- ☐ materials: aluminium / plastic / stainless steel
- ☐ colour: ...

symbolic safety signs

- ☐ type: PV / MV / WW / FB / GA

PV (prohibitory – circular, red), MV (mandatory – circular, blue), WW (warning – triangular, yellow), FB (informative, fire-fighting – square, red), GA (informative, general – square, green)

- ☐ reflectivity, luminosity: standard (non-reflective) / self-luminous (radio luminescent) / internally illuminated / retro-reflective or photo luminescent / decal / embossed
- ☐ size: 100 x 100 (WW7 only) / 150 x 150 / 190 x 190 / 290 x 290 / 440 x 440 / 880 x 880 mm)

See SANS 1186 Annex C for positioning, fixing, illumination and maintenance of signs.

16.10 Drawer runners/slides

- ☐ type commercial ball-bearing runner: normal / self-closing / soft-closing / push-locking
- ☐ load capacity: 30 kg static / 45/90 – 160 kg (heavy duty)
- ☐ extension: full / three-quarter.

Relevant standards:

SANS 10140 Identification colour marking.

17 Glazing

SAGGA – South African Glass and Glazing Association – is the trade association and AAAMSA member.

17.1 Materials

glass

Clear and tinted float glass is made in South Africa by one manufacturer in Springs.

☐ type of glass: see drawings

float / safety / security / pattern / tinted / insulated / polymer

☐ float glass thickness: see drawings

Local float glass thickness: 3, 4, 5, 6 and 10 mm.

☐ laminated safety glass interlayer strength class: NS / HPR / HI

NS (normal strength), HPR (high penetration resistance), HI (high impact).

☐ bullet-resistant glass: class and level of attack: GA / GC / RA / RB / SB

Safety and security glass is made by several local manufacturers. Laminated safety glass is made with a poly-vinyl butyral interlayer (0,38 mm for Normal Strength (NS); 0,76 mm High Penetration Resistant (HPR); 1,14mm High Impact (HI)); or a cast in place polyester resin interlayer, available in one thickness only (0,5 mm Normal Strength). SANS 1263 provides for three applications, i.e. human contact, burglary and firearms. See SANS 1263 for bullet-resistant glass classes and level of attack.

☐ pattern glass thickness: 4 / 6 mm; colour: clear / amber / bronze; pattern: ...

All patterns cost the same.

☐ tinted glass: heat-absorbing / heat-reflecting / glare-reducing

☐ insulated glass units (SIGU's) : 6/12/6, low-e surface #2, dehydrated air filled gap / ...

6/12/6 denotes glass-space-glass. Common insulated glass thickness range (glass-space-glass) in South Africa is 20–28 mm. Life expectancy of double glazing in South Africa has not been recorded. Northern hemisphere experience indicates 7–12 years, 20 years being exceptional.

☐ coloured glass: ...

☐ work on glass: cutting / obscuring / acid embossing / silvering / gilding / staining or painting / bending

polymer glazing

☐ polymer glazing type: PC / PMMA / PVC clear / GRP / PS / PET / single wall / multi-wall

Available polymer glazing materials are polycarbonate (PC), polymethyl methacrylate (PMMA or 'acrylic'), polyvinyl chloride (PVC), glass-fibre reinforced polyester (GRP), polystyrene (PS), polyethylene terephthalate (PET). PC and PMMA is available in sheet sizes 1 250, 1 500 or 2 050 wide by up to 6 m long by 1,5 – 6 mm thick. They can be cold bent to minimum radii of 300 x thickness for acrylic, or 100 x thickness for polycarbonate.

Outstanding properties of polymer glazing are impact strength (polycarbonate 250x glass), light transmission, light weight, weather resistance, thermal insulation in multi-wall construction (40% better than glass). Typical applications: rooflights, industrial roofs, commercial greenhouses, shopping centres. Polycarbonate is self-extinguishing, acrylic burns like hardwood. No toxic fumes are claimed. Make generous allowance for thermal movement.

17.2 Glazing

17.2.2 Structural glazing

☐ design: by *competent person* (glazing) / submit proposals

Structural glazing depends on stringent quality tests and checks, for example the pretreatment of aluminium, surface finishing, sealants, and factory and site care. Check with AAAMSA.

A butt joint in structural glazing is assumed to have no structural strength.

Check underwater glazing, glazing for fire protection, for control of reflections in shop windows, for solar control, for one-way vision, unframed glazing, suspended glazing, glass floors, glazing with channel profiles, glazing with plastics and patent glazing, with manufacturers, specialists and SANS 10137.

17.2.3 Protection and cleaning

Anti-sun glass can be permanently damaged by mortar or plaster splashes. Specify precautions if risk is high.

17.3 Mirrors

☐ type: silvered clear glass / silvered coloured glass / stainless steel / privacy

silvered mirror backs are easily damaged. Silvered obscure glass also available. Stainless steel for vandal proof areas.

☐ size and position: see drawings

Consider full length mirrors in public places for children and disabled persons.

☐ coloured glass: pink / gold / bronze / black

Relevant standards:

SANS 10137 The installation of glazing materials in buildings.

SANS 1263 Safety and security glazing materials for buildings.

SANS 10400-N Glazing.

SANS 2001-CG1 Installation of glazing.

Relevant sources:

Selection Guide for architectural Aluminium Products. AAMSA.

Skylight Association of Southern Africa.

18 Drainage, sewerage, water and gas supply, fire equipment, sanitary plumbing

18.1 Roof eaves drainage

18.1.2 Gutters and downpipes

- ☐ gutter type: see drawings

eaves / valley / box / parapet/chimney

- ☐ material: Z575 / Z450 / Z600 / AZ150 / AZ200 hot dip galvanised steel sheet / uncoated steel painted on-site / aluminium / copper / U-PVC / fibre cement / prepainted

Galvanized sheet: Z575 or AZ150 for inland use; Z450/ Z600 or AZ200 for the *coastal region*, prepainted for corrosive industrial use. Commercial standard rainwater goods are made of 0,4 or 0,5 mm thick sheet.

- ☐ profile: see drawings

half round / square / rectangular

- ☐ size: see drawings

100 x 75 mm, or 100 / 125 / 150 mm half round (domestic); 125 x 100 (institutional); 150 x 100 / 200 x 150 / >225 x 225 (industrial). Sheet metal gutter standard lengths: 1,8; 3,0; 3,6; 4,8; 5,4; 6,0 m.

Gutter and downpipe sizes are determined by roof area and rainfall region in accordance with the requirements of SANS 10400-R: summer rainfall area: 140 mm²/m² roof area served; year-round rainfall area: 115 mm²; winter rainfall area: 80 mm². Downpipe internal size: 100 mm²/m² roof area served or 4400 mm² (75 mm diameter). For more information on gutter design, e.g. risk, rainfall intensity, hail and outlet protection, launders, drop boxes etc. see The Red Book – Southern African Steel Design Handbook, Section 11.

accessories

- ☐ outlet drop boxes: funnel shaped

Drop boxes for box gutter outlets improve flow and reduce stoppage by debris.

- ☐ overflow weirs in box gutters: required

- ☐ hail guards: see drawings

removable / pedestrian trafficable

Hail guards over gutters act as protection against hail, as maintenance walkways, as outlet protection and as protection against leaves and wind-blown debris. Trafficable hail guards should be made of suitable gauge expanded mesh – provide clear working *drawings*. Hail guards should be removable for maintenance.

- ☐ launders: see drawings

Launders are horizontal downpipes draining intermediate box gutter outlets to the exterior of large industrial buildings.

gutter brackets

- ☐ type: purlin / fascia / purpose-designed for industrial/box gutters / as supplied by gutter manufacturer

downpipes

- ☐ material: galvanised steel sheet / PVC

Do not use PVC downpipes if offsets are required.

- ☐ size: see drawings

75 / 100 / 120 / 150 mm square / diameter

Best solution for outlet protection is to use oversize downpipes ≥200 mm diameter.

- ☐ sheet metal downpipe bends: crimped / solder mitred / sealed and pop riveted

18.2 Flat concrete roof, balcony and floor drainage

18.2.1 Rainwater outlets

- ☐ type: see drawings

patent with grating / pipe without grating

- ☐ patent type: see drawings

vertical / 45° / 90° / two-way / car-park / pedestrian

☐ outlet size: see drawings

50 / 80 / 100 / 150 mm diameter

Outlets without gratings should be used for small roof areas in accessible position only, e.g. for balconies, and be not less than 75 mm in diameter due to the waterproof dressing restricting the pipe bore, unless pipe can be flanged.

18.2.2 Floor outlets

☐ material: ductile iron with baked epoxy coating / stainless steel

18.2.3 Outlet downpipes

☐ material: PVC / galvanized steel

☐ size: see drawings

75 / 110 / 160 mm (PVC); 80 / 100 / 125 / 150 mm (steel)

18.3 Stormwater drainage

18.3.1 Earthworks (SANS 2001-DP1)

SANS 2001-DP1 covers earthworks for trenches for all types and sizes of buried pipelines, ducts, cables and prefabricated culverts, including excavation, preparation of trench bottoms, bedding, backfilling and reinstatement of surfaces.

Specification data:

☐ pipes that are to be encased in concrete: see drawings

18.3.2 Storm water drainage (SANS 2001-DP5)

SANS 2001-DP5 covers the construction of stormwater drainage systems including pipelines, manholes, culverts, catchpits, inlet and outlet structures.

Specification data:

pipes

☐ material of pipe, associated fittings: see drawings

concrete / fibre cement / PVC-U / GRP / PP / PE

☐ diameter: see drawings

concrete pipes: 100, 150, 225, 300, 375, 450, 525, 600, 675, 750, 825, 900, 1050, 1200, 1350, 1500, 1800 mm. Check diameters of other material pipes.

culverts

☐ precast concrete culverts

☐ class: 75S / 100S / 125S / 150S / 175S / 200S

☐ dimensions (internal) : see drawings

span: 450, 600, 750, 900, 1200, 1500, 1800, 2400, 3000 mm

height: 300, 450, 600, 900, 1200, 1500, 1800, 2400, 3000 mm

tests

☐ tests: required / not required

18.3.3 In situ concrete stormwater channels

☐ overall width: see drawings

380 / 450 / ... mm

380 mm width: 230 mm x 75 mm deep channel; 450 mm width: 300 mm x 100 mm deep channel.

☐ fall: see drawings

1:250 min.

☐ spill basin shape, size and finish: see drawings.

18.4 Sewerage

18.4.1 Earthworks (SANS 2001-DP1)

Specification data:

☐ pipes that are to be encased in concrete: see drawings

18.4.2 Sewers (>160 mm) (SANS 2001-DP4)

SANS 2001-DP4, *Sewers*, covers the construction of sewer systems within servitudes, road reserves and interconnected complexes and is suitable for the construction of below ground sewers having a diameter greater than 160mm. Excludes sewer rising mains, pump stations, treatment works, and ancillary works.

Specification data:

- ☐ type of pipe, associated fittings: ductile iron / fibre cement / PVC-U / structured wall PVC-U / PP / GRP / pitch impregnated fibre / vitrified clay / reinforced concrete

Unplasticised polyvinyl chloride (PVC-U); polypropylene (PP); glass-reinforced plastics (GRP)

- ☐ diameter: see drawings

200 / 250 / 315 / 355 / 400 / 450 / 500 / 560 / 630 / 750 / 800 / 900 / 1 000 mm diameter (PVC-U). Check diameters of other material pipes.

- ☐ gradient: see drawings
- ☐ step irons in manholes: required / not required
- ☐ masonry manholes: plastered internally / plastered internally and externally to prevent infiltration
- ☐ tests on completed pipelines: required / not required.

18.4.3 Sewers for buildings (SANS 2001-DP7)

SANS 2001-DP7 covers surface mounted sewers having a nominal diameter of 200 mm or less; and below ground sewers having a nominal diameter of 160 mm or less including manholes and the like which discharge into a connecting sewer, conservancy tank, French drain or septic tank. This standard is *suitable* for constructing sewers designed in accordance with the design rules provided in SANS 10400-P, Drainage. Construction of manholes is referred to SANS 2001-DP4.

Specification data:

- ☐ type of pipe, associated fittings: cast iron / ductile iron / fibre cement / PVC-U / structured wall PVC-U / PP / GRP / pitch impregnated fibre / vitrified clay / reinforced concrete
- ☐ nominal diameter: see drawings

40 / 50 / 75 / 110 / 160 mm

- ☐ gradient: see drawings

SANS 10400-P requires that sewer gradient be not flatter than 1:120 for 100 mm diameter pipes and 1:200 for 150 mm pipes. The hydraulic load determines the minimum grade of the pipe.

18.4.4 Surface boxes, manhole covers, gulley gratings, frames

For vehicular and pedestrian areas only (does not apply to gullies and manholes in buildings).

- ☐ type: see drawings

surface box / valve chamber / manhole/inspection cover / gulley grating

- ☐ material: polymer concrete / cast iron or steel

polymer concrete

- ☐ polymer concrete covers

- ☐ size: see drawings

- ☐ duty class: see drawings

heavy (trucks) / medium (domestic vehicles) / light (no wheeled vehicles)

cast iron/steel and concrete

- ☐ cast iron, cast steel, rolled steel combined with concrete covers

- ☐ size: see drawings

- ☐ duty class: see drawings

A15 / B125 / C250 / D400 / E600 / F900

Class A15 pedestrian and pedal cyclists; B125 car parks; C250 road kerbside channels; D400 roads, hard shoulders, parking for all types of road vehicles; E600 docks, aircraft pavements; F900 particularly high wheel loads.

- ☐ gulley gratings: laid loose / bedded in bitumen.

18.4.5 Grease interceptors

- ☐ material: stainless steel / reinforced fibreglass
- ☐ type, capacity and size: see drawings / to approval of the local authority

Several models are available on the market.

18.4.6 Pit latrines

- ☐ type: see drawings

VIP / masonry / patent / to approval of local authority

- ☐ construction: masonry / patent precast concrete / patent polymer
- ☐ pit size: see drawings

Pit size depends on capacity/ number of persons using. Omit if default (750 x 1 500 x 2 000 mm minimum deep) is acceptable. Maximum pit size: 1 000 x 2 500 x 2000 mm.

18.4.7 Conservancy tanks, septic tanks and french drains

- ☐ type: see drawings

conservancy tank / septic tank / french drain

- ☐ construction: masonry / patent precast concrete / patent polymer
- ☐ tank capacity: see drawings / as prescribed by local authority

Conservancy tank capacity is typically 6 000 L. See SANS 10400-P for sizing of septic tank. Patent septic tank capacity 1 250 litres (2-4 persons); 1 500 (2-6); 1 750 (4-6); 2 000 (4-7); 2 500 (4-9). Consult SANS 10252 for design guidelines.

- ☐ french drain length: see drawings

See SANS 10400-P for length formula, positioning, soil type, etc.

18.5 Water supply

18.5.1 Earthworks (SANS 2001-DP1)

SANS 2001-DP1 covers earthworks for trenches for all types and sizes of buried pipelines, ducts, cables and prefabricated culverts, including excavation, preparation of trench bottoms, bedding, backfilling and reinstatement of surfaces.

Specification data:

- ☐ pipes that are to be encased in concrete: see drawings.

18.5.2 Below ground medium pressure pipelines (SANS 2001-DP2)

SANS 2001-DP2 covers the supply and installation of pipelines of diameter greater than 160 mm and up to 1 000 mm, complete with ancillary works (valves, strainers, hydrants, manholes, surface boxes, chambers) for transporting water and sewage under working pressures up to 2,5 MPa.

Erf or connections to buildings from mains are covered in SANS 2001-DP6.

Specification data:

- ☐ type of pipe: steel / ductile iron / concrete / fibre-cement / GRP / PE / PP / contractor's choice)

glass-reinforced plastics (GRP); polyethylene (PE); polypropylene (PP)

- ☐ nominal pipe sizes: see *drawings*.

225 / 300 / 375 / 450 / 525, 600 / 675 / 750 / 825 / 900 mm

18.5.3 Below ground water installation for buildings (SANS 2001-DP6)

SANS 2001-DP6 covers the construction of water pipelines having a nominal diameter of up to 160 mm from a water reticulation main to the boundaries of individual erven or other specified points on erven. It covers the installation of pipework and associated specials which provide water, meters and fire hydrants

SANS 2001-DP6 is suitable for construction of fire installations designed in accordance with the design rules provided in SANS 10400 W, Fire installations.

Specification data:

- ☐ type of pipe and associated fittings: galvanised mild steel / fibre cement / GRP / PE / PP / PVC / PVC-U / PVC-M / PVC-O / copper / contractor's choice

Glass-fibre reinforced plastics (GRP) / polyethylene (PE) / polypropylene (PP) / polyvinyl chloride (PVC) / unplasticised polyvinyl chloride (PVC-U) / modified polyvinyl chloride (PVC-M) / oriented polyvinyl chloride (PVC-O).

☐ nominal pipe size: see drawings

40 / 50 / 75 / 110 / 160 mm

☐ meter type and size: ...

18.5.4 Above ground water installation

☐ pipe material: galvanised mild steel / PP / copper / contractor's choice

☐ nominal pipe size: see drawings

8 / 10 / 12 / 15 / 18 / 22 / 28 / 35 / 42 / 54 / 67 / 76 / 108 mm (copper, check other pipe types)

☐ fixing of pipes <20 mm: chased / surface fixed

Surface mounting may be a requirement from a maintenance point of view.

Chasing is prohibited in wall faces that are to receive roof flashing. Roof flashing is inserted in grooves sawn by a separate trade with disc cutters after pipes are installed, leading to unnecessary and costly pipe repair work when pipes are damaged.

18.5.5 Water storage tanks

☐ tank material: tumbled polymer / pressed steel sections bolted and sealed together / corrugated steel

☐ capacity or size: see drawings / ...L

☐ stand for external tanks: ...

18.6 Electric geysers and solar water heaters

18.6.1 Electric geysers

☐ geyser type: open outlet / cistern type / closed (unvented) / floor or wall mounting / horizontal or vertical

geysers should be placed near kitchen sinks that are regularly used throughout the day. Show geyser positions in drawings.

☐ nominal capacity: see drawings

open outlet and cistern type ≤15 / 25 / 50 / 75 / 100 / 125 / 150 / 175 / 200 / 250 L; closed type 15 / 25 / 50 / 75 / 100 / 125 / 150 / 175 / 200 / 250 / 300 / 400 / 600 L

☐ design: standard / solar / dual purpose.

18.6.2 Solar water heaters

☐ type: domestic / commercial / industrial

☐ capacity in litres (integral units only): ...

☐ collector/storage combination: integral / close-coupled / split

☐ heat transfer method: direct / indirect

☐ circulation method: thermo-siphon / pumped

☐ cover: with cover / without cover

☐ supplementary energy source required: mains electricity / gas / ...

☐ working pressure: 0 / 100 / 200 / 300 / 400 kPa

☐ freezing, hail resistance: required / not required.

18.8 Fire equipment

fire hose reels

☐ height from floor to spindle if not 2 100 mm: ...

☐ enclose reel in security box with clear acrylic cover and suitable closer: required / not required

portable fire extinguishers

☐ portable non-refillable general purpose extinguishers (SANS 1322):

Suitable for all classes of fire other than class D

☐ class: I / II

class I (temp <110°C); II (temp <65°C)

☐ capacity: 1,5 / 2,5 kg

☐ extinguishing medium: lp gas / dry powder

☐ water, foam or dry powder rechargeable extinguishers (SANS 1910):

☐ type: water / foam / dry powder

☐ class of fire: A / B / C

A (ordinary combustibles); B (flammable liquids); C (live electric power), or combinations, e.g. ABC

☐ CO₂ type extinguisher (SANS 1567):

☐ capacity: <9kg

☐ class of fire: A / B / C

☐ BCF type extinguisher (SANS 1151) capacity: 1 – 12 kg

Suitable for class of fire AC / BC / ABC

☐ enclose extinguisher in security box with clear acrylic cover and suitable closer: required / not required.

18.9 Sanitary plumbing

18.9.1 Sanitary appliances

appliances

☐ appliance type: see drawings

wash-hand basin / bath / water closet / urinal / bidet / sink / flushing cistern

☐ material: see drawings

glazed ceramic / stainless steel / plastic / stone / concrete

☐ stainless steel grade: 430 / 304 / 316; finish: satin / bright

Omit if default (430) is acceptable. Stainless steel grades are listed by the American Iron and Steel Institute (AISI). Grade 430 is *suitable* for domestic purposes, kitchen sinks, wash troughs and hand wash basins. Grade 304 is *suitable* where mild corrosive conditions exist, e.g. in *coastal areas*. Grade 316 is *suitable* for laboratories, photographic workrooms and seagoing vessels where corrosive conditions are severe.

☐ anti-theft waste plug: required / not required

☐ flow restrictors: required / not required

baths

☐ type, shape: see drawings

built-in / freestanding / spa / rectangular / oval / corner

☐ handles: required / not required

basins

☐ type, shape: see drawings

counter-top / wall hung / drop-in / pedestal / round / oval / corner

wash troughs

☐ type: see drawings

single trough / double trough / with drainboard

water closets

☐ type: see drawings

wall-hung / floor mounted / close-couple / squat

flushing cisterns

☐ type: see drawings

high level / low level / near level / close coupled / wall-hung / concealed

☐ flush capacity: low-flush (4½ or 6 L) / regular flush (6 or 9 L)

- ☐ flush valve flushing operation: single flush / dual flush / interruptible flush

urinals

- ☐ urinal type: see drawings

bowl / trough / stall

bidets

- ☐ bidet type: see drawings

wall-hung / floor mounted

sinks

- ☐ sink type: see drawings

domestic / laboratory / scullery / scrub sink / cleaner's / drop-in / wall-hung / pot / freestanding / with drainboard / with backsplash and tiling key / single, double or triple compartment

- ☐ bowl position: see drawings

left / right / centre

shower enclosures

SASEMA (South African Shower Enclosure Manufacturer's Association). SANS 549 "domestic" includes use in hotels, student accommodation, hospitals.

- ☐ shower enclosure type: purpose made / prefabricated / domestic to SANS 549 / medical / industrial / cabinet / curtain / roofed (steam shower)
- ☐ drained floor type: tiled / tray / bath
- ☐ glazed wall/door/roof construction: framed / frameless

Frameless construction requires toughened safety glass. Holes for hinges etc. must be prepared before toughening.

- ☐ safety glass: toughened safety glass / laminated safety glass / plastic
- ☐ door type: pivoting / folding-sliding
- ☐ metal finish: anodising, grade ... / powder coating, type 4

Metal coating grade/thickness will depend on location: anodising grade AG15 or AG20 will suffice for mild atmospheric conditions, while grade AG25 will be required for coastal applications. For powder coating, type 4 or 5 should suffice. Check with manufacturer.

18.9.2 Taps, valves, showerheads

- ☐ tap, valve type: see drawings

bath / basin / shower / sink / garden / bib / pillar / mixer / divert mixer / swivel / stop / flush / gate / hose / washing machine / draincock / float

- ☐ showerhead type: see drawings

fixed rose, diameter ... / adjustable rose / swivel / rail / vandalproof / handshower and holder

- ☐ material: chromium plated brass / stainless steel / plastic
- ☐ flush valve type: WCHP / WCLP / urinal

WCHP (Water closet high pressure; WCLP (water closet low pressure).

18.9.3 Traps

- ☐ type: see drawings

bottle trap / P-trap / P-trap resealing / pop-up

- ☐ material: plastic / rubber / chromium plated brass
- ☐ depth of seal: 40 / 75 mm.

18.9.4 Miscellaneous

holders

- ☐ holder type: see drawings

paper / soap / tumbler / tooth brush / toilet brush / towel rail/ring/hook

- ☐ material: chromium plated brass / glazed ceramic / aluminium / wood

shelves

- ☐ material: safety glass with polished edges on nickel-chromed / wood / metal / plastic brackets

cabinets

- ☐ type: wall / vanity / with mirror
- ☐ material: wood / plastic / metal.

Relevant standards:

SANS 10105 The classification, use and maintenance of portable fire extinguishers.

SANS 10112 The installation of polyethylene and PVC-U pipes.

SANS 10102 Selection of pipes for buried pipelines.

SANS 10252-1 part 1: Water supply and drainage for buildings; part 2: Drainage installation for buildings.

SANS 10254: The installation of fixed electric storage water heating systems.

SANS 10400-P Drainage.

SANS 10400-Q Non-water-borne means of sanitary disposal.

SANS 10400-R Stormwater disposal.

Relevant sources:

Concrete Pipe Handbook published by the Concrete Society of Southern Africa.

19 Electrical works

19.1 Earthworks (SANS 2001-DP1)

SANS 2001-DP1 covers earthworks for trenches for all types and sizes of buried pipelines, ducts, cables and prefabricated culverts, including excavation, preparation of trench bottoms, bedding, backfilling and reinstatement of surfaces.

Specification data:

- ☐ areas where pipes are to be encased in concrete: see drawings

19.2 Cable ducts (underground) (SANS 2001-DP3)

SANS 2001-DP3 covers the supply, and the laying and bedding in trenches, of pipes of diameter not exceeding 160 mm as ducts for the protection of telephone and electric power cables.

Specification data:

- ☐ type of pipe, associated fittings: pitch impregnated fibre / PVC-U / fibre cement / vitrified clay

Unplasticised polyvinyl chloride (PVC-U).

- ☐ draw pits: see drawings.

19.3 Materials and installation

19.3.1 Wiring

conduits

Chasing is prohibited in wall faces that are to receive roof flashing. Roof flashing is inserted in grooves sawn with disc cutters after conduits are installed, leading to unnecessary and costly repair work.

conductors

See SANS 10198 The selection, handling and installation of electric power cables of rating not exceeding 33 kV.

distribution board, meter cabinets

- ☐ position of DB's and meter cabinets: see drawings.

19.3.2 Fittings

luminaires

- ☐ type: see drawings

surface mount / recessed / accent / downlighter / step / theatre / outdoor (pole, step, bollard)

stove, hob, oven, cooker hood

- ☐ stoves, hobs, ovens, cooker hoods model, type: ... / see drawings.

Relevant standards:

SANS 10114 Interior lighting.

SANS 10389 Exterior lighting.

SANS 10142 The wiring of premises.

SANS 10222 Electrical security installations.

SANS 10313: The protection of structures against lightning.

SANS 61024 Lightning protection of structures.

20 Mechanical works

20.1 Installation

- ☐ routing and/or concealment of cables, ducts, trays, pipes etc. : see drawings.

20.3 Location and access

- ☐ catwalks, cat ladders, access panels: see drawings.

Catwalks and cat ladders should be detailed and coordinated with other services in order to keep to a minimum.

21 External works

21.1 Paving

21.1.1 Materials

units

- ☐ paving unit type: see drawings

precast concrete blocks / burnt clay pavers / in-situ concrete / precast concrete slabs

precast concrete segmental paving blocks

- ☐ type: S-A (interlock) / S-B (semi-interlock) / S-C (rectangular)
- ☐ class: 25 / 35

Class 25 (MPa) concrete blocks should be specified for most uses.

- ☐ nominal thickness: 50 / 60 / 80 / 100 / 120 mm

Thickness of blocks depends on site conditions, design requirements and cost.

- ☐ top edges: chamfered / not chamfered
- ☐ colour: ...

burnt clay paving units

- ☐ class: PB / PA

PB (uniform), PA (highly uniform in shape and size).

- ☐ colour and work size: ...

precast concrete paving slabs

- ☐ size: 295 / 445 / 595 x 295 / 445/295 / 595/455 x 50/65 mm

sand for bedding and jointing of flexible paving

The use of mine sand for jointing is generally accepted.

21.1.2 Preparation

subgrade

- ☐ subgrade levels and falls: see drawings

Check soil and traffic conditions with a Competent Person. The sub-base thickness is a function of both the type and amount of traffic to be carried and the strength of the subgrade. See also SANS 1200 ME, MF, ML.

concrete sub-base for rigid paving

- ☐ thickness, reinforcement: see Section 2

weed killer

- ☐ treat area to be paved with *suitable* weed killer: required / not required

levels, falls, pattern

- ☐ levels and falls: see drawings

A fall of 1:60 is regarded as an optimum fall. Gradients of 1:100 are less forgiving (workmanship, settlement).

- ☐ pattern: see drawings / herringbone / basket weave / stretcher / waving

Edge restraints along the perimeter of the paving is necessary to prevent lateral spread of the units and to retain the bedding course sand. See concrete culverts, kerbs etc. below.

21.1.3 Laying

See SANS 784 for guidance on tactile indicators for access and mobility.

- ☐ type of paving: see drawings / flexible block/brick / flexible slab / rigid block/brick / in situ concrete

flexible block/brick paving

Flexible paving is paving laid on sand, with joints filled with sand. The surfaces of flexible paving usually bed down ± 5 mm after trafficking.

Consider mixing filling sand with 10 – 15% cement depending on traffic, type of paver, and control of weed growth. Spray paving thus filled with a fine spray of water immediately after filling to clean off all cement.

- ☐ concrete anchor beams across road on grades exceeding 8%: ...

Horizontal forces of motor traffic increase considerably on grades exceeding 8%, causing creep. This is avoided by casting concrete anchor beams across the road. On steeper grades the paving should preferably be rigid. See CMA technical note 6.2 1994.

flexible slab

- ☐ joints: filled with mortar / to be left open

rigid block/brick paving

Rigid paving is paving units bedded in mortar on a concrete base. External paving is exposed to wide temperature and moisture fluctuation which can only be provided for by movement joints.

accuracy

Accuracy depends on experience of contractor and/or labourers, and importance of the contract.

21.2 Concrete culverts, kerbs, channels

- ☐ type: see drawings

culvert / kerb / channel

21.2.1 Materials

- ☐ precast concrete culvert class: 75S / 100S / 125S / 150S / 175S / 200S

Class depends on foundation conditions and fill.

- ☐ dimensions (internal) : see drawings

span: 450 / 600 / 750, 90 / 120 / 150 / 180 / 240 / 3 000 mm; height: 300 / 450 / 600 / 900 / 1 200 / 1 500 / 1 800 / 2 400 / 3 000 mm

- ☐ kerb type: see drawings

rectangular / half-battered / battered / mountable

- ☐ edging type: see drawings

rectangular / half-round

- ☐ channel type: see drawings

rectangular / tapered.

21.2.2 Laying

- ☐ movement joints: leave open / fill with polysulphide.

21.3 Concrete retaining blocks

Concrete retaining blocks are an economical, versatile and environmentally compatible method of retaining earth and be used for planting, steps, seats, pavilions, and for erosion and scour control.

blocks

- ☐ shape, size and colour: ...

preparation

- ☐ depth, level and type of foundation: see drawings

Foundations: also on sloping or gravel foundation. *Drawings* should show this. Compacted earth foundation is usually sufficient for structures not higher than 1,2m. Higher walls should be thicker, inclined towards the retained earth, anchored with a geogrid mesh, or by modifying the properties of the backfill. Consult the supplier of the blocks and/or Competent Person. Ensure building regulations are complied with.

- ☐ width of foundation: see drawings

Show width of foundation if of concrete.

- ☐ drain pipes, aggregate drain, geofabric drain behind retaining wall: required / not required

placing

- ☐ stacking pattern: see drawings

- ☐ geofabric reinforcement: required / not required.

SANS 207 gives recommendations for the application of reinforcement techniques to soils and other fills.

21.4 Gabions

materials

- ☐ cage dimension: 4 x 1 x 1 / 6 x 2 x 0,5 m

- ☐ mesh wire to be PVC-coated: required / not required.

21.5 Fencing

- ☐ type: see drawings

line wire on steel posts, stays, droppers and standards / wire chain-link mesh on steel posts, stays, droppers and standards / welded mesh / barbed tape / palisade / electric / private swimming pool

21.5.1 Line wire and chain-link mesh fencing

- ☐ type wire: ...

line / barbed

- ☐ type chain link wire: 1 / 2

1 (zinc coated) / 2 (zinc coated and PVC coated).

- ☐ colour of PVC coating when relevant: dark green / white
☐ nominal size mesh of chain-link wire: 40 / 50 / 60 / 75 / 100 mm

posts, stays, standards, droppers

- ☐ type: steel / concrete / wood

erection

- ☐ fence height: see drawings

900 / 1 200 / 1 800 / 2 000 / 2 400 / 3 000 / 3 600 mm

fencing gates

- ☐ size, shape: see drawings.

21.5.2 Weld mesh fencing

- ☐ material: mild steel / high tensile steel / very high tensile steel

High tensile steel (>950 MPa); very high tensile steel (>1 250 MPa).

- ☐ mesh size: 25 x 25 / 50 x 25 / 50 x 50 / 100 x 50 / 100 x 100 mm
☐ finish: hot dip galvanized / black / hot dip galvanized and powder-coated
☐ fence height: see drawings

1 200 / 1 800 / 2 400 mm

21.5.3 Barbed tape fencing

- ☐ type: A (concertina) / B (flatwrap) / C (barbed tape unclipped) / D barbed razor tape
☐ material: zinc-coated steel strip / stainless steel
☐ zinc coating grade: light / medium / heavy

21.5.4 Palisade fencing

- ☐ type: steel / concrete
☐ finish on steel: paint / hot dip galvanized

steel

- ☐ type: security purpose / general purpose
☐ steel fence height: see drawings

1 800 / 2 400 / 3 000 / 3 600 mm

- ☐ concrete fence height: see drawings

1 800 / 2 400 mm.

21.5.5 Electric fencing

- ☐ type: wall top / from ground up / electrified palisade / freestanding
☐ number of lines for wall-top type: 6 / ...
☐ powered by: mains / battery / solar.

21.5.6 Gate automation

- ☐ theft-resistant cages with padlock: required / not required.

21.5.7 Private swimming pool fencing

- ☐ fence height: see drawings

1,6 m* / 1,2 m

- ☐ type of protective wire coating: powder / zinc / paint / dual (paint over zinc).

21.6 Precast concrete plank walling

- ☐ type panel: plain / decorative
☐ colour: natural / ...
☐ height of wall: see drawings

900 / 1 200 / 1 500 / 1 800 / 2 200 mm

- ☐ width of panel: 300 / 600 mm.

21.7 Swimming pools

- ☐ swimming pool size, shape and finish: see drawings

21.8 Timber decking

SANS 10043 covers general principles on the installation of timber decking.

21.8.1 Materials

poles

- ☐ wood: softwood / hardwood

Softwood: Pinus; hardwood: Eucalyptus.

- ☐ top diameter (thin end): see drawings

50-79 (red) / 80-99 (yellow) / 100-119 (blue) / 120-139 (white) / 140-159 (orange) / 160-179 (green) / 180-199 (black) mm; ditto posts: 145-174 / 175-199 / 200-230 mm.

structural laminated timber

- ☐ wood: softwood / hardwood

Softwood: Pinus; hardwood: Eucalyptus.

- ☐ appearance and finish: P

Rough-sawn (R), fine-sawn (F), planed (P), sanded (S), smoothed (G), coated (C), special (X).

Preservative treatment: The Forestry Act 1968 (Act 72 of 1968) provides for the legal requirement of pressure treatment of structural softwood timber to combat any fungus or bacterial disease, insects or parasites affecting the timber. The present legislation applies to the so-called *the coastal region* only.

- ☐ fire retardant treatment: required / not required
☐ size: ...

deck boarding

- ☐ wood: softwood (Pinus) / hardwood
☐ softwood:

- ☐ grade: clear / semi-clear
☐ dimensions: 22 / 33 mm x >50 mm wide

- ☐ hardwood:

- ☐ specie: ...
☐ grade: clear / figured
☐ dimensions: 20 mm x 35 – 90 mm wide

fixings

- ☐ screws: solid brass / silicon bronze / aluminium / stainless steel

balustrades

- ☐ material: wood / metal / glass / ...
☐ construction: ...

Balustrades to conform to SANS 10400-M.

21.8.2 Installation

- ☐ pole to ground contact: see drawings / planted in concrete / on metal brackets on concrete footings
- ☐ plug screw holes with matching wood: required / not required
- ☐ protect end grain with metal caps: required / not required / see drawings.

21.9 Landscaping

21.9.9 Garden furniture

- ☐ garden furniture type: see drawings

table / bench / seat / canopy / litter bin / playground equipment

- ☐ material: see drawings

precast concrete / wood / metal

- ☐ finish: ...

21.9.10 River pebbles

- ☐ size, colour, mix: ...

Relevant standards:

SANS 1200 MJ Segmental paving.

Precast concrete paving blocks – laying manual. The Concrete Masonry Association.

Technical guide: Clay Pavers & Paving – selection and construction guidelines. Corobrik.

SANS 10244 Zinc and zinc-alloy coatings on steel wire.

SANS 10104 Handrailing and balustrading (safety aspects).

SANS 14001 Environmental management systems.

PART C3.3.1

Particular Project Specifications

In the event of any discrepancy between the Project Specifications and a part or parts of the COLTO Standardized Specifications, SANS 1200 Standardized Specifications, the Schedule of Quantities or the Drawings, the Project Specifications shall take precedence. Where discrepancies arise with regard to the units of the payment items only, the units stated in the Schedule of Quantities shall prevail.

PS 1	CONSTRUCTION PROGRAMME
PS 2	SITE FACILITIES AVAILABLE
PS 3	SITE FACILITIES REQUIRED
PS 4	FEATURES REQUIRING SPECIAL ATTENTION
PS 5	INFORMATION SUPPLIED BY EMPLOYER
PS 6	EXTENSION OF TIME ARISING FROM ABNORMAL RAINFALL
PS 7	CERTIFICATES OF PAYMENT
PS 8	CONSTRUCTION IN LIMITED AREAS
PS 9	NON-WORKING DAYS
PS 10	SPOIL MATERIAL
PS 11	DRAWINGS
PS 12	LENGTH OF TRENCHES
PS 13	SAMPLES
PS 14	MANUFACTURER'S INSTRUCTIONS
PS 15	MATERIALS AND PLANT
PS 16	NOTICES, SIGNS, BARRICADES AND ADVERTISEMENTS
PS 17	SETTING OUT OF WORK
PS 18	WORKMANSHIP AND QUALITY CONTROL
PS 19	TRANSPORT OF MATERIAL
PS 20	LIAISON WITH LOCAL AUTHORITIES
PS 21	LOCAL LABOUR AND LOCAL SUBCONTRACTORS
PS 22	TRAINING SCHEMES
PS 23	PRESCRIPTIONS IN RESPECT OF EXISTING SERVICES

PS 1: CONSTRUCTION PROGRAMME

It is a prerequisite of this contract that minimal disruption of the public is ensured during construction. Construction methods must be of such a nature that no property or life is endangered. The Municipality accepts no responsibility for any work done outside the site boundaries without the Engineer's approval. The Contractor himself is responsible for liaison and arrangements with the Engineer in connection with the finalization and approval of the construction programme.

The Contractor is responsible for liaison with residents and house owners via the Project Steering Committee in respect of the programming of construction through private erven and the crossing of driveways to erven. No additional payment will be made in this regard and it shall be deemed to be covered by the relevant items.

Sufficient digital photographs of all existing structures and obstructions in the pipe line routes must be taken by the Contractor, compiled electronically, indexed and handed over to the Engineer before construction commences.

The Contractor shall submit a programme of work to the Engineer/Municipality not later than 14 (fourteen) days after the Contractor has been notified of the acceptance of his tender. This programme must take into account, and allow for phased completion of the work. The Engineer may instruct the Contractor to stop construction work at any stage and time, as may be dictated by financial constraints highlighted by the Clients Cost Control Programme.

If necessary, the Engineer may instruct the Contractor to adjust his programme to suit other activities.

The programme shall not be in the form of a bar chart only, but shall clearly show the anticipated quantities, the production rates and value of work to be performed each month.

A network-based programme according to the precedence method shall also be provided showing the various activities and critical path in such detail as may be required by the Engineer. The programme shall be updated monthly in accordance with the progress made by the Contractor.

Failure to comply with these requirements will entitle the Engineer to use a programme based on his own assumptions for the purpose of evaluating claims for extension of time or additional payments.

If the programme submitted by the Contractor in terms of Clause 15 of the General Conditions of Contract, has to be revised because the Contractor is falling behind in his programme, he shall submit a revised programme of how he intends to regain lost time to ensure completion of the Works within the period defined in Clause 45 of the General Conditions of Contract or within a granted extension of time. A proposal to increase the tempo of work must incorporate positive steps to increase production either by more labour and plant on the site, or by using the available labour and plant in a more efficient manner.

Failure on the part of the Contractor to submit or to work according to the programme or revised programmes shall be sufficient reason for the Engineer to take steps as set out in Clause 58 of the General Conditions of Contract.

The approval by the Engineer of a programme shall have no contractual significance other than the Engineer will be satisfied if the work is carried out according to the programme. The said approval shall not limit the right of the Engineer to instruct the Contractor to vary the programme if necessary. The Contractor shall allow for the effect of normal rainfall and special non-working days in his programme.

(CRITICAL PATH MUST BE INDICATED ON PROGRAMME)

PS 2: SITE FACILITIES AVAILABLE

PS 2.1: Camp site

The Contractor shall negotiate with property owners and make his own arrangements to obtain sites for the erection of offices, laboratories, yards, etc. Written approval must be obtained from the owners on whose property the camp is to be situated. The choice of all sites for the establishment of camps is subject to the approval of the Engineer. Campsites within the road reserve will not be permitted.

PS 2.2: Water, electricity and sewage

The Contractor shall make his own arrangements concerning the supply of electrical power, water, telephone and all other services, both for use at the site establishment area as well as for the use in the construction of the Works. No direct payment shall be made for the provision of any service and the cost thereof shall be deemed to be included in the rates tendered for the various items of work for which these services are required.

PS 2.3: Rain gauge

The contractor must set up his own rainfall gauge. This item is included in the Schedule of Quantities under other fixed-charge obligations.

PS 3: SITE FACILITIES REQUIRED

PS 3.1: Facilities for the Engineer

No separate office is required for the Engineer's representative but the Contractor must provide a table, a chair and a plan cupboard in one of his offices for the exclusive use of the Engineer's representative. The Engineer's representative shall be allowed free use of the Contractor's facilities. The Engineer's representative shall be allowed free use of survey equipment and survey assistants to carry out control work as and when required.

PS 3.2: Equipment for Engineering staff

The Contractor shall allow for providing the following protective clothing for the engineering staff:

- 2 high visibility vests
- 2 hard hats (white)
- 2 Sets of safety boots

The contractor shall supply the Engineer with a Business cell phone and be responsible for the monthly running cost, and other cost relating to the use of the cell phone.

Office facilities shall be provided by the Contractor as described by Colto Specification.

PS 3.3: Water, electricity and sewage

The Contractor shall, at his own expense, be responsible for obtaining and distributing the water and electricity required for construction and domestic use. The distribution of water and electricity shall be carried out in accordance with the applicable laws and regulations.

No separate payment will be made for obtaining and distributing water and electricity, the cost of which will be deemed to be included in the tendered rates.

PS 3.4: Site instruction book

A triplicate book shall be provided by the Contractor to be used for site instructions. It shall at all times be kept on the site.

PS 4: FEATURES REQUIRING SPECIAL ATTENTION

PS 4.1: Access to properties

The Contractor shall organize the work in such a manner as to cause the least possible inconvenience to the public and to the property owners adjacent to or affected by the work included in this contract.

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

The Contractor may, with the approval of the Engineer, make arrangements with the occupiers of the affected erven and properties to close off a portion of a street, road, footpath or entrance temporarily, provided the Contractor duly notifies the occupiers of the intended closure and its probable duration and shall, as punctually as possible, re-open the route at the prescribed time. Where possible, the road shall be made safe and re-opened to traffic overnight. Any such closure shall be made by arrangement between the Contractor and the occupiers and shall not absolve the Contractor from his obligations under the contract to provide access at all times. Barricades, traffic signs and drums shall be provided by the Contractor to suit the specific conditions. The Contractor shall also comply with all the requirements of the Local Authority with regard to safety, signage and notices to the public.

PS 4.2: Existing residential areas

Access to the adjacent residential areas shall be maintained at all times, as shall access to individual houses.

Electricity and water supply interruptions to existing residential areas shall be kept to a minimum. Whenever it is necessary to interrupt these supplies, the Engineer's approval shall first be obtained. The affected residents shall then be notified in writing at least 3 days, but not more than 5 days in advance. Supplies shall be normalized by 16:00 on the same day.

Cognisance shall be taken by the Contractor of the possibility of residents from the adjacent residential areas having access, whether authorized or not, to the works. It is strongly emphasized that under no circumstances shall any claims be considered for delays or disruptions as a result of the presence of residents from the adjacent occupied areas.

PS 4.3: Facilities to other Contractors

In addition to the requirements of clause 21 of the general conditions of contract, the Contractor must make allowance for the presence of other Contractors engaged on other contracts on the site, which may involve, inter alia, the adoption of his programme to fit in with work to be done by the other Contractors, as well as assuring other Contractors access to their sites along prescribed routes which may fall within the site of this contract.

PS 4.4: Contractor's vehicles

All equipment and vehicles used by the Contractor shall be roadworthy at all times and all drivers and operators shall be in possession of valid drivers' licences.

PS 4.5: Site maintenance

During the progress of the work and upon its completion, the site of the works shall be kept and left in a clean and orderly condition. The Contractor shall at all times store materials and equipment for which he is responsible in an orderly manner, and shall keep the site free from debris and obstruction. Workers shall lunch or have tea breaks only in a designated area with approved refuse and toilet facilities.

No open fires shall be permitted on the site.

Vehicles and workers must adhere to property demarcated access routes and not take or make short cuts.

PS 4.6: Testing and quality control

The Contractor shall engage the services of an approved independent testing laboratory for the testing of materials and the quality testing of layer works, to ensure that his work conforms to the specifications.

No separate payment will be made for such testing by an approved independent laboratory, the costs of which will be deemed to be included in the Contractor's tendered rates for the various items of work requiring testing in accordance with the specifications.

Certificates shall be submitted to the Engineer for all materials and equipment included in the works, where applicable.

PS 4.7: Subcontractors

The Contractor is responsible for work carried out on his behalf by subcontractors. The Engineer will not liaise directly with such subcontractors, and all problems relating to payments, programming, workmanship, etc, shall be the concern of the Contractor and the subcontractor, and the Engineer will not be involved.

PS 4.8: Existing Services

Before the Contractor commences operations, he must discuss with and have the approval of the Employer, authority or owner concerned regarding the method he proposes to use for relocating or safe-guarding any services and existing works he may encounter during construction.

The positions of existing services shown on the Drawings are given in good faith and no guarantee can be given that:

- (a) These services actually are in the approximate positions indicated.
- (b) That these are the only services in the vicinity, and
- (c) That the nature and description of these services are correct.

The Contractor shall be responsible to locate and safeguard any existing service or works he may encounter during construction and shall obtain clearance from the Employer, authority and the Engineer before commencing work in the proximity of existing services or works.

The Contractor shall be responsible for any damage to such existing services and works in the execution of this contract and shall reimburse the Employer, authority or the owner concerned for any repairs required and for damages.

The Contractor shall be responsible for immediately notifying the Engineer and the authorities concerned regarding any damage caused to public services and existing works.

Any alteration to public services shall be carried out by the Authority concerned unless the Contractor is instructed otherwise.

The Contractor shall provide the necessary assistance during any operations necessary in connection with the removal, alteration or safe-guarding of any public service.

4. PS 4.9 Safety

The Contractor shall apply suitable proven methods for construction so that his activities will not constitute a hazard to the public or any adjacent property. All excavations shall be suitably safeguarded and barricaded especially during night time, weekends or holidays and any other day of inactivity by the Contractor.

PS 5: INFORMATION SUPPLIED BY EMPLOYER

Certain information contained in these contract documents, or provided separately, is being offered in good faith. However, in the circumstances pertaining to the type of information supplied, no guarantee can be given that all the information is necessarily correct or representative. More specifically this applies to all material surveys and reports and similar information, the accuracy of which is necessarily subject to the limitation of testing, sampling, the natural variation of material or formations being investigated and the measure of confidence with which conclusions can be drawn from any investigations carried out. It also applies to the positions of existing services as indicated on the drawings.

The Employer accepts no liability for the correctness or otherwise of the information supplied or for any resulting damages, whether direct or consequential, should it prove during the course of the contract that the information supplied is either incorrect or not representative. Any reliance placed by the tenderer on this information shall be at his own risk.

PS 6: EXTENSION OF TIME ARISING FROM ABNORMAL RAINFALL

If abnormal rainfall or wet conditions occur during the course of the Contract, the Employer may grant an extension of time in accordance with Clause 45 of the General Conditions of Contract, calculated in accordance with the formula given below for each calendar month or part thereof:

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

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

The symbols shall have the following meanings:

V = Extension of time in calendar days for the calendar month under consideration. When the value of V for any month exceeds the number of days in the particular month, V will be the number of days in the month.

Nw = Actual number of days in the calendar month on which a rainfall of Y mm or more were recorded.

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

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

Rn = Average rainfall in mm for the calendar month, derived from existing rainfall records.

The total extension of time is the algebraic sum of all the monthly totals for the period under consideration, but if the total is negative, the time for completion will not be reduced on account of subnormal rainfall. Extensions of time for part of a month will be calculated by using pro rata values for Nn and Rn.

The factor (Nw - Nn) is considered a fair allowance for variations from the average number of days during which the rainfall exceeds Y mm.

The factor (Rw - Rn)/X is considered a fair allowance for variations from the average number of days during which the rainfall did not exceed Y mm but wet conditions prevented or disrupted work.

The average rainfall record for the past 10 years at the nearest rainfall station shall be for the purposes of this Contract are taken as normal rainfall. Rn and Nn for this period shall be used and the values of X and Y are 20 and 10 respectively.

PS 7: CERTIFICATES OF PAYMENT

It was agreed that the master copy of the payment certificates would be drawn up and processed by the Contractor. All costs to this effect, as well as reproduction costs shall be to the account of the Contractor. It was agreed that the first month's certificate will be evaluated and if in order, the same format will be used throughout the contract.

PS 8: CONSTRUCTION IN LIMITED AREAS

In certain cases working space may be limited. The method of construction in these restricted areas will depend largely on the Contractor's plant. However, the Contractor must note that measurement and payment will be according to the specified cross-sections and dimensions irrespective of the method used to achieve these cross-sections and dimensions, and that the rates and prices tendered shall be deemed to include full compensation for any difficulty encountered while working in limited areas and narrow widths, and that no extra payment will be made, nor will any claim for payment due to these difficulties be considered.

PS 9: NON-WORKING DAYS

The Contractor shall not work on Sundays or on the following statutory Public Holidays: New Years Day, Human Rights Day, Good Friday, Family Day, Freedom Day, Workers Day, Youth Day, National Women's Day, Heritage Day, Day of Reconciliation, Christmas Day and Day of Goodwill. Whenever any of the above statutory Public Holidays fall on a Sunday, the following Monday shall be a Public Holiday.

PS 10: SPOIL MATERIAL

No indiscriminate spoiling of material will be allowed. All surplus or unsuitable material shall be spoiled in designated areas as directed by the Engineer. Spoiling shall comply with the applicable statutory and municipal regulations.

PS 11: DRAWINGS

All "as built" information, as listed below, must be submitted to the Engineer's Representative before a certificate of completion will be issued. No separate payment will be made for the "as built" drawings

List of "as built" information required

- (a) Exact coordinates or chainage on the road centre line of each duct road crossing for electrical and irrigation services.
- (b) Exact coordinates and invert levels of all stormwater manholes, culverts and kerb inlets.
- (c) Exact coordinates and invert levels of all construction work

A Registered Land Surveyor shall be required to provide the above information.

Only figured dimensions shall be used and drawings shall not be scaled unless so instructed by the Engineer.

The Engineer will supply any figured dimensions which may have been omitted from the drawings.

PS 12: LENGTH OF TRENCHES

Where no limitations are imposed by construction stages and unless otherwise permitted in writing by the Engineer, not more than 200 m of trench in any one place shall be opened in advance of pipe laying operations.

No trench may be left open over the builders' holidays.

PS 13: SAMPLES

The Contractor shall at his own cost, supply all samples that may be required. Material or work not conforming to the approved samples shall be rejected. The Engineer reserves to himself the right to submit samples to any tests to ensure that the material represented by the sample conforms to the requirements of the specifications. The cost of all tests failed shall be for the Contractor's account.

PS 14: MANUFACTURER'S INSTRUCTIONS

The recommendations of the manufacturers of patented materials must be strictly adhered to regarding the use, mixing, application, fastening, etc. thereof except when otherwise instructed in writing by the Engineer.

PS 15: MATERIALS AND PLANT

The contractor, when using materials that are required to comply with any standard specification, shall, if so ordered, furnish the engineer with certificates of compliance.

Where so specified, materials shall bear the official mark of the appropriate authority. Samples ordered or specified shall be delivered to the engineer's office on the site free of charge.

Where proprietary products have been specified, similar products may be used subject to the prior written approval of the engineer.

Unless otherwise specified, all proprietary materials shall be used and placed in strict accordance with the relevant manufacturer's current published instructions.

Unless anything to the contrary is specified, all manufactured articles or materials supplied by the contractor for the permanent works shall be unused.

Existing structures on the site shall remain the property of the employer and except as and to the extent required elsewhere in the contract, shall not be interfered with by the contractor in any way.

Materials to be included in the works shall not be damaged in any way and, should they be damaged on delivery or by the contractor during handling, transportation, storage, installation or testing they shall be replaced by the contractor at his own expense.

All places where materials are being manufactured or obtained for use in the works, and all the processes in their entirety connected therewith shall be open to inspection by the engineer (or other persons authorised by the engineer) at all reasonable times, and the engineer shall be at liberty to suspend any portion of work which is not being executed in conformity with these specifications.

The contractor shall satisfy himself that any quarry selected for use provides the necessary mined material in accordance with the specification.

PS 16: NOTICES, SIGNS, BARRICADES AND ADVERTISEMENTS

The Contractor shall erect the necessary signs, notices and barricades for the duration of the contract in order to safeguard both the works and the public.

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

The Engineer shall have the right to have any sign, notice or advertisement moved to another position or to have it removed from the site of the works, should it in any way prove to be unsatisfactory, inconvenient or dangerous to the general public.

Such notices, signs and barricades shall be provided and erected at the Contractor's own expense.

The standard name board of the South African Association of Consulting Engineers is specified. The cost of which shall be included in the rates tendered for items 1300 (Colto) of the Schedule of Quantities.

PS 17: SETTING OUT OF WORK

Reference and level beacons will be shown to the Contractor by the Engineer at the commencement of the Contract and the Contractor will be responsible for transferring the data to the Site of Works.

The Contractor shall check the condition and accuracy of all reference and level beacons and satisfy himself that they have not been disturbed and are true with regard to position and level. A beacon that has been disturbed shall not be used until its true position and level have been re-established and the new values have been certified by the Engineer. The Contractor shall thereafter be held entirely responsible for the protection of all reference and level beacons.

The Contractor shall employ a capable surveyor to set out the Works to the required lines and levels. The Engineer shall be informed immediately should any discrepancy be discovered between the levels or dimensions obtained by the Contractor and those shown on the drawings.

Where a beacon is likely to be disturbed during construction operations, the Contractor shall establish suitable reference beacons at locations where they will not be disturbed during construction. No beacons shall be covered over, disturbed or destroyed before accurate reference beacons have been established and details of the positions and levels of such beacons have been submitted to the Engineer. The Contractor's reference beacons shall be of at least the same accuracy and sturdiness of construction as the existing beacons.

The Contractor shall submit the method of setting out he proposes to employ to the Engineer. Accurate control of line and level shall be provided by the Contractor at all stages of construction.

Work set out by the Contractor may be checked by the Engineer and any errors found shall be rectified by the Contractor at his own expense. The Contractor shall supply any instrument, equipment, material and labour required by the Engineer for this survey work. Any assistance, including checking given to the Contractor by the Engineer or any setting out done by the Engineer for Contractor shall not be held as relieving the Contractor of his responsibility for the accurate construction of the Works.

The Contractor's survey instruments and survey equipment shall be suitable for the accurate setting out of the Works and shall be subject to the approval of the Engineer. They shall furthermore be checked and correctly adjusted by the authorized agents before the commencement of the contract and subsequently when required by the Engineer and when otherwise necessary.

When required the Contractor shall, at his own expense, provide two labourers to assist the Engineer. The Engineer shall have the sole right of approving of such a labourer.

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

PS 18: WORKMANSHIP AND QUALITY CONTROL

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

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

The Contractor's attention is drawn to the provisions of the various standardized specifications regarding the minimum frequency of testing that will be required for process control. The Contractor shall, at his own

discretion, increase this frequency where necessary to ensure adequate control.

On completion of every part of the work and submission thereof to the Engineer for examination, the Contractor shall furnish the Engineer with the results of all relevant tests, measurements and levels to indicate compliance with the specifications.

PS 19: TRANSPORT OF MATERIAL

All costs of transporting material, including overhaul, shall be included in the applicable tendered rates. All references in the specifications to transport, overhaul and haul distances shall be deleted irrespective of whether or not the deletion is included in these project specifications.

PS 20: LIAISON WITH LOCAL AUTHORITIES

The Contractor will have to liaise with local authorities regarding the following matters:

- (a) Dealing with traffic.
- (b) Locating of existing underground services.
- (c) Protection of existing services during construction.

All the relevant authorities were notified of above operations. It is then the Contractor's onus to immediately contact all these authorities and to accommodate their involvement in his programme of work. The Contractor should also warn the authorities at least 48 hours before the actual work commences. Compensation for delays, losses or accidents will not be considered should the Contractor at any time have failed to keep the local authorities informed.

The Engineer or Employer must immediately be notified, should the Contractor experience any problem regarding work which involve a local authority.

PS 21 LOCAL LABOUR AND LOCAL SUBCONTRACTORS

PS 21.1 Introduction

It is envisaged that the works will be constructed by one Contractor employing local labour to construct the work applying the principles of the Expanded Public Works Programme (EPWP).

PS 21.2 Workload

The Contractor is required to execute certain components of this contract with labour-based construction methods as described in relevant sections.

PS 21.3 Assisting ABE's

The Contractor is required to assist ABE's in accordance with the Contractors proposal included in his/her tender.

PS 21.4 Local Labour

It is the intention that this Contract should make maximum use of the local labour force that is presently under-employed. To this end the Contractor is expected to limit non-local employees to key personnel only and to employ and train local labour on this Contract.

The Contractor shall complete the form: Annexure F and state how many non-local key personnel he intends to employ in the various categories. The numbers stated on the above-mentioned form will be strictly controlled during the Contract period and any increase in numbers is subject to the approval of the Employer.

A Project Steering Committee (PSC) has been formed and consists of representatives of the affected community, Lepelle Nkumpi Local Municipality and the Engineer. The PSC is up to date with the details

of the project and appointment of all local labour must be through the PSC.

The Contractor will be required to arrange his own documentation regarding a contract for locally employed labour and must include provisions for the Occupational Health and Safety Act (1993) and the Compensation for Occupational Injuries and Diseases Act. The minimum daily wage to be paid in accordance with the Wage Bill for the geographical area shall be as stated in the Government Gazette in terms of Wage Determination for the Civil Engineering Industry.

PS 21.5 Contractors Obligations

The Contractor is to supply the Engineer with copies of the agreements between himself/herself and his/her subcontractors within twenty-one (21) days of the contract being awarded.

Should the Contractor be unable to or unwilling to:

- i) Subcontract the required Works as detailed in his/her tender document;
- ii) Submit the necessary documentation to prove that he/she is subcontracting the work as specified in paragraph PS 10.6.
- iii) Implement his/her proposed training scheme or any other scheme agreed to by the relevant parties;

The Municipality reserves the right to:

- a) Nullify the said contract and re-issue it to tender;
- b) Nominate available local subcontractors for the required Works;
- c) Deduct payment from the monthly certificates, the value of which will be calculated as follows:

$$X = Y - Z$$

X = Amount of deduction from the monthly certificate

Y = Value of the work that should have been undertaken by the subcontractor during the month

Z = Value of the work actually undertaken by the Subcontractor during the month;

(d) = Nominate agents to undertake the proposed training at the expense of the Contractor.

PS 21.6 Work considered to be Labour Based

It is a condition of this contract that the following components of work must be executed using labour based construction methods.

- 1) Excavation of soft/ intermediate / hard material in pipe trenches not deeper than 1,2 m if the uninterrupted trench length of soft material is greater than 50 m, and the total depth of the trench consists of soft material.
- 2) Excavation of soft/ intermediate/ hard material in all pipe trenches for erf connections with no limitations.
- 3) Preparation of pipe bedding.
- 4) Laying and jointing of all pipes with a nominal diameter smaller than 230mm:
- 5) Backfilling of all trenches with compaction excluded.
- 6) Placing of concrete for anchor blocks and toilet foundations.
- 7) Brickwork in toilet structures.
- 8) Basic plumbing installation in toilets.
- 9) All earthworks required for foundations of toilet structures.
- 10) Precast concrete roof slabs for toilets, excluding erection.
- 11) Location of existing services.

Note:

The abovementioned work must either be done by local labourers employed by the Contractor or by local subcontractors. In the Schedule of Quantities, as an alternative to machine excavation, the cost of a compulsory labour based construction activity is covered by using the standard Colto payment item (where applicable). Site conditions and material present will dictate the application of labour-based trench

excavation or machine excavation. A prerequisite for payment of these labour-based excavation items is that the Contractor keeps daily written records with names of labourers, tasks completed, man-hours spent and payments made.

Items excluded from labour based items:

- 1) Excavation in Boulders and rock material - Mechanical excavators and blasting allowed.
- 2) Compaction of bedding and backfilling - Rollers and plate compactors allowed.
- 3) Transport of materials LDV, dumpers and other transport equipment allowed.
- 4) Mixing of concrete - Mechanical mixers allowed.
- 5) Vibration of concrete - Vibrators compulsory.
- 6) Precast concrete manholes.

PS 22 TRAINING SCHEMES

Certain members of the Contractors staff will be selected from the locally recruited employees, to be subjected to training in tasks related to the execution of the contract.

The PSC will select the trainees and decide upon the specific training for each of them. The Contractor must guide PSC in this regard and make all the necessary arrangements with the training institution and the trainees, to ensure that the process runs smoothly. All other costs, including transport of trainees, will be borne by the Contractor and is deemed to be included in the P &G.

PS 23 PRESCRIPTIONS IN RESPECT OF EXISTING SERVICES

The scope of works for this contract could be affected by existing services. Where necessary the contractor must familiarize himself with the position and extent of existing services and to carry out the works in such a manner as not to cause damage to existing services.

PS 23.1 Water and Storm Water Services

All manhole covers in the road must be clearly referenced and absolutely no surfacing shall be allowed on any manhole cover.

Any cost of repairs, replacement and/or installation of services and equipment resulting from the contractor's negligence or unauthorized action shall be to the contractor's account.

PS 23.2 Electrical Services

The following procedures will apply:

1. The Contractor will in all instances submit construction drawings to the Electricity Supply Authority (ESA) for comments and for ESA to indicate known electrical services. These drawings will in all instances be available on site during the construction period or in the possession of the supervisor of the construction workers.
2. The cable's precise position on the terrain, with reference to the approximate position as indicated on the drawing, must be confirmed on terrain by means of cable tracing equipment to be supplied or arranged by the Contractor for this purpose. In the case of primary cables (11 kV and 33kV) as indicated on the drawings, it is essential that cable tracing be conducted by ESA. The Contractor will provide sufficient white lime to mark the cable on the ground. The contact persons and telephone numbers for cable tracing personnel shall be obtained from ESA by the Contractor.
3. The Contractor must thereafter, very carefully, open up the cable by hand on at least two places, of which the in between distances will not exceed 50 meters.

4. At any position, between any two points of the exposed cable as described in 1.3 above, that cable shall be identified as a known service if it lays within 0,5 meters of a straight line drawn between these two points
5. If the cable lays further than 0,5 meters away from a straight line drawn between the two exposed points, it shall be identified as an unknown service.
6. With reference to the approximate position of cables on the drawing, the Contractor will be responsible for confirming the location of such cables on terrain by means of the equipment referred to in 1.2 above, and by careful digging by hand. If the exact position of the cables cannot be determined without doubt, ESA can be approached for help.
7. When existing electrical cables fall within the excavation area of the new service, the Contractor will be responsible for protecting and supporting such cable. During backfilling of the trench, the Contractor will ensure that the cable is not damaged and repositioned at the original position and depth with the necessary bedding and marker tape.
8. Before any exposed cables are backfilled, such cables shall be inspected for possible damage by the terrain agent, in the presence of the Engineer or his/her representative. A complete record of all positions where cables were exposed must be indicated on the drawing.
9. The Contractor is responsible for keeping a complete record of incidents where electrical cables (known or unknown) were damaged that includes the following:
 - Date when damaged and the reason
 - Date when repaired
 - The extent of repairs, for instance cable size, number of joints necessary, the length of cable replaced etc
 - The exact cable position and depth indicated on the plan
10. The Engineer's representative must check these records. The above-mentioned record will be an annexure to the minutes of the monthly site meetings. All repairs of damaged cables (known or unknown) will be conducted by ESA. The account for repairs done on known services (cables) will be delivered to the Contractor via the Engineer. On the basis of accounts delivered monthly by ESA, the repair cost of a known service (electrical cable) that was damaged, will be recovered from the Contractor's certificate.
11. **33 kV Cables**
In no instances will any Contractor be allowed to expose cover 33kV cables or excavate closer to 500mm (by hand) and 2000 mm (mechanical excavation) from the centre of a 33 kV cable. ESA will do the required excavation for the Contractor's account.
12. **Overhead Services**
Excavation and backfill shall be such that no foundation of overhead structures (power lines, streetlights, high mast lights, stays etc.,) will be disturbed. If disturbed, the Contractor will inform ESA in writing and will reinstate the foundation to its original state.
13. **Maintenance Period**
During the maintenance period the Contractor's responsibility shall include:
All electrical cables that were exposed or handled by him
Excavations in the vicinity of poles and stays, at the time of the construction activities

This makes provision for instances where damaged cables were covered up without informing ESA that may cause many problems later on. The Contractor is responsible to repair all disturbed pole and stay foundations and to reinstate it to its original condition (electrical and structural), as they are disturbed.

LEPELLE-NKUMPI LOCAL MUNICIPALITY



CONTRACT NO. LNM019/2020/21

THE CONSTRUCTION OF GRADE A VTS(LEBOWAKGOMO) (WARD 18)

PART C3.4

Amendments to the Standard and Particular Specifications

AMENDMENTS TO THE STANDARD AND PARTICULAR SPECIFICATIONS

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INTRODUCTION

In certain clauses the Standard, Standardized and Particular 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 alternative or additional requirements applicable to this contract are contained in this part of the Project Specifications. It also contains 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 PS followed by a number corresponding to the number of the relevant clause or payment item in the Standard Specifications. The number of a new clause or 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, but followed by a new number which follows on the last clause or item number used in the relevant section of the Standard Specifications.

PSAA GENERAL (SMALL WORKS)

PSAA-3 MATERIALS

PSAA-3.1 Quality

Where there is a standardization mark programme for any material, all such material supplied shall bear the official standardization mark.

Alternative materials or equipment proposed by the Contractor shall be tested. The test, as well as the materials or equipment, shall be approved by the Engineer prior to any such materials or equipment being built into the works and all costs involved in testing shall be deemed to be included in the rates tendered.

PSAA-4. PLANT

PSAA-4.2 Contractor's Office, Stores and Services

It is not a requirement of this contract for the Contractor to provide an approved field laboratory on site, although he may elect to do so. If no laboratory is provided, the Contractor shall nevertheless arrange to have the required quality control tests (e.g. densities, concrete strengths etc) performed by an approved commercial laboratory, and his tendered rates shall include full compensation for such tests.

The Contractor's camp shall be kept neat and clean at all times and all surplus or rejected material shall be removed from the site.

PSAA-5 CONSTRUCTION

PSAA-5.1 Survey

PSAA-5.1.1 Setting out of the Works

Reference points are indicated on the drawings or will be made available on the site of the works. Additional lines and levels required for setting-out the works shall be established by the Contractor and must be checked and approved by the Engineer before commencement of construction.

PSAA-5.5 Ground and access to works

▪ *Add the following:*

"On completion of operations the Contractor shall restore the ground surface, wherever it may have been disturbed, to its original condition by filling in all ruts with material similar to the material within the rut and levelling the ground and, where necessary, planting grass and shrubs as may be required. Any boundary fences which have been removed or damaged by his operations and activities shall be repaired and/or reinstated at the Contractor's expense".

PSAA-5.6 **Accommodation of Traffic** (additional sub clause)

Where construction work has to be carried out on or near public roads, the Contractor shall deal with traffic as specified in SANS 1921-2 (2004): Construction and Management Requirements for Works Contracts, Part 2 : Accommodation of Traffic on Public Roads occupied by the Contractor. The Contractor is also referred to Project Specification PS-10.

PSC **SITE CLEARANCE**

PSC-3 **MATERIALS**

PSC-3.1 Disposal of material
Overhaul will not be payable on this contract.

PSC-5 **CONSTRUCTION**

PSC-5.2 Cutting of Trees

PSC-5.2.1 **Protection of Persons, Animals and Structures**

Before commencing work in any particular area the Contractor shall in conjunction with the Engineer's Representative compile a report on the state of repair of all adjoining fences and structures that could be affected by the Contractor's operations.

PSC-5.2.3 **Preservation of trees**

PSC-5.2.3.2 **Individual trees**

The penalty shall be R2 500-00 for every tree that is damaged or removed unnecessarily.

PSD **EARTHWORKS**

PSD-3 **MATERIALS**

PSD-3.1 **Classification for Excavation purposes**

PSD-3.1.2 **Classes of excavation**

For this contract classes of excavation will be subdivided as follows:

- (a) Soft excavation, being all excavation other than material classified as hard excavation as defined below.
- (b) Hard rock excavation, except that for this contract boulder excavation will normally not be measured as stated in the payment clause 8.3.2(b). Boulders of such a size that they cannot be removed without drilling, wedging and splitting, or other mechanical means, shall be measured individually and will be regarded as hard rock excavation.

PSD-3.3 **Selection**

PSD-3.3.1 **General**

• **Add the following:**

Excavated material ordered to be temporarily stockpiled for later re-use, shall be stockpiled selectively in such a way that material suitable for bedding or other special purpose, shall be kept separately from unsuitable material.

PSD-5 **CONSTRUCTION**

PSD-5.1 **Precautions**

PSD-5.1.1 Safety

PSD-5.1.1.1. Barricading and Lighting

All expenses incurred by the Contractor with regard to the barricading and lighting of the area of works in order to safeguard the public will be deemed to be covered by the rates for excavation or other scheduled items.

PSD-5.2 **Methods and Procedures**

PSD-5.2.2 Excavation

PSD-5.2.2.1 Excavation for general earthworks and for structures

- **Add the following to sub clause (a):**

The general area on which the structures will be founded shall be excavated to the levels indicated on the drawings. Thereafter excavations for pipes, footings etc. shall be made to at least the depths shown on the drawings.

PSD-5.2.2.3 Disposal

All excess excavated material not used for backfilling shall be disposed of at a site to be found by the Contractor and approved by the Engineer. The spoil site shall be finished off at the completion of the works to the satisfaction of the Engineer.

PSD-5.2.5 Transport for Earthworks

PSD-5.2.5.1 Free haul

- **Add the following:**

"For this contract all haul will be regarded as free haul and the cost of transportation of all materials will be deemed to be included in the rates and prices tendered in the Schedule of Quantities."

PSD-5.2.6 **Inspection of excavations (Additional clause)**

All foundations for structures shall be inspected by the Engineer and/or an Engineering Geologist or Geotechnical Engineer before any backfilling with material or concrete of any kind is commenced. The Engineer shall be given at least two days notice by the Contractor for the necessary arrangements to be made for the inspection.

PSD-6 **TOLERANCES**

Position, dimensions, levels, etc.

Degree of Accuracy II shall apply. Overbreak where applicable shall be filled in with 15 MPa concrete at the Contractor's cost.

PSD-7 **TESTING**

PSD-7.2 **Taking and Testing of Samples**

The Contractor is responsible for his own quality control and shall therefore take an adequate number of samples and carry out tests to ensure that the material conform to the requirements in respect of quality, density, etc. (quality or process control).

All test results and the positions where samples were taken must be submitted to the Engineer. The number and positions of tests shall be adequate to prove to the Engineer that the works as a whole comply with the requirements.

The Engineer will audit the Contractor's test results and he may, for acceptance control, have additional tests carried out by an independent commercial laboratory at the Employer's cost and he will make the results available to the Contractor (acceptance control). Should these test results show that the work or the material does not comply with the specifications the Contractor will be responsible for the cost of such testing and he shall do the necessary remedial work.

PSDB EARTHWORKS (Pipe trenches)

PSDB-3 MATERIALS

PSDB-3.1 Classes of Excavation

For this contract classes of excavation will be subdivided as follows:

(a) Soft excavation

Soft excavation shall be excavation in material that can be efficiently removed and loaded with picks, shovels and other hand tools. Soft excavation shall include all boulders with a volume of less than 0,125 m³ and a maximum dimension of 500 mm, which can still be removed by hand methods.

(b) Hard excavation

Hard excavation shall be excavation in material, which can only be removed efficiently with mechanical equipment such as jackhammers, drilling and blasting, etc. Hard excavation shall also include boulders with a volume exceeding 0,125 m³ and the maximum dimension exceeding 500 mm, which cannot be broken down and removed by hand methods.

PSDB-5 CONSTRUCTION

PSDB-5.3 Site clearance

Add the following to the clause:

"The Contractor shall dispose of all surplus and unsuitable material on a site to be found by him and approved by the Engineer. All costs related to the disposal of surplus material shall be deemed to be included in the tendered rates.

Where pipes are to be laid the Contractor will be allowed to clear and grub a strip 2,5 m wide along the centre-line of the trench. No vegetation outside this strip may be damaged without the written approval of the Engineer.

All trees with a girth exceeding 250 mm or a height exceeding 2,5 m within this strip, shall be protected and may only be damaged or removed after a written order by the Engineer."

PSDB-5.6 Backfilling

PSDB-5.6.1 General

No pipe joint or pipefitting shall be covered by either the blanket fill or main fill prior to the successful completion of the visual inspection and/or the testing of the relevant section of the pipeline.

PSDB-5.6.2 Material for backfilling

Hard rock material shall not be used for or incorporated in the backfill of the trench without the Engineer's approval.

PSDB-5.6.3 Disposal of Soft Material

Surplus and/or unsuitable excavated material must be disposed of at a site found by the Contractor and approved by the Engineer. All costs related to the disposal of surplus material shall be deemed to be included in the tender rates.

PSDB-5.6.4 Disposal of Hard Rock Material

Hard Rock Material must be disposed of at a site found by the Contractor and approved by the Engineer. All costs related to the disposal of surplus material shall be deemed to be included in the tender rates.

PSDB-5.6.7 Trenches in road reserves and paved areas

Where trenches are to be excavated through existing asphalt surfacing, the asphalt surface material shall be removed by saw-cutting and removal of the asphalt before commencing with the trench excavation.

PSDB-5.6.8 Transport for Earthworks for Trenches

For this contract all haul will be regarded as free haul and the cost of transportation of all materials will be deemed to be included in the rates and prices tendered in the Schedule of Quantities.

PSDB-7 **TESTING**

PSDB-7.1 Notwithstanding the contents of Clause 7.1, the Contractor shall bear the cost of all density tests as necessary for his own **process or quality control**.

The following are the minimum frequencies for the process or quality control tests to be executed by the Contractor.

- (a) Pipe bedding: one density test for each section, with a minimum of one test per 50 m of pipe trench or part thereof.
- (b) Normal trench backfilling: one density test on every 150 mm layer for each section of trench, with a minimum of one test per 50 m of each layer or part thereof.
- (c) Backfilling in areas subject to traffic: one test on each 150 mm layer at each road crossing, with a minimum of one test per 10 m of each layer or part thereof in all other areas subject to road traffic.

The positions of these density tests shall be determined randomly by the Contractor and shall be clearly documented with the results. The results of the tests shall be submitted to the Engineer and shall prove to the Engineer that the work as a whole was done satisfactorily.

Additional tests, over and above the minimum tests will be ordered by the Engineer, for acceptance control. Payment for such tests will be made under Item PSA-8.5(c) if the tests indicate that the work complies with the specifications. If any such tests fail, the cost of the tests shall be for the account of the Contractor.

PSDB-8 **MEASUREMENT AND PAYMENT**

PSDB-8.1 **Basic Principles**

Disposal of surplus and/or unsuitable material will be as specified in PSDB-5.6.3 and PSDB-5.6.4. No additional payment other than the tendered scheduled rates will be made for such disposal of material.

PSDB-8.3 **Scheduled Items**

PSDB-8.3.1 Site clearance

- **Add the following sub-item:**

- (d) Saw-cutting of existing asphalt surfacing and removal of asphalt material at road crossings Unit : m

The unit of measurement shall be the linear metre of saw-cutting necessary for the removal of asphalt surfacing. The tendered rate shall include full compensation for saw-cutting the asphalt surfacing and taking out the asphalt material and disposal thereof at a site found by the Contractor and approved by the Engineer.

PSDB-8.3.2 Excavation

- (a)(1) Excavate in all materials, for trenches, backfill, compact and dispose of surplus materialUnit : m

Only lengths that have been completed and backfilled will be measured for payment.

The rates tendered for excavation shall in addition allow for the use and/or disposal at any point or points within the site boundaries as the Engineer may direct.

• **Add the following subclause:**

- (d) Excavate unsuitable materials from trench bottom Unit : m³

The tendered rate shall cover the cost of excavation of unsuitable materials from the trench bottom using tools and equipment, and disposal of the material.

• **Add the following subclause:**

- (e) Hardcore filling of 38mm to 75 mm nominal size crushed stone to trench bottom Unit : m³

The tendered rate shall cover the cost for the supply, placing and compaction of the hardcore fill in the place of unsuitable material removed.

• **Add the following subclause:**

- (f) Excavate by hand in all materials to expose existing services, including backfilling and/or disposal of surplus material (all depths)Unit : m³

The tendered rate shall cover the costs for hand excavation as required, to backfill and compact where necessary and to dispose of surplus and unsuitable material at an approved spoil site found by the Contractor.

PSDB-8.3.3 Excavation Ancillaries

PSDB-8.3.3.4 Overhaul

Overhaul will not be measured on this contract and all haul will be regarded as free haul.

PSGA CONCRETE (SMALL WORKS)

PSGA-3 MATERIAL

PSGA-3.2 Cement

PSGA-3.2.1 Applicable Specifications

The standard cement specifications SABS 471, SABS 626, SABS 831, SABS 1466 and SABS 1491 have been withdrawn and are replaced by SANS 50197-1: Common cements, and SANS 50413-1: Masonry cement. These specifications will be applicable to this contract, and the descriptions and types of cements specified, will be based on the designations as defined in these specifications.

PSGA-3.2.2 Storage of cement

• **Add the following after the words “...may promote deterioration.” in the second paragraph:**

“It is of prime importance that cements to be used in concrete for water-retaining structures shall always be stored in a cool environment, and it is strongly advised that cement silos be painted white to reduce any temperature rise in the stored cement.”

PSGA-5 CONSTRUCTION

PSGA-5.1 Reinforcement

PSGA-5.1.3 Cover

- ***In Sub clause 5.1.3(a) amend the words " ... or stirrup" to read:*** "bar, secondary reinforcement, tie stirrup, tying-wire knots or wire ends."
- ***Add to Sub clause 5.1.3 :*** "Tying wire shall not encroach on the specified minimum cover by more than a single strand thickness."

The minimum concrete cover to reinforcement shall be 75 mm unless otherwise indicated on the drawings.

Cover blocks shall be manufactured from concrete of grade, durability, density and impermeability at least equal to that specified for the respective elements except that 12 mm stone instead of 19 mm stone shall be used. The size of the cover blocks shall be 60 mm x 60 mm, with a thickness equal to the specified cover. Wires shall be cast into the blocks to enable them to be fixed to the reinforcement. The wires shall be fully galvanised Class A as per SABS 675 - 1993. The wires shall be carefully held in position while the concrete is setting to ensure that all the wires are inserted to a uniform and consistent depth of 50 % of the thickness of the cover block for all the cover blocks. The concrete shall be thoroughly compacted by means of a vibrator or vibratory table and the blocks shall be protected against early drying and shrinkage due to sun and wind, by being kept continually wet while still in the mould. After the blocks have been removed from the mould they shall be kept in water continuously until being used, and this period shall not be less than 14 days.

A proper mix design for concrete in cover blocks shall be submitted to the Engineer for approval.

PSGA-5.1.4 Splicing (*additional clause*)

Splice lengths for reinforcement in the case of water-retaining structures shall not be less than 58 diameters and in non-water-retaining structures not less than 40 diameters. Where applicable in water-retaining structures, splices shall be staggered so that they are evenly spread throughout the structure.

PSGA-5.4 Concrete

PSGA-5.4.1 Quality

PSGA-5.4.1.3 Workability

The workability range for all PFA concrete (slump) shall be between 50 and 75 mm.

PSGA-5.4.3 Mixing

- ***Add the following additional paragraph to clause 5.4.3.1 after item (f):***

PSGA-5.4.3.1 Ready-mixed concrete

The use of ready-mixed concrete for this contract will be permitted provided that it complies with the requirements of this specification. Test results obtained by such a production facility shall not be regarded as part of the quality control system, and the Contractor shall take his own samples of concrete on site and have them tested in accordance with clause 7 of SANS 1200 G and Clause PSG-7.1.2.

PSGA-5.4.5 Placing

PSGA-5.4.5.1 ***Add the following to subclause 5.4.5.1:***

The Contractor shall give the Engineer at least 48 hours notice of his intention to cast concrete.

PSGA-7.2 Testing

PSGA-7.2.1 General

- ***Add the following:***

The Contractor shall allow in his tendered rates for all the costs for quality or process control testing.

PSGA-7.2.3 Early-strengths Testing

- **Add the following to this clause:**

Of each sample of four cubes, one cube shall be tested at 7 days and the remaining three cubes at 28 days.

PSGA-8 MEASUREMENT AND PAYMENT

PSGA-8.1 Measurement and rates

PSGA-8.1.2 Reinforcement

PSGA- 8.1.2.2 *Replace subparagraph (a) with the following:*

"The mass of steel bars will be measured as the total mass of the steel, irrespective of diameters."

PSGA-8.1.2.3 (a) *Delete the words "nominal size 25 mm" in the first line of this subparagraph*

- ***Delete subparagraph (b)***

PSL MEDIUM-PRESSURE PIPELINES

PSL-3 MATERIALS

PSL-3.1 General

Unless otherwise specified, pipes with a diameter of 50 mm OD or larger shall be uPVC Class 9 with standard push-in type coupling "Lyng" joint or similar approved. Pipes with smaller diameters shall be HDPE PE 80 PN 12.5 with compression fittings. Fittings and specials are normally Class 16. If required because of problems to maintain minimum cover (extensive rock excavation, narrow section, crossing of sewers or other reasons), uPVC and HDPE pipes can be encased in concrete where ordered by the Engineer.

PSL-3.8 Jointing Materials

PSL-3.8.3 Flanges and accessories

Each bolt shall be supplied with two washers. Only compressed asbestos fibre flange packing of uniform thickness between 1,5 mm and 3,0 mm shall be used on all sizes of pipe flanges.

- ***Delete BS 4504 references.***

All flanges, not jointing to existing flanges, shall be drilled in accordance with SABS 1123 Table 1000/3; 1600/3 or 2500/3. The type, drilling pattern and sizes of flanges jointing to existing flanges shall match those of the existing flanges and shall be determined on site.

PSL-3.8.3(a) Drilling and flanges for all type of valves shall conform to SANS 1123.

PSL-3.8.4 Loose Flanges

All bolts and nuts shall comply with the requirements of SABS 646. Only stainless steel bolts and nuts shall be used with stainless steel pipes, flanges and fittings. All other bolts and nuts shall be cadmium-coated.

PSL-3.9 Corrosion Protection

PSL-3.9.5 Joints, Nuts, Bolts and Washers

Only stainless steel bolts, nuts and washers shall be used for all stainless steel pipes and fittings. All other nuts, bolts and washers shall be hot dipped galvanized GR8.8.

PSL-3.9.6 Corrosive soil

For this contract all steel pipes, pipe fittings and steel flanges in contact with soil shall, over and above the protection as described above, be protected as specified in Clause 3.9.6 with "DENSO" tape and/or mastic or approved similar. Application shall be strictly in accordance with the manufacturer's instructions. A polyethylene tape of 300 microns minimum shall be spirally wrapped over the petrolatum tape and fixed to the clean pipe ends with pressure-sensitive tape.

PSL-3.11 **Manholes and Surface Boxes**

PSL-3.11.1 Bricks

Notwithstanding the requirements of Subclause 3.11.1 of SANS 1200L, 230 mm wide hollow concrete blocks with minimum compressive strength 3,5 MPa and filled with Grade 15 MPa mass concrete, will be accepted for valve chamber walls.

PSL-3.11.5 Manhole covers and frames

Types shall be as indicated in the schedule and on the drawings.

PSL-5 **CONSTRUCTION**

PSL-5.1 **Laying**

PSL-5.1.1 General

Where necessary to avoid conflict with sewer manholes, stormwater drains or other obstacles, the pipeline may have to be realigned locally as directed by the Engineer.

PSL-5.1.3 Keeping Pipelines Clean

The interior surfaces of all pipes, specials, valves and fittings shall at all times be kept free from dust, silt and foreign matter. Access by rodents, animals and birds shall be prevented. Pipes and specials shall not be used as shelters by staff or for the storage of garments, tools, materials, food containers or similar goods. Particular care shall be exercised at all times to prevent faecal contamination of pipe interiors by staff, casual visitors or passersby.

Metal night-caps approved by the Engineer shall be used to close off all ends of each laid section of pipeline when work is stopped at the end of the day or for longer periods and shall be left on the ends of sections of completed pipework until such sections are tied-in with the remainder of the completed pipeline.

The Contractor shall construct and maintain the necessary berms and furrows to prevent the ingress of storm water into the trench at all times.

Notwithstanding all precautions taken, the Contractor shall at his own expense make good all damage to pipe linings and fittings caused by the ingress of dirty water, silt, sand, debris, vermin, insects and other foreign matter. The Contractor shall at his own expense and to the satisfaction of the Engineer clean the interior of the pipeline of such contaminants, failing which the Engineer may order the Contractor to remove the pipes from the trench and replace them with clean pipes at his own cost.

PSL-5.1.4 Depths and cover

- **Add the following sub clause:**

The minimum cover over pipes shall be 1 000 mm.

PSL-5.1.5 Locating of existing pipes (Additional clause)

The Engineer will indicate the approximate positions of existing pipes on site where new pipelines are to be joined with existing pipelines, or when new pipelines may cross existing pipelines or services. At the indicated positions a trench shall be excavated to locate the existing pipe or service. Payment for locating existing pipes and services will be made under Section 1200 D, Clause 8.3.8.

PSL-5.1.6 Connection with existing pipelines (*Additional clause*)

Before any pipe fittings and accessories for connecting with existing pipelines are ordered, the precise dimensions of the existing pipe shall be determined on site. The method of cutting into the existing pipe, the special pipe fittings to be used as well as the dimensions of the pipe fittings shall be determined in consultation with the Engineer

PSL-5.2 **Jointing Methods**

PSL-5.2.2 Flanges (Steel pipelines)

All flanges shall be installed with bolt holes off-centre and symmetrically off-set from the vertical centre-line of the flange. Flanges shall be installed truly square to the axis of the pipe.

The Contractor shall ensure that the correct jointing materials, i.e. gaskets, bolts and nuts are available when required. Only correct diameters and lengths of bolts and studs shall be used. Flat washers shall be used under all nuts. The length of bolts and studs shall be such that at least two threads protrude from the nut when fully tightened. The threads of bolts, studs and nuts shall be thoroughly cleaned and then coated with a graphite/grease compound immediately prior to assembly.

Flanged fittings shall be so installed that there are no stresses induced into the pipework, specials or fittings by forcing ill-fitting units into position or by bolting up flanges with faces not uniformly in contact with their gaskets over their whole faces.

PSL-5.6 **Valve and Hydrant Chambers**

All valve and meter chambers required shall be constructed as detailed on the relevant drawings.

PSL-5.8 **Brickwork in Chambers and Manholes**

Construction shall be as detailed on the drawings.

PSL-5.11 **Connection to existing mains** (*additional clause*)

Connections to existing mains shall be made as detailed on the drawings.

PSL-7 **TESTING**

PSL-7.3 Standard hydraulic pipe test

PSL-7.3.1 Test pressure and time of test

The maximum working pressure shall be 12,5 bar and the test pressure for field testing shall be 1,5 times this value.

PSL-7.3.4 General (Additional sub-clause)

All completed pipelines shall be satisfactorily tested hydrostatically and no payment in respect of pipelaying or the supply of pipes and fittings on any section of pipeline shall be made until such tests have been completed.

Hydrostatic tests shall be carried out on approved suitably sized completed sections of the works as pipelaying proceeds.

The Contractor shall be responsible to arrange all aspects of the hydrostatic testing and for the supply of all equipment, material, water for testing and labour required.

The mains shall be carefully and slowly charged with potable water, so that all air is expelled and shall then be allowed to stand full for at least 48 hours before pressure testing is commenced.

Joints shall, except where otherwise approved, be exposed during testing. Except where unavoidable, testing shall preferably not be carried out against closed valves. Care shall be taken to strut and support the mains wherever necessary during testing such as at ends of pipelines, at bends, etc.

The pressure shall be applied by a manually operated force pump or by a power driven pump, which shall not be left unattended during testing. The Contractor shall ensure that pressure gauges are accurately

calibrated before testing commences and precautions shall be taken to ensure that the quantity of make-up water pumped into the pipelines during testing is measured.

The test pressure applied to the section of mains being tested shall be such that the pressure in any pipe, fitting or valve in the section does not exceed its specified pressure rating.

The test pressure shall be maintained by the pump for at least one hour and during the period the quantity of make-up water required to maintain the test pressure in the mains shall be measured and all joints shall be carefully inspected for signs of leakage.

The hydrostatic test shall be regarded as satisfactory if the amount of make-up water required during the last hour of the testing period does not exceed 0,005 litres per millimetre of diameter per kilometre of length of the pipelines making up the section for every 30 m head of water and if no visible leaks were observed at joints, fittings, valves, etc. If any hydrostatic test result is unsatisfactory in any regard, the Contractor shall carry out all necessary remedial measures to approval and the test shall be repeated, all at his expenses.

Water used for hydrostatic testing shall be disposed of in an approved manner without causing damage, nuisance or injury.

The Contractor shall allow for the cost of all labour, equipment, water for testing and material for hydrostatic testing in the Scheduled Rates for supply and laying of pipes and supply and laying of fittings and no separate payment will be made in respect of hydrostatic testing.

PSL-8 MEASUREMENT AND PAYMENT

PSL-8.2 Scheduled Items

PSL-8.2.4 No additional payment will be made for cutting and jointing of any pipes.

PSL-8.2.15 Special wrapping in corrosive soil

- **Change the unit of measurement "m" to "No".**

For this contract special wrapping will be required only for steel flanges, pipe fittings, couplings, etc as described in PSL-3.9.6. The unit of measurement shall therefore be the number of fittings or flanges etc wrapped as described.

PSL-8.2.16 (a) Tie into existing municipal water connection inclusive of all pipes, fittings, necessary to do the connections etc. Unit : No

Connection to the existing water mains shall be as detailed on drawing. The tendered sum for each connection shall include the cost to tie into the existing main including the cost of all additional excavations required to provide working space over and above the necessary trench excavation and excavations previously done for locating existing pipelines, labour, equipment, tools, fittings, pipes, cutting of pipes, specials, removal of end caps/loose flanges, anchor blocks and supervision necessary to complete the connection.

PSL-8.2.17 (b) Municipal water connection by Local Council.....Prov. Sum

The stated provisional sum is provided for the cost of the municipal water connection by the local council. The stated sum, or any part thereof, shall only be expended as ordered by the Engineer.

PSLB BEDDING (PIPES)

PSLB-3 MATERIALS

PSLB-3.3 Bedding

All buried pipes shall be bedded on Class B bedding unless otherwise ordered by the Engineer or specified in the bill of quantities.

PSLB-3.4 Selection

Suitable selected bedding material is expected to be generally available from trench excavations.

PSLB-5 CONSTRUCTION

PSLB-5.1 **General**

PSLB-5.1.1 Trench

PSLB-5.1.1.2 Bottom

Where unsuitable material is encountered in the bottom of a trench, the material shall be excavated an additional 150 mm, or to the depth as directed by the Engineer, and removed as described in clauses 5.5 and 8.3.2(c) of SANS 1200 DB. The excavated material shall then be replaced with suitable selected material excavated elsewhere on the site, and trimmed and compacted to the satisfaction of the Engineer.

PSLB-6 **TOLERANCES**

PSLB-6.1 **Moisture content and density**

Degree II accuracy shall be applicable.

PSLB-8 **MEASUREMENT AND PAYMENT**

PSLB-8.1 **Principles**

PSLB-8.1.3 Volume of Bedding Materials

- **Add the following:**

"The volume of bedding material shall exclude the volume taken up by the pipe."

PSLB-8.2 Scheduled Items

PSLB-8.2.5 Overhaul of material for bedding cradle and selected fill blanket

For this contract freehaul is not limited and no payment will be made for overhaul.

Additions to Scope of Works

As much as is economically feasible all work shall be implemented by employing Labour Intensive Construction methods. Over and above the normal Building and Allied works to be implemented by employing skilled and unskilled labour the works specified in the "Guidelines for the Implementation of Labour-Intensive Infrastructure Projects under the Expanded Public Works Programme (EPWP)" shall be undertaken using Labour Intensive Construction methods.

Employer's objectives

The employer's objectives are to deliver public infrastructure using labour intensive methods.

Labour-intensive works

Labour-intensive works comprise the activities described in SANS 1921-5, Earthworks activities which are to be performed by hand, and its associated specification data . Such works shall be constructed using local workers who are temporarily employed in terms of this Scope of Work.

Labour Intensive Competencies of Supervisory and Management Staff

Contractors having a CIDB contractor grading designation of 4GB/CE and higher shall engage, as far as is feasible, supervisory and management staff in labour intensive works who have relevant Labour Intensive Construction Qualifications or have relevant experience in Labour Intensive Construction.

The managing principal of the contractor, namely, a sole proprietor, the senior partner, the managing director or managing member of a close corporation, as relevant, having a contractor grading designation of 1GB/CE, 2GB/CE, 3GB/CE and 4GB/CE shall have, as far as is feasible, personally completed a relevant skills programme in Labour Intensive Construction or have relevant experience in Labour Intensive Construction. All other site supervisory staff in the employ of such contractors must, as far as is feasible, have completed a relevant skills programme in Labour Intensive Construction or have relevant experience in Labour Intensive Construction.

The Employer may set other conditions at their discretion which must be complied to when engaging Contractors who do

not comply with is provision.

1 Employment of Unskilled and Semi-Skilled Workers in Labour-Intensive Works

1.1 Requirements for the sourcing and engagement of labour.

1.1.1 Unskilled and semi-skilled labour required for the execution of all labour intensive works shall be engaged strictly in accordance with prevailing legislation and SANS 1914-5, Participation of Targeted Labour.

1.1.2 The rate of pay set for the SPWP is R per task or per day. (Insert value determined by public body in terms of clause 2.2 of these Guidelines)

1.1.3 Tasks established by the contractor must be such that:

a) the average worker completes 5 tasks per week in 40 hours or less; and

b) the weakest worker completes 5 tasks per week in 55 hours or less.

1.1.4 The contractor must revise the time taken to complete a task whenever it is established that the time taken to complete a weekly task is not within the requirements of 1.1.3.

1.1.5 The Contractor shall, through all available community structures, inform the local community of the labour intensive works and the employment opportunities presented thereby. Preference must be given to people with previous practical experience in construction and / or who come from households:

a) where the head of the household has less than a primary school education;

b) that have less than one full time person earning an income;

c) where subsistence agriculture is the source of income.

d) those who are not in receipt of any social security pension income

1.1.6 The Contractor shall endeavour to ensure that the expenditure on the employment of temporary workers is in the following proportions:

a) 55% women;

b) 40% youth who are between the ages of 18 and 35; and

c) 2% on persons with disabilities.

1.2 Specific provisions pertaining to SANS 1914-5

1.2.1 Definitions

Targeted labour: Unemployed persons who are employed as local labour on the project.

1.2.2 Contract participation goals

1.2.2.1 There is no specified contract participation goal for the contract. The contract participation goal shall be measured in the performance of the contract to enable the employment provided to targeted labour to be quantified.

1.2.2.2 The wages and allowances used to calculate the contract participation goal shall, with respect to both time-rated and task rated workers, comprise all wages paid and any training allowance paid in respect of agreed training programmes.

1.2.3 Terms and conditions for the engagement of targeted labour

Further to the provisions of clause 3.3.2 of SANS 1914-5, written contracts shall be entered into with targeted labour.

1.2.4 Variations to SANS 1914-5

1.2.4.1 The definition for net amount shall be amended as follows: Financial value of the contract upon completion, exclusive of any value added tax or sales tax which the law requires the employer to pay the contractor.

1.2.4.2 The schedule referred to in 5.2 shall in addition reflect the status of targeted labour as women, youth and persons with disabilities and the number of days of formal training provided to targeted labour.

1.3 Training of targeted labour

1.3.1 The contractor shall provide all the necessary on-the-job training to targeted labour to enable such labour to master the basic work techniques required to undertake the work in accordance with the requirements of the contract in a manner that does not compromise worker health and safety.

1.3.2 The cost of the formal training of targeted labour, will be funded by the provincial office of the Department of Labour. This training should take place as close to the project site as practically possible. The contractor, must access this training by informing the relevant provincial office of the Department of Labour in writing, within 14 days of being awarded the contract, of the likely number of persons that will undergo training and when such training is required. The employer must be furnished with a copy of this request.

1.3.3 A copy of this training request made by the contractor to the DOL provincial office must also be faxed to the EPWP Training Director in the Department of Public Works– Cinderella Makunike, Fax Number 012 328 6820 or email cinderella.makunike@dpw.gov.za Tel: 083 677 4026.

1.3.4 The contractor shall be responsible for scheduling the training of workers and shall take all reasonable steps to ensure that each beneficiary is provided with a minimum of six (6) days of formal training if he/she is employed for 3 months or less and a minimum of ten (10) days if he/she is employed for 4 months or more.

1.3.5 The contractors shall do nothing to dissuade targeted labour from participating in the above mentioned

training programmes.

1.3.6 An allowance equal to 100% of the task rate or daily rate shall be paid by the contractor to workers who attend formal training, in terms of 1.3.4 above.

1.3.7 Proof of compliance with the requirements of 1.3.2 to 1.3.6 must be provided by the Contractor to the Employer prior to submission of the final payment certificate.

PCL: COMMUNITY LIAISON AND COMMUNITY RELATIONS

PCL 1 GENERAL

The construction site is situated in a built-up area and the Contractor shall ensure the least possible disruption of movement of the public during construction. The Contractor shall be responsible for liaison with the Community Liaison Officer (CLO) in respect of construction activities next to private properties and entrances to properties. No separate payment will be made in this regard.

PCL 2 PROJECT STEERING COMMITTEE (PSC)

A Project Steering Committee (PSC) will be established for the project. The functions and powers of the PSC will be as approved by the Lepelle Nkumpi Local municipality.

In view of the Contract being executed in various Municipal Wards and to limit representation on the PSC, the PSC will consist of the local Ward Councillors and a total of three community representatives appointed by the Ward Councillors affected by the Works.

The Contractor will liaise with the CLO and Ward Councillors for the permanent appointment of local labour workforce for the duration of the Contract, irrelevant of the work being executed in various wards.

PCL 3 PUBLIC LIAISON OFFICER (PLO)

A Community Liaison Officer (CLO) will be appointed by the Contractor only on instruction of the Employer. In the event of an appointment of a CLO, the contractor shall, however, accept the appointment as part of his management personnel.

PCL 3.1 DUTIES OF THE CLO

The CLO's duties will be the following:

- a. The CLO will liaise with the PSC for the permanent appointment of local labour workforce for the duration of the Contract, irrelevant of the work being executed in various wards.
- b. To be available on site daily between the hours of 07:15 and 10:30 and at other times as the need arises. His normal work day will extend from 07:15 in the morning until 16:45 in the afternoon inclusive of a thirty minute lunch interval.
- c. To determine, in consultation with the Contractor, the needs of the local labour for relevant technical training. He will be responsible for the identification of suitable trainees and will attend one of each of the training sessions.
- d. To communicate with the Contractor and the Engineer to determine the labour requirements with regard to numbers and skill, to identify possible labour disputes and to assist in their resolution.

- e. To attend all meetings in which the community and/or labour is present or is required to be represented. In particular he will attend the first part of the monthly Site Meeting to report on local community labour involvement.
- f. To report to and liaise with the Project Steering Committee.
- g. To inform local labour of their conditions of employment and to inform local labourers as early as possible when their period of employment will be terminated.
- h. To ensure that all labourers who are involved in activities where tasks have been set are fully informed regarding the principle of task work.
- i. To attend disciplinary proceedings to ensure that hearings are fair and reasonable.
- j. To receive and attend to any complaints lodge by PSC and members of the community.
- k. To keep a daily written record of his interviews and community liaison.
- l. All such other duties as agreed upon between all parties concerned.
- m. To prevent any interference with any matter that is in conflict with the relevant contract as approved by the Local Municipality, that could have a direct influence on the technical specification or the conditions of contract as set out in the relevant contract documents.
- n. To ensure that no member of the PSC or any member of the community put any pressure on the consultant and/or the contractor involved to make any financial or other contribution to individuals or the community as a whole without the knowledge of the Lepelle Nkumpi Local municipality.

PCL 3.2 PAYMENT FOR THE CLO

Remuneration of the CLO will be R4 500 per month unless otherwise ordered by the Engineer. A special item is incorporated in the Schedule of Quantities relating to payment of the CLO on a monthly basis.

The Contractor shall give to the CLO, at the earliest opportunity, written notice of the termination of the project, provided always that such notice shall not be less than one month.

PTR: TRAINING

PTR 1 GENERAL

Training needs will be determined during the construction period. The Community Liaison Officer (CLO) in consultation with the Project Steering Committee (PSC) and the Engineer will identify possible training needs. The training needs will be put before Lepelle Nkumpi Local Municipality and the Engineer for approval.

LEPELLE-NKUMPI LOCAL MUNICIPALITY



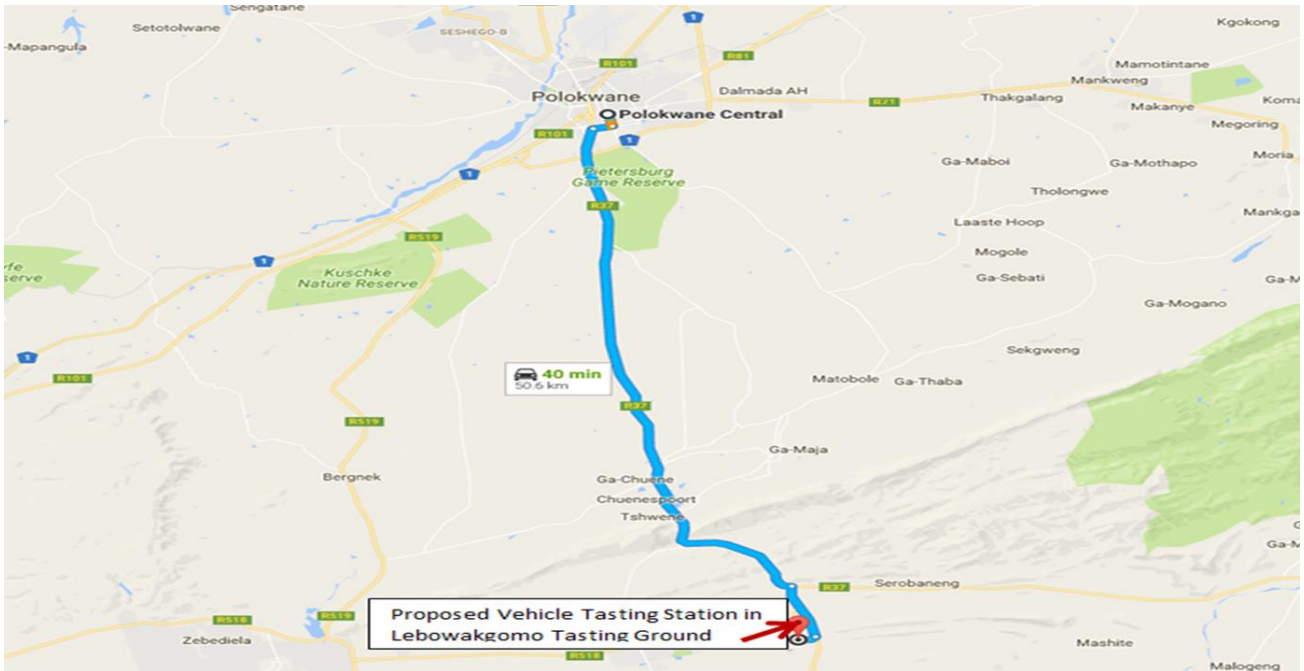
CONTRACT NO. LNM019/2020/21

THE CONSTRUCTION OF GRADE A VTS(LEBOWAKGOMO) (WARD 18)

PART C4

LOCALITY PLAN

1. C4.1: LOCALITY PLAN



C4.2: DRAWINGS

All drawings are bound in book 2

Annex C

Local Content Declaration - Summary Schedule

Note: VAT to be excluded from all calculations

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

Pula EU GBP

Calculation of local content

Tender summary

Tender item no's	List of items	Tender price - each (excl VAT)	Exempted imported value	Tender value net of exempted imported content	Imported value	Local value	Local content % (per item)	Tender Qty	Total tender value	Total exempted imported content	Total Imported content
(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C14)	(C15)	(C16)	(C17)	(C18)	(C19)
(C20) Total tender value									R 0		
Signature of tenderer from Annex B									(C21) Total Exempt imported content	R 0	
									(C22) Total Tender value net of exempt imported content	R 0	
									(C23) Total Imported content		R 0
									(C24) Total local content		R 0
Date:									(C25) Average local content % of tender		

[illegible]

Summary

[illegible]

(D19) Total exempt imported value	R 0
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Summary

Tender item no's	Description of imported content	Unit of measure	Overseas Supplier	Forign currency value as per Commercial Invoice	Tender Rate of Exchange	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT	Tender Qty	Total imported value
(D20)	(D21)	(D22)	(D23)	(D24)	(D25)	(D26)	(D27)	(D28)	(D29)	(D30)	(D31)
(D32) Total imported value by tenderer										R	

(D32) Total imported value by tenderer	R 0
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Summary

[illegible]

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

[illegible][illegible]

Signature of tenderer from Annex B

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

**This total must correspond with
Annex C - C 23**

Annex E

Local Content Declaration - Supporting Schedule to Annex C

(E1)	Tender No.				Note: VAT to be excluded from all calculations
	Tender description:				
(E3)	Designated products:				
(E4)	Tender Authority:				
(E5)	Tendering Entity name:				

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

(E10)	Manpower costs	(Tenderer's manpower cost)			R 0
(E11)	Factory overheads	(Rental, depreciation & amortisation, utility costs, consumables etc.)			R 0
(E12)	Administration overheads and mark-up	(Marketing, insurance, financing, interest etc.)			R 0
				(E13) Total local content	R 0

Signature of tenderer from Annex B

Date: